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Development of AWWA Recommendations for CCL4 Prioritization and Process

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DEVELOPMENT OF AWWA RECOMMENDATIONS FOR CCL4 PRIORITIZATION AND PROCESS

by

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Abstract

Every 5 years the USEPA is responsible to publish a list of unregulated contaminants that are known or expected to occur in public water systems in the United States that may pose a risk on public health. This list is known as a contaminant candidate list (CCL). This year it is expected that the USEPA is to publish the 4th such list of the CCL or CCL4. Candidacy to be on the CCL4 is based on a compound's occurrence in the environment, public health toxicity and recommendation from expert opinion. Methods to qualitatively determine occurrence and toxicity for compounds were developed in this research and based off USEPA methods. This process involved looking at a large range of chemicals/compounds found in the environment from varying groups such as: disinfection bi-products, pharmaceuticals, pesticides, inorganics, volatile organic compounds, industrial and cyanotoxins. These compounds may have been included on previous CCL lists or are contaminants of concern currently found in the drinking water industry.

Data approaches such as the creation of a master sheet, space diagrams and numerical algorithms ranked compounds based on occurrence and toxicity. These data approaches, along with others, were then provided to an expert panel (TAW) that considered all of these tools, in addition to others, to develop expert opinions about the top candidates for the CCL4. Results from this approach categorized the compounds and binned them into 4 groups. Of the 122 studied compounds, recommendations for the USEPA are as followed:

Group 1. Top priority for inclusion in CCL4 (7 compounds and super-group DBPs).

Group 2. Recommend inclusion on CCL4 but insufficient data currently for regulatory determination (10 compounds).

Group 3. Recommend inclusion on CCL4 based on sufficient data for negative regulatory determinations (33 compounds).

Group 4. Recommend not to include in CCL4 (56 compounds).

Abbreviations

AWWA CCL3	American Water Works Association CCL3 project
AWWA	American Water Works Association
BCIM	Bromochloroiodomethane
BCNM	Bromochloronitromethane
BDCNM	Bromodichloronitromethane
BDIM	Bromodiiodomethane
BNM	Bromonitromethane
CCL3	Contaminant candidate list 3
CCL4	Contaminant candidate list 4
CCL4NOM	Contaminant candidate list 4 nominated compounds
CDIM	Chlorodiiodomethane
CNM	Chloronitromethane
CYN	Cyanotoxin
DBCNM	Dibromochloronitromethane
DBIM	Dibromoiodomethane
DBNM	Dibromonitromethane
DBP	Disinfection byproduct
DCIM	Dichloroiodomethane
DCNM	Dichloronitromethane
DSO	Data score of occurrence
DST	Data score of toxicity
EC	Emerging contaminant
EPA	Environmental Protection Agency
HNM	Halonitromethane
INDUST	Industrial chemicals
INORG	Inorganic chemical
IRIS	Integrated Risk Information System
LD50	Lethal Dose
LOAEL	Lowest Observed Adverse Effect Level
LOAEL	Lowest observed adverse effect level
M	Magnitude
MC-LA	Microcystin-LA
MC-LR	Microcystin-LR
MC-LW	Microcystin-LW
MC-RR	Microcystin-RR
MC-YR	Microcystin-YR
MIO	Metric of importance for occurrence
MIT	Metric of importance for toxicity
MTBE	Methyl-tert-butyl-ether
Mutagen X	3-chloro-4-dichloromethyl-5-hydroxy-2(5H)-furanone
NDEA	N-nitrosodiethylamine
NDMA	N-nitrosodimethylamine
NDPA	N-Nitrosodi-n-Propylamine
NDPhA	N-nitrosodiphenylamine
NMOR	N-Nitrosomorpholine

NOAEL	No Observed Adverse Effect Level
NOEL	No observed effect level
NPIP	N-nitrosopiperidine
NPYR	N-nitrosopyrrolidine
NRC	National Research Council
P	Potency
PCCL	Preliminary contaminant candidate list
PEST	Pesticide
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctanesulfonic acid
PPCP	Pharmaceutical and personal care product
Pr	Prevalence
RDX	Research Department Explosive
RfD	Reference Dose
S	Severity
SCO	Source credibility for occurrence
SCT	Source credibility for toxicity
Sh Lst	Short list
SWDA	Safe Water Drinking Act
TAW	Technical advisory workgroup
TBNM	Tribromonitromethane
TCNM	Trichloronitromethane
THM	Trihalomethane
TIM	Triiodomethane (or iodoform)
TRI	Toxic release inventory
UCMR3	Unregulated Contaminant Monitoring Rule 3
UCMR4	Unregulated Contaminant Monitoring Rule 4
UL	Tolerable Upper Intake Level
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VOC	Volatile organic chemical

Introduction

The Safe Drinking Water Act (SDWA) protects public health by regulating the nation's public drinking water supply and its sources: rivers, lakes, reservoirs, springs, and ground water wells. The SDWA requires the U.S. Environmental Protection Agency (USEPA) to publish a list every five years of unregulated contaminants that are known or expected to occur in public water systems in the US that may pose a risk in drinking water (USEPA, 2012). This list is known as the Contaminant Candidate List (CCL) and is the first step in evaluating drinking water contaminants. The USEPA is currently in the process of developing the fourth such list or CCL4. The contaminants on this list are given further evaluation to better understand potential health effects and at what levels they occur in drinking water by collecting occurrence and toxicity data. These contaminants are then subject to regulatory determination, that is, an USEPA decision of whether each compound should be regulated or not.

Section 1412(b)(1)(A) of the SDWA specifies three criteria for USEPA to consider when identifying contaminants for potential regulation:

1. The contaminant may have an adverse effect on the health of persons (toxicity);
2. The contaminant is known or there is a substantial likelihood that the contaminant will occur in public water systems with a frequency and at levels of public health concern (occurrence); and
3. In the sole judgment of the USEPA Administrator, regulation of such contaminant presents a meaningful opportunity for health risk reduction for persons served by public water systems (expert opinion).

Currently, the USEPA in the process of soliciting nominations for both chemical and biological contaminants for the CCL4 and is also requesting supporting information regarding toxicity and occurrence for each compound.

The overall purpose of this project is to proactively develop an independent prioritization and compounds selected for the CCL4 in parallel to the USEPA CCL4. This "alternative CCL4 list" will allow the American Water Works Association (AWWA) to respond quickly and rationally to the USEPA with respect to CCL4 compounds. In order for the alternate CCL4 list to be jointly compared to the USEPA CCL4 compounds, this project will use USEPA methods for prioritization but also using a modified approach. While the USEPA bases its assessment on the *highest priority* value for each attribute, AWWA felt that inclusion of a broader set of data were warranted in making specific CCL4 recommendations. The two lists will likely include compounds in common, and also compounds that only occur on one or the other list. With this research the AWWA can add input on regulatory determinations for CCL3, provide input on CCL4 contaminants and decide which compounds receive Unregulated Contaminant Monitoring Rule (UCMR) monitoring. By fulfilling the project purpose, it was intended to provide a useful tool to

1) identify the unregulated compounds the water industry determines are of particular concern related to public health,
2) develop independent toxicity (potency (P)) and occurrence (magnitude (M) and prevalence (Pr)) data pertinent in determination of risk;
3) provide a tool for a rapid, thoughtful, and data-driven response to the USEPA's CCL4 once released;
4) provide useful information to USEPA for development of a CCL4 Research Plan

Project Objectives

The purpose of this report is to communicate findings, recommendations and to assist the USEPA to understand the drinking water community's priorities and expert opinion. Specific objectives of this project were to:

1. Develop a comprehensive dataset (Master Sheet) for drinking water of concentration-based occurrence data and toxicity relevant to the protection of public health;
2. A strategy for maintaining this Master Sheet for future evaluations of contaminants of concern;
3. By using Micosoft Excel VBA programming, develop risk assessments (space diagrams) for compounds of potential regulatory interest and relevant to the drinking water industry;
4. Develop report(s), presentation(s) and paper(s) to communicate AWWA positions in support of the water industry to USEPA and other stakeholders.

Approach

A significantly different approach was used in this study as compared with the USEPA approach to developing attributes for a compound. The USEPA approach was to take the highest priority datum and assign that value as the attribute (Potency, Severity, Magnitude, Prevalence) for the compound based on a well-defined hierarchy (USEPA 2009). In our study, we developed and compiled numerous data sources for each compound and retained all these data throughout the analyses (e.g., space diagrams, reference algorithms, expert opinion, etc.). This allowed examination of the spread of the data, quantity of the data, and quality of the data. This research approach to be used will be developed in conjunction with AWWA to assure the project is completed. For each compound, a step-by-step approach is outlined below and graphically shown in Figure 1 as a flow diagram.

1. Develop list of chemicals for this study.
2. Collect occurrence and toxicity data for each compound. Data is obtained from a wide range of published and unpublished (e.g., academic, governmental, and utility databases, studies, and research groups).
3. Develop criteria and weighting for normalization of occurrence and toxicity data. This method will follow USEPA methods for normalization.
4. Generate a space diagram for each compound to graphically display data.
5. Rank compounds using normalized attributes and varied algorithms.
6. Analyze data to develop risk assessments for each study compound.
7. Categorize compound into 1 of the 4 priority groups based on TAW recommendations

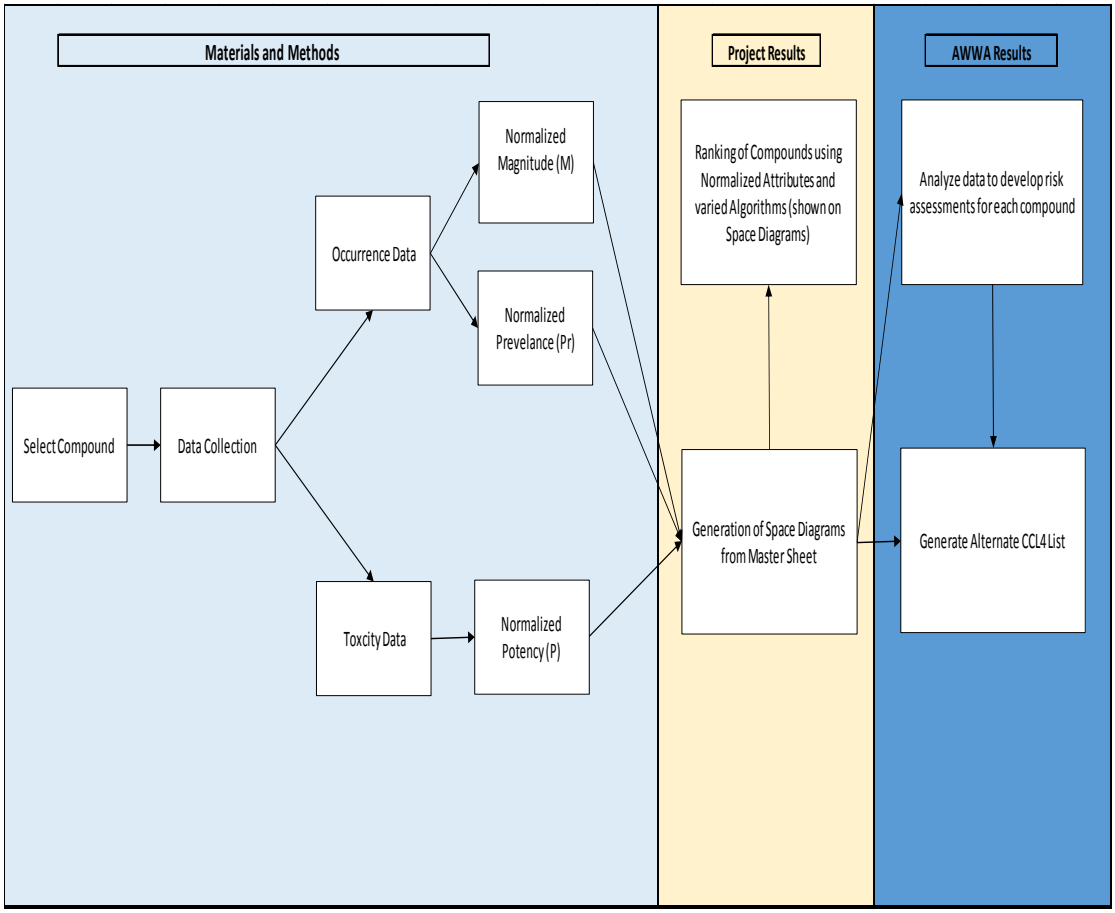


Figure 1. Flow Schematic Outlining Approach for each Compound

Technical Advisory Workgroup and Workshop

An AWWA CCL4 workshop transpired in the offices of the AWWA in Washington, D.C. on January 28 to 30, 2014 to utilize expert opinion in developing recommendations related to CCL4. The workshop participants were members of the AWWA CCL4 Technical Advisory Workgroup (TAW) and were active throughout the entire project including prior to the workshop itself. Many of these members were vital in acquiring journal articles with occurrence and toxicity data to fulfill project objectives. The workshop included the three project leads (A. Roberson (AWWA), J. Rosen (Corona Environmental) and C. Adams (Utah State University)); a graduate research assistant (R. Bench USU); and AWWA CCL4 TAW members: Adam Carpenter (AWWA), Dave Cornwell (EE&T, Inc.), Joe Cotruvo (Cotruvo and Associates), Andy Eaton (Eaton Eurofins U.S.), Cynthia Garcia (City of Peoria, AZ), Chuck Hertz (Aqua America), Gary Lynch (Park Water Company), Rick Sakaji (East Bay MUD), Chad Seidel (Corona Environmental), Terry Slifko (Metropolitan Water District of Southern California), Bob Tardiff (Toxicologic Consultative Service). The CCL4 TAW members at the workshop included representatives of the water industry, consultancies, academia, analytical laboratories, and AWWA, with expertise in toxicology, analytical methods, occurrence monitoring, utility operations, regulation, and other areas.

This project was funded by the Water Industry Technical Action Fund (WITAF). WITAF is administered by AWWA and is funded through AWWA organizational members' dues. WITAF funds information collection and analysis and other activities in support of sound and effective legislation, regulation and drinking water policies and programs.

Literature Review

The literature review is based on the selected compound groups for this project. Each compound will fall under one of the seven groups described below. A descriptive review of each group will help recognize how these compounds originate and potential concerns to public health.

Pharmaceuticals and Personal Care Products

Pharmaceuticals and Personal Care Products (PPCPs) as pollutants refers, in general, to any product used by individuals for personal health, cosmetic reasons or used by agriculture to enhance growth or health of livestock. PPCPs comprise a diverse collection of thousands of chemical substances, including prescription and over-the-counter therapeutic drugs, veterinary drugs, fragrances, and cosmetics. PPCPs have been present in water and the environment for as long as humans have been using them. The drugs that we take are not entirely absorbed by our bodies, and are excreted and passed into wastewater and surface water (USEPA, 2014).

A major concern with PPCPs is that certain synthetic and natural compounds could mimic natural hormones in the endocrine systems of animals. These substances are now collectively known as endocrine-disrupting compounds (EDCs), and have been linked with PPCPs. Numerous studies have shown that conventional drinking and wastewater treatment plants can not completely remove many EDCs and PPCPs (Synder, et al.; 2003). Acute toxicity tests have generally failed to detect the subtle action elicited by those compounds at environmentally relevant concentrations, but effects may occur at concentrations lower than expected due to synergistic effects between the difference PPCPs, especially in fish (Schnell, et al.; 2009).

Pesticides

Pesticide is a composite term that includes all chemicals that are used to kill or control pests. In agriculture, this includes herbicides, insecticides, fungicides, and rodenticides. Because of their widespread distribution and toxic nature, pesticides have become an important class of water pollutants today. Fish kills caused by various pesticides have been reported on a global scale (Eichelberger, et al.; 1971). Pesticides are introduced into the environment from a number of sources-industrial effluents, agricultural runoff and chemical spills.

There are currently a few regulated pesticides in drinking water but the USEPA has developed human health benchmarks for approximately 363 pesticides. Pesticides continue to be a topic of discussion as pesticides have been shown on previous CCL lists.

Disinfection by-Products

Disinfection by-products (DBPs) are formed in distribution systems and water treatment plants by the reaction of disinfectants, such as chorine and chloramines, with organic matter. Other by-products from non-chlorinated disinfectants, such as ozone, also produce DBPs like bromate, a potent carcinogen. Presently, there are over 600 water DBPs in chlorinated tab water (Richardson, 2002). DBPs are best controlled prior to their formation in drinking water plants by eliminating the natural organic matter in raw-water sources through specific treatment processes. More than three decades of research has suggested a link between chlorination of water and adverse human health effects. DBPs are linked to effects such as bladder cancer, miscarriages, stillbirths and birth defects (Reynolds, 2010).

The USEPA has set drink water regulations for two DPBs groups- total trihalomethanes and total haloacetic acids. The MCL is set for the sum of concentrations for all compounds in the group but not individually. Bromate and chlorite (haloacetic acids) are the only two compounds that are regulated.

Inorganic

Inorganic compounds can be defined as inanimate, not biological, that lack carbon molecules; though there are some examples of inorganics that do not apply to these terms, like CO_2. A current concern in the water industry for inorganic is the potential for the accumulation and intermittent release of trace inorganics and radionuclides, which are resulted in at-the-tap concentrations much higher than their drinking water standards. This causes the need for a more in depth look at monitoring, as well as the potential for acute and sub-chronic exposure limits and associated health impacts of inorganics (Friedman, et al.; 2010). Since inorganics are such a large group of compounds (i.e. any compound that doesn't contain carbon); this report will focus on Cesium 137, Manganese, Molybdenum, Radon, Strontium, Tellurium and Vanadium.

The USEPA currently regulates 16 inorganic compounds in drinking water. Some of these chemicals have been and are still currently being studied extensively in the water industry, such as arsenic, nitrate, and cadmium.

Cyanotoxins

Cyanobacteria, often referred to as "blue-green algae" are a group of microscopic bacteria that are photosynthetic. Their photosynthetic properties help them bloom in warm water temperatures with optimal sunlight and rich nutrients. Blooms of cyanobacteria have recently become spatially and temporally more prevalent in the United States as a consequence of increasing nutrient levels such as nitrates and phosphates from fertilizers and detergents (Antoniou, et al.; 2005). **Figure *2.* "Pea Soup" algal bloom due to nutrient loading. Ref: http:www.co.lake.ca.us**Figure 2 below shows an example of a cyanotoxin algae bloom. Cyanotoxins are the chemicals produced by cyanobacteria and if water containing high concentrations of cyanobacteria is ingested in drinking water or accidentally during recreation,

they present a risk to human health (Ingrid, 1999). These health effects include illnesses, skin irritation, flu-like symptoms, and headaches. The vast amount of available information on health relates to animals, which typically have much higher exposures to cyanobacteria (USEPA, 2012). Not all cyanobacteria are capable of producing toxins but for this study we will look at compounds that have public interest due to their health related issues such as Microsystin-LR, Anatoxin-a, and Cylindrospermospsin (CLL3).

Figure 2. "Pea Soup" algal bloom due to nutrient loading. Ref: http:www.co.lake.ca.us

Volatile Organic Compounds

Volatile organic compounds (VOCs) have a molecular make-up containing carbon and chemical properties that allow it to be present as a gas under typical room temperature (AWWA, 2015). VOCs are contaminants of concern because they are typically found in ground water sources that tend to persist and migrate to drinking-water wells (USGS, 2002). They can also be released into the environment in large volumes and therefore need to be continually monitored for changes in occurrence. VOCs are not usually found in drinking water that comes from surface

water sources such as lakes, reservoirs or streams. There are currently 23 regulated VOCs, and 8 are described as human carcinogens, or probably or possible carcinogens. (AWWA, 2015).

Industrial Compounds

Industrial facilities continue to dump millions of pounds of toxic chemicals into America's rivers, streams, lakes and ocean waters each year – threatening both the environment and human health. According to the USEPA, pollution from industrial facilities is responsible for threatening or fouling water quality in more than 14,000 miles of rivers and more than 220,000 acres of lakes, ponds and estuaries nationwide. Many of these sources feed directly into drinking water plants (Kerth, 2012).

The USEPA has a toxic release inventory (TRI) database that reports chemical releases from plants, factories, and other facilities. TRI database gives units of pounds per chemical released into the environment, but does not outline occurrence in water bodies nor toxicity issues to public health. The continued release of large volumes of toxic chemicals into the nation's waterways shows that industrial compounds still need to be looked at to assure a clean environment and to understand any health effects from these chemicals.

Methods and Materials

The methods and materials section will provide detail to each item listed in the approach.

Selection of Compounds

Compounds for inclusion for this project are based on the expert opinion of the CCL4 TAW members. Considerations included health effects, occurrence, treatability, availability of analytical methods, and other factors. Considerations resulted in the following groups of compounds to be included in the project:

1. Compounds selected from USEPA's nominated CCL4 Nominated Compounds list (CCL4NOM);
2. Compounds on USEPA's short list of contaminants from CCL3 being considered and evaluated for regulatory determinations (CCL3 Sh Lst);
3. Additional compounds determined to be "higher" risk in the AWWA Risk Indices for CCL3 project (AWWA CCL3); and
4. Additional emerging contaminants (EC) selected with input from the CCL TAW (e.g., iodo-disinfection byproducts, other DBPs (e.g., halonitromethanes), additional cyanotoxins, and additional pharmaceutical and personal care products), endocrine disrupting compounds, etc.).

This list is not limited to any number of compounds or to any number of compounds per group. The compounds selected to this project by TAW members are alphabetically listed in Table 1 with category and CAS #, and summarized by each group in

Table ***2***. The chemical groups and subgroups chosen were:

1. Cyanotoxins (with subgroups microcystins and saxitoxins);
2. Disinfection byproducts (DBPs) (with subgroups iodomethanes (IM), halonitromethanes (HNM), and nitrosamines);
3. Industrial chemicals (with subgroups alkylphenols, alkylphenol ethoxylates, fluoro surfactants, phthalates);
4. Selective Inorganic chemicals;
5. Pesticides (with subgroups fungicides, herbicides, herbicide/acetochlor + degradates, herbicide/alachlor + degradates, herbicide/metolachlor + degradates, insecticides, herbicide/terbufos + degradates);

6. Pharmaceuticals and personal care products (with subgroups antibiotics, antidepressants, herbicides, hormones, lipid regulators, nonsteroidal anti-inflammatory drugs (NSAID), pain relievers (not NSAID);
7. Volatile organic chemicals (VOCs).

Table 1. CCL4 List of Compounds

List of 122 AWWA CCL4 project compounds sorted alphabetically with category and CAS # (Note: CCL4NOM = Preliminary CCL4 nomination list of compounds; AWWA CCL3 = Selected compounds from AWWA CCL3 project (Roberson *et al.*; 2009); CCL3 Sh Lst = USEPA CCL3 short list; EC = Emerging contaminants selected by project)

No.	Common Name - Registry Name	Category	CAS #
1	1,1,1,2-Tetrachloroethane	CCL3 Sh Lst	630-20-6
2	1,1-Dichloroethane	AWWA CCL3	75-35-4
3	1,2,3-Trichloropropane	AWWA CCL3	96-18-4
4	1,3-Dinitrobenzene	CCL3 Sh Lst	99-65-0
5	1,4-Dioxane	CCL3 Sh Lst	123-91-1
6	3-chloro-4-dichloromethyl-5-hydroxy-2(5H)-furanone	CCL4NOM	77439-76-0
7	3-Hydroxycarbofuran	AWWA CCL3	1665-82-6
8	Acetaminophen	EC	103-90-2
9	Acetochlor	CCL3 Sh Lst	34256-82-1
10	Acetochlor ESA	CCL3 Sh Lst	187-022-11-3
11	Acetochlor OA	CCL3 Sh Lst	194992-44-4
12	Acrolein	AWWA CCL3	107-02-8
13	Alachlor	CCL3 Sh Lst	15972-60-8
14	Alachlor ESA	CCL3 Sh Lst	140939-15-7
15	Alachlor OA	CCL3 Sh Lst	171262-17-2
16	Aldicarb	CCL4NOM	116-06-3
17	Alkylphenol mono- to tri-oxylates	CCL4NOM	68555-24-8
18	Alpha-Hexachlorocyclohexane	CCL4NOM	319-84-6
19	Amoxicillin	CCL4NOM	26787-78-0
20	Anatoxin A	EC	64285-06-9
21	Azinphos-methyl	CCL4NOM	86-50-0
22	Bacitracin zinc	CCL4NOM	1405-89-6
23	Bentazone	CCL4NOM	25057-89-0
24	Benzyl butyl phthalate	CCL4NOM	85-68-7
25	Bisphenol A	CCL4NOM	80-05-7
26	Bromoxynil	CCL4NOM	1689-84-5
27	Butylated hydroxyanisole (BHA)	AWWA CCL3	25013-16-5
28	Carbaryl	CCL4NOM	63-25-2
29	Cesium 137	CCL4NOM	10045-97-3
30	Chlorate	CCL3 Sh Lst	14866-68-3

31	Chlorothalonil	CCL4NOM	1897-45-6
32	Chlorpyrifos	CCL4NOM	2921-88-2
33	Ciprofloxacin	EC	85721-33-1
34	Cylindrospermopsin	EC	143545-90-8
35	Dibutyl phthalate	CCL4NOM	84-74-2
36	Dicamba	CCL4NOM	1918-00-9
37	Dichlorvos	CCL4NOM	62-73-7
38	Dicofol	CCL4NOM	115-32-2
39	Dicyclohexyl phthalate	CCL4NOM	84-61-7
40	Diethyl phthalate	CCL4NOM	84-66-2
41	Di-isononyl phthalate	CCL4NOM	28553-12-0
42	Dimethoate	CCL3 Sh Lst	60-51-5
43	Dimethyl phthalate	CCL4NOM	131-11-3
44	Di-n-octyl phthalate	CCL4NOM	117-84-0
45	Disulfoton	CCL3 Sh Lst	298-04-4
46	Diuron	CCL3 Sh Lst	330-54-1
47	Endosulfan	CCL4NOM	115-29-7
48	Erythromycin	EC	114-07-8
49	Ethoprophos	AWWA CCL3	13194-48-4
50	Fluometuron	CCL4NOM	2164-17-2
51	Fluoxetine	EC	5491-89-3
52	Gemfibrozil	EC	25812-30-0
53	Ibuprofen	EC	15687-27-1
54	Linezolid	CCL4NOM	165800-03-3
55	Linuron	CCL4NOM	330-55-2
56	Malathion	CCL4NOM	121-75-5
57	Manganese	CCL4NOM	7439-96-5
58	MC-LA	EC	96180-79-9
59	MC-LR	EC	101043-37-2
60	MC-LW	EC	157622-02-1
61	MC-RR	EC	111755-37-4
62	MC-YR	EC	101064-48-6
63	Methicillin	CCL4NOM	61-32-5
64	Methyl bromide	AWWA CCL3	74-83-9
65	Methyl chloride	AWWA CCL3	74-87-3
66	Methyl parathion	CCL4NOM	298-00-0
67	Methyl tertiary butyl ether (MTBE)	CCL4NOM	1634-04-4
68	Metolachlor	CCL3 Sh Lst	51218-45-2
69	Metolachlor OA Degradates	CCL3 Sh Lst	152019-73-3
70	Metolachlor ESA	CCL3 Sh Lst	947601-85-6
72	Molinate	CCL3 Sh Lst	2212-67-1
73	Molybdenum	CCL3 Sh Lst	7439-98-7
74	Naproxen	EC	22204-53-1
75	NDEA	CCL3 Sh Lst	7261-97-4
76	NDMA	CCL3 Sh Lst	68392-35-8
77	NDPA	CCL3 Sh Lst	621-64-7
78	NDPhA	CCL3 Sh Lst	86-30-6

79	Nitrobenzene	CCL3 Sh Lst	98-95-3
80	Nonylphenol	CCL4NOM	25154-52-3
81	Nonylphenol ethoxylate	CCL4NOM	9016-45-9
82	n-Propylbenzene	AWWA CCL3	103-65-1
83	NPYR	CCL3 Sh Lst	930-55-2
84	Octylphenol	CCL4NOM	27193-28-8
85	Octylphenol ethoxylate	CCL4NOM	9036-19-5
86	Oxacillin	CCL4NOM	66-79-5
87	Penicillin	CCL4NOM	61-33-6
88	Perchlorate	AWWA CCL3	14797-73-0
89	Perfluorooctanoic acid (PFOA)	CCL4NOM	335-67-1
90	Permethrin	CCL4NOM	52645-53-1
91	Perfluorooctanoic sulfonate (PFOS)	CCL3 Sh Lst	1763-23-1
92	Phosmet	CCL4NOM	732-11-6
93	Progesterone	CCL4NOM	57-83-0
94	Radon	CCL4NOM	14859-67-7
95	RDX	CCL3 Sh Lst	121-82-4
96	Saxitoxin	EC	35523-89-8
97	Saxitoxin related PST	EC	
98	sec-Butylbenzene	AWWA CCL3	135-98-8
99	Spiramycin	CCL4NOM	8025-81-8
100	Strontium	CCL3 Sh Lst	7440-24-6
101	Sulfamethazine	EC	57-68-1
102	Sulfamethoxazole	EC	723-46-6
103	Tellurium	AWWA CCL3	13494-80-9
104	Terbufos	CCL3 Sh Lst	13071-79-9
105	Terbufos Sulfone	AWWA CCL3	56070-16-7
106	Testosterone	CCL4NOM	58-22-0
107	Trichlorfon	CCL4NOM	52-68-6
108	Triclocarban	CCL4NOM	101-20-2
109	Triclosan	CCL4NOM	3380-34-5
110	Tylosin	CCL4NOM	1401-69-0
111	Vanadium	CCL3 Sh Lst	7440-62-2
112	Vancomycin	CCL4NOM	1404-90-6
113	Virginiamycin	CCL4NOM	11006-76-1
114	DCIM	EC	594-04-7
115	BCIM	EC	124-48-1
116	DBIM	EC	593-94-2
117	CDIM	EC	638-73-3
118	BDIM	EC	557-95-9
119	TIM	EC	75-47-8
120	BDCNM	EC	918-01-4
121	DBCNM	EC	1184-89-0
122	Chloropicrin	EC	76-06-2

Table 2. CCL4 Compounds by Group

DBP's	Cyanotoxins	Industrial	Inorganic	Pesticide	PPCP	VOC
3-chloro-4-dichloromethyl-5-hydroxy-2(5H)-furanone	Anatoxin A	1,4-Dioxane	Cesium 137	3-Hydroxycarbofuran	Acetaminophen	1,1,1,2-Tetrachloroethane
Chlorate	Cylindrospermopsin	Acrolein	Manganese	Acetochlor	Amoxicillin	1,1-Dichloroethane
NDEA	MC-LA	Alkylphenol mono- to tri-oxylates	Molybdenum	Acetochlor ESA	Bacitracin zinc	1,2,3-Trichloropropane
NDMA	MC-LR	Benzyl butyl phthalate	Radon	Acetochlor OA	Ciprofloxacin	1,3-Dinitrobenzene
NDPA	MC-LW	Bisphenol A	Strontium	Alachlor	Erythromycin	Methyl bromide
NDPhA	MC-RR	Butylated hydroxyanisole (BHA)	Tellurium	Alachlor ESA	Fluoxetine	Methyl chloride
NPYR	MC-YR	Dibutyl phthalate	Vanadium	Alachlor OA	Gemfibrozil	Methyl tertiary butyl ether (MTBE)
DCIM	Microcystin	Dicyclohexyl phthalate		Aldicarb	Ibuprofen	Nitrobenzene
BCIM	Saxitoxin	Diethyl phthalate		Alpha-Hexachlorocyclohexane	Linezolid	
DBIM	Saxitoxin related PST	Di-isononyl phthalate		Azinphos-methyl	Methicillin	
CDIM		Dimethyl phthalate		Bentazone	Naproxen	
BDIM		Di-n-octyl phthalate		Bromoxynil	Oxacillin	
TIM		Nonylphenol		Carbaryl	Penicillin	
BDCNM		Nonylphenol ethoxylate		Chlorothalonil	Progesterone	
DBCNM		n-Propylbenzene		Chlorpyrifos	Spiramycin	
Chloropicrin		Octylphenol		Dicamba	Sulfamethazine	
		Octylphenol ethoxylate		Dichlorvos	Sulfamethoxazole	
		Perchlorate		Dicofol	Testosterone	
		Perfluorooctanoic acid (PFOA)		Dimethoate	Triclocarban	
		Perfluorooctanoic sulfonate (PFOS)		Disulfoton	Triclosan	
		RDX		Diuron	Tylosin	
		sec-Butylbenzene		Endosulfan	Vancomycin	
				Ethoprophos	Virginiamycin	
				Fluometuron		
				Linuron		
				Malathion		
				Methyl parathion		
				Metolachlor		
				Metolachlor OA Degradates		
				Metolachlor ESA		
				Molinate		
				Permethrin		
				Phosmet		
				Terbufos		
				Terbufos Sulfone		
				Trichlorfon		

Data Research and Collection

The two most important data characteristics for each compound are related to occurrence and toxicity. Occurrence is defined in this report as a compound's magnitude i.e. concentration; and prevalence i.e. how prevalent it is found in the environment. Toxicity is a measure of the adverse health effects from that compound. All data is found from various sources ranging from online journal articles, USEPA websites, and large databases. A variety of sources are needed in order to find at least 2-3 data points for each compound. The large databases that have occurrence and toxicity data were critical for this project. These large references are: Unregulated Contaminant Monitoring Rule (UCMR) 1-4, contaminant information sheets (dossiers) and USEPA databases. All occurrence data collected is categorized into two sections, project data and USEPA data. USEPA data also includes the large references mentioned above and any AWWA CCL3 data. The project data includes all journal or peer reviewed article.

Occurrence Data

The occurrence of a compound can be found in a variety of water sources and at different concentrations. Occurrence data from 5 different water sources were collect with each water source differing in significance for this project. The following water sources are listed from most to least important:

1. Drinking Water
2. Raw Water (defined in UCMRs and categorized with surface water for this report)
3. Surface Water
4. Ground Water
5. Wastewater

For this project we are mainly focused on drinking and surface waters, but data will be collected from ground and wastewater if found.

The following data parameters for occurrence are as follows:

1. Max
2. Median (50^{th} Percentile)
3. 75^{th} percentile
4. Any 90-99^{th} percentiles data
5. Frequency detections (%)

If a source provided one data points i.e. meaning the max, median, or any percentile were all the same value; then the data point was treated as a max value for the report.

Occurrence Data Quality Measures

Some sources are more reliable than others; therefore, are given a different data metric score. For example, a less reliable reference with groundwater data will have a different metric score than a more reliable reference with drinking water data. This score, ranging from 0 to 1 (1 being the highest), represents the size of the data point on the space diagram plot.

The score of each occurrence data point involves the metric importance of occurrence (MIO) crossed with source credibility of occurrence (SCO). The MIO is ranked based on the water source and data parameter, and the SCO score is based on reference credibility. Scores for MIO and SCO are show in table 3.

Table 3. Occurrence Metric Scoring Protocol for MIO and SCO.

MIO Score	Description
1	(Least important) All Wastewater data parameters
2	Median-95th percentiles in raw and surface water; plus all groundwater data parameters
3	Median-95th percentiles in finished water
4	Frequency detections, 95-99th percentiles, and maximum concentration in raw and surface water
5	(Most important) Frequency detections, 95th-99th percentiles, and maximum concentration in finished water
SCO Score	**Description**
1	(Least important) Other sources
2	Lower quality and/or less comprehensive peer-reviewed literature
3	Higher quality and/or more comprehensive peer-reviewed literature (often from known researchers)
4	(Most important) All government sources and studies (UMCR, USGS, EPA, DOSSIERS)

The metric occurrence score is found by multiplying the MIO by the SCO divided by 20. This helps give all data points an equal value range between 0 and 1.

Toxicity Data

The toxicity of a compound is defined by the USEPA as the risk of adverse health effects resulting from exposure to chemicals in the environment (USEPA, 2014). The USEPA has taken the lead in assessing these risks by setting up the National Research Council (NRC), Integrated Risk Information System (IRIS), other programs to give quantitate values to toxicity. All toxicity data for this project will be from the USEPA, UCRM 1-4, and Dossiers. Special caution was needed while collecting toxicity data because the same data could be found in all three sources since most toxicity data stems from the USEPA databases. Any compounds that do not have a data point for toxicity were assigned a normalized value by the TAW. The data parameters gathered for toxicity are as follows:

1. Oral Reference Dose (Rfd) values (mg/kg–d)
2. No Observed Adverse Effect Level (NOAEL)
3. Lowest Observed Adverse Effect Level (LOAEL)
4. Lowest Oral LD50

5. USEPA Lifetime Cancer Risk, 10^-4

Toxicity Data Quality Measures

Metric scoring for toxicity data can be found in Table 4 . Metric importance of Toxicity (MIT) and source credibility of toxicity (SCT) were evaluated similar to occurrence. The MIT scores range from 1 to 4 with 4 being the highest and the SCT score from 1 to 2. The metric toxicity score for each data point are valued between 0 and 1 similar to metric occurrence data score.

(MIT X SCT) / 8

Table 4. Toxicity Metric Scoring Protocol for MIT and SCT.

MIT Score	Description
1	EPA Lifetime Cancer Risk, 10^-4
2	Lowest Oral LD50
3	No Observed Adverse Effect Level (NOAEL), Lowest Observed Adverse Effect Level (LOAEL)
4	Rfd values
SCT Score	Description
1	TAW recommended values
2	USEPA Data

Final Data Point Score

In order for a data point to be on the plot it must have an X and Y value (occurrence data point and toxicity data point). Now that the data points are scored similarly (from 0 to 1), the occurrence data point and toxicity data points are crossed with each other by using the geometric mean between the two metric scores. This final data point score determines the size and shape of the data point on the plot. Figure 3 is an example of data point sizes with values from 0-0.5 being the lowest; 0.5-0.75 showing middle size, and 0.75-1.00 having the largest symbol on the plot.

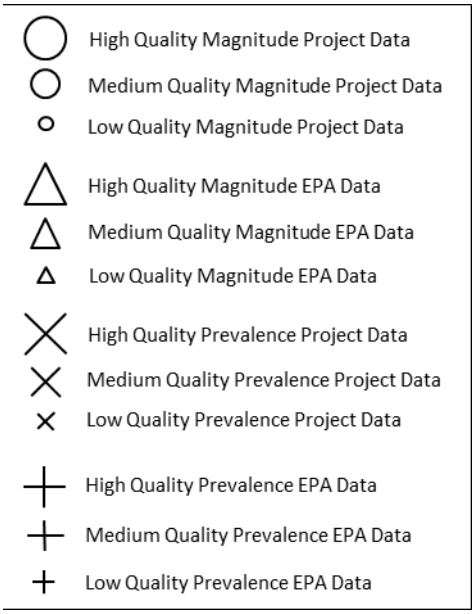


Figure 3. Data point Symbol and Size for Space Diagram Plots

Attributes and Normalization

All data values need to be normalized with a number ranging from 1-10 (10 being the highest) so that all data can be compared equally. For compounds with sufficient data, our approach was to use the USEPA attribute system and normalization equations. Specifically, these attributes are: Potency (P), Magnitude (M) and Prevalence (Pr) (EPA 815-R-09-008 (USEPA 2009a)). Severity (S) was not used due to reasons cited below. With this, the results were more consistent to, comparable to and interpretable by the USEPA by using their own system. Also, it is more enlightening to differentiate toxicity as potency (P), and occurrence into prevalence (Pr) and magnitude (M), as each has a very different meaning and impact on risk.

Potency Normalization

Potency "is a value that indicates the power of a contaminant to cause adverse health effects" (USEPA 2009). Sources for potency data values will come from USEPA databases and TAW recommended normalized values for compounds that have vacant data points. The parameters used by the USEPA for potency data points are:

- Reference Dose (RfD) or equivalent,
- No Observed Adverse Effect Level (NOAEL),
- Lowest Observed Adverse Effect Level (LOAEL),
- Rat oral median Lethal Dose (LD50), and
- Cancer potency (concentration in water equivalent to a 10-4 cancer risk).

In order to give credit to the method used to normalize each potency data point the normalization equations will be consistent with USEPA normalization criteria shown below.

The USEPA normalized these data to a scale from 1 (lowest P) to 10 (highest P) using the equations (USEPA, 2009):

- RfD Score = 10 - (Log_{10} of RfD + 7)
- NOAEL Score = 10 - (Log_{10} of NOAEL + 4)
- LOAEL Score = 10 - (Log_{10} of LOAEL + 4)
- LD_{50} Score = 10 - (Log10 of LD_{50} + 2)
- 10^{-4} cancer risk Score = 10 - (Log_{10} of the 10^{-4} cancer risk + 6)

In some cases, related data were normalized using these same normalization equations, and the resulting normalized P values were assigned a lower quality score. Quantitative values for normalized RfD, NOAEL, LOAEL, LD50 and cancer risk are presented in **Error! Reference source not found.**.

Table 5. Potency attribute normalization scoring used by USEPA (USEPA, 2009) and in this AWWA CCL4 study.

Score	RfD (mg/kg·d)	LOAEL/NOAEL (mg/kg·d)	LD50 (mg/kg)	10^{-4} Cancer Risk
10	0 - 3.16E-07	0 - 3.16E-04	0 - 3.16E-02	0 - 3.16E-06
9	3.17E-07 - 3.16E-06	3.17E-04 - 3.16E-03	3.17E-02 - 3.16E-01	3.17E-06 - 3.16E-05
8	3.17E-06 - 3.16E-05	3.17E-03 - 3.16E-02	0.32 - 3.16E+00	3.17E-05 - 3.16E-04
7	3.17E-05 - 3.16E-04	3.17E-02 - 3.16E-01	3.17 - 3.16E+01	3.17E-04 - 3.16E-03
6	3.17E-04 - 3.16E-03	0.32 - 3.16E+00	31.7 - 3.16E+02	3.17E-03 - 3.16E-02
5	3.17E-03 - 3.16E-02	3.17 - 3.16E+01	317 - 3.16E+03	3.17E-02 - 3.16E-01
4	3.17E-02 - 0.32	31.7 - 3.16E+02	3.17E+03 - 3.16E+04	0.32 - 3.16
3	0.32 - 3.16	317 - 3.16E+03	3.17E+04 - 3.16E+05	3.17 - 31.60
2	3.17 - 31.60	3.17E+03 - 3.16E+04	3.17E+05 - 3.16E+06	31.7 - 316.00
1	31.7 - >31.7	3.17E+04 - >31,700	3.17E+06 - >3,160,000	317 - >317

Since our approach was to include all toxicity data found and not just the highest quality data used by the USEPA, inclusion of a comprehensive set of P data (as well as M and Pr) in the study was desirable. For compounds for which the RfD, NOAEL, LOAEL, LD_{50}, and cancer risk were not available, other approaches were required to assign potency. For these compounds, a lower data quality score was assigned. Specifically, medium quality potency data in the study included P data where data values came from USEPA but were not consistent with USEPA normalization criteria (USEPA 2009a). The RfD scoring equation was used to normalize the values. Categories of "medium" quality potency data include the following:

- Oral Slope Factor (mg/kg-d)
- Minimum risk level (ATSDR) (mg/kg-d)
- Supplemental NOEL (mg/kg-d),
- Lowest oral chronic level (RTECS) (mg/kg-d),
- Slope factors $(mg/kg\text{-}d)^{-1}$,
- Tolerable daily intake (mg/kg-d),
- Maximum acceptable daily intake (mg/kg-d), and

- LEL (IRIS) (mg/kg-d).

Severity Normalization

Severity (S) refers to the relative impact of an adverse physiological change caused by a xenobiotic chemical in humans or animals on the ability of the human or animal to function and survive in the environment. The USEPA used S as one of the four chemical attributes in ranking CCL3 compounds (USEPA, 2009). Severity is ranked from 1 to 10 corresponding to no adverse effect, to cosmetic effects, to reversible effects, to cellular damage, to significant functional changes, to irreversible non-lethal effects, to reproductive effects, to disorders leading to death, and, finally, to death itself

It was decided in this project that a separate expert panel would be required to assign S values for each study compound. Due to the difficulty, expertise, and time associated with assigning S values to all of the study compounds, this study did not attempt to do so, and by default, assigned a severity of unity to all compounds.

Exception could be taken by excluding S in the study. However, by inclusion of potency (P) grouped by high, medium, and low quality, the toxicity of the compounds could be adequately assessed. The adverse impact on the process of incorrect assignment of S values would be more detrimental than by the exclusion of S as an attribute altogether.

Prevalence Normalization

Prevalence (Pr) “provides a measure of how widespread the occurrence of the contaminant is in the environment” (USEPA, 2009).The USEPA uses a hierarchal approach to select Pr data for a compound, that is, it chooses the single Pr value with the highest hierarchal score (USEPA, 2009). The hierarchy selected by USEPA from highest to lowest was:

1. Percent of finished water public water supplies (PWS) with detections (for all PWS),

2. Percent of ambient water sites with detections (for all sites/samples),

3. Number of states reported the use of the chemical (e.g., pesticide in use),

4. Number of states reporting Toxics Release Inventory (TRI) total releases, and

5. Production data (e.g., lb/yr produced).

For this study, only the highest two hierarchal values will be used and catalogued, that is:

1. Percent of finished water public water supplies (PWS) with detections (for all PWS),

2. Percent of ambient water sites with detections (for all sites/samples).

The normalization used in this study for Pr for these two data types were consistent with USEPA, and are shown in blue on Table 6.

Table 6. Prevalence (Pr) normalizations ranges (USEPA, 2009)

	Hierarchy				
	1	2	3	4	5
Prevalence score	% Finished Water Public Water Supplies with Detections of Contaminants (All PWSs)	% Ambient Water Sites with Detections of Contaminants (All sites/samples)	# States Reporting Pesticide in Use	# of States Reporting TRI Total Releases	Production Data
1	<=0.10	<=0.10	- - -	1	<500K
2	0.11-0.16	0.11-0.16	- - -	2	- - -
3	0.17-0.25	0.17-0.25	Default for any pesticide in non-environmental use	3	>500k-1M
4	0.26-0.44	0.26-0.44	- - -	4	- - -
5	0.45-0.61	0.45-0.61	Default for any pesticide in environmental use without data	5	>1M-10M
6	0.62-1.00	0.62-1.00	<6	6	>10M-50M
7	1.01-1.30	1.01-1.30	6-10	7-10	>50M-100M
8	1.31-2.50	1.31-2.50	11-15	11-15	>100M-500M
9	5.21-10.00	5.21-10.00	16-25	16-25	>500M-1B
10	>10.00	>10.00	>25	>25	>1B

Magnitude Normalization

Magnitude (M) "is related to the quantity (e.g., concentration) of a contaminant that may be in the environment" (USEPA, 2009). A rational argument could be made for tying a magnitude (M) score to its potency (P), that is, that M matters more for compounds of higher P. Initially, the NRC recommended an M scale that was based, in part, on its relationship to P (USEPA, 2009). However, the USEPA found tying the two attributes to be unfeasible due to several factors (USEPA, 2009). Most importantly, use of the NRC equation may not have provided an appropriate measure of M in all cases. For example, a high M/low P combination could receive the same score as a low M/high P combination.

In this study, the space diagrams show each M value crossed with (plotted against) each P value, thereby showing clearly whether an M value corresponds with a low P and/or a high P value.

The USEPA suggested that a hierarchy for M values of (USEPA, 2009):

1) Median concentration of detections in finished water,

2) Median concentration of detections in ambient water supply samples,

3) Number of states reporting pesticide use,

4) Amount of the total release of a pesticide, and

5) Persistence and/or mobility estimations.

In this study, we only sought and catalogued the two highest hierarchal values, that is:

1) Median concentration of detections in finished water, and

2) Median concentration of detections in ambient water supply samples.

The normalization used in this study for M for these finished water and ambient water supply data are shown in

Magnitude Scale	Finished Water Occurrence Scale			Ambient Water Occurrence Scale		
Date used to score Source	Median (50th percentile) of detections (ref EPA)	75th, 90 or 95th percentile Our study	99th or Max Our study	Median (50th percentile) of detections (ref EPA)	75th, 90 or 95th percentile Our study	99th or Max Our study
1	<0.003	<0.01	>0.01 - 0.03	<0.003	<0.01	>0.01 - 0.03
2	0.003 - 0.01	>0.01 - 0.03	>0.03 - 0.1	0.003 - 0.01	>0.01 - 0.03	>0.03 - 0.1
3	>0.01 - 0.03	>0.03 - 0.1	>0.1 - 0.3	>0.01 - 0.03	>0.03 - 0.1	>0.1 - 0.3
4	>0.03 - 0.1	>0.1 - 0.3	>0.3 - 1	>0.03 - 0.1	>0.1 - 0.3	>0.3 - 1
5	>0.1 - 0.3	>0.3 - 1	>1 - 3	>0.1 - 0.3	>0.3 - 1	>1 - 3
6	>0.3 - 1	>1 - 3	>3 - 10	>0.3 - 1	>1 - 3	>3 - 10
7	>1 - 3	>3 - 10	>10 - 30	>1 - 3	>3 - 10	>10 - 30
8	>3 - 10	>10 - 30	>30	>3 - 10	>10 - 30	>30
9	>10 - 30	>30	NA	>10 - 30	>30	NA
10	>30	NA	NA	>30	NA	NA

** All units are µg/L*

Table **7**.

Table 7. Magnitude (M) normalizations ranges (USEPA, 2009, for median scores).

Space Diagrams

Space diagram is the term applied to a graphical presentation of potency (P) data simultaneously with occurrence data (both M and Pr). Space diagrams graphically rank each compounds normalized occurrence and toxicity score in such a way that can be visually understood. The approach was first developed for drinking water contaminants by Rosen and Roberson (2007) and then applied to CCL3 compounds by Roberson et al. (2009). Space diagrams include all data compiled for that compound as well as algorithm rank, and mean attribute score.

The space diagrams were created using Microsoft Execl VBA programming. The code retrieves sources, values, data, algorithms and other useful information in the Master Sheet as pertaining to a specified compound. All this information is first organized in an orderly manner and then graphed on a plot to make a space diagram. This program is useful in quickly generating space diagrams and updating any changes throughout the project.

Along with single compound space diagrams, each group will have its own group space diagrams with average normalized toxicity and occurrence values for each compound of that group. This group space diagram will be useful to compare compounds in the same group on a single graph. Many observations can be made as to how potent or prevalent a compound is compared other compounds of the same group.

The final space diagrams that will be delivered are regulated compounds. These are compounds that the USEPA is currently regulated for drinking water. The regulated space diagrams will serve as a benchmark to our scoring methods and to see if the normalized values for occurrence and toxicity attributes are at high enough levels to suggest regulation.

Ranking of Attributes and Algorithms

Algorithms were generated to estimate risk based on P, M, and Pr. A total of nine algorithms were developed and applied to all study compounds. It was not the intent to develop a single algorithm that would be more important or insightful; rather, it was intended to develop algorithms that weighted attributes differently, and then to analyze the results from all of the algorithms in combination. Specifically, compounds that were in the top percentiles of multiple algorithms may be more significant than a compound that was only in a high percentile in a single algorithm or two. All algorithms were developed to provide a range from 10 (higher importance) to 1 (lower importance).

These rankings are used to compare each compound in the project. The ranking is valuable in deciding which compounds need further investigation and data collection, based on their occurrence and toxicity levels. It will also help the TAW make suggestion to the USEPA on compounds that should be continued in the CCL process or be removed.

Below is a list of the nine algorithms that were developed and applied:

Algorithm 1: Equal weight for potency (P) and occurrence (M and Pr). Since severity (S) was removed from this study, the 2P is used so that toxicity and occurrence attributes are represented evenly.

Alg 1 value = (2P + Pr + M) / 4

Algorithm 2: Three times weighting for potency (P) versus occurrence (M and Pr) (using mean of each normalized attribute):

Alg 2 value = (6P + Pr + M) / 8

Algorithm 3: Three times weighting for occurrence (M and Pr) versus potency (P) (using mean of each normalized attribute):

Alg 3 value = (2P + 3Pr + 3M) / 8

Algorithm 4: Equal weighting of potency (P) and prevalence (Pr) (with no M consideration) (using mean of each normalized attribute):

Alg 4 value = (P + Pr) / 2

Algorithm 5: Equal weighting of potency (P) and magnitude (with no Pr consideration) (using mean of each normalized attribute):

Alg 5 value = (P + M) / 2

Algorithm 6: Equal weight for potency (P) and occurrence (M and Pr) (using maximum value of each normalized attribute):

$$\text{Alg 6 value} = (2P + Pr + M) / 4$$

Algorithm 7: Magnitude (M) weighted by potency (P) (using mean of each normalized attribute)

$$\text{Alg 7 value} = M^{(P/10)}$$

Algorithm 8: Equal weighting of magnitude (M) weighted by potency (P) with prevalence (Pr) (using mean of each normalized attribute):

$$\text{Alg 8 value} = (M^{(P/10)} + Pr) / 2$$

Algorithm 9: Amplified (offset higher) magnitude (M) weighted by potency (P) (using mean of each normalized attribute):

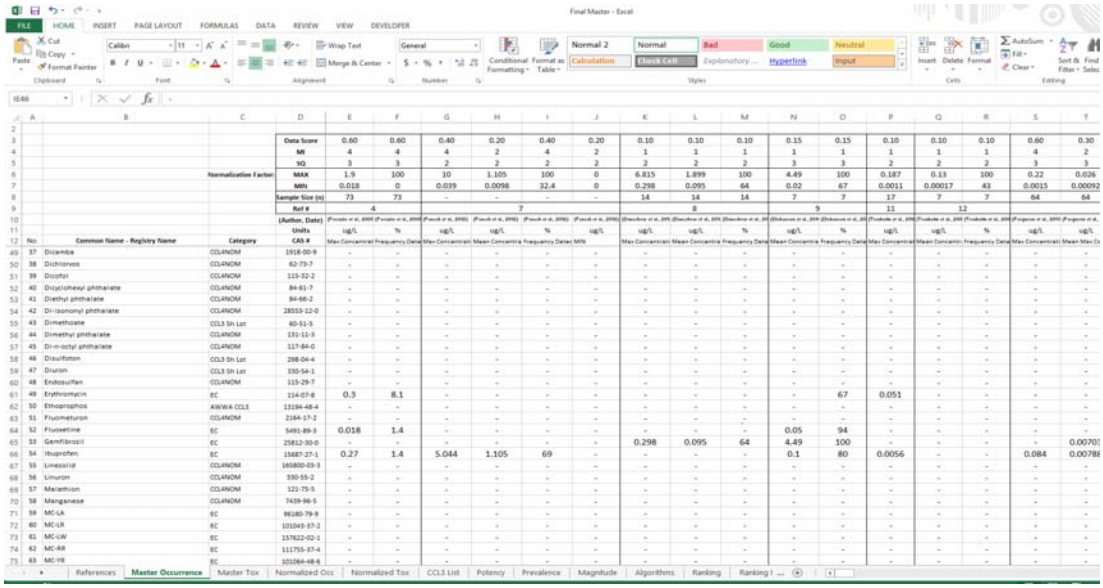
$$\text{Alg 9 value} = (0.8M^{(P/10)}) + 2$$

Results and Discussion

Master Sheet

A large amount of time was dedicated to developing the Master Sheet so that the program could present the data in a clear and organized manner with minimal time for formatting. This project looked at 122 different compounds, with each compound containing a space diagram. If errors or changes were made during the project, than each space diagram would have to be recreated and formatted manually to reflect the changes. To solve these issues, VBA coding was used to facilitate the process. With VBA coding, the program can collect all the data from different worksheets and a space diagram can be generated for the compound of choice. Now any changes to data, corrected errors or addition of more data would automatically be

represented in the space diagram. This program was a major project outcome and critical to the success of the project. Figures 4 and 5 show a quick screen shot of some important pages of the



Master Sheet. All VBA coding can be found in Appendix D.

Figure 4. Screen shot of one of the data collection worksheets for occurrence.

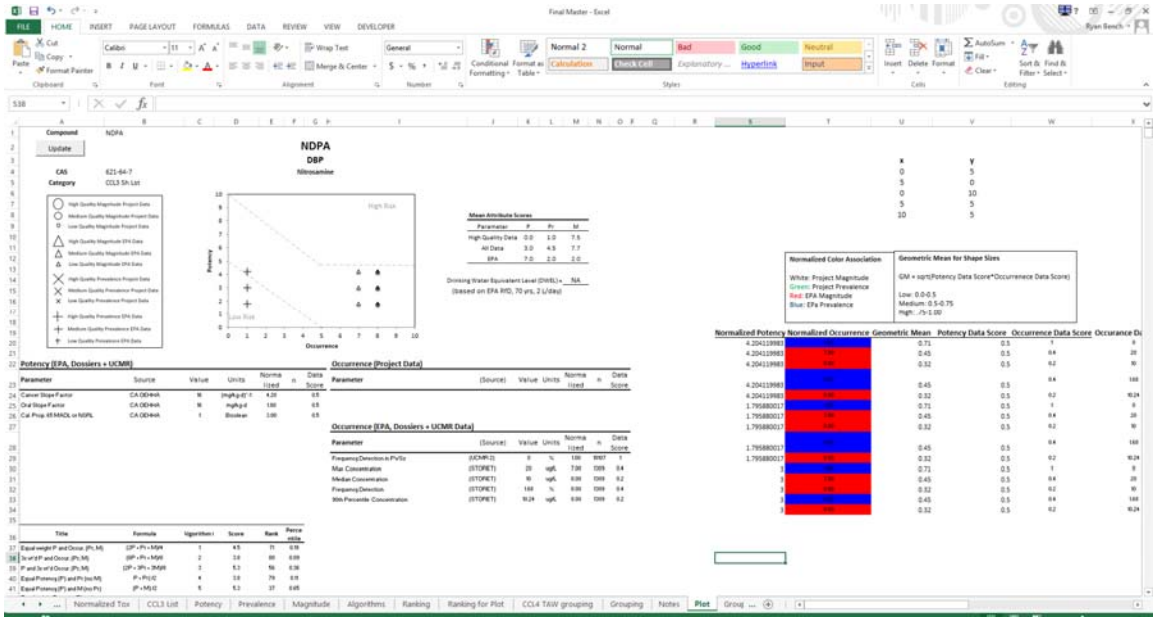


Figure 5. Screen shot of the space diagram generating worksheet. From this page, all the entities to make a space diagram are combined and organized by VBA coding.

Space Diagrams

Project Compounds

Individual space diagrams for project compounds are listed alphabetically in Appendix A. The space diagrams on these data sheets show all project and USEPA data visually and differentiate M from Pr data (and indicate data quality as well). These individual data sheets were used as one source of information by the workshop panel to help develop grouping of compounds based on expert opinion. Group diagrams were also instrumental in recommendations for the TAW by comparing and organizing compounds in the same. Group space diagrams for cyanotoxins, DBPs, industrial, VOCs, pesticides, PPCPs and inorganics can be found in Appendix B.

Regulated Space Diagrams

Regulated group space diagrams were also generated for all regulated compounds by showing all chemicals within a group on the same space diagrams by plotting the mean M or mean Pr versus P for each chemical. In addition to the study compounds, group space diagrams were also plotted for many USEPA-regulated priority pollutants to provide a benchmark against which to compare the new study compounds. For the regulated compounds (Appendix C), 47 percent of 59 chemicals fall into the higher risk region based on P×M; and only 26 percent of 57 chemicals fall into the higher risk region based on P×Pr (Table 8).

For the 59 regulated compounds examined, only 17 percent (10 chemicals) were in the higher risk region based on both P×M, and P×Pr (that is, exhibited moderate to high potency combined with both higher concentrations and occurrence). These 10 chemicals (with higher risk with both M and Pr) were 1,2-dibromo-3-chloropropane (DBCP), 1,2-dichloroethane, benzene, carbon

tetrachloride, cis-1,2-dichloroethylene, dichloromethane, selenium, tetrachloroethylene, trichloroethylene, and uranium.

Table 8. Percent of USEPA-regulated chemicals in "higher-risk" region, "medium-risk" or "lower-risk" regions of space diagrams for P crossed with (×) M or Pr

	Potency crossed with	
Risk	**Magnitude (%)**	**Prevalence (%)**
Higher	47	26
Medium	53	70
Lower	0	4

Algorithm Results

As shown previously, nine algorithms were generated that used different weightings of P, M. and Pr amplifies certain attributes while deemphasizing others. The scores for each algorithm were sorted in rank order. Next, the number of times each compound was present in top 5, 10, 20, 30, 40, and 50 score for each algorithm was counted and listed in

Table ***9***. These counts were then arbitrarily sorted for the frequency of occurrence in the top 20 compounds.

Cyanotoxins were highly represented in the top rankings due to both P and Pr, with moderate normalized M. It should be noted Pr data may be biased due to cyanotoxin occurrence studies possibly targeting times and location where cyanotoxins are most likely to occur. Nonetheless, for populations that are using these water sources as drinking water supplies, that higher Pr is highly relevant.

Also frequently occurring near the top of varied algorithms were amoxicillin (an antibiotic); azinphos-methyl (a pesticide); both molybdenum and manganese (inorganics); and nonylphenol ethoxylate, octylphenol, and nonylphenol (industrial chemicals). Also frequently found at the

top of algorithm rankings were chlorate, NDMA, and perchlorate. Generally, these compounds ranked highly due to relatively high Pr and moderate P and/or M. Refer to space diagrams in Appendix A to see individual algorithm values for all compounds.

Table 9. Ranked algorithm results for the top 80 ranked AWWA CCL4 project compounds. Also shown are grouping recommended by the AWWA CCL4 TAW (See AWWA CCL4 recommendations for group ranking descriptions).

		Freq. in Alg Top Rankings								
	Compounds	Top 5	Top 10	Top 20	Top 30	Top 40	Top 50	Category	Group	TAW Group Ranking
1	Amoxicillin	0	5	9	9	9	9	CCL4NOM	PPCP	4
2	Anatoxin A	0	4	9	9	9	9	EC	Cyanotoxin	2
3	Cylindrospermopsin	0	6	9	9	9	9	EC	Cyanotoxin	2
4	MC-LA	9	9	9	9	9	9	EC	Cyanotoxin	2
5	MC-LR	8	9	9	9	9	9	EC	Cyanotoxin	2
6	MC-LW	9	9	9	9	9	9	EC	Cyanotoxin	2
7	MC-RR	9	9	9	9	9	9	EC	Cyanotoxin	2
8	MC-YR	9	9	9	9	9	9	EC	Cyanotoxin	2
9	Azinphos-methyl	0	1	8	9	9	9	CCL4NOM	Pesticide	2
10	Molybdenum	0	0	8	9	9	9	CCL3 Sh Lst	Inorganic	1
11	Nonylphenol ethoxylate	0	6	8	9	9	9	CCL4NOM	Industrial	4
12	Manganese	1	5	7	9	9	9	CCL4NOM	Inorganic	4
13	Nonylphenol	0	1	7	8	9	9	CCL4NOM	Industrial	4
14	Saxitoxin	0	2	6	7	7	9	EC	Cyanotoxin	4
15	Chlorate	0	2	5	7	8	9	CCL3 Sh Lst	DBP	1
16	NDMA	0	1	5	6	7	9	CCL3 Sh Lst	DBP	1
17	Octylphenol	0	0	4	6	7	7	CCL4NOM	Industrial	4
18	Perchlorate	0	0	4	6	7	9	AWWA CCL3	Industrial	4
19	Vanadium	0	1	4	5	7	9	CCL3 Sh Lst	Inorganic	4
20	Acrolein	0	2	3	4	6	6	AWWA CCL3	Industrial	3
21	Nitrobenzene	0	1	3	3	3	3	CCL3 Sh Lst	VOC	3
22	Progesterone	0	2	3	3	4	6	CCL4NOM	PPCP	3
23	Mutagen X	0	1	2	2	2	2	CCL4NOM	DBP	4
24	3-Hydroxycarbofuran	0	0	2	4	4	4	AWWA CCL3	Pesticide	2
25	Phosmet	0	0	2	5	6	7	CCL4NOM	Pesticide	4
26	RDX	0	1	2	6	6	7	CCL3 Sh Lst	Industrial	3
27	Strontium	0	1	2	4	5	7	CCL3 Sh Lst	Inorganic	1
28	DCIM	0	0	2	2	2	2	EC	DBP	1
29	BDCNM	0	1	2	2	2	2	EC	DBP	1

30	DBCNM	0	2	2	2	2	2	EC	DBP	1
31	1,4-Dioxane	0	0	1	2	3	6	CCL3 Sh Lst	Industrial	1
32	BHA	0	0	1	3	6	8	AWWA CCL3	Industrial	4
33	Ciprofloxacin	0	0	1	2	4	6	EC	PPCP	4
34	Dibutyl phthalate	0	0	1	2	4	5	CCL4NOM	Industrial	4
35	Disulfoton	0	0	1	2	3	4	CCL3 Sh Lst	Pesticide	3
36	Endosulfan	0	0	1	5	8	9	CCL4NOM	Pesticide	4
37	Molinate	0	0	1	3	3	5	CCL3 Sh Lst	Pesticide	3
38	n-Propylbenzene	0	0	1	4	6	7	AWWA CCL3	Industrial	4
39	PFOS	0	0	1	4	4	7	CCL3 Sh Lst	Industrial	3
40	sec-Butylbenzene	0	0	1	3	3	4	AWWA CCL3	Industrial	4
41	Sulfamethazine	0	0	1	1	1	3	EC	PPCP	4
42	Sulfamethoxazole	0	0	1	6	6	6	EC	PPCP	3
43	Terbufos Sulfone	0	0	1	3	5	6	AWWA CCL3	Pesticide	3
44	Testosterone	0	0	1	1	1	1	CCL4NOM	PPCP	3
45	Triclocarban	0	0	1	4	6	6	CCL4NOM	PPCP	4
46	1,1,1,2-Tetrachloroethane	0	0	0	0	0	0	CCL3 Sh Lst	VOC	3
47	1,1-Dichloroethane	0	0	0	0	1	1	AWWA CCL3	VOC	1
48	1,2,3-Trichloropropane	0	0	0	0	1	2	AWWA CCL3	VOC	3
49	1,3-Dinitrobenzene	0	0	0	0	0	1	CCL3 Sh Lst	VOC	4
50	Acetaminophren	0	0	0	0	1	3	EC	PPCP	4
51	Acetochlor	0	0	0	0	2	3	CCL3 Sh Lst	Pesticide	3
52	Acetochlor ESA	0	0	0	0	0	0	CCL3 Sh Lst	Pesticide	3
53	Acetochlor OA	0	0	0	0	0	0	CCL3 Sh Lst	Pesticide	3
54	Alachlor	0	0	0	0	2	6	CCL3 Sh Lst	Pesticide	3
55	Alachlor ESA	0	0	0	0	0	1	CCL3 Sh Lst	Pesticide	3
56	Alachlor OA	0	0	0	0	0	1	CCL3 Sh Lst	Pesticide	3
57	Aldicarb	0	0	0	1	2	2	CCL4NOM	Pesticide	3
58	Alpha-Hexachlorocyclohexane	0	0	0	0	0	0	CCL4NOM	Pesticide	3
59	Bacitracin zinc	0	0	0	0	0	0	CCL4NOM	PPCP	4
60	Bentazone	0	0	0	2	3	4	CCL4NOM	Pesticide	4
61	Benzyl butyl phthalate	0	0	0	0	0	0	CCL4NOM	Industrial	4
62	Bisphenol A	0	0	0	1	3	5	CCL4NOM	Industrial	4
63	Bromoxynil	0	0	0	0	3	5	CCL4NOM	Pesticide	4
64	Carbaryl	0	0	0	0	0	1	CCL4NOM	Pesticide	4
65	Cesium 137	0	0	0	0	0	0	CCL4NOM	Inorganic	4
66	Chlorothalonil	0	0	0	0	0	0	CCL4NOM	Pesticide	4
67	Chlorpyrifos	0	0	0	0	4	7	CCL4NOM	Pesticide	2

68	Dicamba	0	0	0	2	5	6	CCL4NOM	Pesticide	4
69	Dichlorvos	0	0	0	4	6	9	CCL4NOM	Pesticide	4
70	Dicofol	0	0	0	0	0	0	CCL4NOM	Pesticide	4
71	Dicyclohexyl phthalate	0	0	0	0	0	0	CCL4NOM	Industrial	4
72	Diethyl phthalate	0	0	0	1	2	2	CCL4NOM	Industrial	4
73	Di-isononyl phthalate	0	0	0	0	0	0	CCL4NOM	Industrial	4
74	Dimethoate	0	0	0	1	4	5	CCL3 Sh Lst	Pesticide	3
75	Dimethyl phthalate	0	0	0	0	0	0	CCL4NOM	Industrial	4
76	Di-n-octyl phthalate	0	0	0	0	0	0	CCL4NOM	Industrial	4
77	Diuron	0	0	0	3	6	9	CCL3 Sh Lst	Pesticide	3
78	Erythromycin	0	0	0	0	0	1	EC	PPCP	3
79	Ethoprophos	0	0	0	0	2	2	AWWA CCL3	Pesticide	4
80	Fluometuron	0	0	0	1	2	3	CCL4NOM	Pesticide	4

AWWA CLL4 TAW Recommendations

In the CCL4 TAW meeting (January, 2014) the compounds were binned into one of four groups based on the expert opinion and weight of evidence of the TAW. These groups were:

- Group 1: Top priority for inclusion in CCL4
- Group 2: Recommend inclusion on CCL4 but insufficient data currently for regulatory determination
- Group 3: Recommend inclusion on CCL4 based on sufficient data for negative regulatory determinations
- Group 4: Recommend not to include in CCL4 based on existing P, M, and/or Pr data

GROUP 1 COMPOUNDS – Top priority for inclusion in CCL4

This group of seven compounds plus a super-group of DBPs were recommended for inclusion on CCL4 based on sufficient data for potential regulatory determinations after appropriate consideration of the three SDWA criteria. Group 1 included (Table 10):

- One VOC: 1,1-dichloroethane

- One additional industrial chemical: 1,4-dioxane
- One specific DBP: chlorate
- Two inorganic chemicals: molybdenum and strontium
- Two pharmaceuticals: fluoxetine and gemfibrozil
- A super-group of disinfection byproducts (DBPs) as a whole

The AWWA CCL4 TAW considers that each of these compounds or groups is a top priority for inclusion in CCL4.

The **industrial chemicals/VOCs** in Group 1 were 1,1-dichloroethane and 1,4-dioxane. 1,1-dichloroethane is a solvent and a feedstock for a variety of other industrial compounds. 1,1-dichloroethane is a carcinogenic VOC (of cVOC) that is being considered for USEPA's cVOCs Group Rule. 1,4-dioxane is a chemical stabilizer, a byproduct of manufacturing processes and also a solvent.

The **inorganic chemical** molybdenum exhibited moderate to high P (consistent with many regulated compounds), coupled with relatively high concentrations and detection frequency, was suggested to include in Group 1. Similarly, strontium exhibits a much lower P (ranging from 2.7 to 3.2) but occurs again with relatively high M and Pr. The AWWA CCL4 TAW grouped strontium in Group 1.

Two **pharmaceuticals**, fluoxetine and gemfibrozil, were included in Group 1 as the highest priority pharmaceuticals in the study. Due in part to considerable and long-term interest in pharmaceutical occurrence in drinking water by both the scientific community and the public, the AWWA CCL4 TAW opined that several pharmaceuticals could be considered closely for regulatory consideration. Fluoxetine and gemfibrozil occur relatively frequently (higher Pr) with moderate M (for pharmaceuticals). Fluoxetine is an antidepressant while gemfibrozil is a lipid

regulator, and both are highly prescribed. Both of these compounds were considered on the higher P range for pharmaceuticals. Fluoxetine and gemfibrozil might be good candidates against which for other pharmaceuticals could be benchmarked with respect to potential regulation. (Note: Sulfamethoxazole was also considered a benchmark pharmaceutical, but was assigned to Group 3 based on expert opinion.)

Chlorate was a specific DBP also in Group 1 due to sufficient P, M, and Pr showing moderate toxicity and high concentrations and detection frequency. The committee noted that the relative source contribution for chlorate was an important factor to better understand and should an objective of future study.

Finally, extensive discussion of the **DBPs** in the study was conducted. One key fact about DBPs is that all treated drinking water (using any type of chemical disinfection) contain some DBPs leading potentially to a high Pr in drinking water. Concentrations of DBPs are likely to range from very low to significantly high M values depending on the nature of the precursors and oxidation scheme used in a treatment plant. The opportunity for exposure of the general public is high, albeit, at concentrations that might be below method detection or reporting limits.

This proposed **supergroup of DBPs** includes the study compounds as well as other potential DBPs including the four currently unregulated chloro- and bromo- haloacetic acids (HAA), other HAAs (e.g., iodo-), dihalogenated nitromethanes, haloamides, haloacetonitriles, tribromopyrrole, aldehydes and other compounds formed during disinfection of drinking water.

It was thought that the toxicity information for many or most unregulated DBPs was severely lacking, though the potential for significant P exists for classes and individual unregulated DBPs. The CCL4 TAW concluded that selected unregulated DBPs should be included in CCL4 and have the potential to be considered for regulatory determination. It was felt that as a super-group,

DBPs need to be examined closely and determinations made within the CCL regulatory determination (CCL/RegDet) framework.

Table 10. TAW Group 1 Compounds – Top priority for inclusion in CCL4

Compounds	Category	Group	Sub-group
Chlorate	CCL3 Sh Lst	DBP	
BCIM	EC	DBP	Iodomethane
BDIM	EC	DBP	Iodomethane
CDIM	EC	DBP	Iodomethane
DBIM	EC	DBP	Iodomethane
DCIM	EC	DBP	Iodomethane
TIM	EC	DBP	Iodomethane
BDCNM	EC	DBP	Halonitromethane
Chloropicrin (TCNM)	EC	DBP	Halonitromethane
DBCNM	EC	DBP	Halonitromethane
NDEA	CCL3 Sh Lst	DBP	Nitrosamine
NDMA	CCL3 Sh Lst	DBP	Nitrosamine
NDPA	CCL3 Sh Lst	DBP	Nitrosamine
NDPhA	CCL3 Sh Lst	DBP	Nitrosamine
NPYR	CCL3 Sh Lst	DBP	Nitrosamine
1,4-Dioxane	CCL3 Sh Lst	Industrial	
Molybdenum	CCL3 Sh Lst	Inorganic	
Fluoxetine	EC	PPCP	Antidepressant
Gemfibrozil	EC	PPCP	Lipid regulator
Strontium	CCL3 Sh Lst	Inorganic	
1,1-Dichloroethane	AWWA CCL3	VOC	cVOC list

GROUP 2 COMPOUNDS – Include in CCL4 but insufficient data exists

This group of 10 compounds is recommended for inclusion on CCL4 but insufficient data currently exists for moving forward with a regulatory determination. Group 2 included (Table 11):

- Seven cyanotoxins: five microcystins, anatoxin A, and cylindrospermopsin
- Three pesticides: 3-hydroxycarbofuran, azinphos-methyl, and chlorpyrifos.

The AWWA CCL4 TAW considers that each of these compounds should be included on the CCL4, but that for each compound sufficient data to assess whether positive or negative regulatory determination may not currently exist.

The cyanotoxins (five microcystin analogues, anatoxin A, and cylindrospermopsin) were each recommended for inclusion in CCL4. It was noted that cyanotoxin M and Pr data are generally biased in the sense that sampling has frequently been conducted at locations and times when these cyanotoxins are more likely to occur (that is, in targeted studies). Further, it was noted that these cyanotoxins are occurring regularly (and potentially increasing) in certain regions of the United States. Sampling procedures and plans are somewhat complex for cyanotoxins and different from most other contaminants due to the nature of their sometimes rapid occurrence and fall off in concentration, depending on many factors in reservoirs and rivers. If a robust and reliable analytical method can be developed and an appropriate sampling timeframe can be mandated, cyanotoxins could potentially be considered for inclusion in UCMR4. Thus, while insufficient data currently exist for regulatory determination, the TAW's strong recommendation is to include these important contaminants (five microcystin analogues, anatoxin A, and cylindrospermopsin) in CCL4.

Three pesticides were included in Group 2 and thought to have potential for a regulatory determination (3-hydroxycarbofuran, azinphos-methyl, and chlorpyrifos). These compounds were selected based on relative attributes to the other pesticides, and the conclusion that insufficient data were currently available for a regulatory determination. It is recommended that the Group 2 compounds be included in UCMR4.

Table 11. TAW Group 2 Compounds – Recommend inclusion on CCL4 but insufficient data currently for regulatory determination

Compounds	Category	Group	Sub-group

Anatoxin A	EC (CCL3)	Cyanotoxin	
Cylindrospermopsin	EC	Cyanotoxin	
MC-LA	EC	Cyanotoxin	Microcystins
MC-LR	EC (CCL3)	Cyanotoxin	Microcystins
MC-LW	EC	Cyanotoxin	Microcystins
MC-RR	EC	Cyanotoxin	Microcystins
MC-YR	EC	Cyanotoxin	Microcystins
3-Hydroxycarbofuran	AWWA CCL3	Pesticide	Insecticide
Azinphos-methyl	CCL4NOM	Pesticide	Insecticide
Chlorpyrifos	CCL4NOM	Pesticide	Insecticide

GROUP 3 COMPOUNDS – Include in CCL4 due to sufficient data existing for negative regulatory determinations

This group of 33 compounds is recommended for inclusion on CCL4. Clear and sufficient data exists that support negative regulatory determinations. Group 3 included (Table 12):

- Six VOCs: 1,1,1,2-tetrachloroethane, 1,2,3-trichloropropane, methyl bromide, methyl chloride, MTBE, nitrobenzene
- Four additional industrial chemicals: acrolein, perfluorooctanoic acid (PFOA), perfluorooctanesulfonic acid (PFOS), RDX
- 18 pesticides or degradates: acetochlor and two degradates, alachlor and two degradates, metolachlor and two degradates, terbofos and one degradate, aldicarb, alpha-hexachlorocyclohexane, dimethoate, disulfoton, diuron, linuron, and molinate
- Five pharmaceuticals or hormones: erythromycin, progesterone, sulfamethoxazole, testosterone, and triclosan

AWWA CCL4 TAW considers that each of these compounds should be included on the CCL4, and that each has sufficient data that will support a negative regulatory determination, primarily through UCMR1, UCMR2, and UCMR3. Retaining consideration of these compounds without a

regulatory determination leads to an unnecessary waste of resources that should be targeted in areas where there is significant opportunity for advancing the protection of human health.

Testosterone and progesterone are found infrequently in water supplies and generally at 1 ng/L levels or less. These compounds were not included in CCL3 but were in UCMR3 with very low Pr (similar to other hormones, e.g., E1, E2, estrone, estriol).

Triclosan is a biocide ubiquitous at low concentrations. It is used widely in many personal care products. The TAW recommends inclusion in CCL4 for triclosan with the likelihood of a negative regulatory determination, and, further, that triclosan be included in UCMR4 to generate the required data.

MTBE imparts a strong ether-like odor to water. Methyl chloride may occur naturally, but may also occur near industries where it is made or used.

Table 12. TAW Group 3 Compounds – Recommend inclusion on CCL4 based on sufficient data for negative regulatory determination

Compounds	Category	Group	Sub-group
Acrolein	AWWA CCL3	Industrial	
RDX	CCL3 Sh Lst	Industrial	
PFOA	CCL4NOM (CCL3)	Industrial	Fluoro Surfactant
PFOS	CCL3 Sh Lst	Industrial	Fluoro Surfactant
Diuron	CCL3 Sh Lst	Pesticide	Herbicide
Linuron	CCL4NOM	Pesticide	Herbicide
Molinate	CCL3 Sh Lst	Pesticide	Herbicide
Acetochlor	CCL3 Sh Lst	Pesticide	Herbicide/Acetochlor+deg
Acetochlor ESA	CCL3 Sh Lst	Pesticide	Herbicide/Acetochlor+deg
Acetochlor OA	CCL3 Sh Lst	Pesticide	Herbicide/Acetochlor+deg
Alachlor	CCL3 Sh Lst	Pesticide	Herbicide/Alachlor+deg
Alachlor ESA	CCL3 Sh Lst	Pesticide	Herbicide/Alachlor+deg
Alachlor OA	CCL3 Sh Lst	Pesticide	Herbicide/Alachlor+deg
Metolachlor	CCL3 Sh Lst	Pesticide	Herbicide/Metolachlor+deg
Metolachlor ESA	CCL3 Sh Lst	Pesticide	Herbicide/Metolachlor+deg
Metolachlor OA Deg	CCL3 Sh Lst	Pesticide	Herbicide/Metolachlor+deg

Aldicarb	CCL4NOM	Pesticide	Insecticide
Alpha-Hexachlorocyclohexane	CCL4NOM (CCL3)	Pesticide	Insecticide
Dimethoate	CCL3 Sh Lst	Pesticide	Insecticide
Disulfoton	CCL3 Sh Lst	Pesticide	Insecticide
Terbufos	CCL3 Sh Lst	Pesticide	Terbufos + degradates
Terbufos Sulfone	AWWA CCL3	Pesticide	Terbufos + degradates
Erythromycin	EC (CCL3)	PPCP	Antibiotic
Sulfamethoxazole	EC	PPCP	Antibiotic
Triclosan	CCL4NOM	PPCP	Antibiotic
Progesterone	CCL4NOM	PPCP	Hormone
Testosterone	CCL4NOM	PPCP	Hormone
1,1,1,2-Tetrachloroethane	CCL3 Sh Lst	VOC	
1,2,3-Trichloropropane	AWWA CCL3	VOC	
Methyl bromide	AWWA CCL3	VOC	
Methyl chloride	AWWA CCL3	VOC	
MTBE	CCL4NOM	VOC	
Nitrobenzene	CCL3 Sh Lst	VOC	cVOC list

GROUP 4 COMPOUNDS – Do not include in CCL4 based on existing P, M, and/or Pr data

This group of 56 compounds is not recommended for CCL4. There is a body of evidence (P, Pr and/or M) that makes clear these compounds should no longer be considered for CCL4 nor is there a need for regulatory determination unless new health effects and/or occurrence data warrant putting these contaminants back into the CCL/RegDet process. Group 4 included (Table 13):

- One VOC: 1,3-dinitrobenzene
- Two cyanotoxins: saxitoxin and saxitoxin-related PST
- One disinfection byproduct: mutagen X
- 16 additional industrial chemicals: seven phthalates (benzyl butyl, dibutyl, dicyclohexyl, diethyl, di-isononyl, dimethyl, and di-n-octyl); two alkylphenol (octyl and nonyl); two

alkylphenol ethoxylates (octyl and nonyl); bisphenol A (BPA); butylated hydroxyanisole (BHA); n-propylbenzene; perchlorate; and sec-butylbenzene

- Five inorganics: cesium 137, manganese, radon, tellurium, and vanadium
- 16 pharmaceuticals: three pain relievers (acetaminophen, ibuprofen, and naproxen) and 13 antibiotics (amoxicillin, bacitracin zinc, ciprofloxacin, linezolid, methicillin, oxacillin, penicillin, spiramycin, sulfamethazine, triclocarban, tylosin, vancomycin, and virginiamycin)
- 15 pesticides: bentazone, carbaryl, chlorothalonil, dicamba, dichlorvos, dicofol, endosulfan, ethoprophos, fluometuron, malathion, methyl parathion, permethrin, phosmet, bromoxynil, and trichlorfon

AWWA considers that none of these compounds should be included on the CCL4, and that each has sufficient data to support no further consideration for regulation. Further consideration of these compounds within the drinking water regulatory framework at this time diverts critical resources that could be used toward more meaningful opportunities for advancing the protection of public health.

Table 13. TAW Group 4 compounds – Do not include in CCL4 based on existing P, M, and/or Pr data

Compounds	Category	Group	Sub-group
Saxitoxin	EC	Cyanotoxin	Saxitoxins
Saxitoxin related PST	EC	Cyanotoxin	Saxitoxins
Mutagen X	CCL4NOM	DBP	DBP
Butylated hydroxyanisole (BHA)	AWWA CCL3	Industrial	
Bisphenol A (BPA)	CCL4NOM	Industrial	
n-Propylbenzene	AWWA CCL3	Industrial	
Perchlorate	AWWA CCL3	Industrial	
sec-Butylbenzene	AWWA CCL3	Industrial	
Octylphenol	CCL4NOM	Industrial	Alkylphenol
Octylphenol ethoxylate	CCL4NOM	Industrial	Alkylphenol ethoxylates
Nonylphenol ethoxylate	CCL4NOM	Industrial	Alkylphenol ethoxylates

Nonylphenol	CCL4NOM	Industrial	Alkylphenol
Benzyl butyl phthalate	CCL4NOM	Industrial	Phthalate
Dibutyl phthalate	CCL4NOM	Industrial	Phthalate
Dicyclohexyl phthalate	CCL4NOM	Industrial	Phthalate
Diethyl phthalate	CCL4NOM	Industrial	Phthalate
Di-isononyl phthalate	CCL4NOM	Industrial	Phthalate
Dimethyl phthalate	CCL4NOM	Industrial	Phthalate
Di-n-octyl phthalate	CCL4NOM	Industrial	Phthalate
Cesium 137	CCL4NOM	Inorganic	
Manganese	CCL4NOM	Inorganic	
Radon	CCL4NOM	Inorganic	
Tellurium	AWWA CCL3	Inorganic	
Vanadium	CCL3 Sh Lst	Inorganic	
Chlorothalonil	CCL4NOM	Pesticide	Fungicide
Bentazone	CCL4NOM	Pesticide	Herbicide
Bromoxynil	CCL4NOM	Pesticide	Herbicide
Dicamba	CCL4NOM	Pesticide	Herbicide
Fluometuron	CCL4NOM	Pesticide	Herbicide
Carbaryl	CCL4NOM	Pesticide	Insecticide
Dichlorvos	CCL4NOM	Pesticide	Insecticide
Dicofol	CCL4NOM	Pesticide	Insecticide
Endosulfan	CCL4NOM	Pesticide	Insecticide
Ethoprophos	AWWA CCL3	Pesticide	Insecticide
Malathion	CCL4NOM	Pesticide	Insecticide
Methyl parathion	CCL4NOM	Pesticide	Insecticide
Permethrin	CCL4NOM (CCL3)	Pesticide	Insecticide
Phosmet	CCL4NOM	Pesticide	Insecticide
Trichlorfon	CCL4NOM	Pesticide	Insecticide
Amoxicillin	CCL4NOM	PPCP	Antibiotic
Bacitracin zinc	CCL4NOM	PPCP	Antibiotic
Ciprofloxacin	EC	PPCP	Antibiotic
Linezolid	CCL4NOM	PPCP	Antibiotic
Methicillin	CCL4NOM	PPCP	Antibiotic
Oxacillin	CCL4NOM	PPCP	Antibiotic
Penicillin	CCL4NOM	PPCP	Antibiotic
Spiramycin	CCL4NOM	PPCP	Antibiotic
Sulfamethazine	EC	PPCP	Antibiotic
Triclocarban	CCL4NOM	PPCP	Antibiotic
Tylosin	CCL4NOM	PPCP	Antibiotic
Vancomycin	CCL4NOM	PPCP	Antibiotic
Virginiamycin	CCL4NOM	PPCP	Antibiotic
Ibuprofen	EC	PPCP	NSAID

Naproxen	EC	PPCP	NSAID
Acetaminophen	EC	PPCP	Pain reliever (not NSAID)
1,3-Dinitrobenzene	CCL3 Sh Lst	VOC	cVOC list

AWWA recommends that each of the compounds in Groups 1, 2, and 3 be included in the CCL4. Group 1 represents the highest priority for inclusion in CCL4. Insufficient data currently exists for Group 2 compounds, and this deficiency could be addressed as part of the regulatory process once listed in the CCL4. The AWWA suggests that Group 3 compounds be included on the CCL4 with the likelihood for a negative regulatory determination in the Fourth Regulatory Determination. Negative regulatory determinations are as important as positive determinations in the regulatory development process as these decisions show that USEPA is considering a broad range of contaminants for CCLs, but a national regulation does not meet the three SDWA criteria for identifying contaminants for regulation. AWWA also suggests that Group 4 compounds do not warrant consideration for CCL4. Resources committed towards potential drinking water regulations for Group 3 and 4 compounds would have a greater impact towards protecting public health and the environment if applied elsewhere

Engineering Significance

The CCL process, used by the USEPA, is the method and means by which a compound receives regulatory determination. Determining if a compound is regulated or not has major ramifications on the drinking water industry. Depending on the removability of a compound, billions of dollars would be spent, should the USEPA regulate a compound. Regulatory determination of a compound is based on occurrence, toxicity, and expert opinion. Similar to how the USEPA would include certain compounds to the CCL list, this project used occurrence, toxicity, and expert opinion to suggest to the USEPA what compounds should be included in the CCL4. The importance of the project is that we are providing a second voice of opinion and support, and to help facilitate the USEPA with their responsibility, according to the SDWA, to provide a list every 5 years of unregulated compounds of concern to public health. This project is providing a service to the drinking water public, by recommending which compounds should receive closer examination, funding and focus.

This project also provides a tool for the future. It is intended to take the database developed in this study into a web-based platform accessible to drinking water professionals worldwide. It is envisioned that new studies and databases may be submitted and uploaded into the master database. Database administrators will control the application of data quality protocols and related issues. This platform will provide a major research and regulatory resource with visual and quantitative metrics with which to analyze the data.

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Appendicies

Appendix A. Space Diagrams

Compound 1,1,1,2-Tetrachloroethane

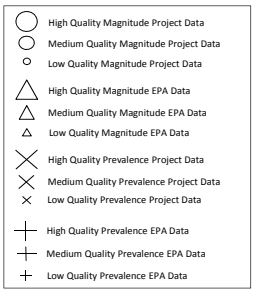
Update

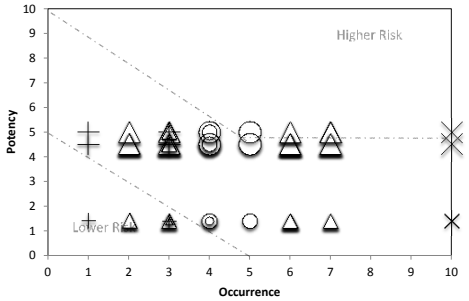
1,1,1,2-Tetrachloroethane

VOC

CAS 630-20-6

Category CCL3 Sh Lst





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	4.6	4.3	4.6
All Data	3.6	4.3	4.5
EPA	5.0	3.0	6.0

Drinking Water Equivalent Level (DWEL) = 1.05
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
RfD	2012 Health Advisory	0.03	mg/kg-d	4.52		1
EPA IRIS (ITER) RfD	CCL3 Dossiers	0.03	mg/kg-d	4.52		1
RAISHE RfD	CCL3 Dossiers	0.03	mg/kg-d	4.52		1
RAISHE Slope Factor	CCL3 Dossiers	0.026	(mg/kg-d)^-1	1.41		0.5
EPA Lifetime Cancer Risk, 10^-4	CCL3 Dossiers	0.1	mg/L	5.00		1
Cancer Slope Factor	RAISHE	0.026	(mg/kg-d)^-1	1.41		0.5

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Stream	(NAWQA DW-CF)	3	ug/L	5.00	50	0.8
Frequency Detection in Stream Samples	(NAWQA DW-CF)	11.7	%	10.00	58	0.8
75th Percentile Concentration in Stream	(NAWQA DW-CF)	0.2	ug/L	4.00	49	0.4
90th Percentile Concentration in Stream	(NAWQA DW-CF)	0.2	ug/L	4.00	50	0.8
95th Percentile Concentration in Stream	(NAWQA DW-CF)	0.2	ug/L	4.00	50	0.8

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	4.0	79	0.10
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	3.8	79	0.10
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	4.2	77	0.13
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	3.9	77	0.13
Equal Potency (P) and M (no Pr)	(P + M) /2	5	4.0	72	0.31
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	4.0	75	0.15
Potency wt'd Magnitude	M^(P/10)	7	1.7	57	0.35
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	3.0	76	0.14
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.4	68	0.35

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Finished Water	(NCOD Finished 1)	9.2	ug/L	6.00	16959	1
Median Concentration in Finished Water	(NCOD Finished 1)	0.59	ug/L	6.00	16959	0.6
Frequency Detection in PWSs/Sites	(NCOD Finished 1)	0.18	%	3.00	16959	1
90th Percentile in Finished Water	(NCOD Finished 1)	3.1	ug/L	7.00	16959	1
99th Percentile in Finished Water	(NCOD Finished 1)	9.2	ug/L	6.00	16959	1
Max Concentration in Finished Water	(NCOD Finished 2)	18	ug/L	7.00	24127	1
Median Concentration in Finished Water	(NCOD Finished 2)	0.5	ug/L	6.00	24127	0.6
Frequency Detection in PWSs/Sites	(NCOD Finished 2)	0.21	%	3.00	24127	1
90th Percentile in Finished Water	(NCOD Finished 2)	1.55	ug/L	6.00	24127	1
99th Percentile in Finished Water	(NCOD Finished 2)	18	ug/L	7.00	24127	1
Max Concentration in Finished Water	(NAWQA Ambient)	0.0644	ug/L	2.00	4309	1
Median Concentration in Finished Water	(NAWQA Ambient)	0.0275	ug/L	3.00	4309	0.6
Frequency Detection in PWSs/Sites	(NAWQA Ambient)	0.09	%	1.00	4309	1
90th Percentile in Finished Water	(NAWQA Ambient)	0.0644	ug/L	3.00	4309	1
99th Percentile in Finished Water	(NAWQA Ambient)	0.0644	ug/L	2.00	4309	1
Max Concentration in Ambient Water	(NAWQA)	0.0644	ug/L	2.00	24	0.8
Median Concentration in Ambient Water	(NAWQA)	0.0275	ug/L	3.00	24	0.4
90th Percentile Concentration in Ambient Water	(NAWQA)	0.0644	ug/L	3.00	24	0.8

Compound 1,1-Dichloroethane

Update

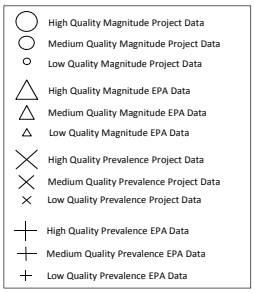
1,1-Dichloroethane

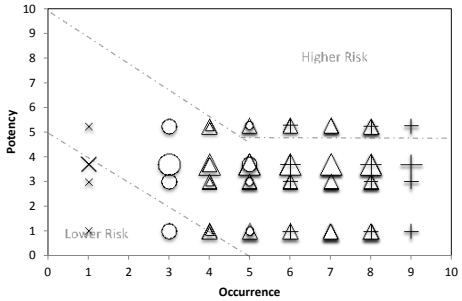
VOC

cVOC list

CAS 75-35-4

Category AWWA CCL3





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	3.7	8.2	6.8
All Data	3.2	7.0	6.1
EPA	4.0	7.0	7.0

Drinking Water Equivalent Level (DWEL) = 7
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
RAISHE RfD	CCL3 Dossiers	0.2	mg/kg-d	3.70		1
Cancer Slope Factor	CA OEHHA	0.0057	(mg/kg-d)^-1	1.00		0.5
Oral Slope Factor	CA OEHHA	0.0057	mg/kg-d	5.24		0.5
Cal. Prop. 65 MADL or NSRL	CA OEHHA	1	Boolean	3.00		0.5

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Median Concentration in Aquifer Samples	(USGS, 2006)	0.2	ug/L	5.00	52	0.4
Frequency Detection in Aquifer Samples	(USGS, 2006)	0.0024	%	1.00	47	0.4
Max Concentration in River	(Krasner)	0.2	ug/L	3.00	60	0.6
Median Concentration in River	(Krasner)	0.2	ug/L	5.00	60	0.3

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	4.9	65	0.26
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	4.1	73	0.17
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	5.7	40	0.55
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	5.1	68	0.24
Equal Potency (P) and M (no Pr)	(P + M) /2	5	4.6	52	0.50
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	4.6	60	0.32
Potency wt'd Magnitude	M^(P/10)	7	1.8	51	0.42
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	4.4	56	0.36
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.4	62	0.41

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Finished Water	(NCOD Finished 1)	500	ug/L	8.00	20483	1
Median Concentration in Finished Water	(NCOD Finished 1)	1.2	ug/L	7.00	20483	0.6
Frequency Detection in PWSs/Sites	(NCOD Finished 1)	1.14	%	8.00	20483	1
90th Percentile in Finished Water	(NCOD Finished 1)	5.6	ug/L	7.00	20483	1
99th Percentile in Finished Water	(NCOD Finished 1)	27	ug/L	7.00	20483	1
Max Concentration in Finished Water	(NCOD Finished 2)	159	ug/L	8.00	24808	1
Median Concentration in Finished Water	(NCOD Finished 2)	1	ug/L	6.00	24808	0.6
Frequency Detection in PWSs/Sites	(NCOD Finished 2)	0.74	%	6.00	24808	1
90th Percentile in Finished Water	(NCOD Finished 2)	3.8	ug/L	7.00	24808	1
99th Percentile in Finished Water	(NCOD Finished 2)	25	ug/L	7.00	24808	1
Max Concentration in Finished Water	(NAWQA Ambient)	39	ug/L	8.00	4350	1
Median Concentration in Finished Water	(NAWQA Ambient)	0.05	ug/L	4.00	4350	0.6
Frequency Detection in PWSs/Sites	(NAWQA Ambient)	3.1	%	9.00	4350	1
90th Percentile in Finished Water	(NAWQA Ambient)	0.316	ug/L	5.00	4350	1
99th Percentile in Finished Water	(NAWQA Ambient)	5.6	ug/L	6.00	4350	1
Max Concentration in Ambient Water	(NAWQA)	39	ug/L	8.00	24	0.8
Median Concentration in Ambient Water	(NAWQA)	0.05	ug/L	4.00	24	0.4
90th Percentile Concentration in Ambient Water	(NAWQA)	0.316	ug/L	5.00	24	0.8
Frequency Detection in total results >MRL	(UCMR 3 Total)	3	%	9.00	7256	1
Frequency Detection in PWS > MRL	(UCMR 3 PWS)	4.5	%	9.00	1451	1
Max Concentration in Finished Water	(UCMR 3 Total)	2.78	ug/L	5.00	7256	1

Compound 1,2,3-Trichloropropane

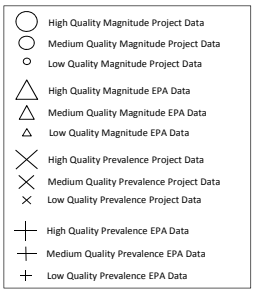
Update

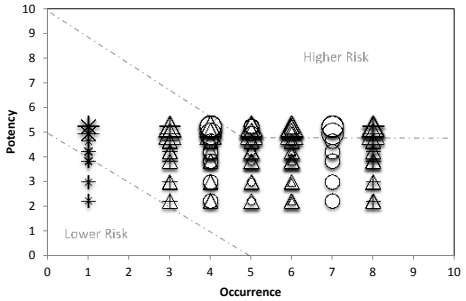
1,2,3-Trichloropropane

VOC

CAS 96-18-4

Category AWWA CCL3





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	5.2	5.6	5.3
All Data	4.2	4.8	5.5
EPA	7.0	3.0	6.0

Drinking Water Equivalent Level (DWEL) = 0.21
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
EPA IRIS (ITER) RfD	CCL3 Dossiers	0.006	mg/kg-d	5.22		1
RAISHE RfD	CCL3 Dossiers	0.006	mg/kg-d	5.22		1
Minimum Risk Level (ATSDR (ITER))	CCL3 Dossiers	0.06	mg/kg-d	4.22		0.5
Supplemental NOEL	CCL3 Dossiers	5.71	mg/kg-d	2.24		0.5
RAISHE Slope Factor	CCL3 Dossiers	7	(mg/kg-d)^-1	3.85		0.5
Lowest Oral Chronic Level LOAEL	RTECS	22.9	mg/kg-d	4.64		0.5
Cancer Slope Factor	RAISHE	7	(mg/kg-d)^-1	3.85		0.5
Minimum Risk Level	ASTOR (ITER)	0.06	mg/kg-d	4.22		0.5
NOAEL	IRIS	5.71	mg/kg-d	5.24		1
LOAEL	IRIS	11.4	mg/kg-d	4.94		1
Cal. Prop. 65 MADL or NSRL	CA OEHHA	1	Boolean	3.00		0.5

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	4.7	68	0.23
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	4.5	68	0.23
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	4.9	66	0.25
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	4.5	73	0.18
Equal Potency (P) and M (no Pr)	(P + M) /2	5	4.9	47	0.55
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	4.7	57	0.35
Potency wt'd Magnitude	M^(P/10)	7	2.1	34	0.61
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	3.4	69	0.22
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.6	45	0.57

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Median Concentration in Aquifer Samples	(USGS, 2006)	0.2	ug/L	5.00	52	0.4
Frequency Detection in Aquifer Samples	(USGS, 2006)	0.0181	%	1.00	47	0.4
Max Concentration in Stream	(NAWQA DW-CF)	18	ug/L	7.00	50	0.8
90th Percentile Concentration in Stream	(NAWQA DW-CF)	0.2	ug/L	4.00	50	0.8
95th Percentile Concentration in Stream	(NAWQA DW-CF)	0.2	ug/L	4.00	50	0.8

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Finished Water	(NCOD Finished 1)	112	ug/L	8.00	17392	1
Median Concentration in Finished Water	(NCOD Finished 1)	0.92	ug/L	6.00	17392	0.6
Frequency Detection in PWSs/Sites	(NCOD Finished 1)	0.25	%	3.00	17392	1
Max Concentration in Finished Water	(NCOD Finished 2)	3000	ug/L	8.00	24088	1
Median Concentration in Finished Water	(NCOD Finished 2)	0.5	ug/L	6.00	24088	0.6
Frequency Detection in PWSs/Sites	(NCOD Finished 2)	0.079	%	1.00	24088	1
Max Concentration in Finished Water	(NAWQA Ambient)	2.92	ug/L	5.00	4309	1
Median Concentration in Finished Water	(NAWQA Ambient)	0.4	ug/L	6.00	4309	0.6
Frequency Detection in PWSs/Sites	(NAWQA Ambient)	1	%	8.00	4309	1
90th Percentile in Finished Water	(NAWQA Ambient)	0.097	ug/L	3.00	4309	1
Max Concentration in Ambient Water	(NAWQA)	2.92	ug/L	5.00	24	0.8
Median Concentration in Ambient Water	(NAWQA)	0.4	ug/L	6.00	24	0.4
90th Percentile Concentration in Ambient Water	(NAWQA)	0.97	ug/L	5.00	24	0.8
Frequency Detection in total results >MRL	(UCMR 3 Total)	1	%	8.00	7256	1
Frequency Detection in PWS > MRL	(UCMR 3 PWS)	1.6	%	8.00	1451	1
Max Concentration in Finished Water	(UCMR 3 Total)	0.9	ug/L	4.00	7256	1

Compound 1,3-Dinitrobenzene

Update

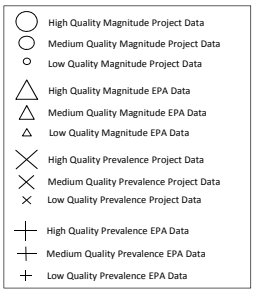
CAS 99-65-0

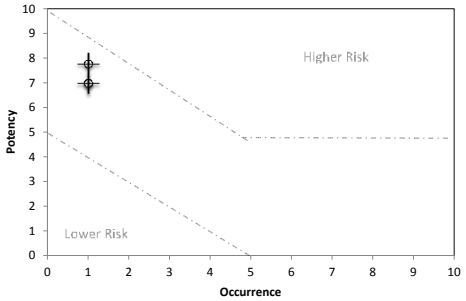
Category CCL3 Sh Lst

1,3-Dinitrobenzene

VOC

cVOC list





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	5.4	1.0	0.0
All Data	7.3	1.0	1.0
EPA	7.0	1.0	8.0

Drinking Water Equivalent Level (DWEL) = 0.0035
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
EPA IRIS (ITER) RfD	CCL3 Dossiers	0.0001	mg/kg-d	7.00		1
EPA HA (2006) RfD	CCL3 Dossiers	0.0001	mg/kg-d	7.00		1
Lowest Oral LD50 (RTECS)	CCL3 Dossiers	1.73	mg/kg	7.76		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Project Assumption	Project Assumptions	--	ug/L	1.00		0.2

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Frequency Detection in PWSs	(UCMR 2)	0	%	1.00	32152	1

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	4.1	76	0.14
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	5.7	36	0.59
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	2.6	87	0.01
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	4.1	76	0.15
Equal Potency (P) and M (no Pr)	(P + M) /2	5	4.1	66	0.37
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	2.7	83	0.06
Potency wt'd Magnitude	M^(P/10)	7	1.0	85	0.03
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	1.0	87	0.01
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	2.8	96	0.09

Compound 1,4-Dioxane

Update

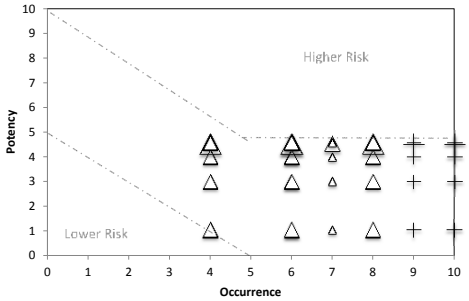
1,4-Dioxane

Industrial

CAS 123-91-1

Category CCL3 Sh Lst

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	4.5	9.7	6.7
All Data	3.4	9.7	6.2
EPA	5.0	9.0	8.0

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Minimum Risk Level (ATSDR (ITER))	CCL3 Dossiers	0.1	mg/kg-d	4.00		0.5
EPA Lifetime Cancer Risk, 10^-4	CCL3 Dossiers	0.3	mg/L	4.52		1
Cancer Slope Factor	RAISHE	0.011	(mg/kg-d)^-1	1.04		0.5
Oral Slope Factor	CA OEHHA	0.027	mg/kg-d	4.57		0.5
Cal. Prop. 65 MADL or NSRL	CA OEHHA	1	Boolean	3.00		0.5

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Detect Value	(CAL DHS)	46.2	ug/L	8.00	869	0.8
Median Detect Value	(CAL DHS)	2.1	ug/L	7.00	869	0.4
Frequency Detection	(CAL DHS)	9.8	%	9.00	869	0.8
99th Percentile Detect Value	(CAL DHS)	7.6	ug/L	6.00	869	0.8
Frequency Detection in total results >MRL	(UCMR 3 Total)	11.9	%	10.00	7171	1
Frequency Detection in PWS > MRL	(UCMR 3 PWS)	19.4	%	10.00	1446	1
Max Concentration in Finished Water	(UCMR 3 Total)	9.23	ug/L	6.00	7171	1
95% percentile in Finished Water	(UCMR 3 Total)	0.26	ug/L	4.00	7171	0.6

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.7	34	0.61
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	4.6	66	0.25
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	6.8	19	0.78
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	6.5	47	0.47
Equal Potency (P) and M (no Pr)	(P + M) /2	5	4.8	48	0.54
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	5.2	40	0.55
Potency wt'd Magnitude	M^(P/10)	7	1.9	42	0.52
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	5.8	24	0.73
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.5	53	0.50

Compound 3-chloro-4-dichloromethyl-5-hydroxy-2(5H)-furanone

Update

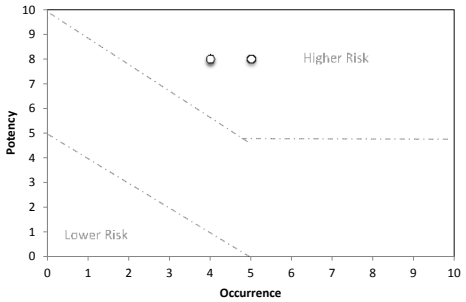
3-chloro-4-dichloromethyl-5-hydroxy-2(5H)-furanone

DBP

CAS 77439-76-0

Category CCL4NOM

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	4.0
All Data	8.0	0.0	4.3
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Assumed-Rfd	Plewa et al, 2006	--	mg/kg-d	8.00		0.25

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in U.S. Drinking Water	(Onstad et al., 2008)	0.85	ug/L	4.00	30	0.75
Median Concentration in U.S. Drinking Water	(Onstad et al., 2008)	0.05	ug/L	4.00	30	0.45
Mean Concentration in U.S. Drinking Water	(Onstad et al., 2008)	0.11	ug/L	5.00	30	0.45

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	ND	NA	NA
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	ND	NA	NA
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	ND	NA	NA
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	ND	NA	NA
Equal Potency (P) and M (no Pr)	(P + M) /2	5	6.2	17	0.84
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	ND	NA	NA
Potency wt'd Magnitude	M^(P/10)	7	ND	NA	NA
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	ND	NA	NA
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	4.6	13	0.88

Compound 3-Hydroxycarbofuran

Update

3-Hydroxycarbofuran

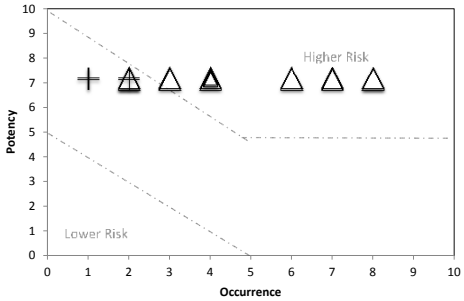
Pesticide

Insecticide

CAS 1665-82-6

Category AWWA CCL3

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	7.2	1.5	4.4
All Data	7.2	1.5	4.6
EPA	7.0	2.0	7.0

Drinking Water Equivalent Level (DWEL) = 0.0021
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
EPA OPP RfD	CCL3 Dossiers	0.00006	mg/kg-d	7.22		1
Lowest Oral LD50 (RTECS)	CCL3 Dossiers	7	mg/kg	7.15		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Finished Water	(NCOD Finished 2)	66.3	ug/L	8.00	12700	1
Median Concentration in Finished Water	(NCOD Finished 2)	2.2	ug/L	7.00	12700	0.6
Frequency Detection in PWSs/Sites	(NCOD Finished 2)	0.14	%	2.00	12700	1
90th Percentile in Finished Water	(NCOD Finished 2)	2.2	ug/L	6.00	12700	1
99th Percentile in Finished Water	(NCOD Finished 2)	66.3	ug/L	8.00	12700	1
Max Concentration in Finished Water	(NAWQA Ambient)	0.07	ug/L	2.00	4539	1
Median Concentration in Finished Water	(NAWQA Ambient)	0.07	ug/L	4.00	4539	0.6
Frequency Detection in PWSs/Sites	(NAWQA Ambient)	0.022	%	1.00	4539	1
90th Percentile in Finished Water	(NAWQA Ambient)	0.07	ug/L	3.00	4539	1
99th Percentile in Finished Water	(NAWQA Ambient)	0.07	ug/L	2.00	4539	1
Max Concentration in Ambient Water	(NAWQA)	0.07	ug/L	2.00	24	0.8
Median Concentration in Ambient Water	(NAWQA)	0.07	ug/L	4.00	24	0.4

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.1	58	0.34
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	6.2	23	0.74
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	4.1	78	0.11
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	4.3	74	0.17
Equal Potency (P) and M (no Pr)	(P + M) /2	5	5.9	22	0.79
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	4.3	65	0.26
Potency wt'd Magnitude	M^(P/10)	7	3.0	16	0.82
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	2.2	85	0.03
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	4.4	19	0.82

Compound Acetaminophen

Update

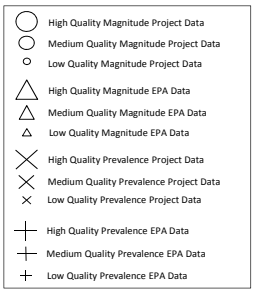
CAS 103-90-2

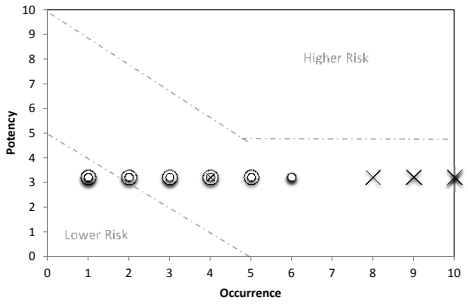
Category EC

Acetaminophen

PPCP

Pain reliever





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	8.0	2.5
All Data	3.2	9.3	3.0
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
NOEL	TAW Assumption	0.6	mg/kg-d	3.22		0.5

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	4.7	67	0.24
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	4.0	74	0.16
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	5.4	52	0.41
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	6.3	51	0.43
Equal Potency (P) and M (no Pr)	(P + M) /2	5	3.1	98	0.07
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	4.1	73	0.17
Potency wt'd Magnitude	M^(P/10)	7	1.4	71	0.19
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	5.4	37	0.58
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.1	82	0.22

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Untreated Drinking Water Study	(Focazio et al., 2008)	0.16	ug/L	3.00	73	0.6
Frequency Detention in Untreated Drinking Water Study	(Focazio et al., 2008)	8.1	%	9.00	73	0.6
Max Concentration in Fresh Surface Waters Study	(Fenech et al., 2012)	10	ug/L	6.00	-	0.4
Mean Concentration in Fresh Surface Waters Study	(Fenech et al., 2012)	0.706	ug/L	6.00	-	0.2
Frequency Detection in Fresh Surface Waters Study	(Fenech et al., 2012)	59	%	10.00	-	0.4
Max Concentration of PPCPs in Near Shore Lake Michigan	(Ferguson et al., 2013)	0.017	ug/L	1.00	64	0.6
Mean Max Concentration of PPCPs in Near Shore Lake Michigan	(Ferguson et al., 2013)	0.00536	ug/L	2.00	64	0.3
Frequency Detection of PPCPs in Near Shore Lake Michigan	(Ferguson et al., 2013)	25	%	10.00	64	0.6
Max Concentration of Pharmaceuticals and PPCPs in Surface Waters	(Bernot et al., 2013)	0.45	ug/L	4.00	102	0.6
Mean Concentration of Pharmaceuticals and PPCPs in Surface Waters	(Bernot et al., 2013)	0.0172	ug/L	3.00	102	0.3
Frequency Detection of Pharmaceuticals and PPCPs in Surface Waters	(Bernot et al., 2013)	56	%	10.00	102	0.6
Mean Concentration of PPCPs in Treated Wastewater	(Hedgespeth et al., 2012)	0.354	ug/L	6.00	-	0.15
Frequency Detection of PPCPs in Treated Wastewater	(Hedgespeth et al., 2012)	100	%	10.00	-	0.15
Mean Concentration of PPCPs in Surface Water	(Hedgespeth et al., 2012)	0.015	ug/L	3.00	-	0.3
Frequency Detection of PPCPs in Surface Water	(Hedgespeth et al., 2012)	22.2	%	10.00	-	0.3
Max Concentration of Pharmaceuticals in Treated Drinking Water in Missouri	(Wang et al., 2010)	0.056	ug/L	2.00	9	0.6
Max Concentration of Pharmaceuticals in Groundwater Used For Public Drinking Water in California	(Fram & Belitz, 2011)	1.89	ug/L	5.00	1231	0.2
Median Concentration of Pharmaceuticals in Groundwater Used For Public Drinking Water in California	(Fram & Belitz, 2011)	0.18	ug/L	5.00	1231	0.2
Frequency Detection of Pharmaceuticals in Groundwater Used For Public Drinking Water in California	(Fram & Belitz, 2011)	0.32	%	4.00	1231	0.2
Max Concentration of Pharmaceuticals in Surface Water in Ontario Canada	(Kleywegt et al., 2011)	0.298	ug/L	3.00	125	0.6
Median Concentration of Pharmaceuticals in Surface Water in Ontario Canada	(Kleywegt et al., 2011)	0.0001	ug/L	1.00	125	0.3
Frequency Detection of Pharmaceuticals in Surface Water in Ontario Canada	(Kleywegt et al., 2011)	11	%	10.00	125	0.6
95th Percentile of Pharmaceuticals in Surface Water in Ontario Canada	(Kleywegt et al., 2011)	0.095	ug/L	3.00	125	0.6
Max Concentration of Pharmaceuticals in Drinking Water in Ontario Canada	(Kleywegt et al., 2011)	0.017	ug/L	1.00	123	0.75
Frequency Detection of Pharmaceuticals in Drinking Water in Ontario Canada	(Kleywegt et al., 2011)	1	%	8.00	123	0.75
Median Concentration of Pharmaceuticals in Urban Streams	(Veach & Bernot, 2011)	0.46	ug/L	6.00	25	0.2
Frequency Detection of Pharmaceuticals in Urban Streams	(Veach & Bernot, 2011)	84	%	10.00	25	0.4
Max Concentration of Pharmaceuticals Found in Groundwater	(Barnes et al., 2008)	0.38	ug/L	4.00	47	0.3
Frequency Detection of Pharmaceuticals Found in Groundwater	(Barnes et al., 2008)	6.4	%	9.00	47	0.3
Max Concentration of Pharmaceuticals in the Upper Tennessee River Basin	(Conley et al., 2008)	0.0123	ug/L	1.00	120	0.4
Median Concentration of Pharmaceuticals in the Upper Tennessee River Basin	(Conley et al., 2008)	0.0029	ug/L	1.00	120	0.2
Frequency Detection of Pharmaceuticals in the Upper Tennessee River Basin	(Conley et al., 2008)	13.3	%	10.00	120	0.4
Max Concentration in Secondary/Tertiary Effluent in California	(Anderson et al., 2010)	0.55	ug/L	4.00		1
Median Concentration in Secondary/Tertiary Effluent in California	(Anderson et al., 2010)	0.01	ug/L	2.00		0.6
Mean Concentration in Secondary/Tertiary Effluent in California	(Anderson et al., 2010)	0.119	ug/L	5.00		0.6
Maximum Concentration in the Lower Colorado River Watershed	(Guo et al., 2010)	0.014	ug/L	1.00	19	0.6
Median Concentration in the Lower Colorado River Watershed	(Guo et al., 2010)	0.002	ug/L	1.00	19	0.3
Percent Detection in the Lower Colorado River Watershed	(Guo et al., 2010)	42	%	10.00	19	0.6
Maximum Concentration in Nevada WWTP	(Guo et al., 2010)	0.029	ug/L	1.00	4	0.15
Median Concentration in Nevada WWTP	(Guo et al., 2010)	0.01	ug/L	2.00	4	0.15
Percent Detection in Nevada WWTP	(Guo et al., 2010)	75	%	10.00	4	0.15

Occurrence (EPA, Dossiers + UCMR Data)

Compound Acetochlor ESA

Update

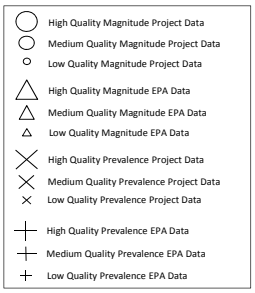
CAS 187-022-11-3

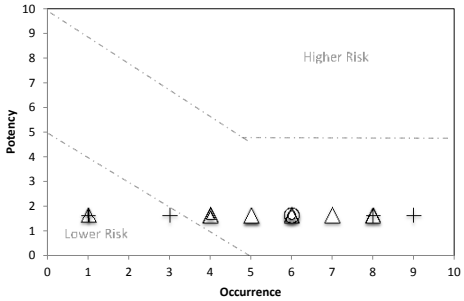
Category CCL3 Sh Lst

Acetochlor ESA

Pesticide

Herbicide/Acetochlor + degradates





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	5.3	5.4
All Data	1.6	5.3	5.2
EPA	5.0	1.0	1.0

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Supplemental NOEL	CCL3 Dossiers	23	mg/kg-d	1.64		0.5

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Source Water	(Battaglin, 1998)	5.01	ug/L	6.00	64	0.6
Median Concentration in Source Water	(Battaglin, 1998)	0.88	ug/L	6.00	39	0.3
75th Percentile Concentration in Source Water	(Battaglin, 1998)	1.6	ug/L	6.00	46	0.3
95th Percentile Concentration in Source Water	(Battaglin, 1998)	2.69	ug/L	6.00	54	0.6

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	3.4	84	0.05
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	2.5	84	0.05
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	4.3	73	0.17
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	3.4	83	0.07
Equal Potency (P) and M (no Pr)	(P + M) /2	5	3.4	93	0.11
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	2.9	82	0.07
Potency wt'd Magnitude	M^(P/10)	7	1.3	74	0.16
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	3.3	70	0.20
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.0	85	0.19

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Finished Water	(UCMR 2)	1.2	ug/L	5.00	11157	1
Mean Concentration in Finished Water	(UCMR 2)	1.2	ug/L	7.00	11157	0.6
Frequency Detection in PWSs	(UCMR 2)	0.2	%	3.00	11157	1
Median Concentration in Finished Water	(UCMR Finished)	0	ug/L	1.00	3615	0.6
Frequency Detection in PWSs/Sites	(UCMR Finished)	0	%	1.00	3615	1
Max Concentration in Finished Water	(NAWQA Ambient)	30.4	ug/L	8.00	5529	1
Median Concentration in Finished Water	(NAWQA Ambient)	0.032	ug/L	4.00	5529	0.6
Frequency Detection in PWSs/Sites	(NAWQA Ambient)	5.02	%	9.00	5529	1
90th Percentile in Finished Water	(NAWQA Ambient)	0.784	ug/L	5.00	5529	1
99th Percentile in Finished Water	(NAWQA Ambient)	8.49	ug/L	6.00	5529	1
Max Concentration in Ambient Water	(NAWQA)	30.4	ug/L	8.00	24	0.8
Median Concentration in Ambient Water	(NAWQA)	0.032	ug/L	4.00	24	0.4
90th Percentile Concentration in Ambient Water	(NAWQA)	0.784	ug/L	5.00	24	0.8
Max Concentration in Finished Water	(PDP 2001)	0.02	ug/L	1.00	137	1
Frequency Detection in Finished Water	(PDP 2001)	1.3	%	8.00	137	1

Compound Acetochlor OA

Update

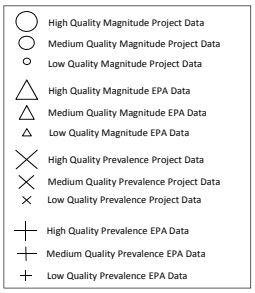
CAS 194992-44-4

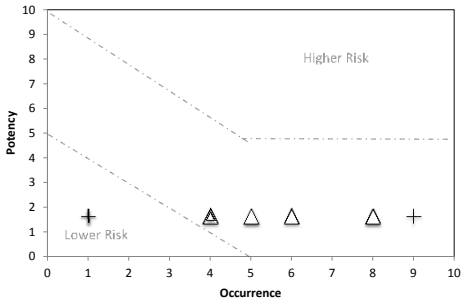
Category CCL3 Sh Lst

Acetochlor OA

Pesticide

Herbicide/Acetochlor + degradates





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	3.7	6.4
All Data	1.6	3.7	5.1
EPA	5.0	1.0	1.0

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Supplemental NOEL	CCL3 Dossiers	23	mg/kg-d	1.64		0.5

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Frequency Detection in PWSs	(UCMR 2)	0	%	1.00	11157	1
Median Concentration in Finished Water	(UCMR Finished)	0	ug/L	1.00	3615	0.6
Frequency Detection in PWSs/Sites	(UCMR Finished)	0	%	1.00	3615	1
Max Concentration in Finished Water	(NAWQA Ambient)	30.4	ug/L	8.00	5529	1
Median Concentration in Finished Water	(NAWQA Ambient)	0.032	ug/L	4.00	5529	0.6
Frequency Detection in PWSs/Sites	(NAWQA Ambient)	5.02	%	9.00	5529	1
90th Percentile in Finished Water	(NAWQA Ambient)	0.784	ug/L	5.00	5529	1
99th Percentile in Finished Water	(NAWQA Ambient)	8.49	ug/L	6.00	5529	1
Max Concentration in Ambient Water	(NAWQA)	30.4	ug/L	8.00	24	0.8
Median Concentration in Ambient Water	(NAWQA)	0.032	ug/L	4.00	24	0.4
90th Percentile Concentration in Ambient Water	(NAWQA)	0.784	ug/L	5.00	24	0.8

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	3.0	86	0.02
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	2.3	85	0.03
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	3.7	82	0.07
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	2.7	86	0.03
Equal Potency (P) and M (no Pr)	(P + M) /2	5	3.4	94	0.10
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	2.7	84	0.05
Potency wt'd Magnitude	M^(P/10)	7	1.3	75	0.15
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	2.5	83	0.06
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.0	86	0.18

Compound Acetochlor

Update

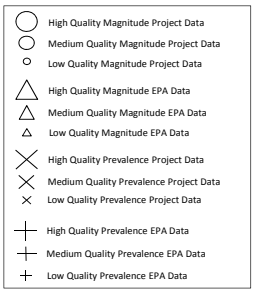
Acetochlor

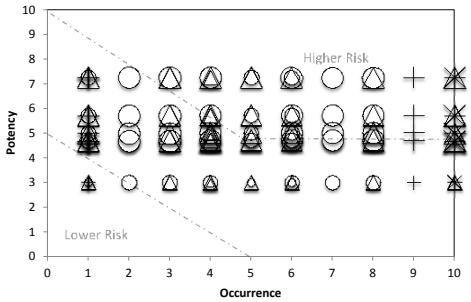
Pesticide

Herbicide/Acetochlor + degradates

CAS 34256-82-1

Category CCL3 Sh Lst





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	5.3	4.4	5.3
All Data	5.0	6.0	4.8
EPA	5.0	1.0	1.0

Drinking Water Equivalent Level (DWEL) = 0.7
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Chronic RfD	EPA Health Benchmark Pest List	0.02	mg/kg-d	4.70		1
EPA IRIS (ITER) RfD	CCL3 Dossiers	0.02	mg/kg-d	4.70		1
RAISHE RfD	CCL3 Dossiers	0.02	mg/kg-d	4.70		1
Lowest Oral LD50 (RTECS)	CCL3 Dossiers	5.45	mg/kg	7.26		1
NOAEL	IRIS	2	mg/kg-d	5.70		1
LOAEL	IRIS	10	mg/kg-d	5.00		1
Cal. Prop. 65 MADL or NSRL	CA OEHHA	1	Boolean	3.00		0.5

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.2	53	0.40
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	5.1	54	0.39
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	5.3	58	0.34
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	5.5	61	0.31
Equal Potency (P) and M (no Pr)	(P + M) /2	5	4.9	44	0.58
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	5.2	37	0.58
Potency wt'd Magnitude	M^(P/10)	7	2.2	30	0.66
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	4.1	62	0.30
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.8	41	0.61

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration of Emerging Contaminants in Freshwater	(Murray et al., 2010)	10	ug/L	6.00	-	0.6
Mean Concentration of Emerging Contaminants in Freshwater	(Murray et al., 2010)	0.11	ug/L	5.00	-	0.3
Frequency Detection of Emerging Contaminants in Freshwater	(Murray et al., 2010)	23.8	%	10.00	-	0.6
Max Concentration in Stream	(USGA, 2002)	0.311	ug/L	4.00	36	0.8
Max Concentration in Source Water	(Battaglin, 1998)	25.1	ug/L	7.00	64	0.6
Median Concentration in Source Water	(Battaglin, 1998)	0.4	ug/L	6.00	39	0.3
75th Percentile Concentration in Source Water	(Battaglin, 1998)	1.14	ug/L	6.00	46	0.3
95th Percentile Concentration in Source Water	(Battaglin, 1998)	11.4	ug/L	8.00	54	0.6
Max Concentration in Source Water	(Ebbert, 2002)	0.13	ug/L	3.00	25	0.6
Frequency Detection in Surface Waters of the Yakima River Basin, WA	(Ebbert, 2002)	13.265	%	10.00	25	0.6
75th Percentile Concentration in Source Water	(Ebbert, 2002)	0.002	ug/L	1.00	11	0.3
90th Percentile Concentration in Source Water	(Ebbert, 2002)	0.012	ug/L	2.00	16	0.6

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Frequency Detection in PWSs	(UCMR 1)	0	%	1.00	34274	1
Frequency Detection in PWSs	(UCMR 2)	0	%	1.00	11193	1
Median Concentration in Finished Water	(UCMR Finished)	0	ug/L	1.00	3615	0.6
Frequency Detection in PWSs/Sites	(UCMR Finished)	0	%	1.00	3615	1
Max Concentration in Finished Water	(NAWQA Ambient)	30.4	ug/L	8.00	5529	1
Median Concentration in Finished Water	(NAWQA Ambient)	0.032	ug/L	4.00	5529	0.6
Frequency Detection in PWSs/Sites	(NAWQA Ambient)	5.02	%	9.00	5529	1
90th Percentile in Finished Water	(NAWQA Ambient)	0.784	ug/L	5.00	5529	1
99th Percentile in Finished Water	(NAWQA Ambient)	8.49	ug/L	6.00	5529	1
Max Concentration in Ambient Water	(NAWQA)	30.4	ug/L	8.00	24	0.8
Median Concentration in Ambient Water	(NAWQA)	0.032	ug/L	4.00	24	0.4
90th Percentile Concentration in Ambient Water	(NAWQA)	0.784	ug/L	5.00	24	0.8
Max Concentration in Ambient Water	(PPMP)	0.334	ug/L	4.00	-	0.8
Percent Detection in Ambient Water	(PPMP)	35.6	%	10.00	-	0.8
95th Percentile Concentration in Ambient Water	(PPMP)	0.002	ug/L	1.00	-	0.8
Maximum Concentration in Finished Water	(PPMP)	0.395	ug/L	4.00	-	1
Frequency Detection in Finished Water	(PPMP)	30.2	ug/L	10.00	-	1
95th Percentile Concentration in Finished Water	(PPMP)	0.061	ug/L	3.00	-	1

Compound Acrolein

Update

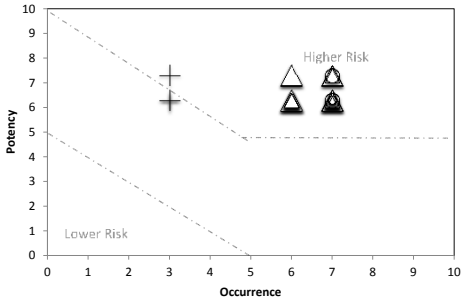
Acrolein

Industrial

CAS 107-02-8

Category AWWA CCL3

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	6.6	3.0	6.4
All Data	6.5	3.0	6.6
EPA	6.0	3.0	7.0

Drinking Water Equivalent Level (DWEL) = 0.0175
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
EPA IRIS (ITER) RfD	CCL3 Dossiers	0.0005	mg/kg-d	6.30		1
RAISHE RfD	CCL3 Dossiers	0.0005	mg/kg-d	6.30		1
Minimum Risk Level (ATSDR (ITER))	CCL3 Dossiers	0.0005	mg/kg-d	6.30		0.5
Lowest Oral Chronic Level LOAEL (RTECS)	CCL3 Dossiers	0.5	mg/kg-d	6.30		0.5
Minimum Risk Level	ASTOR (ITER)	0.0005	mg/kg-d	6.30		0.5
NOAEL	EPA (IRIS-Online)	0.05	mg/kg-d	7.30		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Median Concentration in Aquifer Samples	(USGS, 2006)	2	ug/L	7.00	52	0.4

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Finished Water	(NAWQA Ambient)	3.4	ug/L	6.00	1108	1
Median Concentration in Finished Water	(NAWQA Ambient)	2.35	ug/L	7.00	1108	0.6
Frequency Detection in PWSs/Sites	(NAWQA Ambient)	0.18	%	3.00	1108	1
90th Percentile in Finished Water	(NAWQA Ambient)	3.4	ug/L	7.00	1108	1
99th Percentile in Finished Water	(NAWQA Ambient)	3.4	ug/L	6.00	1108	1
Max Concentration in Ambient Water	(NAWQA)	3.4	ug/L	6.00	24	0.8
Median Concentration in Ambient Water	(NAWQA)	2.35	ug/L	7.00	24	0.4
90th Percentile Concentration in Ambient Water	(NAWQA)	3.4	ug/L	7.00	24	0.8

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.6	38	0.57
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	6.1	25	0.72
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	5.2	60	0.32
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	4.7	71	0.20
Equal Potency (P) and M (no Pr)	(P + M) /2	5	6.5	15	0.86
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	5.4	32	0.64
Potency wt'd Magnitude	M^(P/10)	7	3.4	11	0.88
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	3.2	72	0.18
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	4.7	12	0.89

Compound Alachlor ESA

Update

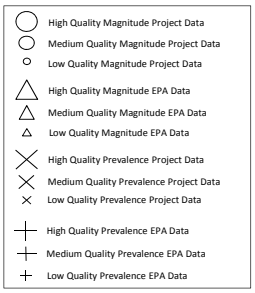
CAS 140939-15-7

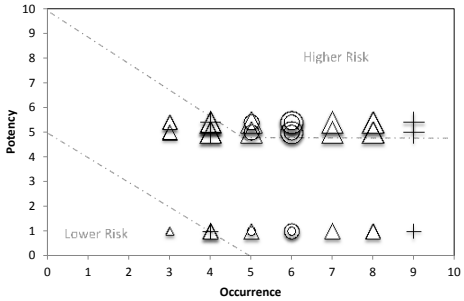
Category CCL3 Sh Lst

Alachlor ESA

Pesticide

Herbicide/Alachlor + degradates





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	5.3	6.5	5.3
All Data	4.2	6.5	5.4
EPA	4.0	9.0	3.0

Drinking Water Equivalent Level (DWEL) = 0.35
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
RfD	2012 Health Advisory	0.01	mg/kg-d	5.00		1
Lifetime Cancer Risk 10^-4	2012 Health Advisory	0.04	mg/L	5.40		1
Supplemental NOEL	CCL3 Dossiers	157	mg/kg-d	1.00		0.5
EPA Lifetime Cancer Risk, 10^-4	CCL3 Dossiers	0.04	mg/L	5.40		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Source Water	(Battaglin, 1998)	4.52	ug/L	6.00	64	0.6
Median Concentration in Source Water	(Battaglin, 1998)	0.58	ug/L	6.00	39	0.3
75th Percentile Concentration in Source Water	(Battaglin, 1998)	0.99	ug/L	5.00	46	0.3
95th Percentile Concentration in Source Water	(Battaglin, 1998)	2.14	ug/L	6.00	54	0.6

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Finished Water	(UCMR 2)	1.3	ug/L	5.00	11157	1
Mean Concentration in Finished Water	(UCMR 2)	1.2	ug/L	7.00	11157	0.6
Frequency Detection in PWSs	(UCMR 2)	0.3	%	4.00	11157	1
Max Concentration in Ambient Water	(NAWQA)	38.2	ug/L	8.00	24	0.8
Median Concentration in Ambient Water	(NAWQA)	0.015	ug/L	3.00	24	0.4
90th Percentile Concentration in Ambient Water	(NAWQA)	0.256	ug/L	4.00	24	0.8
Max Concentration in Finished Water	(PDP 2001)	0.5	ug/L	4.00	-	1
Frequency Detection in Finished Water	(PDP 2001)	3.8	%	9.00	-	1

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.1	61	0.31
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	4.6	65	0.26
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	5.5	49	0.44
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	5.3	63	0.29
Equal Potency (P) and M (no Pr)	(P + M) /2	5	4.8	49	0.53
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	5.0	47	0.47
Potency wt'd Magnitude	M^(P/10)	7	2.0	36	0.59
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	4.3	58	0.34
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.6	47	0.55

Compound Alachlor OA

Update

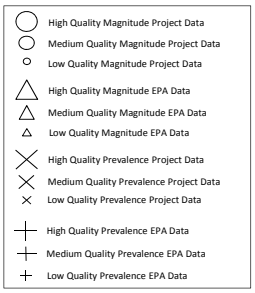
CAS 171262-17-2

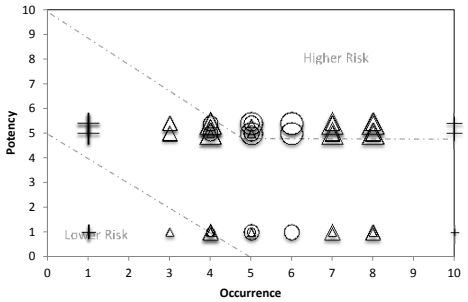
Category CCL3 Sh Lst

Alachlor OA

Pesticide

Herbicide/Alachlor + degradates





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	5.3	1.0	5.8
All Data	4.2	3.3	5.4
EPA	5.0	9.0	3.0

Drinking Water Equivalent Level (DWEL) = 0.35
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
RfD	2012 Health Advisory	0.01	mg/kg-d	5.00		1
Lifetime Cancer Risk 10^-4	2012 Health Advisory	0.04	mg/L	5.40		1
Supplemental NOEL	CCL3 Dossiers	157	mg/kg-d	1.00		0.5
EPA Lifetime Cancer Risk, 10^-4	CCL3 Dossiers	0.04	mg/L	5.40		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Source Water	(Battaglin, 1998)	4.3	ug/L	6.00	64	0.6
Median Concentration in Source Water	(Battaglin, 1998)	0.2	ug/L	5.00	39	0.3
75th Percentile Concentration in Source Water	(Battaglin, 1998)	0.2	ug/L	4.00	46	0.3
95th Percentile Concentration in Source Water	(Battaglin, 1998)	0.66	ug/L	5.00	54	0.6

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Frequency Detection in PWSs	(UCMR 2)	0	%	1.00	11157	1
Max Concentration in Ambient Water	(NAWQA)	38.2	ug/L	8.00	24	0.8
Median Concentration in Ambient Water	(NAWQA)	0.015	ug/L	3.00	24	0.4
90th Percentile Concentration in Ambient Water	(NAWQA)	0.256	ug/L	4.00	24	0.8
Max Detect Value	(CAL DHS)	14	ug/L	7.00	-	0.8
Median Detect Value	(CAL DHS)	4.29	ug/L	8.00	-	0.4
Frequency Detection	(CAL DHS)	0.0003	%	1.00	-	0.8
Max Concentration	(STORET)	10.8	ug/L	7.00	-	0.4
Median Concentration	(STORET)	0.06	ug/L	4.00	-	0.2
Frequency Detection	(STORET)	17.1	%	10.00	-	0.4
90th Percentile Concentration	(STORET)	0.55	ug/L	5.00	-	0.2
Max Concentration in Finished Water	(PDP 2001)	0.5	ug/L	4.00	-	1
Frequency Detection in Finished Water	(PDP 2001)	0.07	%	1.00	-	1

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	4.3	75	0.15
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	4.2	70	0.20
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	4.3	75	0.15
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	3.7	80	0.10
Equal Potency (P) and M (no Pr)	(P + M) /2	5	4.8	50	0.52
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	4.2	72	0.18
Potency wt'd Magnitude	M^(P/10)	7	2.0	37	0.58
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	2.6	79	0.10
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.6	48	0.54

Compound Alachlor

Update

Alachlor

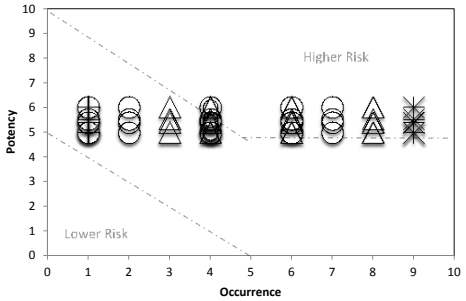
Pesticide

Herbicide/Alachlor + degradates

CAS 15972-60-8

Category CCL3 Sh Lst

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	5.4	5.0	4.6
All Data	5.4	7.0	4.1
EPA	4.0	9.0	3.0

Drinking Water Equivalent Level (DWEL) = 0.35
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
RfD	2012 Health Advisory	0.01	mg/kg-d	5.00		1
Lifetime Cancer Risk 10^-4	2012 Health Advisory	0.04	mg/L	5.40		1
Rfd (chronic oral exposure)	EPA (IRIS-Online)	0.01	mg/kg-d	5.00		1
NOAEL	EPA (IRIS-Online)	1	mg/kg-d	6.00		1
LOAEL	EPA (IRIS-Online)	3	mg/kg-d	5.52		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration of Emerging Contaminants in Freshwater	(Murray et al., 2010)	0.63	ug/L	4.00	-	0.6
Mean Concentration of Emerging Contaminants in Freshwater	(Murray et al., 2010)	0.05	ug/L	4.00	-	0.3
Frequency Detection of Emerging Contaminants in Freshwater	(Murray et al., 2010)	7.5	%	9.00	-	0.6
Max Concentration in Stream	(USGA, 2002)	0.4	ug/L	4.00	36	0.8
95th Percentile Concentration in Stream	(USGA, 2002)	0.005	ug/L	1.00	25	0.8
Max Concentration in Source Water	(Battaglin, 1998)	17.2	ug/L	7.00	64	0.6
Median Concentration in Source Water	(Battaglin, 1998)	0.04	ug/L	4.00	39	0.3
75th Percentile Concentration in Source Water	(Battaglin, 1998)	0.16	ug/L	4.00	46	0.3
95th Percentile Concentration in Source Water	(Battaglin, 1998)	2.94	ug/L	6.00	54	0.6
Max Concentration in Source Water	(Ebbert, 2002)	0.044	ug/L	2.00	25	0.6
Frequency Detection in Surface Waters of the Yakima River Basin, WA	(Ebbert, 2002)	9.1837	%	9.00	25	0.6
90th Percentile Concentration in Source Water	(Ebbert, 2002)	0.002	ug/L	1.00	16	0.6

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.5	46	0.48
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	5.4	45	0.49
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	5.5	48	0.45
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	6.2	54	0.39
Equal Potency (P) and M (no Pr)	(P + M) /2	5	4.8	51	0.51
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	5.4	31	0.65
Potency wt'd Magnitude	M^(P/10)	7	2.1	31	0.65
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	4.6	55	0.38
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.7	42	0.60

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Frequency Detection in PWSs	(UCMR 2)	0	%	1.00	1193	1
Max Concentration in Finished Water	(NAWQA Ambient)	38.2	ug/L	8.00	7166	1
Median Concentration in Finished Water	(NAWQA Ambient)	0.015	ug/L	3.00	7166	0.6
Frequency Detection in PWSs/Sites	(NAWQA Ambient)	7.9	%	9.00	7166	1
90th Percentile in Finished Water	(NAWQA Ambient)	0.256	ug/L	4.00	7166	1
99th Percentile in Finished Water	(NAWQA Ambient)	3.33	ug/L	6.00	7166	1

Compound Aldicarb

Update

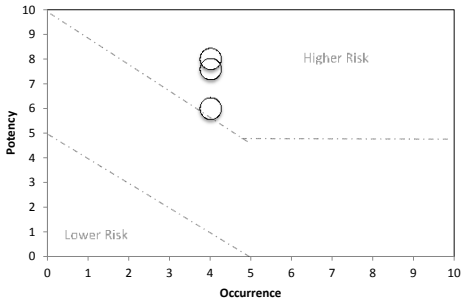
CAS 116-06-3
Category CCL4NOM

Aldicarb

Pesticide

Insecticide

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	7.2	0.0	4.0
All Data	7.2	0.0	4.0
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = 0.035
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
RfD	2012 Health Advisory	0.001	mg/kg-d	6.00		1
NOAEL	IRIS	0.01	mg/kg-d	8.00		1
LOAEL	IRIS	0.025	mg/kg-d	7.60		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Stream	(USGA, 2002)	0.56	ug/L	4.00	36	0.8

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	ND	NA	NA
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	ND	NA	NA
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	ND	NA	NA
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	ND	NA	NA
Equal Potency (P) and M (no Pr)	(P + M) /2	5	5.6	28	0.73
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	ND	NA	NA
Potency wt'd Magnitude	M^(P/10)	7	ND	NA	NA
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	ND	NA	NA
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	4.2	23	0.78

Compound Alkylphenol mono- to tri-oxylates

Update

Alkylphenol mono- to tri-oxylates

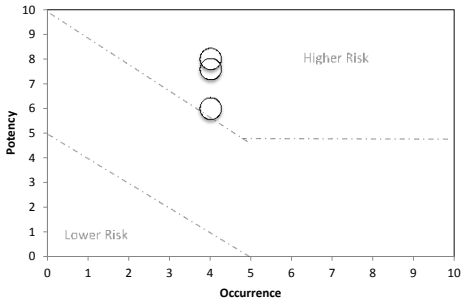
Industrial

Alkylphenol

CAS 68555-24-8

Category CCL4NOM

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	7.2	0.0	4.0
All Data	7.2	0.0	4.0
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = 0.035
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
RfD	2012 Health Advisory	0.001	mg/kg-d	6.00		1
NOAEL	IRIS	0.01	mg/kg-d	8.00		1
LOAEL	IRIS	0.025	mg/kg-d	7.60		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Stream	(USGA, 2002)	0.56	ug/L	4.00	36	0.8

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	ND	NA	NA
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	ND	NA	NA
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	ND	NA	NA
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	ND	NA	NA
Equal Potency (P) and M (no Pr)	(P + M) /2	5	5.6	28	0.73
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	ND	NA	NA
Potency wt'd Magnitude	M^(P/10)	7	ND	NA	NA
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	ND	NA	NA
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	4.2	23	0.78

Compound Alpha-Hexachlorocyclohexane

Update

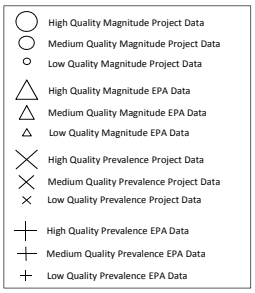
Alpha-Hexachlorocyclohexane

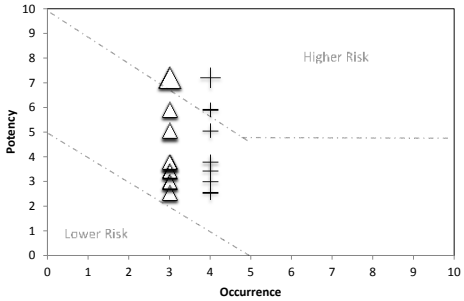
Pesticide

Insecticide

CAS 319-84-6

Category CCL4NOM





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	7.2	4.0	3.0
All Data	4.4	4.0	3.0
EPA	7.0	4.0	3.0

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Minimum Risk Level (ATSDR (ITER))	CCL3 Dossiers	0.008	mg/kg-d	5.10		0.5
Lowest Oral Chronic Level LOAEL (RTECS)	CCL3 Dossiers	1.2	mg/kg-d	5.92		0.5
RAISHE Slope Factor	CCL3 Dossiers	6.3	(mg/kg-d)^-1	3.80		0.5
EPA Lifetime Cancer Risk, 10^-4	CCL3 Dossiers	0.0006	mg/L	7.22		1
Cancer Slope Factor	RAISHE	6.3	(mg/kg-d)^-1	3.80		0.5
Cancer Slope Factor	CA OEHHA	2.7	(mg/kg-d)^-1	3.43		0.5
Oral Slope Factor	CA OEHHA	2.7	mg/kg-d	2.57		0.5
Cal. Prop. 65 MADL or NSRL	CA OEHHA	1	Boolean	3.00		0.5

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Finished Water	(NAWQA Ambient)	0.21	ug/L	3.00	7119	1
Median Concentration in Finished Water	(NAWQA Ambient)	0.011	ug/L	3.00	7119	0.6
Frequency Detection in PWSs/Sites	(NAWQA Ambient)	0.295	%	4.00	7119	1
90th Percentile in Finished Water	(NAWQA Ambient)	0.059	ug/L	3.00	7119	1
99th Percentile in Finished Water	(NAWQA Ambient)	0.21	ug/L	3.00	7119	1

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	3.9	80	0.09
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	4.1	72	0.18
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	3.7	81	0.08
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	4.2	75	0.16
Equal Potency (P) and M (no Pr)	(P + M) /2	5	3.7	86	0.18
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	3.9	76	0.14
Potency wt'd Magnitude	M^(P/10)	7	1.6	61	0.31
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	2.8	77	0.13
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.3	72	0.31

Compound Amoxicillin

Update

CAS 26787-78-0

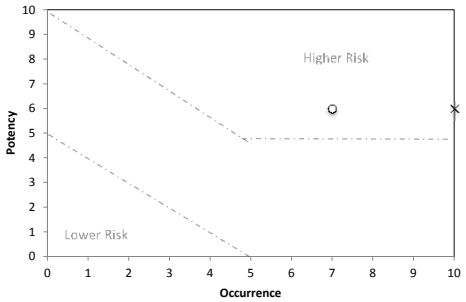
Category CCL4NOM

Amoxicillin

PPCP

Antibiotic

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	0.0
All Data	6.0	10.0	7.0
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Assumed-Rfd	TAW Assumption	--	mg/kg-d	6.00		0.25

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Mean Concentration of Organic Chemicals in Treated Wastewater	(Oppenheimer et al., 2011)	1.23	ug/L	7.00	12	0.1
Frequency Detection of Organic Chemicals in Treated Wastewater	(Oppenheimer et al., 2011)	45	%	10.00	12	0.1

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	7.3	10	0.89
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	6.6	15	0.83
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	7.9	10	0.89
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	8.0	11	0.88
Equal Potency (P) and M (no Pr)	(P + M) /2	5	6.5	16	0.85
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	7.1	9	0.90
Potency wt'd Magnitude	M^(P/10)	7	3.2	13	0.85
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	6.6	7	0.92
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	4.6	15	0.86

Compound Anatoxin A

Update

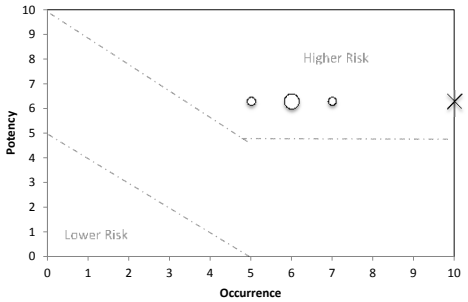
Anatoxin A

Cyanotoxin

CAS 64285-06-9

Category EC

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	0.0
All Data	6.3	10.0	6.0
EPA	6.0	9.0	8.0

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Supplemental RfD-like Value	Supplemental	0.0005	mg/kg-d	6.30		0.5

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Midwestern United States Study	(Graham et al., 2010)	9.5	ug/L	6.00	23	0.6
Median Concentration in Midwestern United States Study	(Graham et al., 2010)	0.16	ug/L	5.00	23	0.3
Mean Concentration in Midwestern United States Study	(Graham et al., 2010)	1.6	ug/L	7.00	23	0.3
Frequency Detection in Midwestern United States Study	(Graham et al., 2010)	30	%	10.00	23	0.6

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	7.2	11	0.88
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	6.7	12	0.86
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	7.6	11	0.88
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	8.2	10	0.89
Equal Potency (P) and M (no Pr)	(P + M) /2	5	6.2	18	0.83
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	7.0	10	0.89
Potency wt'd Magnitude	M^(P/10)	7	3.1	14	0.84
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	6.5	8	0.91
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	4.5	16	0.85

Compound Azinphos-methyl

Update

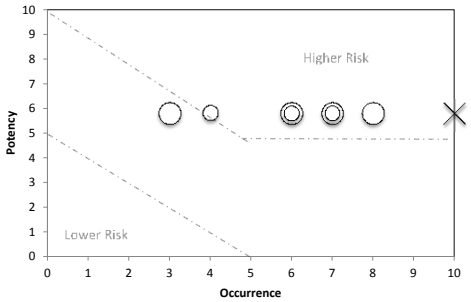
CAS 86-50-0
Category CCL4NOM

Azinphos-methyl

Pesticide

Insecticide

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	5.8	10.0	6.0
All Data	5.8	10.0	5.9
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = 0.0525
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Chronic RfD	EPA Health Benchmark Pest List	0.0015	mg/kg-d	5.82		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Hood River Basin, Effluent of stream Lenz	(USGS, 2011)	37	ug/L	8.00	15	0.8
Frequency Detection in Hood River Basin, Effluent of stream Lenz	(USGS, 2011)	69	%	10.00	15	0.8
Median Concentration in Hood River Basin, Effluent of stream Lenz	(USGS, 2011)	0.95	ug/L	6.00	15	0.4
Max Concentration in Hood River Basin, Effluent of stream Odell	(USGS, 2011)	18	ug/L	7.00	2	0.8
Frequency Detection in Hood River Basin, Effluent of stream Odell	(USGS, 2011)	50	%	10.00	2	0.8
Max Concentration in Hood River Basin, Surface Water of stream Lenz	(USGS, 2011)	4.8	ug/L	6.00	10	0.8
Median Concentration in Hood River Basin, Surface Water of stream Lenz	(USGS, 2011)	1.3	ug/L	7.00	10	0.4
Frequency Detection in Hood River Basin, Surface Water of stream Lenz	(USGS, 2011)	90	%	10.00	10	0.8
Max Concentration in Hood River Basin, Surface Water of stream Odell	(USGS, 2011)	0.26	ug/L	3.00	10	0.8
Median Concentration in Hood River Basin, Surface Water of stream Odell	(USGS, 2011)	0.045	ug/L	4.00	10	0.4
Frequency Detection in Hood River Basin, Surface Water of stream Lenz	(USGS, 2011)	50	%	10.00	10	0.8

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	6.9	15	0.83
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	6.4	20	0.77
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	7.4	14	0.84
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	7.9	13	0.85
Equal Potency (P) and M (no Pr)	(P + M) /2	5	5.8	24	0.77
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	6.7	14	0.84
Potency wt'd Magnitude	M^(P/10)	7	2.8	18	0.80
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	6.4	10	0.89
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	4.2	22	0.79

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Compound Bacitracin zinc

Update

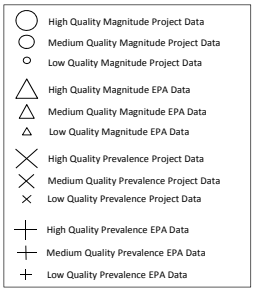
CAS 1405-89-6

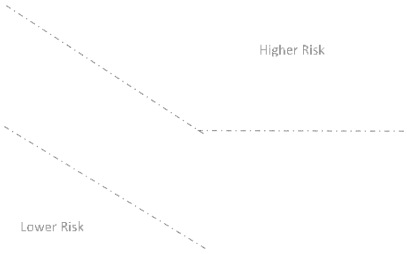
Category CCL4NOM

Bacitracin zinc

PPCP

Antibiotic





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	0.0
All Data	6.0	0.0	0.0
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Assumed-Rfd	TAW Assumption	--	mg/kg-d	6.00		0.25

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	ND	NA	NA
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	ND	NA	NA
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	ND	NA	NA
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	ND	NA	NA
Equal Potency (P) and M (no Pr)	(P + M) /2	5	ND	NA	NA
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	ND	NA	NA
Potency wt'd Magnitude	M^(P/10)	7	ND	NA	NA
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	ND	NA	NA
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	ND	NA	NA

Compound BCIM

Update

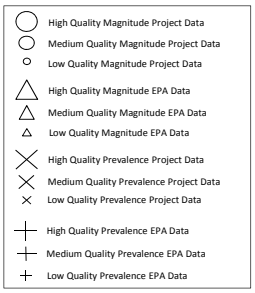
CAS 124-48-1

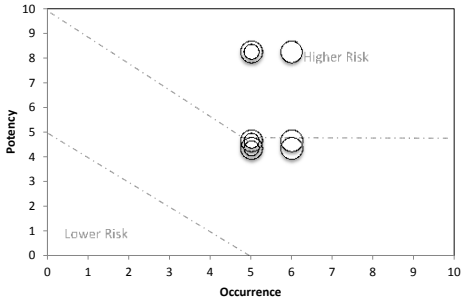
Category EC

BCIM

DBP

Halomethane





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	5.8	0.0	5.5
All Data	5.8	0.0	5.3
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = 7
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Rfd (chronic oral exposure)	EPA (IRIS-Online)	0.2	mg/kg-d	8.27		1
NOAEL	EPA (IRIS-Online)	21.4	mg/kg-d	4.67		1
LOAEL	EPA (IRIS-Online)	42.9	mg/kg-d	4.37		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration of DBP's in Drinking Water	(Krasner, 2011)	3	ug/L	5.00	12	0.75
75th Percentile Concentration in Treated Drinking Water	(Krasner & Amy, 2009)	0.5	ug/L	5.00	-	0.45
90th Percentile Concentration in Treated Drinking Water	(Krasner & Amy, 2009)	1.5	ug/L	6.00	-	0.75

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	ND	NA	NA
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	ND	NA	NA
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	ND	NA	NA
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	ND	NA	NA
Equal Potency (P) and M (no Pr)	(P + M) /2	5	5.6	26	0.75
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	ND	NA	NA
Potency wt'd Magnitude	M^(P/10)	7	ND	NA	NA
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	ND	NA	NA
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	4.1	24	0.77

Compound BDCNM

Update

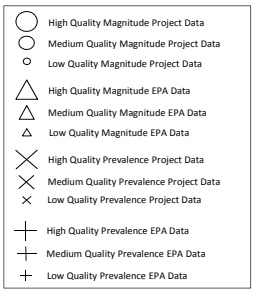
CAS 918-01-4

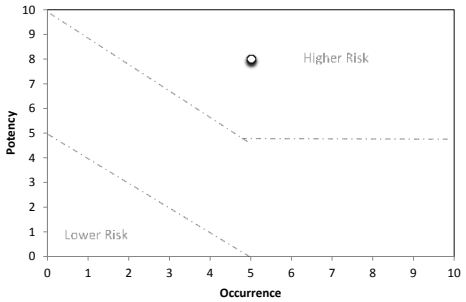
Category EC

BDCNM

DBP

Halonitromethane





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	5.0
All Data	8.0	0.0	5.0
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Assumed-Rfd	Plewa,2004	--	mg/kg-d	8.00		0.25

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration of DBPs in Drinking Water	(Bond et al., 2011)	3	ug/L	5.00	-	0.5
Median Concentration of DBPs in Drinking Water Plant 1	(Bond et al., 2011)	0.3	ug/L	5.00	-	0.3
Max Concentration in Drinking Water Study	(Mitch et al., 2007)	3	ug/L	5.00	-	0.75
75th Percentile Concentration in Drinking Water Study	(Mitch et al., 2007)	0.7	ug/L	5.00	-	0.45
95th Percentile Concentration in Drinking Water Study	(Mitch et al., 2007)	1	ug/L	5.00	-	0.75

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	ND	NA	NA
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	ND	NA	NA
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	ND	NA	NA
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	ND	NA	NA
Equal Potency (P) and M (no Pr)	(P + M) /2	5	6.5	33	0.69
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	ND	NA	NA
Potency wt'd Magnitude	M^(P/10)	7	ND	NA	NA
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	ND	NA	NA
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	4.9	26	0.75

Compound BDIM

Update

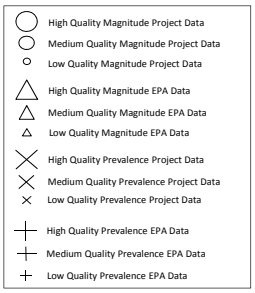
CAS 557-95-9

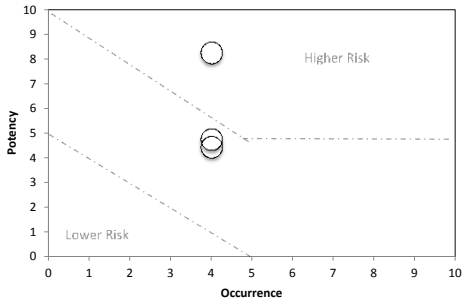
Category EC

BDIM

DBP

Halomethane





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	5.8	0.0	4.0
All Data	5.8	0.0	4.0
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = 7
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Rfd (chronic oral exposure)	EPA (IRIS-Online)	0.2	mg/kg-d	8.27		1
NOAEL	EPA (IRIS-Online)	17.9	mg/kg-d	4.75		1
LOAEL	EPA (IRIS-Online)	35.7	mg/kg-d	4.45		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration of DBP's in Drinking Water	(Krasner, 2011)	0.7	ug/L	4.00	12	0.75

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	ND	NA	NA
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	ND	NA	NA
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	ND	NA	NA
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	ND	NA	NA
Equal Potency (P) and M (no Pr)	(P + M) /2	5	4.9	45	0.57
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	ND	NA	NA
Potency wt'd Magnitude	M^(P/10)	7	ND	NA	NA
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	ND	NA	NA
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.8	39	0.63

Compound Bentazone

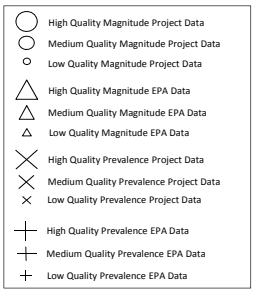
Update

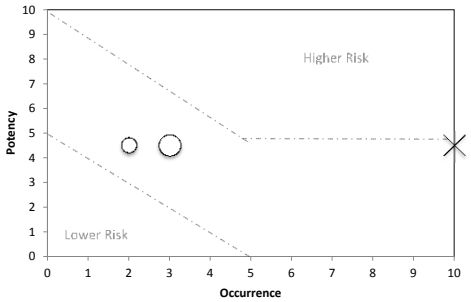
CAS 25057-89-0
Category CCL4NOM

Bentazone

Pesticide

Herbicide





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	4.5	0.0	0.0
All Data	4.5	10.0	2.5
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = 1.05
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
RfD	2012 Health Advisory	0.03	mg/kg-d	4.52		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration of Emerging Contaminants in Freshwater	(Murray et al., 2010)	0.25	ug/L	3.00	-	0.6
Mean Concentration of Emerging Contaminants in Freshwater	(Murray et al., 2010)	0.004	ug/L	2.00	-	0.3
Frequency Detection of Emerging Contaminants in Freshwater	(Murray et al., 2010)	69	%	10.00	-	0.6

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.4	49	0.44
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	5.0	56	0.36
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	5.8	38	0.57
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	7.3	25	0.72
Equal Potency (P) and M (no Pr)	(P + M) /2	5	3.5	90	0.14
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	4.8	55	0.38
Potency wt'd Magnitude	M^(P/10)	7	1.5	67	0.24
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	5.8	25	0.72
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.2	78	0.26

Compound Benzyl butyl phthalate

Update

Benzyl butyl phthalate

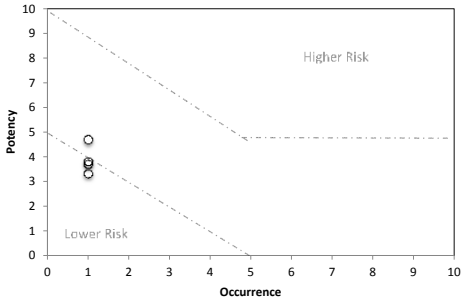
Industrial

Phthalate

CAS 85-68-7

Category CCL4NOM

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	3.9	0.0	0.0
All Data	3.9	0.0	1.0
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = 7
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
RfD	IRIS	0.2	mg/kg-d	3.70		1
EPA RfD	IRIS	0.02	mg/kg-d	4.70		1
NOAEL	IRIS	159	mg/kg-d	3.80		1
LOAEL	IRIS	470	mg/kg-d	3.33		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Project Assumption	Project Assumptions	--	ug/L	1.00		0.2

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	ND	NA	NA
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	ND	NA	NA
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	ND	NA	NA
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	ND	NA	NA
Equal Potency (P) and M (no Pr)	(P + M) /2	5	2.4	104	0.01
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	ND	NA	NA
Potency wt'd Magnitude	M^(P/10)	7	ND	NA	NA
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	ND	NA	NA
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	2.8	97	0.08

Compound Bisphenol A

Update

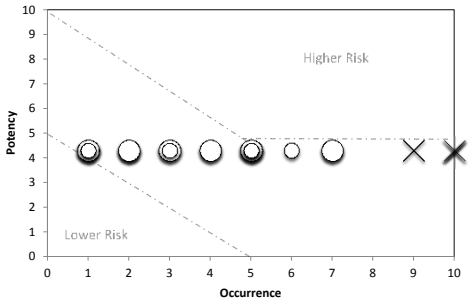
CAS 80-05-7

Category CCL4NOM

Bisphenol A

Industrial

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	4.3	10.0	2.3
All Data	4.3	9.8	3.5
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = 1.75
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
EPA RfD	IRIS	0.05	mg/kg-d	4.30		1
LOAEL	IRIS	50	mg/kg-d	4.30		1

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.5	45	0.49
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	4.9	59	0.33
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	6.1	29	0.67
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	7.0	30	0.66
Equal Potency (P) and M (no Pr)	(P + M) /2	5	3.9	78	0.26
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	5.0	46	0.48
Potency wt'd Magnitude	M^(P/10)	7	1.7	56	0.36
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	5.8	26	0.70
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.4	67	0.36

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Untreated Drinking Water Study	(Focazio et al., 2008)	1.9	ug/L	5.00	73	0.6
Frequency Detention in Untreated Drinking Water Study	(Focazio et al., 2008)	9.5	%	9.00	73	0.6
Frequency Detection of Wastewater Effluent Study	(Dickenson et al., 2010)	75	%	10.00	7	0.15
Max Concentration of Pharmaceuticals in Surface Water in Ontario Canada	(Kleywegt et al., 2011)	0.087	ug/L	2.00	125	0.6
Median Concentration of Pharmaceuticals in Surface Water in Ontario Canada	(Kleywegt et al., 2011)	0.0021	ug/L	1.00	125	0.3
Frequency Detection of Pharmaceuticals in Surface Water in Ontario Canada	(Kleywegt et al., 2011)	22	%	10.00	125	0.6
95th Percentile of Pharmaceuticals in Surface Water in Ontario Canada	(Kleywegt et al., 2011)	0.044	ug/L	3.00	125	0.6
Max Concentration of Pharmaceuticals in Drinking Water in Ontario Canada	(Kleywegt et al., 2011)	0.099	ug/L	2.00	123	0.75
Median Concentration of Pharmaceuticals in Drinking Water in Ontario Canada	(Kleywegt et al., 2011)	0.00014	ug/L	1.00	123	0.45
Frequency Detection of Pharmaceuticals in Drinking Water in Ontario Canada	(Kleywegt et al., 2011)	12	%	10.00	123	0.75
95th Percentile Concentration of Pharmaceuticals in Drinking Water in Ontario Canada	(Kleywegt et al., 2011)	0.017	ug/L	2.00	123	0.75
Max Concentration of Pharmaceuticals Found in Groundwater	(Barnes et al., 2008)	2.55	ug/L	5.00	47	0.3
Frequency Detection of Pharmaceuticals Found in Groundwater	(Barnes et al., 2008)	29.8	%	10.00	47	0.3
Max Concentration of Organic Chemicals in U.S. Riverbank Filtration Systems	(Hoppe-Jones et al., 2010)	0.21	ug/L	3.00	18	0.4
Frequency Detection of Organic Chemicals in U.S. Riverbank Filtration Systems	(Hoppe-Jones et al., 2010)	100	%	10.00	18	0.4
Max Concentration of Emerging Contaminants in Freshwater	(Murray et al., 2010)	12	ug/L	7.00	-	0.6
Mean Concentration of Emerging Contaminants in Freshwater	(Murray et al., 2010)	0.14	ug/L	5.00	-	0.3
Frequency Detection of Emerging Contaminants in Freshwater	(Murray et al., 2010)	41.2	%	10.00	-	0.6
Max Concentration in Stream Study	(Koblin, 2002)	12	ug/L	7.00	80	0.6
Median Concentration in Stream Study	(Koblin, 2002)	0.14	ug/L	5.00	80	0.3
Frequency Detection in Stream Samples	(Koblin, 2002)	41.2	%	10.00	92	0.6
Max Concentration in River Waters	(Sharma et al., 2009)	4	ug/L	6.00	-	0.4
Max Concentration in Secondary/Tertiary Effluent in California	(Anderson et al., 2010)	0.52	ug/L	4.00		1
Median Concentration in Secondary/Tertiary Effluent in California	(Anderson et al., 2010)	0.19	ug/L	5.00		0.6
Mean Concentration in Secondary/Tertiary Effluent in California	(Anderson et al., 2010)	0.088	ug/L	4.00		0.6
Maximum Concentration in Source Waters	(Guo et al., 2010)	0.03	ug/L	1.00		0.6
Maximum Concentration in Plant Effluent	(Guo et al., 2010)	0.03	ug/L	1.00		0.75
Maximum Concentration in the Lower Colorado River Watershed	(Guo et al., 2010)	0.0024	ug/L	1.00	19	0.6
Maximum Concentration within the State Water Project Watershed	(Guo et al., 2010)	0.14	ug/L	3.00	-	0.6
Percent Detection within the State Water Project Watershed	(Guo et al., 2010)	3	%	9.00	-	0.6
Maximum Concentration in CEC Data from 2008-2010	(Guo et al., 2010)	1.9	ug/L	5.00	-	0.6

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Compound Bromoxynil

Update

CAS 1689-84-5

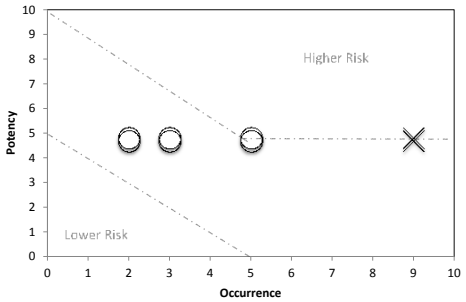
Category CCL4NOM

Bromoxynil

Pesticide

Herbicide

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	4.8	9.0	3.3
All Data	4.8	9.0	3.3
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = 0.525
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Chronic RfD	EPA Health Benchmark Pest List	0.015	mg/kg-d	4.82		1
EPA RfD	IRIS	0.02	mg/kg-d	4.70		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Stream	(USGA, 2002)	0.07	ug/L	2.00	36	0.8
95th Percentile Concentration in Stream	(USGA, 2002)	0.046	ug/L	3.00	25	0.8
Maximum Concentration in New York Study	(Phillips & Bode, 2001)	2.1	ug/L	5.00	52	0.8
Frequency Detection in New York Study	(USGS, 2001)	4	%	9.00	52	0.8

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.5	47	0.47
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	5.1	53	0.40
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	5.8	39	0.56
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	6.9	36	0.60
Equal Potency (P) and M (no Pr)	(P + M) /2	5	4.0	71	0.32
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	5.1	42	0.52
Potency wt'd Magnitude	M^(P/10)	7	1.8	53	0.40
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	5.4	36	0.59
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.4	64	0.39

Compound Butylated hydroxyanisole (BHA)

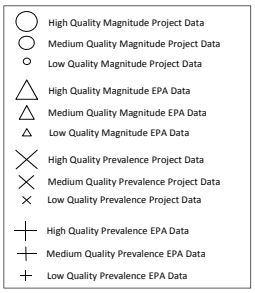
Update

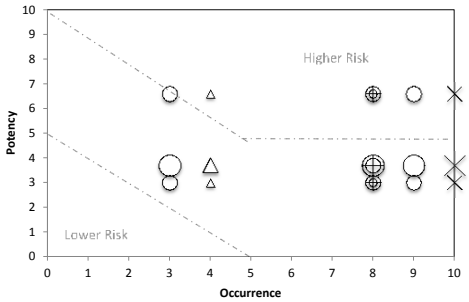
Butylated hydroxyanisole (BHA)

Industrial

CAS 25013-16-5

Category AWWA CCL3





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	3.7	8.0	9.0
All Data	4.4	9.0	6.4
EPA	7.0	8.0	4.0

Drinking Water Equivalent Level (DWEL) = 7
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
RfD	2012 Health Advisory	0.2	mg/kg-d	3.70		1
Lowest Oral Chronic Level LOAEL	RTECS	0.249	mg/kg-d	6.60		0.5
Cal. Prop. 65 MADL or NSRL	CA OEHHA	1	Boolean	3.00		0.5

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Stream Study	(Koblin, 2002)	0.2	ug/L	3.00	80	0.6
Mean Concentration in Raw Drinking Water	(Loriane, 2006)	3.5	ug/L	8.00	15	0.6
Frequency Detection in Raw Drinking Water	(Loriane, 2006)	15.385	%	10.00	15	0.6
Mean Concentration in Finished Drinking Water	(Loriane, 2006)	3.45	ug/L	8.00	12	0.45
Frequency Detection in Finished Drinking Water	(Loriane, 2006)	6.667	ug/L	9.00	12	0.75

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Median Concentration in Finished Water	(NRECS)	0.1	ug/L	4.00	85	0.4
Frequency Detection in PWSs/Sites	(NRECS)	2.4	%	8.00	85	0.8

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	6.1	25	0.72
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	5.3	48	0.45
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	6.9	17	0.81
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	6.7	42	0.53
Equal Potency (P) and M (no Pr)	(P + M) /2	5	5.4	31	0.70
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	5.8	23	0.74
Potency wt'd Magnitude	M^(P/10)	7	2.3	26	0.70
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	5.6	31	0.65
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.8	36	0.66

Compound Carbaryl

Update

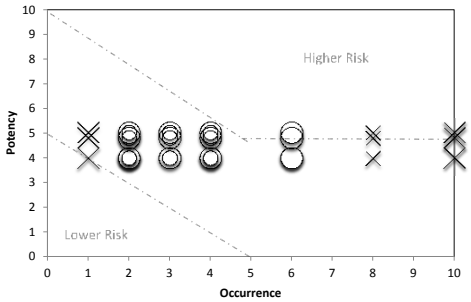
CAS 63-25-2
Category CCL4NOM

Carbaryl

Pesticide

Insecticide

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	4.5	0.0	4.7
All Data	4.5	7.8	3.4
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = 3.5
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
RfD	2012 Health Advisory	0.1	mg/kg-d	4.00		1
EPA RfD	IRIS	0.1	mg/kg-d	4.00		1
NOAEL	IRIS	9.6	mg/kg-d	5.02		1
LOAEL	IRIS	15.6	mg/kg-d	4.81		1

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.0	56	0.36
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	4.7	58	0.34
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	5.3	54	0.39
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	6.1	52	0.42
Equal Potency (P) and M (no Pr)	(P + M) /2	5	3.9	69	0.34
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	4.8	51	0.42
Potency wt'd Magnitude	M^(P/10)	7	1.7	52	0.41
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	4.8	49	0.44
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.4	63	0.40

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Frequency Detention in Untreated Drinking Water Study	(Focazio et al., 2008)	0	%	1.00	73	0.6
Frequency Detection of Pharmaceuticals Found in Groundwater	(Barnes et al., 2008)	2.1	%	8.00	47	0.3
Max Concentration of Emerging Contaminants in Freshwater	(Murray et al., 2010)	0.1	ug/L	2.00	-	0.6
Mean Concentration of Emerging Contaminants in Freshwater	(Murray et al., 2010)	0.04	ug/L	4.00	-	0.3
Frequency Detection of Emerging Contaminants in Freshwater	(Murray et al., 2010)	16.5	%	10.00	-	0.6
Max Concentration in Stream	(USGA, 2002)	5.2	ug/L	6.00	36	0.8
Median Concentration in Stream	(USGA, 2002)	0.004	ug/L	2.00	2	0.4
75th Percentile Concentration in Stream	(USGA, 2002)	0.025	ug/L	2.00	3	0.4
90th Percentile Concentration in Stream	(USGA, 2002)	0.134	ug/L	4.00	5	0.8
95th Percentile Concentration in Stream	(USGA, 2002)	0.269	ug/L	4.00	25	0.8
Max Concentration in Source Water	(Battaglin, 1998)	0.059	ug/L	2.00	64	0.6
Max Concentration in Stream Study	(Koblin, 2002)	0.1	ug/L	2.00	80	0.6
Median Concentration in Stream Study	(Koblin, 2002)	0.04	ug/L	4.00	80	0.3
Frequency Detection in Stream Samples	(Koblin, 2002)	16.5	%	10.00	92	0.6
Max Concentration in Source Water	(Ebbert, 2002)	4.8	ug/L	6.00	25	0.6
Frequency Detection in Surface Waters of the Yakima River Basin, WA	(Ebbert, 2002)	67.347	%	10.00	25	0.6
75th Percentile Concentration in Source Water	(Ebbert, 2002)	0.034	ug/L	3.00	11	0.3
90th Percentile Concentration in Source Water	(Ebbert, 2002)	0.097	ug/L	3.00	16	0.6

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Compound CDIM

Update

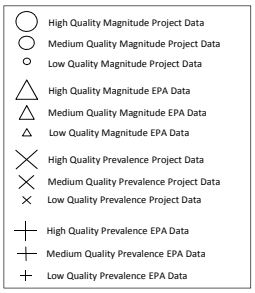
CAS 638-73-3

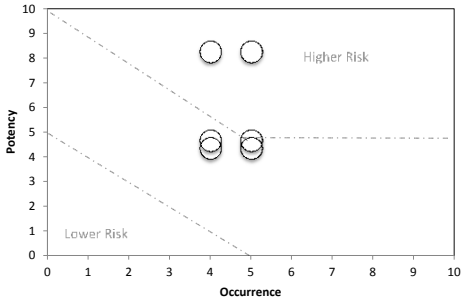
Category EC

CDIM

DBP

Halomethane





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	5.8	0.0	4.5
All Data	5.8	0.0	4.5
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = 7
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Rfd (chronic oral exposure)	EPA (IRIS-Online)	0.2	mg/kg-d	8.27		1
NOAEL	EPA (IRIS-Online)	21.4	mg/kg-d	4.67		1
LOAEL	EPA (IRIS-Online)	42.9	mg/kg-d	4.37		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration of DBP's in Drinking Water	(Krasner, 2011)	2	ug/L	5.00	12	0.75
90th Percentile Concentration in Treated Drinking Water	(Krasner & Amy, 2009)	0.2	ug/L	4.00	-	0.75

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	ND	NA	NA
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	ND	NA	NA
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	ND	NA	NA
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	ND	NA	NA
Equal Potency (P) and M (no Pr)	(P + M) /2	5	5.1	38	0.64
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	ND	NA	NA
Potency wt'd Magnitude	M^(P/10)	7	ND	NA	NA
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	ND	NA	NA
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.9	33	0.69

Compound Cesium 137

Update

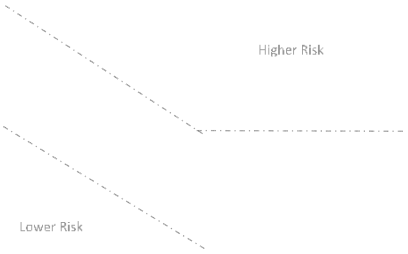
CAS 10045-97-3

Category CCL4NOM

Cesium 137

Inorganic

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	0.0
All Data	8.0	0.0	0.0
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Assumed-Rfd	TAW Assumption	--	mg/kg-d	8.00		0.25

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	ND	NA	NA
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	ND	NA	NA
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	ND	NA	NA
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	ND	NA	NA
Equal Potency (P) and M (no Pr)	(P + M) /2	5	ND	NA	NA
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	ND	NA	NA
Potency wt'd Magnitude	M^(P/10)	7	ND	NA	NA
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	ND	NA	NA
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	ND	NA	NA

Compound Chlorate

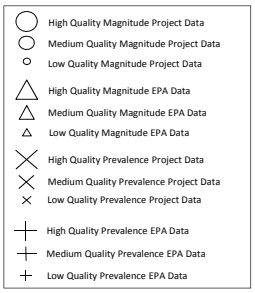
Update

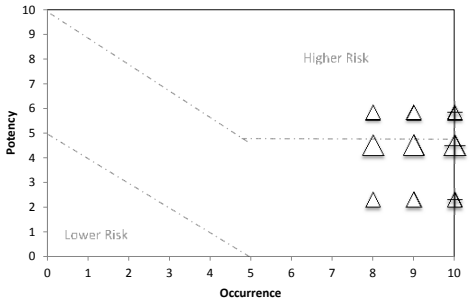
CAS 14866-68-3

Category CCL3 Sh Lst

Chlorate

DBP





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	4.5	10.0	8.0
All Data	4.2	10.0	9.0
EPA	5.0	10.0	10.0

Drinking Water Equivalent Level (DWEL) = 1.05
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
EPA OPP RfD	CCL3 Dossiers	0.03	mg/kg-d	4.52		1
Supplemental NOEL	CCL3 Dossiers	5	mg/kg-d	2.30		0.5
Lowest Oral Chronic Level LOAEL (RTECS)	CCL3 Dossiers	1.4	mg/kg-d	5.85		0.5

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Frequency Detection in total results >MRL	(UCMR 3 Total)	57	%	10.00	12036	1
Frequency Detection in PWS > MRL	(UCMR 3 PWS)	68	%	10.00	1427	1
Max Concentration in Finished Water	(UCMR 3 Total)	6200	ug/L	8.00	12036	1
Median Concentration in Finished Water	(UCMR 3 Total)	34	ug/L	10.00	12036	0.6
95% percentile in Finished Water	(UCMR 3 Total)	363	ug/L	9.00	12036	0.6

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	6.9	16	0.82
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	5.5	41	0.53
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	8.2	7	0.92
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	7.1	28	0.69
Equal Potency (P) and M (no Pr)	(P + M) /2	5	6.6	13	0.88
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	6.3	17	0.81
Potency wt'd Magnitude	M^(P/10)	7	2.5	21	0.76
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	6.3	13	0.85
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	4.0	29	0.72

Compound Chloropicrin

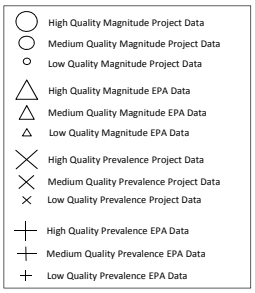
Update

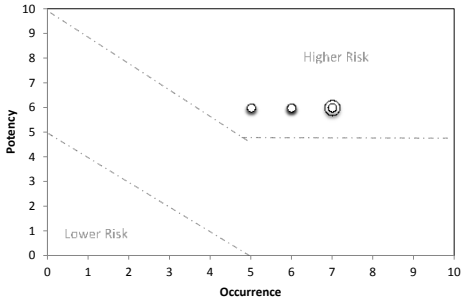
CAS 76-06-2
Category EC

Chloropicrin

DBP

Halonitromethane





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	4.7
All Data	6.0	0.0	5.4
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Assumed-Rfd	Plewa,2004	--	mg/kg-d	6.00		0.25

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration of DBPs in Drinking Water	(Bond et al., 2011)	2	ug/L	5.00	-	0.5
Median Concentration of DBPs in Drinking Water Plant 1	(Bond et al., 2011)	0.2	ug/L	5.00	-	0.3
Maximum Concentration in Drinking Water Plants	(McGurie et al., 2002)	13.6	ug/L	7.00	8283	1
Median Concentration in Drinking Water Plants	(McGurie et al., 2002)	0.5	ug/L	6.00	8283	0.6
90th Percentile in Drinking Water Plants	(McGurie et al., 2002)	0.9	ug/L	5.00	8283	0.6
Maximum Concentration in Surface Waters	(McGurie et al., 2002)	6.4	ug/L	6.00	5725	0.8
Median Concentration in Surface Waters	(McGurie et al., 2002)	0.5	ug/L	6.00	5725	0.4
90th Percentile in Surface Waters	(McGurie et al., 2002)	1.1	ug/L	6.00	5725	0.4
Maximum Concentration in Groundwater	(McGurie et al., 2002)	13.6	ug/L	7.00	2132	0.4

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	ND	NA	NA
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	ND	NA	NA
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	ND	NA	NA
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	ND	NA	NA
Equal Potency (P) and M (no Pr)	(P + M) /2	5	5.7	10	0.90
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	ND	NA	NA
Potency wt'd Magnitude	M^(P/10)	7	ND	NA	NA
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	ND	NA	NA
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	4.2	8	0.92

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Compound Chlorothalonil

Update

CAS 1897-45-6

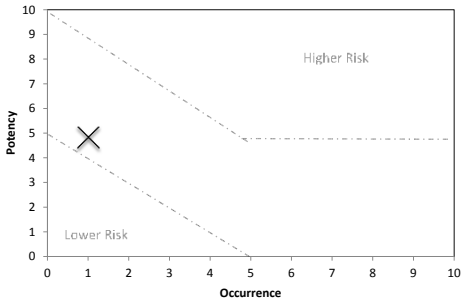
Category CCL4NOM

Chlorothalonil

Pesticide

Fungicide

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	4.8	1.0	1.0
All Data	4.8	1.0	1.0
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = 0.525
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Rfd (chronic oral exposure)	EPA (IRIS-Online)	0.015	mg/kg-d	4.82		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration from Stream Samples in Texas	(USGS,2008)	0	ug/L	1.00	20	0.8
Frequency Detection from Stream Samples in Texas	(USGS, 2008)	0	%	1.00	20	0.8

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	2.9	87	0.01
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	3.9	78	0.11
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	2.0	88	0.00
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	2.9	85	0.04
Equal Potency (P) and M (no Pr)	(P + M) /2	5	2.9	102	0.03
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	2.2	86	0.02
Potency wt'd Magnitude	M^(P/10)	7	1.0	86	0.02
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	1.0	88	0.00
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	2.8	98	0.07

Compound Chlorpyrifos

Update

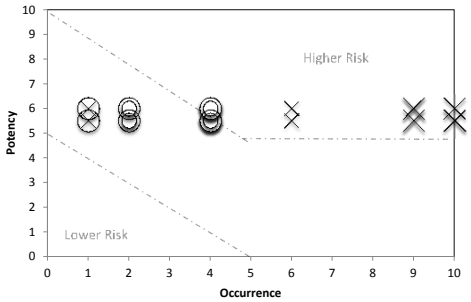
CAS 2921-88-2
Category CCL4NOM

Chlorpyrifos

Pesticide

Insecticide

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	5.8	9.0	2.0
All Data	5.8	8.1	3.1
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = 0.035
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Chronic RfD	EPA Health Benchmark Pest List	0.001	mg/kg-d	6.00		1
EPA RfD	IRIS	0.003	mg/kg-d	5.52		1

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.7	36	0.59
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	5.7	35	0.60
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	5.6	43	0.51
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	6.9	34	0.62
Equal Potency (P) and M (no Pr)	(P + M) /2	5	4.4	58	0.45
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	5.4	33	0.63
Potency wt'd Magnitude	M^(P/10)	7	1.9	40	0.55
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	5.0	45	0.49
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.5	51	0.51

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Untreated Drinking Water Study	(Focazio et al., 2008)	0.5	ug/L	4.00	73	0.6
Frequency Detention in Untreated Drinking Water Study	(Focazio et al., 2008)	5.4	%	9.00	73	0.6
Frequency Detection of Pharmaceuticals Found in Groundwater	(Barnes et al., 2008)	0	%	1.00	47	0.3
Max Concentration of Emerging Contaminants in Freshwater	(Murray et al., 2010)	0.31	ug/L	4.00	-	0.6
Mean Concentration of Emerging Contaminants in Freshwater	(Murray et al., 2010)	0.06	ug/L	4.00	-	0.3
Frequency Detection of Emerging Contaminants in Freshwater	(Murray et al., 2010)	15.3	%	10.00	-	0.6
Max Concentration in Source Water	(Battaglin, 1998)	0.858	ug/L	4.00	64	0.6
75th Percentile Concentration in Source Water	(Battaglin, 1998)	0.014	ug/L	2.00	46	0.3
Max Concentration in Stream Study	(Koblin, 2002)	0.31	ug/L	4.00	80	0.6
Median Concentration in Stream Study	(Koblin, 2002)	0.06	ug/L	4.00	80	0.3
Frequency Detection in Stream Samples	(Koblin, 2002)	15.3	%	10.00	92	0.6
Frequency Detection in Surface Waters of the Yakima River Basin, WA	(Ebbert, 2002)	11.224	%	10.00	25	0.6
90th Percentile Concentration in Source Water	(Ebbert, 2002)	0.004	ug/L	1.00	16	0.6
Max Concentration in Urban Creeks of San Francisco	(Ensminger et al., 2012)	0.05	ug/L	2.00	50	0.4
Max Concentration in Urban Creeks of Orange County	(Ensminger et al., 2012)	0.06	ug/L	2.00	106	0.4
Frequency Detections in Urban Creeks of San Francisco	(Ensminger et al., 2012)	9	%	9.00	50	0.4
Frequency Detections in Urban Creeks of Orange County	(Ensminger et al., 2012)	0.9	%	6.00	106	0.4
Maximum Concentration in New York Study	(Phillips & Bode, 2001)	0.06	ug/L	2.00	52	0.8
Frequency Detection in New York Study	(USGS, 2001)	9.6	%	9.00	52	0.8
Maximum Concentration in CEC Data from 2008-2010	(Guo et al., 2010)	0.5	ug/L	4.00	-	0.6
Percent Detection in CEC Data from 2008-2010	(Guo et al., 2010)	5.4	%	9.00	-	0.6

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Compound Ciprofloxacin

Update

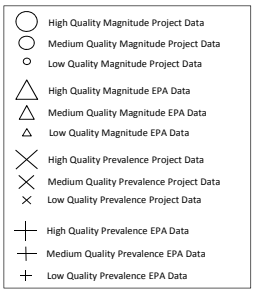
CAS 85721-33-1

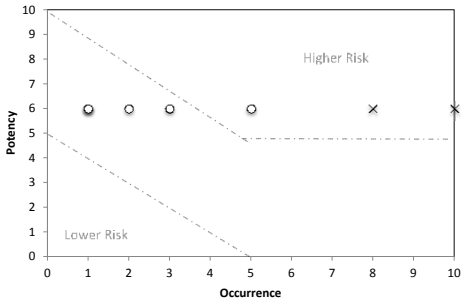
Category EC

Ciprofloxacin

PPCP

Antibiotic





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	0.0
All Data	6.0	9.0	2.2
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = Na
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Assumed-Rfd	TAW Assumption	--	mg/kg-d	6.00		0.25

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration of Organic Wastewater Contaminants in Untreated Drinking Water Sources	(Focazio et al., 2008)	0.03	ug/L	1.00	73	0.6
Frequency Detection of Organic Wastewater Contaminants in Untreated Drinking Water Sources	(Focazio et al., 2008)	1.4	%	8.00	73	0.6
Maximum Concentration in the Lower Colorado River Watershed	(Guo et al., 2010)	0.009	ug/L	1.00	19	0.6
Median Concentration in the Lower Colorado River Watershed	(Guo et al., 2010)	0.005	ug/L	2.00	19	0.3
Percent Detection in the Lower Colorado River Watershed	(Guo et al., 2010)	26	%	10.00	19	0.6
Maximum Concentration in Nevada WWTP	(Guo et al., 2010)	0.14	ug/L	3.00	4	0.15
Median Concentration in Nevada WWTP	(Guo et al., 2010)	0.13	ug/L	5.00	4	0.15
Percent Detection in Nevada WWTP	(Guo et al., 2010)	100	%	10.00	4	0.15
Maximum Concentration in CEC Data from 2008-2010	(Guo et al., 2010)	0.03	ug/L	1.00	-	0.6
Percent Detection in CEC Data from 2008-2010	(Guo et al., 2010)	1.4	%	8.00	-	0.6

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.8	32	0.64
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	5.9	29	0.67
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	5.7	41	0.53
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	7.5	19	0.79
Equal Potency (P) and M (no Pr)	(P + M) /2	5	4.1	68	0.35
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	5.1	41	0.53
Potency wt'd Magnitude	M^(P/10)	7	1.6	62	0.30
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	5.3	39	0.56
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.3	73	0.30

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Compound Cylindrospermopsin

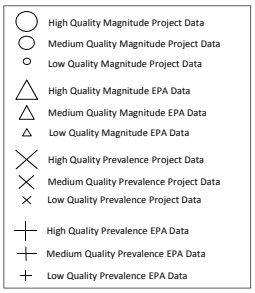
Update

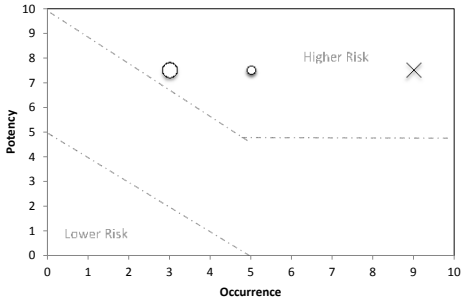
CAS 143545-90-8

Category EC

Cylindrospermopsin

Cyanotoxin





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	0.0
All Data	7.5	9.0	4.3
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Supplemental RfD-like Value	Supplemental	0.00003	mg/kg-d	7.52		0.5

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Midwestern United States Study	(Graham et al., 2010)	0.14	ug/L	3.00	23	0.6
Median Concentration in Midwestern United States Study	(Graham et al., 2010)	0.13	ug/L	5.00	23	0.3
Mean Concentration in Midwestern United States Study	(Graham et al., 2010)	0.13	ug/L	5.00	23	0.3
Frequency Detection in Midwestern United States Study	(Graham et al., 2010)	9	%	9.00	23	0.6

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	7.1	13	0.85
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	7.3	9	0.90
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	6.9	18	0.80
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	8.3	8	0.91
Equal Potency (P) and M (no Pr)	(P + M) /2	5	5.9	21	0.80
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	6.9	11	0.88
Potency wt'd Magnitude	M^(P/10)	7	3.0	15	0.83
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	6.0	16	0.82
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	4.4	18	0.83

Compound DBCNM

Update

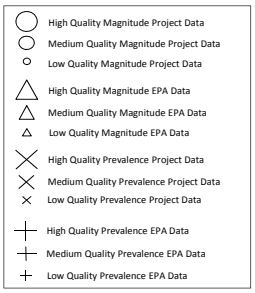
CAS 1184-89-0

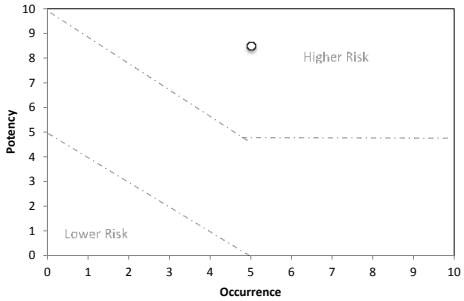
Category EC

DBCNM

DBP

Halonitromethane





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	0.0
All Data	8.5	0.0	5.0
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Assumed-Rfd	Plewa,2004	--	mg/kg-d	8.50		0.25

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration of DBPs in Drinking Water	(Bond et al., 2011)	3	ug/L	5.00	-	0.5

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	ND	NA	NA
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	ND	NA	NA
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	ND	NA	NA
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	ND	NA	NA
Equal Potency (P) and M (no Pr)	(P + M) /2	5	6.8	34	0.68
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	ND	NA	NA
Potency wt'd Magnitude	M^(P/10)	7	ND	NA	NA
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	ND	NA	NA
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	5.1	27	0.74

Compound DBIM

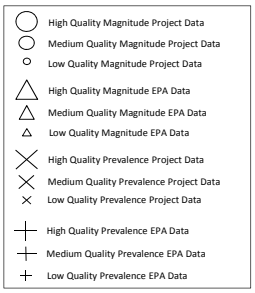
Update

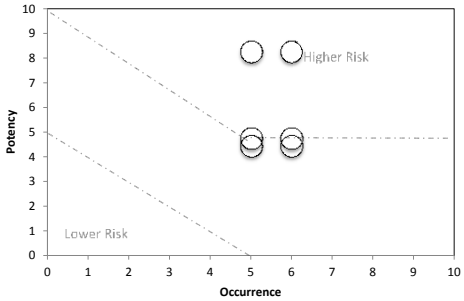
CAS 593-94-2
Category EC

DBIM

DBP

Halomethane





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	5.8	0.0	5.5
All Data	5.8	0.0	5.5
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = 7
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Rfd (chronic oral exposure)	EPA (IRIS-Online)	0.2	mg/kg-d	8.27		1
NOAEL	EPA (IRIS-Online)	17.9	mg/kg-d	4.75		1
LOAEL	EPA (IRIS-Online)	35.7	mg/kg-d	4.45		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration of DBP's in Drinking Water	(Krasner, 2011)	4	ug/L	6.00	12	0.75
90th Percentile Concentration in Treated Drinking Water	(Krasner & Amy, 2009)	0.6	ug/L	5.00	-	0.75

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	ND	NA	NA
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	ND	NA	NA
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	ND	NA	NA
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	ND	NA	NA
Equal Potency (P) and M (no Pr)	(P + M) /2	5	5.7	19	0.82
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	ND	NA	NA
Potency wt'd Magnitude	M^(P/10)	7	ND	NA	NA
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	ND	NA	NA
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	4.2	17	0.84

Compound DCIM

Update

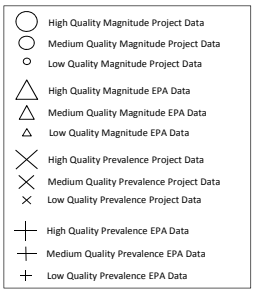
CAS 594-04-7

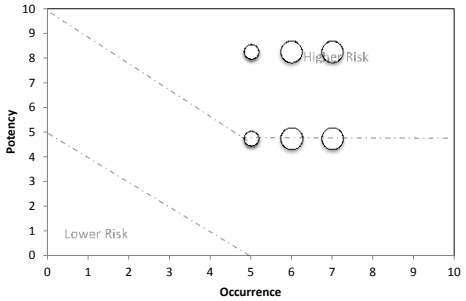
Category EC

DCIM

DBP

Halomethane





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	6.5	0.0	6.5
All Data	6.5	0.0	5.8
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = 7
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Rfd (chronic oral exposure)	EPA (IRIS-Online)	0.2	mg/kg-d	8.27		1
LOAEL	EPA (IRIS-Online)	17.9	mg/kg-d	4.75		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration of DBP's in Drinking Water	(Krasner, 2011)	11	ug/L	7.00	12	0.75
Median Concentration of DBP's in Drinking Water	(Krasner, 2011)	0.3	ug/L	5.00	12	0.45
75th Percentile Concentration of DBP's in Drinking Water	(Krasner, 2011)	1	ug/L	5.00	12	0.45
90th Percentile Concentration in Treated Drinking Water	(Krasner & Amy, 2009)	3	ug/L	6.00	-	0.75

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	ND	NA	NA
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	ND	NA	NA
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	ND	NA	NA
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	ND	NA	NA
Equal Potency (P) and M (no Pr)	(P + M) /2	5	6.1	23	0.78
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	ND	NA	NA
Potency wt'd Magnitude	M^(P/10)	7	ND	NA	NA
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	ND	NA	NA
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	4.5	20	0.81

Compound Dibutyl phthalate

Update

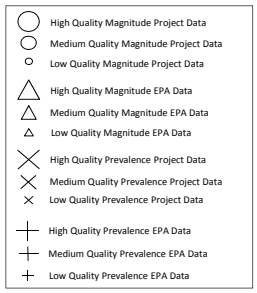
CAS 84-74-2

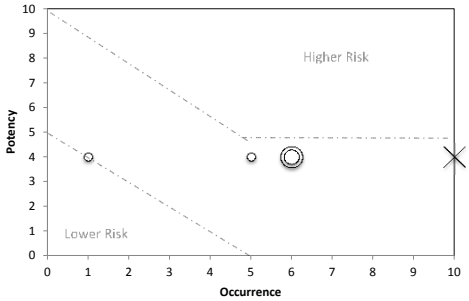
Category CCL4NOM

Dibutyl phthalate

Industrial

Phthalate





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	4.0	0.0	0.0
All Data	4.0	10.0	4.5
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = 3.5
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
RfD	2012 Health Advisory	0.1	mg/kg-d	4.00		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Frequency Detection of Wastewater Effluent Study	(Dickenson et al., 2010)	100	%	10.00	7	0.15
Mean Concentration of Household Chemicals in Wastewater	(Trenholm et al., 2008)	0.13	ug/L	5.00	7	0.1
Frequency Detection of Household Chemicals in Wastewater	(Trenholm et al., 2008)	100	%	10.00	7	0.1
Max Concentration of Emerging Contaminants in Freshwater	(Murray et al., 2010)	8.8	ug/L	6.00	-	0.6
Mean Concentration of Emerging Contaminants in Freshwater	(Murray et al., 2010)	0.5	ug/L	6.00	-	0.3
Frequency Detection of Emerging Contaminants in Freshwater	(Murray et al., 2010)	99	%	10.00	-	0.6
Project Assumption	Project Assumptions	--	ug/L	1.00		0.2

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.6	39	0.56
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	4.8	61	0.31
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	6.4	24	0.73
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	7.0	32	0.64
Equal Potency (P) and M (no Pr)	(P + M) /2	5	4.3	63	0.40
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	5.2	39	0.56
Potency wt'd Magnitude	M^(P/10)	7	1.8	48	0.45
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	5.9	18	0.80
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.5	59	0.44

Compound Dicamba

Update

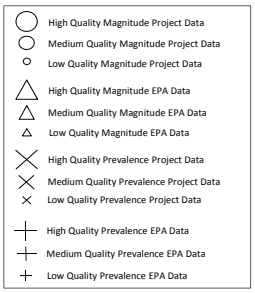
CAS 1918-00-9

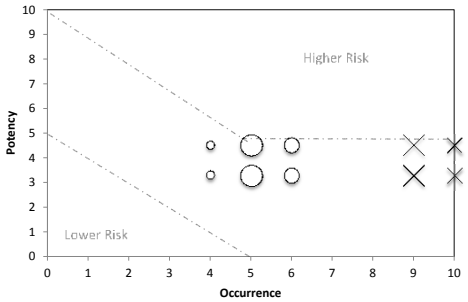
Category CCL4NOM

Dicamba

Pesticide

Herbicide





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	3.9	9.0	5.0
All Data	3.9	9.7	5.0
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = 17.5
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
RfD	2012 Health Advisory	0.5	mg/kg-d	3.30		1
EPA RfD	IRIS	0.03	mg/kg-d	4.52		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Urban Creeks of California	(Ensminger et al., 2012)	3.1	ug/L	6.00	119	0.4
Median Concentration in Urban Creeks of California	(Ensminger et al., 2012)	0.06	ug/L	4.00	106	0.2
Frequency Detections in Urban Creeks of San Francisco	(Ensminger et al., 2012)	25	%	10.00	50	0.4
Frequency Detections in Urban Creeks of Orange County	(Ensminger et al., 2012)	42	%	10.00	106	0.4
Maximum Concentration in New York Study	(Phillips & Bode, 2001)	2.1	ug/L	5.00	52	0.8
Frequency Detection in New York Study	(USGS, 2001)	4	%	9.00	52	0.8

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.6	40	0.55
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	4.8	63	0.28
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	6.5	23	0.74
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	6.8	38	0.57
Equal Potency (P) and M (no Pr)	(P + M) /2	5	4.5	54	0.49
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	5.2	35	0.60
Potency wt'd Magnitude	M^(P/10)	7	1.9	41	0.53
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	5.8	23	0.74
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.5	52	0.50

Compound Dichlorvos

Update

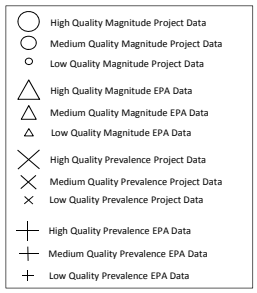
CAS 62-73-7

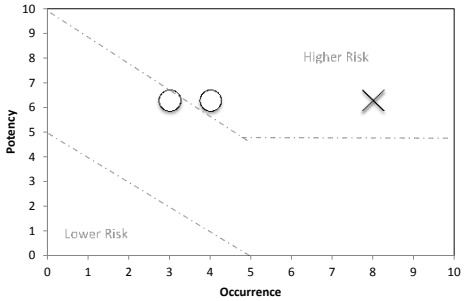
Category CCL4NOM

Dichlorvos

Pesticide

Insecticide





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	6.3	8.0	3.0
All Data	6.3	8.0	3.5
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = 0.0175
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Chronic RfD	EPA Health Benchmark Pest List	0.0005	mg/kg-d	6.30		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Frequency Detection of Organic Wastewater Contaminants in Untreated Drinking Water Sources	(Focazio et al., 2008)	1.4	%	8.00	73	0.6
Maximum Concentration in New York Study	(Phillips & Bode, 2001)	0.23	ug/L	3.00	52	0.8
Frequency Detection in New York Study	(USGS, 2001)	2	%	8.00	52	0.8
Maximum Concentration in CEC Data from 2008-2010	(Guo et al., 2010)	1	ug/L	4.00	-	0.6
Percent Detection in CEC Data from 2008-2010	(Guo et al., 2010)	1.4	%	8.00	-	0.6

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	6.0	24	0.73
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	6.2	22	0.75
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	5.9	34	0.61
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	7.2	27	0.70
Equal Potency (P) and M (no Pr)	(P + M) /2	5	4.9	42	0.60
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	5.8	22	0.75
Potency wt'd Magnitude	M^(P/10)	7	2.2	27	0.69
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	5.1	41	0.53
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.8	37	0.65

Compound Dicofol

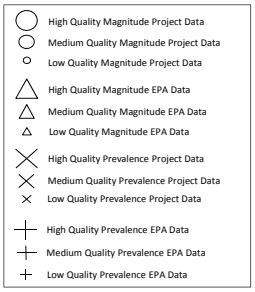
Update

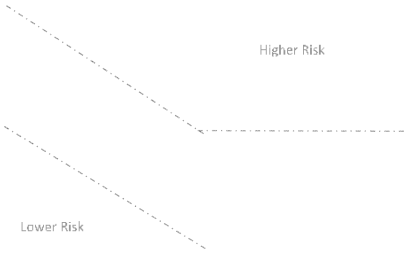
CAS 115-32-2
Category CCL4NOM

Dicofol

Pesticide

Insecticide





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	6.4	0.0	0.0
All Data	6.4	0.0	0.0
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = 0.014
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Chronic RfD	EPA Health Benchmark Pest List	0.0004	mg/kg-d	6.40		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	ND	NA	NA
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	ND	NA	NA
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	ND	NA	NA
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	ND	NA	NA
Equal Potency (P) and M (no Pr)	(P + M) /2	5	ND	NA	NA
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	ND	NA	NA
Potency wt'd Magnitude	M^(P/10)	7	ND	NA	NA
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	ND	NA	NA
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	ND	NA	NA

Compound Dicyclohexyl phthalate

Update

Dicyclohexyl phthalate

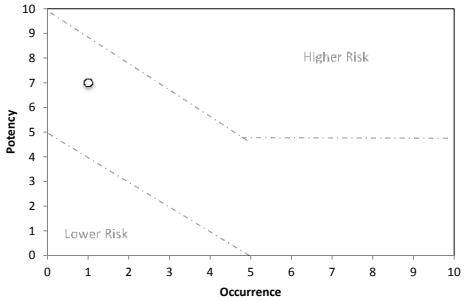
Industrial

Phthalate

CAS 84-61-7

Category CCL4NOM

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	0.0
All Data	7.0	0.0	1.0
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Assumed-Rfd	Wigle,2003	--	mg/kg-d	7.00		0.25

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Project Assumption	Project Assumptions	--	ug/L	1.00		0.2

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	ND	NA	NA
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	ND	NA	NA
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	ND	NA	NA
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	ND	NA	NA
Equal Potency (P) and M (no Pr)	(P + M) /2	5	4.0	74	0.30
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	ND	NA	NA
Potency wt'd Magnitude	M^(P/10)	7	ND	NA	NA
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	ND	NA	NA
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	2.8	99	0.06

Compound Diethyl phthalate

Update

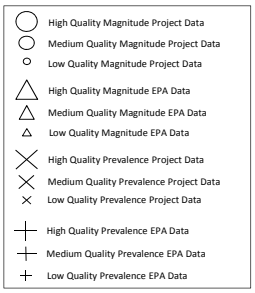
CAS 84-66-2

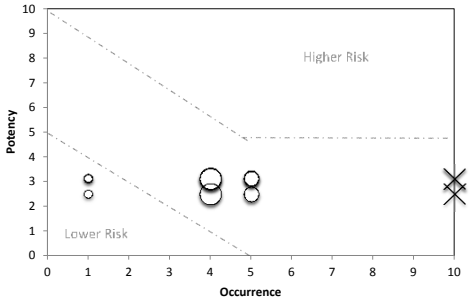
Category CCL4NOM

Diethyl phthalate

Industrial

Phthalate





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	2.9	0.0	0.0
All Data	2.9	10.0	3.8
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = 28
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
EPA RfD	IRIS	0.8	mg/kg-d	3.10		1
NOAEL	IRIS	750	mg/kg-d	3.12		1
LOAEL	IRIS	3160	mg/kg-d	2.50		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration of Emerging Contaminants in Freshwater	(Murray et al., 2010)	0.42	ug/L	4.00	-	0.6
Mean Concentration of Emerging Contaminants in Freshwater	(Murray et al., 2010)	0.2	ug/L	5.00	-	0.3
Frequency Detection of Emerging Contaminants in Freshwater	(Murray et al., 2010)	11.1	%	10.00	-	0.6
Max Concentration in Stream Study	(Koblin, 2002)	0.42	ug/L	4.00	80	0.6
Median Concentration in Stream Study	(Koblin, 2002)	0.2	ug/L	5.00	80	0.3
Frequency Detection in Stream Samples	(Koblin, 2002)	11.1	%	10.00	92	0.6
Project Assumption	Project Assumptions	--	ug/L	1.00		0.2

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	4.9	63	0.28
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	3.9	76	0.14
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	5.9	35	0.60
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	6.5	49	0.45
Equal Potency (P) and M (no Pr)	(P + M) /2	5	3.4	95	0.10
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	4.2	69	0.22
Potency wt'd Magnitude	M^(P/10)	7	1.5	68	0.23
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	5.7	27	0.69
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.2	79	0.25

Compound Di-isononyl phthalate

Update

Di-isononyl phthalate

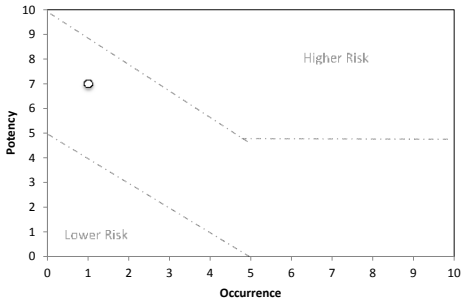
Industrial

Phthalate

CAS 28553-12-0

Category CCL4NOM

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	0.0
All Data	7.0	0.0	1.0
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Assumed-Rfd	Wigle,2003	--	mg/kg-d	7.00		0.25

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Project Assumption	Project Assumptions	--	ug/L	1.00		0.2

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	ND	NA	NA
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	ND	NA	NA
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	ND	NA	NA
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	ND	NA	NA
Equal Potency (P) and M (no Pr)	(P + M) /2	5	4.0	75	0.29
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	ND	NA	NA
Potency wt'd Magnitude	M^(P/10)	7	ND	NA	NA
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	ND	NA	NA
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	2.8	100	0.05

Compound Dimethoate

Update

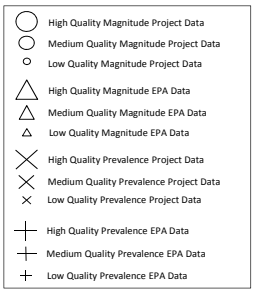
CAS 60-51-5

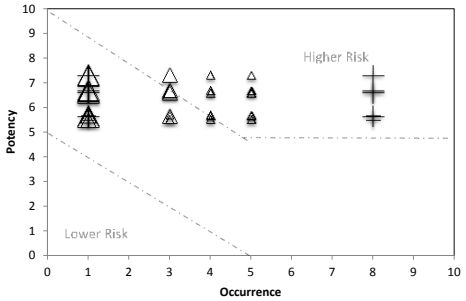
Category CCL3 Sh Lst

Dimethoate

Pesticide

Insecticide





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	6.6	4.5	2.7
All Data	6.3	5.7	2.6
EPA	6.0	10.0	7.0

Drinking Water Equivalent Level (DWEL) = 0.077
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
EPA OPP RfD	CCL3 Dossiers	0.0022	mg/kg-d	5.66		1
EPA IRIS (ITER) RfD	CCL3 Dossiers	0.0002	mg/kg-d	6.70		1
RAISHE RfD	CCL3 Dossiers	0.0002	mg/kg-d	6.70		1
Lowest Oral Chronic Level LOAEL (RTECS)	CCL3 Dossiers	3	mg/kg-d	5.52		0.5
Max Acceptable Daily Intake	JMPR	0.002	mg/kg-d	5.70		0.5
NOAEL	IRIS	0.05	mg/kg-d	7.30		1
LOAEL	IRIS	0.25	mg/kg-d	6.60		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Frequency Detection in PWSs	(UCMR 2)	0	%	1.00	32150	1
Max Concentration in Ambient Water	(PPMP)	0.022	ug/L	1.00	-	0.8
Percent Detection in Ambient Water	(PPMP)	1.3	%	8.00	-	0.8
Max Concentration	(STORET)	0.21	ug/L	3.00	-	0.4
Median Concentration	(STORET)	0.148	ug/L	5.00	-	0.2
Frequency Detection	(STORET)	1.57	%	8.00	-	0.4
90th Percentile Concentration	(STORET)	0.196	ug/L	4.00	-	0.2

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.2	52	0.41
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	5.8	33	0.63
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	4.7	69	0.22
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	6.0	58	0.35
Equal Potency (P) and M (no Pr)	(P + M) /2	5	4.5	55	0.48
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	4.9	53	0.40
Potency wt'd Magnitude	M^(P/10)	7	1.8	47	0.47
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	3.7	63	0.28
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.5	58	0.45

Compound Dimethyl phthalate

Update

CAS 131-11-3

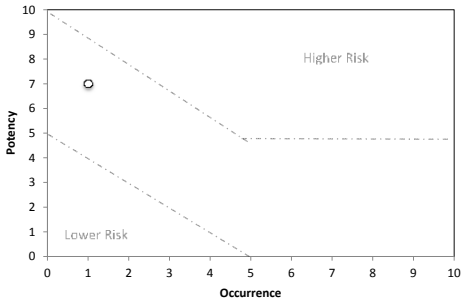
Category CCL4NOM

Dimethyl phthalate

Industrial

Phthalate

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	0.0
All Data	7.0	0.0	1.0
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Assumed-Rfd	Wigle,2003	--	mg/kg-d	7.00		0.25

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Project Assumption	Project Assumptions	--	ug/L	1.00		0.2

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	ND	NA	NA
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	ND	NA	NA
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	ND	NA	NA
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	ND	NA	NA
Equal Potency (P) and M (no Pr)	(P + M) /2	5	4.0	76	0.28
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	ND	NA	NA
Potency wt'd Magnitude	M^(P/10)	7	ND	NA	NA
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	ND	NA	NA
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	2.8	101	0.04

Compound Di-n-octyl phthalate

Update

CAS 117-84-0

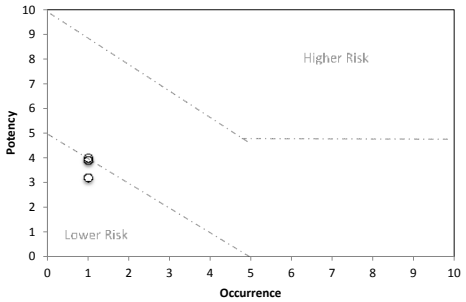
Category CCL4NOM

Di-n-octyl phthalate

Industrial

Phthalate

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	3.7	0.0	0.0
All Data	3.7	0.0	1.0
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = 3.5
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
EPA RfD	IRIS	0.1	mg/kg-d	4.00		1
NOAEL	IRIS	125	mg/kg-d	3.90		1
LOAEL	IRIS	600	mg/kg-d	3.22		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Project Assumption	Project Assumptions	--	ug/L	1.00		0.2

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	ND	NA	NA
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	ND	NA	NA
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	ND	NA	NA
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	ND	NA	NA
Equal Potency (P) and M (no Pr)	(P + M) /2	5	2.4	105	0.00
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	ND	NA	NA
Potency wt'd Magnitude	M^(P/10)	7	ND	NA	NA
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	ND	NA	NA
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	2.8	102	0.03

Compound Disulfoton

Update

CAS 298-04-4

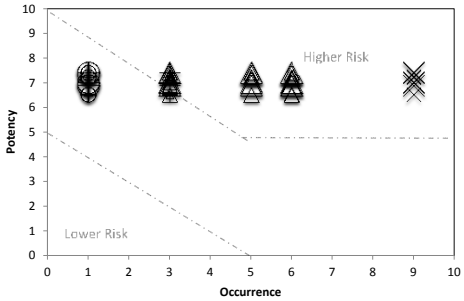
Category CCL3 Sh Lst

Disulfoton

Pesticide

Insecticide

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	7.2	1.7	5.6
All Data	7.1	3.5	3.7
EPA	7.0	1.0	1.0

Drinking Water Equivalent Level (DWEL) = 0.0046
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
EPA OPP RfD	CCL3 Dossiers	0.00013	mg/kg-d	6.89		1
EPA IRIS (ITER) RfD	CCL3 Dossiers	0.00004	mg/kg-d	7.40		1
EPA HA (2006) RfD	CCL3 Dossiers	0.0001	mg/kg-d	7.00		1
RAISHE RfD	CCL3 Dossiers	0.00004	mg/kg-d	7.40		1
Minimum Risk Level (ATSDR (ITER))	CCL3 Dossiers	0.00006	mg/kg-d	7.22		0.5
Lowest Oral Chronic Level LOAEL (RTECS)	CCL3 Dossiers	0.06	mg/kg-d	7.22		0.5
Max Acceptable Daily Intake	JMPR	0.0003	mg/kg-d	6.52		0.5
LEL	IRIS	0.04	mg/kg-d	7.40		0.5

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Source Water	(Battaglin, 1998)	0.017	ug/L	1.00	64	0.6
Max Concentration in Source Water	(Ebbert, 2002)	0.017	ug/L	1.00	25	0.6
Frequency Detection in Surface Waters of the Yakima River Basin, WA	(Ebbert, 2002)	4.0816	%	9.00	25	0.6

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Frequency Detection in PWSs	(UCMR 1)	0	%	1.00	2348	1
Median Concentration in Finished Water	(UCMR Finished)	0	ug/L	1.00	300	0.6
Frequency Detection in PWSs/Sites	(UCMR Finished)	0	%	1.00	300	1
Max Concentration in Finished Water	(NAWQA Ambient)	3.81	ug/L	6.00	7118	1
Median Concentration in Finished Water	(NAWQA Ambient)	0.02	ug/L	3.00	7118	0.6
Frequency Detection in PWSs/Sites	(NAWQA Ambient)	0.24	%	3.00	7118	1
90th Percentile in Finished Water	(NAWQA Ambient)	0.826	ug/L	5.00	7118	1
99th Percentile in Finished Water	(NAWQA Ambient)	3.81	ug/L	6.00	7118	1
Max Concentration in Ambient Water	(NAWQA)	3.81	ug/L	6.00	24	0.8
Median Concentration in Ambient Water	(NAWQA)	0.02	ug/L	3.00	24	0.4
90th Percentile Concentration in Ambient Water	(NAWQA)	0.826	ug/L	5.00	24	0.8

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.4	50	0.43
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	6.2	21	0.76
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	4.5	71	0.19
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	5.3	64	0.28
Equal Potency (P) and M (no Pr)	(P + M) /2	5	5.4	32	0.70
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	5.1	45	0.49
Potency wt'd Magnitude	M^(P/10)	7	2.5	20	0.77
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	3.0	75	0.15
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	4.0	28	0.73

Compound Diuron

Update

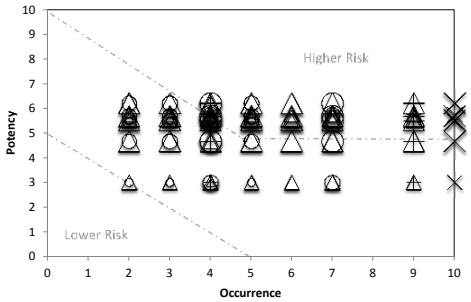
CAS 330-54-1
Category CCL3 Sh Lst

Diuron

Pesticide

Herbicide

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	5.5	6.8	5.2
All Data	5.2	7.8	4.8
EPA	6.0	4.0	7.0

Drinking Water Equivalent Level (DWEL) = 0.105
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Lifetime Cancer Risk 10^-4	2012 Health Advisory	0.2	mg/L	4.70		1
EPA OPP RfD	CCL3 Dossiers	0.003	mg/kg-d	5.52		1
EPA IRIS (ITER) RfD	CCL3 Dossiers	0.002	mg/kg-d	5.70		1
Lowest Oral Chronic Level LOAEL (RTECS)	CCL3 Dossiers	1.75	mg/kg-d	5.76		0.5
NOAEL	IRIS	0.625	mg/kg-d	6.20		1
LEL	IRIS	3.125	mg/kg-d	5.51		0.5
Cal. Prop. 65 MADL or NSRL	CA OEHHA	1	Boolean	3.00		0.5

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.7	33	0.63
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	5.5	42	0.52
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	6.0	30	0.66
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	6.5	48	0.46
Equal Potency (P) and M (no Pr)	(P + M) /2	5	5.0	41	0.61
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	5.6	26	0.70
Potency wt'd Magnitude	M^(P/10)	7	2.2	25	0.72
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	5.0	44	0.50
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.8	35	0.67

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration of Emerging Contaminants in Freshwater	(Murray et al., 2010)	0.86	ug/L	4.00	-	0.6
Mean Concentration of Emerging Contaminants in Freshwater	(Murray et al., 2010)	0.01	ug/L	2.00	-	0.3
Frequency Detection of Emerging Contaminants in Freshwater	(Murray et al., 2010)	70	%	10.00	-	0.6
Max Concentration in Stream	(USGA, 2002)	11	ug/L	7.00	36	0.8
75th Percentile Concentration in Stream	(USGA, 2002)	0.1	ug/L	3.00	3	0.4
90th Percentile Concentration in Stream	(USGA, 2002)	0.12	ug/L	4.00	5	0.8
95th Percentile Concentration in Stream	(USGA, 2002)	0.12	ug/L	4.00	25	0.8
Maximum Concentration in Source Waters	(Guo et al., 2010)	0.38	ug/L	4.00		0.6
Median Concentration in Source Waters	(Guo et al., 2010)	0.101	ug/L	5.00		0.3
Percent Detection in Source Waters	(Guo et al., 2010)	92	%	10.00		0.6
Median Concentration in Plant Effluent	(Guo et al., 2010)	0.021	ug/L	3.00		0.45
Percent Detection in Plant Effluent	(Guo et al., 2010)	93	%	10.00		0.75

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Finished Water	(UCMR 1)	2.1	ug/L	5.00	2360	1
Frequency Detection in PWSs	(UCMR 1)	0.34	%	4.00	2360	1
Median Concentration in Finished Water	(UCMR Finished)	2.1	ug/L	7.00	298	0.6
90th Percentile in Finished Water	(UCMR Finished)	2.1	ug/L	6.00	298	1
95th Percentile in Finished Water	(UCMR Finished)	2.1	ug/L	6.00	298	1
Max Concentration in Finished Water	(NAWQA Ambient)	23.3	ug/L	7.00	4552	1
Median Concentration in Finished Water	(NAWQA Ambient)	0.09	ug/L	4.00	4552	0.6
Frequency Detection in PWSs/Sites	(NAWQA Ambient)	7	%	9.00	4552	1
90th Percentile in Finished Water	(NAWQA Ambient)	0.915	ug/L	5.00	4552	1
99th Percentile in Finished Water	(NAWQA Ambient)	8.4	ug/L	6.00	4552	1
Max Concentration in Ambient Water	(NAWQA)	23.3	ug/L	7.00	24	0.8
Median Concentration in Ambient Water	(NAWQA)	0.09	ug/L	4.00	24	0.4
90th Percentile Concentration in Ambient Water	(NAWQA)	0.915	ug/L	5.00	24	0.8
Max Concentration in Finished Water	(PDP 2001)	0.058	ug/L	2.00	-	1
Frequency Detection in Finished Water	(PDP 2001)	0.4	%	4.00	-	1
Maximum Concentration in Finished Water	(PPMP)	0.079	ug/L	2.00	-	1
Frequency Detection in Finished Water	(PPMP)	5.8	ug/L	9.00	-	1
95th Percentile Concentration in Finished Water	(PPMP)	0.079	ug/L	3.00	-	1

Compound Endosulfan

Update

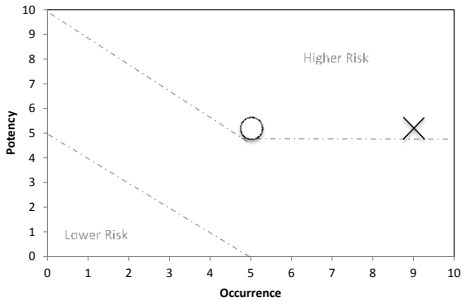
CAS 115-29-7
Category CCL4NOM

Endosulfan

Pesticide

Insecticide

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	5.2	0.0	0.0
All Data	5.2	9.0	5.0
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = 0.21
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Chronic RfD	EPA Health Benchmark Pest List	0.006	mg/kg-d	5.22		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration of Emerging Contaminants in Freshwater	(Murray et al., 2010)	1.8	ug/L	5.00	-	0.6
Frequency Detection of Emerging Contaminants in Freshwater	(Murray et al., 2010)	8	%	9.00	-	0.6

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	6.1	23	0.74
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	5.7	38	0.57
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	6.6	22	0.75
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	7.1	29	0.67
Equal Potency (P) and M (no Pr)	(P + M) /2	5	5.1	39	0.63
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	5.9	21	0.76
Potency wt'd Magnitude	M^(P/10)	7	2.3	24	0.73
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	5.7	28	0.68
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.9	34	0.68

Compound Erythromycin

Update

CAS 114-07-8

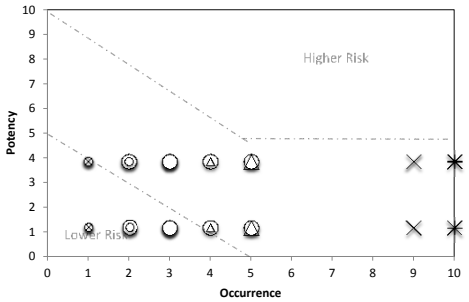
Category EC

Erythromycin

PPCP

Antibiotic

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	9.5	3.3
All Data	2.5	8.5	2.8
EPA	6.0	10.0	4.0

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Supplemental NOEL	CCL3 Dossiers	66.7	mg/kg-d	1.18		0.5
NOEL	TAW Assumption	0.14	mg/kg-d	3.85		0.5

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	4.1	77	0.13
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	3.3	82	0.07
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	4.9	67	0.24
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	5.5	60	0.33
Equal Potency (P) and M (no Pr)	(P + M) /2	5	2.6	103	0.02
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	3.5	78	0.11
Potency wt'd Magnitude	M^(P/10)	7	1.3	77	0.13
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	4.9	47	0.47
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.0	88	0.16

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Untreated Drinking Water Study	(Focazio et al., 2008)	0.3	ug/L	3.00	73	0.6
Frequency Detention in Untreated Drinking Water Study	(Focazio et al., 2008)	8.1	%	9.00	73	0.6
Frequency Detection of Wastewater Effluent Study	(Dickenson et al., 2010)	67	%	10.00	7	0.15
Max Concentration of EDC and Pharmaceuticals in Wastewater	(Trenholm et al., 2006)	0.051	ug/L	2.00	17	0.1
Max Concentration of Pharmaceuticals in Surface Water in Ontario Canada	(Kleywegt et al., 2011)	0.145	ug/L	3.00	125	0.6
Median Concentration of Pharmaceuticals in Surface Water in Ontario Canada	(Kleywegt et al., 2011)	0.0004	ug/L	1.00	125	0.3
Frequency Detection of Pharmaceuticals in Surface Water in Ontario Canada	(Kleywegt et al., 2011)	10	%	10.00	125	0.6
95th Percentile of Pharmaceuticals in Surface Water in Ontario Canada	(Kleywegt et al., 2011)	0.019	ug/L	2.00	125	0.6
Max Concentration of Pharmaceuticals in Drinking Water in Ontario Canada	(Kleywegt et al., 2011)	0.155	ug/L	3.00	123	0.75
Median Concentration of Pharmaceuticals in Drinking Water in Ontario Canada	(Kleywegt et al., 2011)	0.00003	ug/L	1.00	123	0.45
Frequency Detection of Pharmaceuticals in Drinking Water in Ontario Canada	(Kleywegt et al., 2011)	3	%	9.00	123	0.75
95th Percentile Concentration of Pharmaceuticals in Drinking Water in Ontario Canada	(Kleywegt et al., 2011)	0.012	ug/L	2.00	123	0.75
Max Concentration of Pharmaceuticals and PPCPs in Treated Wastewater	(Yang et al., 2011)	0.015	ug/L	1.00	-	0.1
Mean Concentration of Pharmaceuticals and PPCPs in Treated Wastewater	(Yang et al., 2011)	0.002	ug/L	1.00	-	0.1
Frequency Detection of Pharmaceuticals Found in Groundwater	(Barnes et al., 2008)	0	%	1.00	47	0.3
Max Concentration of Pharmaceuticals in Lake Erie Basin	(Wu et al., 2009)	0.438	ug/L	4.00	161	0.6
Frequency Detection of Pharmaceuticals in Lake Erie Basin	(Wu et al., 2009)	6	%	9.00	161	0.6
Max Concentration in Secondary/Tertiary Effluent in California	(Anderson et al., 2010)	0.113	ug/L	3.00		1
Median Concentration in Secondary/Tertiary Effluent in California	(Anderson et al., 2010)	0.113	ug/L	5.00		0.6
Mean Concentration in Secondary/Tertiary Effluent in California	(Anderson et al., 2010)	0.113	ug/L	5.00		0.6
Maximum Concentration in the Lower Colorado River Watershed	(Guo et al., 2010)	0.097	ug/L	2.00	19	0.6
Maximum Concentration in CEC Data from 2008-2010	(Guo et al., 2010)	0.29	ug/L	3.00	-	0.6
Percent Detection in CEC Data from 2008-2010	(Guo et al., 2010)	100	%	10.00	-	0.6

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Finished Water	(NRECS)	1.7	ug/L	5.00	104	0.8
Median Concentration in Finished Water	(NRECS)	0.1	ug/L	4.00	104	0.4
Frequency Detection in PWSs/Sites	(NRECS)	21.5	%	10.00	104	0.8

Compound Ethoprophos

Update

CAS 13194-48-4

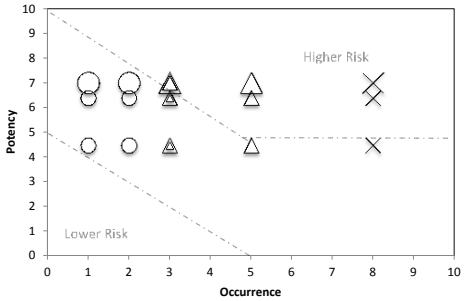
Category AWWA CCL3

Ethoprophos

Pesticide

Insecticide

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	7.0	0.0	4.0
All Data	6.0	8.0	2.8
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = 0.0035
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
RfD (EPA OPP)	IRIS	0.0001	mg/kg-d	7.00		1
Lowest Oral Chronic Level LOAEL	RTECS	33	mg/kg-d	4.48		0.5
Max Acceptable Daily Intake	JMPR	0.0004	mg/kg-d	6.40		0.5

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Source Water	(Battaglin, 1998)	0.045	ug/L	2.00	64	0.6
Max Concentration in Source Water	(Ebbert, 2002)	0.017	ug/L	1.00	25	0.6
Frequency Detection in Surface Waters of the Yakima River Basin, WA	(Ebbert, 2002)	1.0204	%	8.00	25	0.6

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Ambient Water	(NAWQA)	1.95	ug/L	5.00	24	0.8
Median Concentration in Ambient Water	(NAWQA)	0.011	ug/L	3.00	24	0.4
90th Percentile Concentration in Ambient Water	(NAWQA)	0.096	ug/L	3.00	24	0.8

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.7	35	0.60
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	5.8	31	0.65
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	5.5	47	0.47
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	7.0	33	0.63
Equal Potency (P) and M (no Pr)	(P + M) /2	5	4.4	59	0.44
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	5.3	34	0.61
Potency wt'd Magnitude	M^(P/10)	7	1.8	44	0.50
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	4.9	46	0.48
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.5	55	0.48

Compound Fluometuron

Update

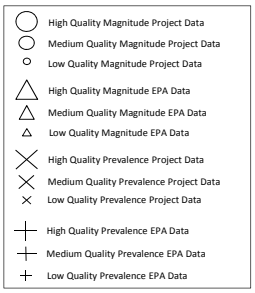
CAS 2164-17-2

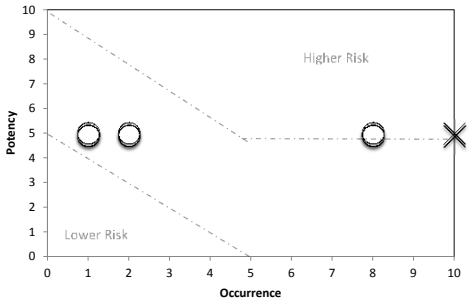
Category CCL4NOM

Fluometuron

Pesticide

Herbicide





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	4.9	10.0	1.5
All Data	4.9	10.0	3.7
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = 0.35
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
RfD	2012 Health Advisory	0.01	mg/kg-d	5.00		1
EPA RfD	IRIS	0.013	mg/kg-d	4.89		1
NOAEL	IRIS	12.5	mg/kg-d	4.90		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Osage Plains, Midwestern United States	(Graham, 2004)		ug/L	8.00	111	0.6
Max Concentration in Stream	(USGA, 2002)	0.046	ug/L	2.00	36	0.8
Maximum Concentration in New York Study	(Phillips & Bode, 2001)	0.012	ug/L	1.00	52	0.8
Frequency Detection in New York Study	(USGS, 2001)	24	%	10.00	52	0.8

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.9	51	0.42
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	5.4	51	0.42
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	6.4	46	0.48
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	7.5	22	0.75
Equal Potency (P) and M (no Pr)	(P + M) /2	5	4.3	97	0.08
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	5.5	63	0.28
Potency wt'd Magnitude	M^(P/10)	7	1.9	80	0.09
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	5.9	32	0.64
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.5	91	0.13

Compound Fluoxetine

Update

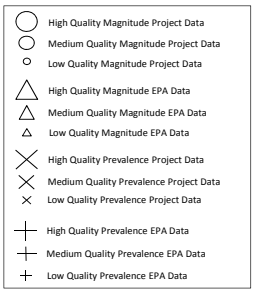
CAS 5491-89-3

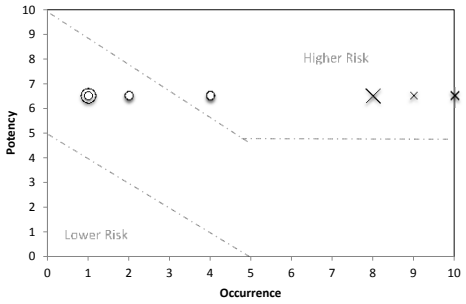
Category EC

Fluoxetine

PPCP

Antidepressant





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	0.0
All Data	6.5	9.0	2.3
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = Na
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
NOEL	TAW Assumption	0.0003	mg/kg-d	6.52		0.5

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Untreated Drinking Water Study	(Focazio et al., 2008)	0.018	ug/L	1.00	73	0.6
Frequency Detention in Untreated Drinking Water Study	(Focazio et al., 2008)	1.4	%	8.00	73	0.6
Mean Concentration of Wastewater Effluent Study	(Dickenson et al., 2010)	0.05	ug/L	4.00	7	0.15
Frequency Detection of Wastewater Effluent Study	(Dickenson et al., 2010)	94	%	10.00	7	0.15
Mean Concentration of PPCPs in Treated Wastewater	(Hedgespeth et al., 2012)	0.06	ug/L	4.00	-	0.15
Frequency Detection of PPCPs in Treated Wastewater	(Hedgespeth et al., 2012)	100	%	10.00	-	0.15
Max Concentration of Pharmaceuticals Found in Groundwater	(Barnes et al., 2008)	0.056	ug/L	2.00	47	0.3
Frequency Detection of Pharmaceuticals Found in Groundwater	(Barnes et al., 2008)	4.3	%	9.00	47	0.3
Max Concentration of Pharmaceuticals in the Upper Tennessee River Basin	(Conley et al., 2008)	0.0101	ug/L	1.00	120	0.4
Median Concentration of Pharmaceuticals in the Upper Tennessee River Basin	(Conley et al., 2008)	0.007	ug/L	2.00	120	0.2
Frequency Detection of Pharmaceuticals in the Upper Tennessee River Basin	(Conley et al., 2008)	1.6	%	8.00	120	0.4

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	6.1	42	0.52
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	6.3	26	0.70
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	5.9	65	0.26
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	7.8	46	0.48
Equal Potency (P) and M (no Pr)	(P + M) /2	5	4.4	57	0.46
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	5.5	44	0.50
Potency wt'd Magnitude	M^(P/10)	7	1.7	55	0.38
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	5.4	60	0.32
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.4	66	0.37

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Compound Gemfibrozil

Update

CAS 25812-30-0

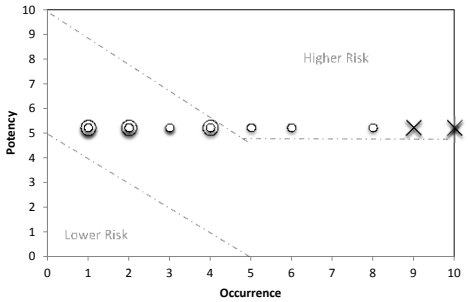
Category EC

Gemfibrozil

PPCP

Lipid regulator

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	10.0	1.5
All Data	5.2	9.8	2.9
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
NOEL	TAW Assumption	0.006	mg/kg-d	5.22		0.5

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.8	44	0.50
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	5.5	46	0.48
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	6.1	44	0.50
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	7.5	35	0.61
Equal Potency (P) and M (no Pr)	(P + M) /2	5	4.1	70	0.33
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	5.3	43	0.51
Potency wt'd Magnitude	M^(P/10)	7	1.7	54	0.39
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	5.8	40	0.55
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.4	65	0.38

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration of Pharmaceuticals in Drinking Water Study	(Daneshvar et al., 2012)	0.298	ug/L	3.00	14	0.1
Mean Concentration of Pharmaceuticals in Drinking Water Study	(Daneshvar et al., 2012)	0.095	ug/L	4.00	14	0.1
Frequency Detection of Pharmaceuticals in Drinking Water Study	(Daneshvar et al., 2012)	64	%	10.00	14	0.1
Mean Concentration of Wastewater Effluent Study	(Dickenson et al., 2010)	4.49	ug/L	8.00	7	0.15
Frequency Detection of Wastewater Effluent Study	(Dickenson et al., 2010)	100	%	10.00	7	0.15
Mean Max Concentration of PPCPs in Near Shore Lake Michigan	(Ferguson et al., 2013)	0.00703	ug/L	2.00	64	0.3
Frequency Detection of PPCPs in Near Shore Lake Michigan	(Ferguson et al., 2013)	98	%	10.00	64	0.6
Frequency Detection of Pharmaceuticals in Drinking Water Wells in Massachusetts	(Schaider et al., 2013)	5	%	9.00	20	0.5
Max Concentration of Pharmaceuticals and PPCPs in Surface Waters	(Bernot et al., 2013)	0.032	ug/L	2.00	102	0.6
Mean Concentration of Pharmaceuticals and PPCPs in Surface Waters	(Bernot et al., 2013)	0.0038	ug/L	2.00	102	0.3
Frequency Detection of Pharmaceuticals and PPCPs in Surface Waters	(Bernot et al., 2013)	10	%	10.00	102	0.6
Mean Concentration of Organic Chemicals in Treated Wastewater	(Oppenheimer et al., 2011)	0.36	ug/L	6.00	12	0.1
Frequency Detection of Organic Chemicals in Treated Wastewater	(Oppenheimer et al., 2011)	40	%	10.00	12	0.1
Median Concentration of Pharmaceuticals in Surface Water in Ontario Canada	(Kleywegt et al., 2011)	0.0007	ug/L	1.00	125	0.3
Frequency Detection of Pharmaceuticals in Surface Water in Ontario Canada	(Kleywegt et al., 2011)	33	%	10.00	125	0.6
95th Percentile of Pharmaceuticals in Surface Water in Ontario Canada	(Kleywegt et al., 2011)	0.006	ug/L	1.00	125	0.6
Max Concentration of Pharmaceuticals in Drinking Water in Ontario Canada	(Kleywegt et al., 2011)	0.04	ug/L	2.00	123	0.75
Median Concentration of Pharmaceuticals in Drinking Water in Ontario Canada	(Kleywegt et al., 2011)	0.00005	ug/L	1.00	123	0.45
Frequency Detection of Pharmaceuticals in Drinking Water in Ontario Canada	(Kleywegt et al., 2011)	15	%	10.00	123	0.75
95th Percentile Concentration of Pharmaceuticals in Drinking Water in Ontario Canada	(Kleywegt et al., 2011)	0.002	ug/L	1.00	123	0.75
Median Concentration of Pharmaceuticals in Urban Streams	(Veach & Bernot, 2011)	0.011	ug/L	3.00	25	0.2
Frequency Detection of Pharmaceuticals in Urban Streams	(Veach & Bernot, 2011)	100	%	10.00	25	0.4
Max Concentration of Pharmaceuticals in Lake Erie Basin	(Wu et al., 2009)	0.016	ug/L	1.00	161	0.6
Frequency Detection of Pharmaceuticals in Lake Erie Basin	(Wu et al., 2009)	4	%	9.00	161	0.6
Max Concentration of Organic Chemicals in U.S. Riverbank Filtration Systems	(Hoppe-Jones et al., 2010)	1.105	ug/L	5.00	18	0.4
Frequency Detection of Organic Chemicals in U.S. Riverbank Filtration Systems	(Hoppe-Jones et al., 2010)	100	%	10.00	18	0.4
Max Concentration of Emerging Contaminants in Freshwater	(Murray et al., 2010)	0.79	ug/L	4.00	-	0.6
Mean Concentration of Emerging Contaminants in Freshwater	(Murray et al., 2010)	0.048	ug/L	4.00	-	0.3
Frequency Detection of Emerging Contaminants in Freshwater	(Murray et al., 2010)	3.6	%	9.00	-	0.6
Maximum Concentration in Nevada WWTP	(Guo et al., 2010)	0.04	ug/L	2.00	4	0.15
Median Concentration in Nevada WWTP	(Guo et al., 2010)	0.017	ug/L	3.00	4	0.15
Percent Detection in Nevada WWTP	(Guo et al., 2010)	100	%	10.00	4	0.15

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Compound Ibuprofen

Update

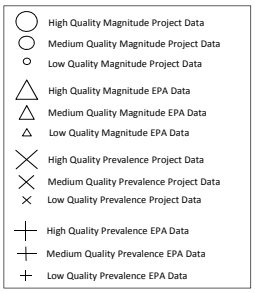
CAS 15687-27-1

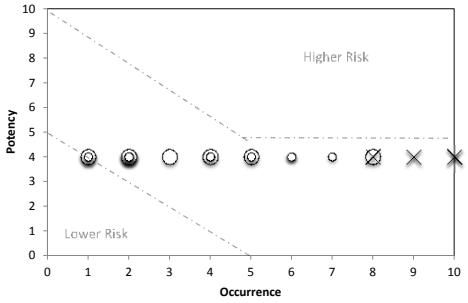
Category EC

Ibuprofen

PPCP

NSAID





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	10.0	1.5
All Data	4.0	9.5	3.1
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
NOEL	TAW Assumption	0.1	mg/kg-d	4.00		0.5

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.2	60	0.32
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	4.6	67	0.24
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	5.8	42	0.52
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	6.8	39	0.56
Equal Potency (P) and M (no Pr)	(P + M) /2	5	3.6	92	0.12
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	4.7	61	0.31
Potency wt'd Magnitude	M^(P/10)	7	1.6	65	0.26
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	5.6	33	0.63
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.3	76	0.28

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Untreated Drinking Water Study	(Focazio et al., 2008)	0.27	ug/L	3.00	73	0.6
Frequency Detention in Untreated Drinking Water Study	(Focazio et al., 2008)	1.4	%	8.00	73	0.6
Max Concentration in Fresh Surface Waters Study	(Fenech et al., 2012)	5.044	ug/L	6.00	-	0.4
Mean Concentration in Fresh Surface Waters Study	(Fenech et al., 2012)	1.105	ug/L	7.00	-	0.2
Frequency Detection in Fresh Surface Waters Study	(Fenech et al., 2012)	69	%	10.00	-	0.4
Mean Concentration of Wastewater Effluent Study	(Dickenson et al., 2010)	0.1	ug/L	4.00	7	0.15
Frequency Detection of Wastewater Effluent Study	(Dickenson et al., 2010)	80	%	10.00	7	0.15
Max Concentration of EDC and Pharmaceuticals in Wastewater	(Trenholm et al., 2006)	0.0056	ug/L	1.00	17	0.1
Max Concentration of PPCPs in Near Shore Lake Michigan	(Ferguson et al., 2013)	0.084	ug/L	2.00	64	0.6
Mean Max Concentration of PPCPs in Near Shore Lake Michigan	(Ferguson et al., 2013)	0.00788	ug/L	2.00	64	0.3
Frequency Detection of PPCPs in Near Shore Lake Michigan	(Ferguson et al., 2013)	31	%	10.00	64	0.6
Max Concentration of Pharmaceuticals and PPCPs in Water Treatment Plant	(Azzouz & Ballesteros, 2013)	0.376	ug/L	4.00	4	0.5
Mean Concentration of Pharmaceuticals and PPCPs in Water Treatment Plant	(Azzouz & Ballesteros, 2013)	0.16	ug/L	5.00	4	0.3
Max Concentration of Pharmaceuticals and PPCPs in Water Treatment Plant	(Azzouz & Ballesteros, 2013)	0.095	ug/L	2.00	4	0.4
Mean Concentration of Pharmaceuticals and PPCPs in Water Treatment Plant	(Azzouz & Ballesteros, 2013)	0.046	ug/L	4.00	4	0.2
Max Concentration of Pharmaceuticals and PPCPs in Surface Waters	(Bernot et al., 2013)	0.018	ug/L	1.00	102	0.6
Mean Concentration of Pharmaceuticals and PPCPs in Surface Waters	(Bernot et al., 2013)	0.0055	ug/L	2.00	102	0.3
Frequency Detection of Pharmaceuticals and PPCPs in Surface Waters	(Bernot et al., 2013)	11	%	10.00	102	0.6
Mean Concentration of PPCPs in Treated Wastewater	(Hedgespeth et al., 2012)	0.928	ug/L	6.00	-	0.15
Frequency Detection of PPCPs in Treated Wastewater	(Hedgespeth et al., 2012)	66.7	%	10.00	-	0.15
Mean Concentration of PPCPs in Surface Water	(Hedgespeth et al., 2012)	0.008	ug/L	2.00	-	0.3
Frequency Detection of PPCPs in Surface Water	(Hedgespeth et al., 2012)	4.2	%	9.00	-	0.3
Max Concentration of Pharmaceuticals in Treated Drinking Water in Missouri	(Wang et al., 2010)	0.0224	ug/L	1.00	9	0.6
Max Concentration of Pharmaceuticals in Surface Water in Ontario Canada	(Kleywegt et al., 2011)	0.079	ug/L	2.00	125	0.6
Median Concentration of Pharmaceuticals in Surface Water in Ontario Canada	(Kleywegt et al., 2011)	0.0098	ug/L	2.00	125	0.3
Frequency Detection of Pharmaceuticals in Surface Water in Ontario Canada	(Kleywegt et al., 2011)	21	%	10.00	125	0.6
95th Percentile of Pharmaceuticals in Surface Water in Ontario Canada	(Kleywegt et al., 2011)	0.024	ug/L	2.00	125	0.6
Max Concentration of Pharmaceuticals in Drinking Water in Ontario Canada	(Kleywegt et al., 2011)	0.025	ug/L	1.00	123	0.75
Median Concentration of Pharmaceuticals in Drinking Water in Ontario Canada	(Kleywegt et al., 2011)	0.00033	ug/L	1.00	123	0.45
Frequency Detection of Pharmaceuticals in Drinking Water in Ontario Canada	(Kleywegt et al., 2011)	15	%	10.00	123	0.75
95th Percentile Concentration of Pharmaceuticals in Drinking Water in Ontario Canada	(Kleywegt et al., 2011)	0.012	ug/L	2.00	123	0.75
Max Concentration of Pharmaceuticals Found in Groundwater	(Barnes et al., 2008)	3.11	ug/L	6.00	47	0.3
Frequency Detection of Pharmaceuticals Found in Groundwater	(Barnes et al., 2008)	2.1	%	8.00	47	0.3
Max Concentration of Pharmaceuticals in Lake Erie Basin	(Wu et al., 2009)	2.796	ug/L	5.00	161	0.6
Frequency Detection of Pharmaceuticals in Lake Erie Basin	(Wu et al., 2009)	9	%	9.00	161	0.6
Max Concentration of Organic Chemicals in U.S. Riverbank Filtration Systems	(Hoppe-Jones et al., 2010)	1.215	ug/L	5.00	18	0.4
Frequency Detection of Organic Chemicals in U.S. Riverbank Filtration Systems	(Hoppe-Jones et al., 2010)	100	%	10.00	18	0.4
Max Concentration of Emerging Contaminants in Freshwater	(Murray et al., 2010)	31	ug/L	8.00	-	0.6
Mean Concentration of Emerging Contaminants in Freshwater	(Murray et al., 2010)	0.006	ug/L	2.00	-	0.3
Frequency Detection of Emerging Contaminants in Freshwater	(Murray et al., 2010)	62	%	10.00	-	0.6
Maximum Concentration in the Lower Colorado River Watershed	(Guo et al., 2010)	0.036	ug/L	2.00	19	0.6
Percent Detection in the Lower Colorado River Watershed	(Guo et al., 2010)	5	%	9.00	19	0.6
Maximum Concentration in Nevada WWTP	(Guo et al., 2010)	0.013	ug/L	1.00	4	0.15
Percent Detection in Nevada WWTP	(Guo et al., 2010)	25	%	10.00	4	0.15

Compound Linezolid

Update

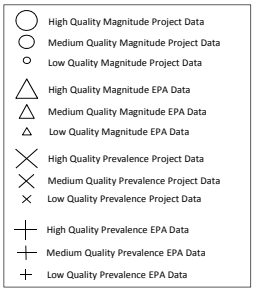
CAS 165800-03-3

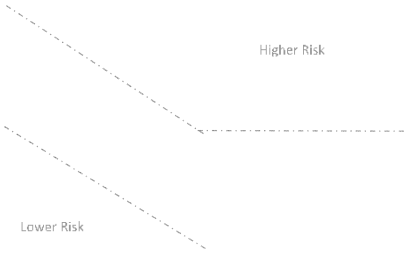
Category CCL4NOM

Linezolid

PPCP

Antibiotic





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	0.0
All Data	6.0	0.0	0.0
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Assumed-Rfd	TAW Assumption	--	mg/kg-d	6.00		0.25

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	ND	NA	NA
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	ND	NA	NA
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	ND	NA	NA
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	ND	NA	NA
Equal Potency (P) and M (no Pr)	(P + M) /2	5	ND	NA	NA
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	ND	NA	NA
Potency wt'd Magnitude	M^(P/10)	7	ND	NA	NA
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	ND	NA	NA
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	ND	NA	NA

Compound Linuron

Update

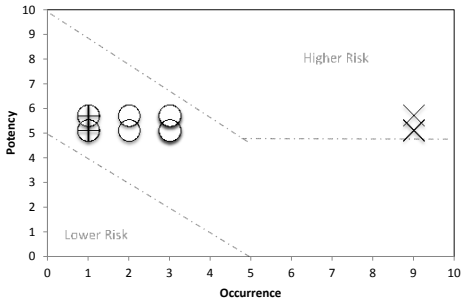
CAS 330-55-2
Category CCL4NOM

Linuron

Pesticide

Herbicide

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	5.4	1.0	2.3
All Data	5.4	5.0	2.2
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = 0.2695
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Chronic RfD	EPA Health Benchmark Pest List	0.0077	mg/kg-d	5.11		1
EPA RfD	IRIS	0.002	mg/kg-d	5.70		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Stream	(USGA, 2002)	0.25	ug/L	3.00	36	0.8
90th Percentile Concentration in Stream	(USGA, 2002)		ug/L	1.00	5	0.8
95th Percentile Concentration in Stream	(USGA, 2002)	0.035	ug/L	3.00	25	0.8
Max Concentration in Source Water	(Battaglin, 1998)	0.129	ug/L	3.00	64	0.6
95th Percentile Concentration in Source Water	(Battaglin, 1998)	0.025	ug/L	2.00	54	0.6
Maximum Concentration within the State Water Project Watershed	(Guo et al., 2010)	0.005	ug/L	1.00	-	0.6
Percent Detection within the State Water Project Watershed	(Guo et al., 2010)	5	%	9.00	-	0.6

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Frequency Detection in PWSs	(UCMR 1)	0	%	1.00	2357	1

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	4.5	73	0.17
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	5.0	57	0.35
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	4.0	80	0.09
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	5.2	66	0.26
Equal Potency (P) and M (no Pr)	(P + M) /2	5	3.8	81	0.23
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	4.2	70	0.20
Potency wt'd Magnitude	M^(P/10)	7	1.5	66	0.25
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	3.3	71	0.19
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.2	77	0.27

Compound Malathion

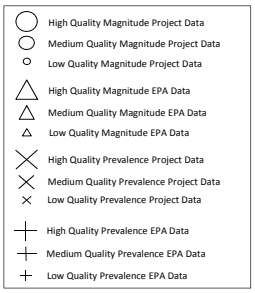
Update

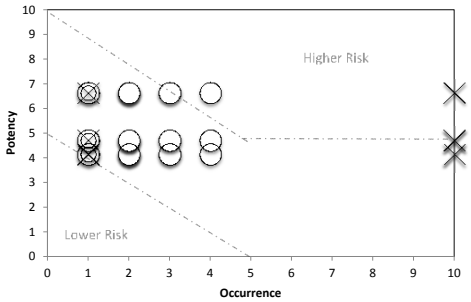
CAS 121-75-5
Category CCL4NOM

Malathion

Pesticide

Insecticide





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	5.2	7.8	2.7
All Data	5.2	8.2	2.1
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = 2.45
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
RfD	2012 Health Advisory	0.07	mg/kg-d	4.15		1
EPA RfD	IRIS	0.02	mg/kg-d	4.70		1
NOAEL	EPA (IRIS-Online)	0.23	mg/kg-d	6.64		1

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.2	57	0.35
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	5.2	49	0.44
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	5.2	62	0.30
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	6.7	43	0.52
Equal Potency (P) and M (no Pr)	(P + M) /2	5	3.6	87	0.17
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	4.6	58	0.34
Potency wt'd Magnitude	M^(P/10)	7	1.5	69	0.22
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	4.8	48	0.45
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.2	80	0.24

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Stream	(USGA, 2002)	0.634	ug/L	4.00	36	0.8
90th Percentile Concentration in Stream	(USGA, 2002)	0.027	ug/L	2.00	5	0.8
95th Percentile Concentration in Stream	(USGA, 2002)	0.041	ug/L	3.00	25	0.8
Max Concentration in Source Water	(Battaglin, 1998)	0.009	ug/L	1.00	64	0.6
Frequency Detection in Stream Samples	(NAWQA DW-CF)	34.7	%	10.00	58	0.8
Max Concentration in Source Water	(Ebbert, 2002)	0.037	ug/L	2.00	25	0.6
Frequency Detection in Surface Waters of the Yakima River Basin, WA	(Ebbert, 2002)	26.53	%	10.00	25	0.6
75th Percentile Concentration in Source Water	(Ebbert, 2002)	0.006	ug/L	1.00	11	0.3
90th Percentile Concentration in Source Water	(Ebbert, 2002)	0.008	ug/L	1.00	16	0.6
Max Concentration in Hood River Basin, Surface Water of stream Lenz	(USGS, 2011)	0.041	ug/L	2.00	10	0.8
Frequency Detection in Hood River Basin, Surface Water of stream Lenz	(USGS, 2011)	10	%	10.00	10	0.8
Max Concentration from Stream Samples in Texas	(USGS,2008)	0.033	ug/L	2.00	20	0.8
Frequency Detection from Stream Samples in Texas	(USGS, 2008)	0.052	%	1.00	20	0.8
Maximum Concentration in New York Study	(Phillips & Bode, 2001)	0.13	ug/L	3.00	52	0.8
Frequency Detection in New York Study	(USGS, 2001)	23	%	10.00	52	0.8

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Compound Manganese

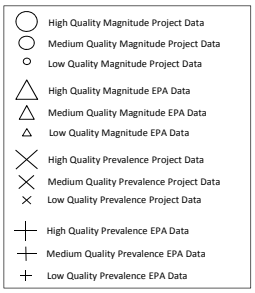
Update

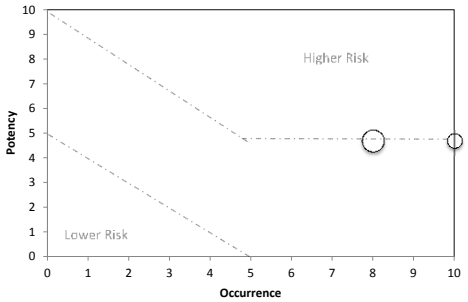
Manganese

Inorganic

CAS 7439-96-5

Category CCL4NOM





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	4.7	0.0	8.0
All Data	4.7	NA	9.0
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = 0.7
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Rfd	Illinios EPA	0.02	mg/kg-d	4.70		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration of Odor Causing Organisms in Lake Houston	(USGS)	338	ug/L	8.00	28	0.8
Median Concentration of Odor Causing Organisms in Lake Houston	(USGS)	51.5	ug/L	10.00	28	0.4

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	ND	12	0.86
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	ND	28	0.68
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	ND	6	0.93
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	ND	23	0.74
Equal Potency (P) and M (no Pr)	(P + M) /2	5	6.8	11	0.90
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	ND	13	0.85
Potency wt'd Magnitude	M^(P/10)	7	ND	17	0.81
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	ND	9	0.90
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	4.2	21	0.80

Compound MC-LA

Update

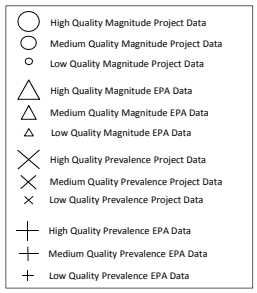
CAS 96180-79-9

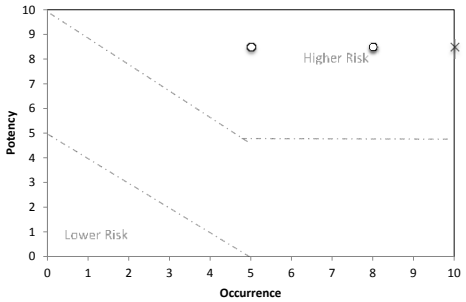
Category EC

MC-LA

Cyanotoxin

Microcystins





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	0.0
All Data	8.5	10.0	7.0
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Assumed-Rfd	CAEPA	--	mg/kg-d	8.50		0.25

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Midwestern United States Study	(Graham et al., 2010)	54	ug/L	8.00	23	0.6
Median Concentration in Midwestern United States Study	(Graham et al., 2010)	0.24	ug/L	5.00	23	0.3
Mean Concentration in Midwestern United States Study	(Graham et al., 2010)	4.9	ug/L	8.00	23	0.3
Frequency Detection in Midwestern United States Study	(Graham et al., 2010)	52	%	10.00	23	0.6

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	8.5	3	0.97
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	8.5	3	0.97
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	8.5	3	0.97
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	9.3	2	0.98
Equal Potency (P) and M (no Pr)	(P + M) /2	5	7.8	4	0.96
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	8.4	3	0.97
Potency wt'd Magnitude	M^(P/10)	7	5.2	4	0.95
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	7.6	3	0.97
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	6.2	4	0.96

Compound MC-LR

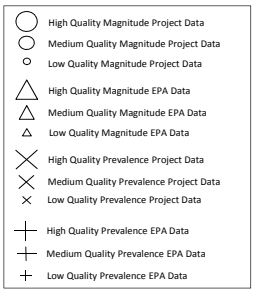
Update

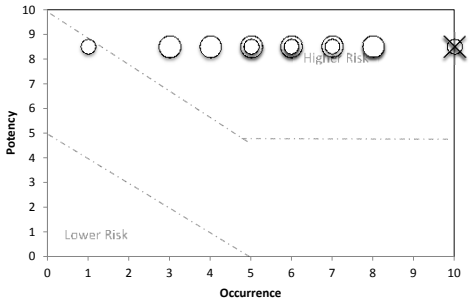
CAS 101043-37-2
Category EC

MC-LR

Cyanotoxin

Microcystins





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	8.5	0.0	0.0
All Data	8.5	10.0	5.9
EPA	9.0	10.0	4.0

Drinking Water Equivalent Level (DWEL) = 0.0001
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
EPA OPP RfD	CCL3 Dossiers	0.000003	mg/kg-d	8.52		1

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	8.2	5	0.94
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	8.4	5	0.94
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	8.1	8	0.91
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	9.3	1	0.99
Equal Potency (P) and M (no Pr)	(P + M) /2	5	7.2	7	0.93
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	8.1	5	0.94
Potency wt'd Magnitude	M^(P/10)	7	4.5	7	0.92
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	7.3	5	0.94
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	5.6	7	0.93

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Osage Plains, Midwestern United States	(Graham, 2004)	0.189	ug/L	3.00	111	0.6
Median Concentration in Osage Plains, Midwestern United States	(Graham, 2004)	0.0001	ug/L	1.00	111	0.3
Max Concentration in Ozark Highlands	(Graham et al., 2006)	3	ug/L	5.00	807	0.6
Max Concentration in Osage Plains	(Graham et al., 2006)	1	ug/L	4.00	220	0.6
Max Concentration in Dissected Till Plains	(Graham et al., 2006)	31	ug/L	8.00	151	0.6
Mean Concentration in Dissected Till Plains	(Graham et al., 2006)	0.4	ug/L	6.00	151	0.3
Max Concentration in Western Lake Section	(Graham et al., 2006)	52	ug/L	8.00	314	0.6
Mean Concentration in Western Lake Section	(Graham et al., 2006)	0.8	ug/L	6.00	314	0.3
Max Concentration in Midwestern United States Study	(Graham et al., 2010)	2100	ug/L	8.00	23	0.6
Median Concentration in Midwestern United States Study	(Graham et al., 2010)	1.6	ug/L	7.00	23	0.3
Mean Concentration in Midwestern United States Study	(Graham et al., 2010)	100	ug/L	10.00	23	0.3
Frequency Detection in Midwestern United States Study	(Graham et al., 2010)	91	%	10.00	23	0.6
Max Concentration in Missouri Reservoirs	(Graham & Jones, 2009)	1.2	ug/L	5.00	245	0.6
Frequency Detection in Missouri Reservoirs	(Graham & Jones, 2009)	11	%	10.00	245	0.6
Max Concentration in Missouri Reservoirs	(Graham & Jones, 2009)	3.1	ug/L	6.00	127	0.6
Mean Concentration in Missouri Reservoirs	(Graham & Jones, 2009)	0.15	ug/L	5.00	127	0.3
Frequency Detection in Missouri Reservoirs	(Graham & Jones, 2009)	20	%	10.00	127	0.6
Max Concentration in Missouri Reservoirs	(Graham & Jones, 2009)	4.9	ug/L	6.00	140	0.6
Mean Concentration in Missouri Reservoirs	(Graham & Jones, 2009)	0.19	ug/L	5.00	140	0.3
Frequency Detection Missouri Reservoirs	(Graham & Jones, 2009)	34	%	10.00	140	0.6
Max Concentration in Missouri Reservoirs	(Graham & Jones, 2009)	21	ug/L	7.00	890	0.6
Mean Concentration in Missouri Reservoirs	(Graham & Jones, 2009)	0.32	ug/L	6.00	890	0.3
Frequency Detection Concentration in Missouri Reservoirs	(Graham & Jones, 2009)	25	%	10.00	890	0.6

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Compound MC-LW

Update

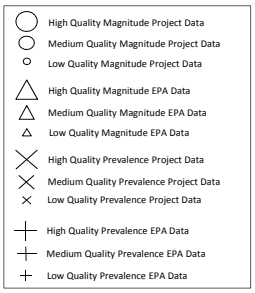
CAS 157622-02-1

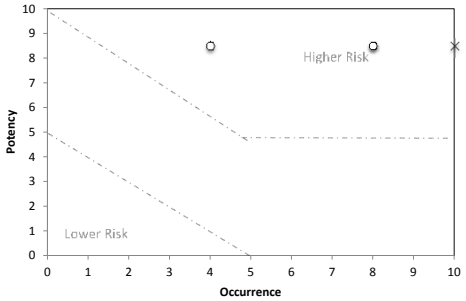
Category EC

MC-LW

Cyanotoxin

Microcystins





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	0.0
All Data	8.5	10.0	6.7
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Assumed-Rfd	CAEPA	--	mg/kg-d	8.50		0.25

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Midwestern United States Study	(Graham et al., 2010)	56	ug/L	8.00	23	0.6
Median Concentration in Midwestern United States Study	(Graham et al., 2010)	0.07	ug/L	4.00	23	0.3
Mean Concentration in Midwestern United States Study	(Graham et al., 2010)	6.3	ug/L	8.00	23	0.3
Frequency Detection in Midwestern United States Study	(Graham et al., 2010)	39	%	10.00	23	0.6

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	8.4	4	0.95
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	8.5	4	0.95
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	8.4	5	0.94
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	9.3	3	0.97
Equal Potency (P) and M (no Pr)	(P + M) /2	5	7.6	6	0.94
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	8.3	4	0.95
Potency wt'd Magnitude	M^(P/10)	7	5.0	5	0.94
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	7.5	4	0.95
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	6.0	5	0.95

Compound MC-RR

Update

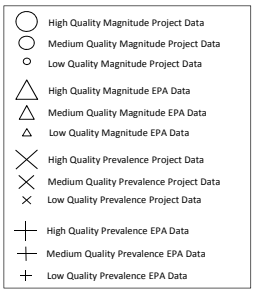
CAS 111755-37-4

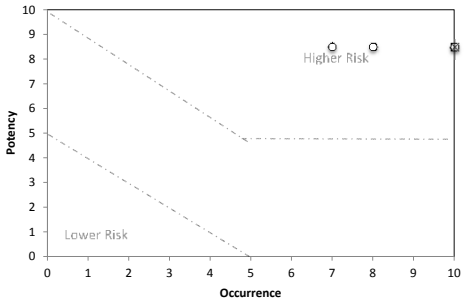
Category EC

MC-RR

Cyanotoxin

Microcystins





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	0.0
All Data	8.5	10.0	8.3
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Assumed-Rfd	CAEPA	--	mg/kg-d	8.50		0.25

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Midwestern United States Study	(Graham et al., 2010)	16000	ug/L	8.00	23	0.6
Median Concentration in Midwestern United States Study	(Graham et al., 2010)	1.1	ug/L	7.00	23	0.3
Mean Concentration in Midwestern United States Study	(Graham et al., 2010)	900	ug/L	10.00	23	0.3
Frequency Detection in Midwestern United States Study	(Graham et al., 2010)	78	%	10.00	23	0.6

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	8.8	1	0.99
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	8.7	1	0.99
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	9.0	1	0.99
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	9.3	4	0.96
Equal Potency (P) and M (no Pr)	(P + M) /2	5	8.4	2	0.98
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	8.8	1	0.99
Potency wt'd Magnitude	M^(P/10)	7	6.1	1	0.99
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	8.0	1	0.99
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	6.9	1	0.99

Compound MC-YR

Update

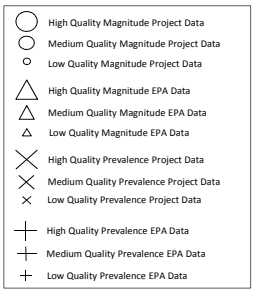
CAS 101064-48-6

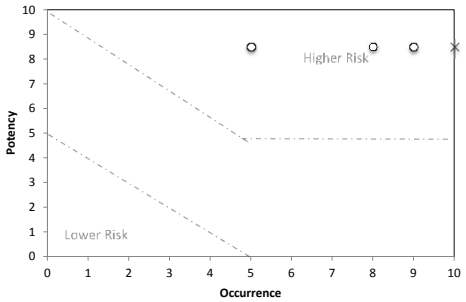
Category EC

MC-YR

Cyanotoxin

Microcystins





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	0.0
All Data	8.5	10.0	7.3
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Assumed-Rfd	CAEPA	--	mg/kg-d	8.50		0.25

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Midwestern United States Study	(Graham et al., 2010)	240	ug/L	8.00	23	0.6
Median Concentration in Midwestern United States Study	(Graham et al., 2010)	0.14	ug/L	5.00	23	0.3
Mean Concentration in Midwestern United States Study	(Graham et al., 2010)	16	ug/L	9.00	23	0.3
Frequency Detection in Midwestern United States Study	(Graham et al., 2010)	65	%	10.00	23	0.6

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	8.6	2	0.98
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	8.5	2	0.98
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	8.6	2	0.98
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	9.3	5	0.94
Equal Potency (P) and M (no Pr)	(P + M) /2	5	7.9	3	0.97
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	8.5	2	0.98
Potency wt'd Magnitude	M^(P/10)	7	5.4	3	0.97
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	7.7	2	0.98
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	6.4	3	0.97

Compound Methicillin

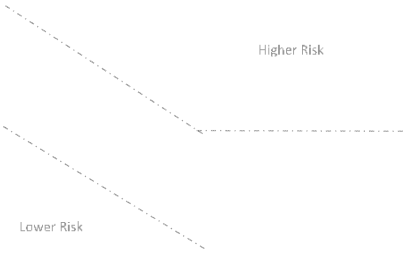
Update

CAS 61-32-5
Category CCL4NOM

Methicillin

PPCP
Antibiotic

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	0.0
All Data	6.0	0.0	0.0
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Assumed-Rfd	TAW Assumption	--	mg/kg-d	6.00		0.25

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	ND	NA	NA
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	ND	NA	NA
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	ND	NA	NA
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	ND	NA	NA
Equal Potency (P) and M (no Pr)	(P + M) /2	5	ND	NA	NA
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	ND	NA	NA
Potency wt'd Magnitude	M^(P/10)	7	ND	NA	NA
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	ND	NA	NA
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	ND	NA	NA

Compound Methyl bromide

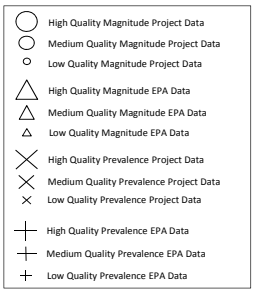
Update

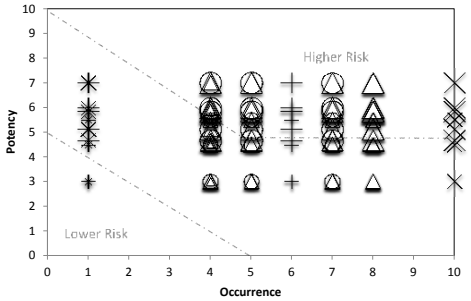
CAS 74-83-9

Category AWWA CCL3

Methyl bromide

VOC





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	5.8	5.8	6.0
All Data	5.1	4.8	5.9
EPA	6.0	6.0	7.0

Drinking Water Equivalent Level (DWEL) = 0.0035
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Chronic RfD	EPA Health Benchmark Pest List	0.02	mg/kg-d	4.70		1
RfD	2012 Health Advisory	0.0001	mg/kg-d	7.00		1
EPA IRIS (ITER) RfD	CCL3 Dossiers	0.0014	mg/kg-d	5.85		1
EPA HA (2006) RfD	CCL3 Dossiers	0.001	mg/kg-d	6.00		1
Lowest Oral Chronic Level LOAEL (RTECS)	CCL3 Dossiers	29.9	mg/kg-d	4.52		0.5
Max Acceptable Daily Intake	JMPR	1	mg/kg-d	3.00		0.5
Minimum Risk Level	ASTOR (ITER)	0.003	mg/kg-d	5.52		0.5
NOAEL	IRIS	1.4	mg/kg-d	5.85		1
LOAEL	IRIS	7.1	mg/kg-d	5.15		1
Cal. Prop. 65 MADL or NSRL	CA OEHHA	1	Boolean	3.00		0.5

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.2	54	0.39
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	5.1	52	0.41
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	5.3	59	0.33
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	4.9	69	0.22
Equal Potency (P) and M (no Pr)	(P + M) /2	5	5.5	30	0.71
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	5.2	38	0.57
Potency wt'd Magnitude	M^(P/10)	7	2.4	23	0.74
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	3.6	66	0.25
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	4.0	32	0.70

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Frequency Detection in Aquifer Samples	(USGS, 2006)	0.016	%	1.00	47	0.4
Max Concentration in Stream	(NAWQA DW-CF)	26	ug/L	7.00	50	0.8
Frequency Detection in Stream Samples	(NAWQA DW-CF)	11.3	%	10.00	58	0.8
90th Percentile Concentration in Stream	(NAWQA DW-CF)	0.26	ug/L	4.00	50	0.8
95th Percentile Concentration in Stream	(NAWQA DW-CF)	0.33	ug/L	5.00	50	0.8

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Finished Water	(NCOD Finished 1)	43	ug/L	8.00	20198	1
Frequency Detection in PWSs/Sites	(NCOD Finished 1)	0.77	%	6.00	20198	1
90th Percentile in Finished Water	(NCOD Finished 1)	11	ug/L	8.00	20198	1
99th Percentile in Finished Water	(NCOD Finished 1)	34	ug/L	8.00	20198	1
Max Concentration in Finished Water	(NCOD Finished 2)	38.1	ug/L	8.00	23328	1
Frequency Detection in PWSs/Sites	(NCOD Finished 2)	0.75	%	6.00	23328	1
90th Percentile in Finished Water	(NCOD Finished 2)	8.1	ug/L	7.00	23328	1
99th Percentile in Finished Water	(NCOD Finished 2)	27.2	ug/L	7.00	23328	1
Max Concentration in Finished Water	(NAWQA Ambient)	0.5	ug/L	4.00	4317	1
Frequency Detection in PWSs/Sites	(NAWQA Ambient)	0.07	%	1.00	4317	1
90th Percentile in Finished Water	(NAWQA Ambient)	0.5	ug/L	5.00	4317	1
99th Percentile in Finished Water	(NAWQA Ambient)	0.5	ug/L	4.00	4317	1
Max Concentration in Ambient Water	(NAWQA)	0.5	ug/L	4.00	24	0.8
Median Concentration in Ambient Water	(NAWQA)	0.1	ug/L	4.00	24	0.4
90th Percentile Concentration in Ambient Water	(NAWQA)	0.5	ug/L	5.00	24	0.8

Compound Methyl chloride

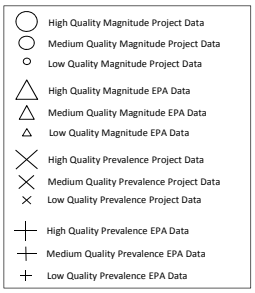
Update

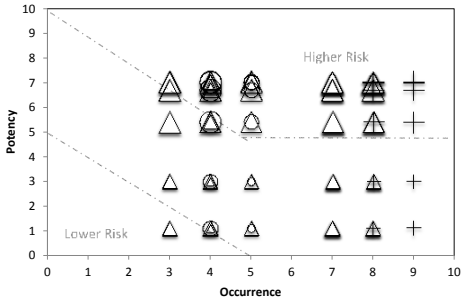
Methyl chloride

VOC

CAS 74-87-3

Category AWWA CCL3





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	6.5	8.3	6.4
All Data	5.1	8.3	5.9
EPA	5.0	8.0	7.0

Drinking Water Equivalent Level (DWEL) = 0.14
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
EPA HA (2006) RfD	CCL3 Dossiers	0.004	mg/kg-d	5.40		1
RAISHE Slope Factor	CCL3 Dossiers	0.013	(mg/kg-d)^-1	1.11		0.5
EPA RfD	IRIS	0.00009	mg/kg-d	7.05		1
NOAEL	IRIS	0.0949	mg/kg-d	7.02		1
LOAEL	IRIS	0.1898	mg/kg-d	6.72		1
Cal. Prop. 65 MADL or NSRL	CA OEHHA	1	Boolean	3.00		0.5

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in River	(Krasner)	0.4	ug/L	4.00	60	0.6
Median Concentration in River	(Krasner)	0.25	ug/L	5.00	60	0.3

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Finished Water	(NCOD Finished 1)	550	ug/L	8.00	20246	1
Median Concentration in Finished Water	(NCOD Finished 1)	1.9	ug/L	7.00	20246	0.6
Frequency Detection in PWSs/Sites	(NCOD Finished 1)	1.22	%	8.00	20246	1
90th Percentile in Finished Water	(NCOD Finished 1)	13	ug/L	8.00	20246	1
99th Percentile in Finished Water	(NCOD Finished 1)	120	ug/L	8.00	20246	1
Max Concentration in Finished Water	(NCOD Finished 2)	312	ug/L	8.00	23478	1
Median Concentration in Finished Water	(NCOD Finished 2)	1.4	ug/L	7.00	23478	0.6
Frequency Detection in PWSs/Sites	(NCOD Finished 2)	2.25	%	8.00	23478	1
90th Percentile in Finished Water	(NCOD Finished 2)	5	ug/L	7.00	23478	1
99th Percentile in Finished Water	(NCOD Finished 2)	29	ug/L	7.00	23478	1
Max Concentration in Finished Water	(NAWQA Ambient)	21	ug/L	7.00	3959	1
Median Concentration in Finished Water	(NAWQA Ambient)	0.04	ug/L	4.00	3959	0.6
Frequency Detection in PWSs/Sites	(NAWQA Ambient)	8.99	%	9.00	3959	1
90th Percentile in Finished Water	(NAWQA Ambient)	0.1	ug/L	3.00	3959	1
99th Percentile in Finished Water	(NAWQA Ambient)	0.58	ug/L	4.00	3959	1
Max Concentration in Ambient Water	(NAWQA)	21	ug/L	7.00	24	0.8
Median Concentration in Ambient Water	(NAWQA)	0.04	ug/L	4.00	24	0.4
90th Percentile Concentration in Ambient Water	(NAWQA)	0.1	ug/L	3.00	24	0.8
Max Detect Value	(CAL DHS)	46	ug/L	8.00	11984	0.8
Median Detect Value	(CAL DHS)	0.07	ug/L	4.00	11984	0.4
Frequency Detection	(CAL DHS)	2.1	%	8.00	11984	0.8
99th Percentile Detect Value	(CAL DHS)	2	ug/L	5.00	11984	0.8

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	6.1	26	0.70
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	5.6	40	0.55
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	6.6	21	0.76
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	6.7	45	0.49
Equal Potency (P) and M (no Pr)	(P + M) /2	5	5.5	29	0.72
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	5.9	20	0.77
Potency wt'd Magnitude	M^(P/10)	7	2.5	22	0.75
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	5.4	38	0.57
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	4.0	31	0.70

Compound Methyl parathion

Update

CAS 298-00-0

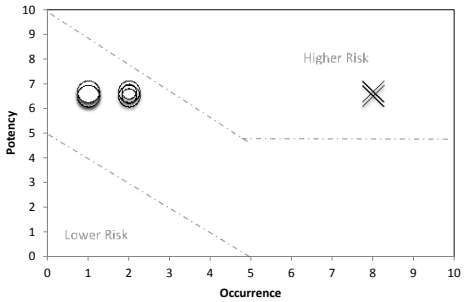
Category CCL4NOM

Methyl parathion

Pesticide

Insecticide

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	6.6	0.0	1.5
All Data	6.6	8.0	1.4
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = 0.007
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
RfD	2012 Health Advisory	0.0002	mg/kg-d	6.70		1
EPA RfD	IRIS	0.0003	mg/kg-d	6.52		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Stream	(USGA, 2002)	0.061	ug/L	2.00	36	0.8
95th Percentile Concentration in Stream	(USGA, 2002)	0.006	ug/L	1.00	25	0.8
Max Concentration in Source Water	(Battaglin, 1998)	0.016	ug/L	1.00	64	0.6
Max Concentration in Stream Study	(Koblin, 2002)	0.01	ug/L	1.00	80	0.6
Median Concentration in Stream Study	(Koblin, 2002)	0.01	ug/L	2.00	80	0.3
Frequency Detection in Stream Samples	(Koblin, 2002)	1.2	%	8.00	92	0.6

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.7	37	0.58
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	6.1	24	0.73
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	5.2	61	0.31
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	7.3	24	0.73
Equal Potency (P) and M (no Pr)	(P + M) /2	5	4.0	73	0.30
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	4.7	56	0.36
Potency wt'd Magnitude	M^(P/10)	7	1.2	79	0.10
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	4.6	54	0.39
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.0	90	0.14

Compound Methyl tertiary butyl ether (MTBE)

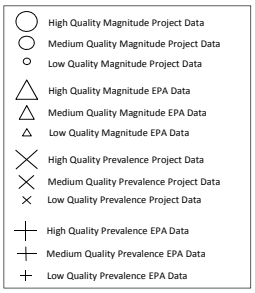
Update

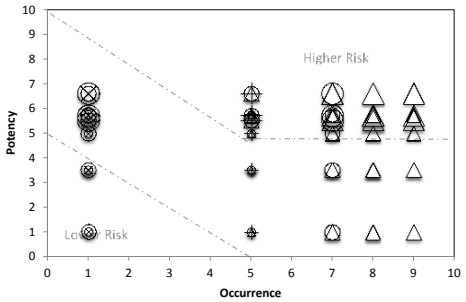
Methyl tertiary butyl ether (MTBE)

VOC

CAS 1634-04-4

Category CCL4NOM





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	5.9	5.0	7.5
All Data	4.6	3.0	5.2
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = 0.105
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Lowest Oral Chronic Level LOAEL	RTECS	300	mg/kg-d	3.52		0.5
Tolerable Daily Intake (ITER)	ITER	0.01	mg/kg-d	5.00		0.5
Cancer Slope Factor	RAISHE	0.0018	(mg/kg-d)^-1	1.00		0.5
Minimum Risk Level	ASTOR (ITER)	0.3	mg/kg-d	3.52		0.5
EPA RfD	IRIS	0.003	mg/kg-d	5.52		1
NOAEL	IRIS	0.2598	mg/kg-d	6.59		1
LOAEL	IRIS	1.9518	mg/kg-d	5.71		1
Oral Slope Factor	CA OEHHA	0.0018	mg/kg-d	5.74		0.5

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Median Concentration in Aquifer Samples	(USGS, 2006)	0.17	ug/L	5.00	52	0.4
Frequency Detection in Aquifer Samples	(USGS, 2006)	0.0083	%	1.00	47	0.4
Max Concentration in River	(Krasner)	0.00035	ug/L	1.00	60	0.6
Median Concentration in River	(Krasner)	0.0002	ug/L	1.00	60	0.3
Max Concentration in DWTP	(Krasner)	23	ug/L	7.00	60	0.75
Median Concentration in DWTP	(Krasner)	0.0009	ug/L	1.00	60	0.45

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Finished Water	(UCMR 1)	49	ug/L	8.00	34131	1
Mean Concentration in Finished Water	(UCMR 1)	15.2	ug/L	9.00	34131	0.6
Frequency Detection in PWSs	(UCMR 1)	0.5	%	5.00	34131	1
Max Concentration in Ambient Water	(NAWQA)	2300	ug/L	8.00	24	0.8
Median Concentration in Ambient Water	(NAWQA)	0.3	ug/L	5.00	24	0.4
90th Percentile Concentration in Ambient Water	(NAWQA)	7.85	ug/L	7.00	24	0.8

Title	**Formula**	**Algorithm #**	**Score**	**Rank**	**Percentile**
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	4.3	74	0.16
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	4.5	69	0.22
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	4.2	76	0.14
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	3.8	78	0.12
Equal Potency (P) and M (no Pr)	(P + M) /2	5	4.9	46	0.56
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	4.3	67	0.24
Potency wt'd Magnitude	M^(P/10)	7	2.1	32	0.64
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	2.6	80	0.09
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.7	43	0.59

Compound Metolachlor ESA

Update

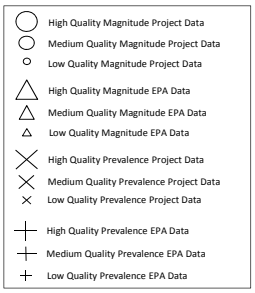
CAS 947601-85-6

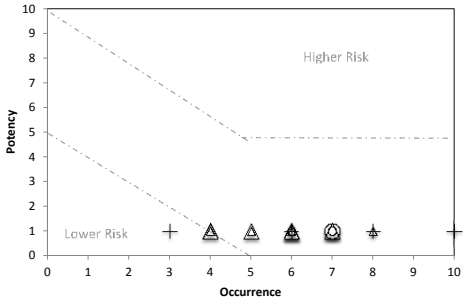
Category CCL3 Sh Lst

Metolachlor ESA

Pesticide

Herbicide/Metolachlor + degradates





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	6.8	6.0
All Data	1.0	7.4	6.1
EPA	2.0	6.0	6.0

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Supplemental NOEL	CCL3 Dossiers	1000	mg/kg-d	1.00		0.5

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Source Water	(Battaglin, 1998)	12.4	ug/L	7.00	64	0.6
Median Concentration in Source Water	(Battaglin, 1998)	1.55	ug/L	7.00	39	0.3
75th Percentile Concentration in Source Water	(Battaglin, 1998)	2.87	ug/L	6.00	46	0.3
95th Percentile Concentration in Source Water	(Battaglin, 1998)	5.08	ug/L	7.00	54	0.6

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Finished Water	(UCMR 2)	4	ug/L	6.00	11157	1
Mean Concentration in Finished Water	(UCMR 2)	1.7	ug/L	7.00	11157	0.6
Frequency Detection in PWSs	(UCMR 2)	1.6	%	8.00	11157	1
Max Concentration in Finished Water	(NCOD Finished 2)	13.8	ug/L	7.00	13007	1
Median Concentration in Finished Water	(NCOD Finished 2)	0.57	ug/L	6.00	13007	0.6
Frequency Detection in PWSs/Sites	(NCOD Finished 2)	0.89	%	6.00	13007	1
90th Percentile in Finished Water	(NCOD Finished 2)	2.18	ug/L	6.00	13007	1
99th Percentile in Finished Water	(NCOD Finished 2)	7.1	ug/L	6.00	13007	1
Max Detect Value	(CAL DHS)	0.7	ug/L	4.00	7345	0.8
Median Detect Value	(CAL DHS)	0.06	ug/L	4.00	7345	0.4
Frequency Detection	(CAL DHS)	0.2	%	3.00	7345	0.8
Max Concentration	(STORET)	86	ug/L	8.00	2082	0.4
Median Concentration	(STORET)	0.19	ug/L	5.00	2082	0.2
Frequency Detection	(STORET)	32.5	%	10.00	2082	0.4
90th Percentile Concentration	(STORET)	1.4	ug/L	6.00	2082	0.2
Max Concentration in Finished Water	(PDP 2001)	2.21	ug/L	5.00	582	1
Frequency Detection in Finished Water	(PDP 2001)	22.9	%	10.00	582	1

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	3.9	85	0.03
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	2.4	88	0.00
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	5.3	64	0.27
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	4.2	81	0.09
Equal Potency (P) and M (no Pr)	(P + M) /2	5	3.5	99	0.06
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	2.6	88	0.00
Potency wt'd Magnitude	M^(P/10)	7	1.2	87	0.01
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	4.3	61	0.31
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.0	103	0.02

Compound Metolachlor OA Degradates

Update

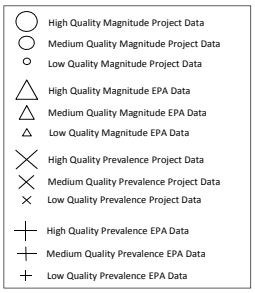
Metolachlor OA Degradates

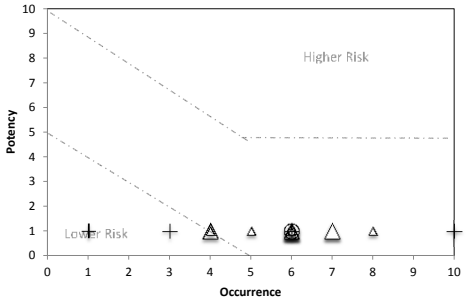
Pesticide

Herbicide/Metolachlor + degradates

CAS 152019-73-3

Category CCL3 Sh Lst





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	5.0	6.1
All Data	1.0	6.0	5.9
EPA	2.0	6.0	6.0

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Supplemental NOEL	CCL3 Dossiers	1000	mg/kg-d	1.00		0.5

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Source Water	(Battaglin, 1998)	6.37	ug/L	6.00	64	0.6
Median Concentration in Source Water	(Battaglin, 1998)	0.76	ug/L	6.00	39	0.3
75th Percentile Concentration in Source Water	(Battaglin, 1998)	1.28	ug/L	6.00	46	0.3
95th Percentile Concentration in Source Water	(Battaglin, 1998)	2.4	ug/L	6.00	54	0.6

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Finished Water	(UCMR 2)	3.5	ug/L	6.00	11157	1
Mean Concentration in Finished Water	(UCMR 2)	3	ug/L	7.00	11157	0.6
Frequency Detection in PWSs	(UCMR 2)	0.08	%	1.00	11157	1
Max Concentration in Finished Water	(NCOD Finished 2)	13.8	ug/L	7.00	13007	1
Median Concentration in Finished Water	(NCOD Finished 2)	0.57	ug/L	6.00	13007	0.6
Frequency Detection in PWSs/Sites	(NCOD Finished 2)	0.89	%	6.00	13007	1
90th Percentile in Finished Water	(NCOD Finished 2)	2.18	ug/L	6.00	13007	1
99th Percentile in Finished Water	(NCOD Finished 2)	7.1	ug/L	6.00	13007	1
Max Detect Value	(CAL DHS)	0.7	ug/L	4.00	7345	0.8
Median Detect Value	(CAL DHS)	0.06	ug/L	4.00	7345	0.4
Frequency Detection	(CAL DHS)	0.2	%	3.00	7345	0.8
Max Concentration	(STORET)	86	ug/L	8.00	2082	0.4
Median Concentration	(STORET)	0.19	ug/L	5.00	2082	0.2
Frequency Detection	(STORET)	32.5	%	10.00	2082	0.4
90th Percentile Concentration	(STORET)	1.4	ug/L	6.00	2082	0.2
Max Concentration in Finished Water	(PDP 2001)	4.42	ug/L	6.00	582	1
Frequency Detection in Finished Water	(PDP 2001)	10.1	%	10.00	582	1

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	3.5	82	0.07
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	2.2	86	0.02
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	4.7	68	0.23
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	3.5	82	0.08
Equal Potency (P) and M (no Pr)	(P + M) /2	5	3.5	91	0.13
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	2.4	85	0.03
Potency wt'd Magnitude	M^(P/10)	7	1.2	81	0.08
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	3.6	67	0.24
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.0	92	0.12

Compound Metolachlor

Update

Metolachlor

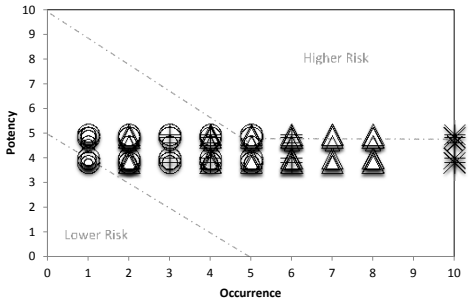
Pesticide

Herbicide/Metolachlor + degradates

CAS 51218-45-2

Category CCL3 Sh Lst

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	4.4	6.6	5.1
All Data	4.3	7.6	4.0
EPA	4.0	6.0	6.0

Drinking Water Equivalent Level (DWEL) = 3.5
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
EPA OPP RfD	CCL3 Dossiers	0.1	mg/kg-d	4.00		1
EPA IRIS (ITER) RfD	CCL3 Dossiers	0.15	mg/kg-d	3.82		1
Lowest Oral Chronic Level LOAEL (RTECS)	CCL3 Dossiers	25	mg/kg-d	4.60		0.5
Lowest Oral LD50 (RTECS)	CCL3 Dossiers	1150	mg/kg	4.94		1
NOAEL	IRIS	15	mg/kg-d	4.82		1
LEL	IRIS	150	mg/kg-d	3.82		0.5

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Untreated Drinking Water Study	(Focazio et al., 2008)	0.67	ug/L	4.00	73	0.6
Frequency Detention in Untreated Drinking Water Study	(Focazio et al., 2008)	39.2	%	10.00	73	0.6
Max Concentration in Stream	(USGA, 2002)	2.42	ug/L	5.00	36	0.8
Median Concentration in Stream	(USGA, 2002)	0.003	ug/L	1.00	2	0.4
75th Percentile Concentration in Stream	(USGA, 2002)	0.01	ug/L	1.00	3	0.4
90th Percentile Concentration in Stream	(USGA, 2002)	0.027	ug/L	2.00	5	0.8
95th Percentile Concentration in Stream	(USGA, 2002)	0.056	ug/L	3.00	25	0.8
Max Concentration in Source Water	(Ebbert, 2002)	0.009	ug/L	1.00	25	0.6
75th Percentile Concentration in Source Water	(Ebbert, 2002)	0.002	ug/L	1.00	11	0.3
90th Percentile Concentration in Source Water	(Ebbert, 2002)	0.027	ug/L	2.00	16	0.6
Maximum Concentration in CEC Data from 2008-2010	(Guo et al., 2010)	0.081	ug/L	2.00	-	0.6
Percent Detection in CEC Data from 2008-2010	(Guo et al., 2010)	37	%	10.00	-	0.6

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.1	59	0.33
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	4.7	64	0.27
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	5.4	50	0.43
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	6.0	59	0.34
Equal Potency (P) and M (no Pr)	(P + M) /2	5	4.2	62	0.41
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	4.9	50	0.43
Potency wt'd Magnitude	M^(P/10)	7	1.8	43	0.51
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	4.7	52	0.41
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.5	54	0.49

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Finished Water	(UCMR 2)	2.7	ug/L	5.00	11157	1
Frequency Detection in PWSs	(UCMR 2)	0.3	%	4.00	11157	1
Max Concentration in Finished Water	(NCOD Finished 2)	13.8	ug/L	7.00	13007	1
Frequency Detection in PWSs/Sites	(NCOD Finished 2)	0.89	%	6.00	13007	1
90th Percentile in Finished Water	(NCOD Finished 2)	2.18	ug/L	6.00	13007	1
99th Percentile in Finished Water	(NCOD Finished 2)	7.1	ug/L	6.00	13007	1
Max Concentration in Finished Water	(NAWQA Ambient)	77.6	ug/L	8.00	7165	1
Frequency Detection in PWSs/Sites	(NAWQA Ambient)	25.4	%	10.00	7165	1
90th Percentile in Finished Water	(NAWQA Ambient)	0.58	ug/L	5.00	7165	1
99th Percentile in Finished Water	(NAWQA Ambient)	6.71	ug/L	6.00	7165	1
Max Concentration in Ambient Water	(NAWQA)	77.6	ug/L	8.00	24	0.8
90th Percentile Concentration in Ambient Water	(NAWQA)	6.71	ug/L	7.00	24	0.8
Max Detect Value	(CAL DHS)	0.7	ug/L	4.00	7345	0.8
Frequency Detection	(CAL DHS)	0.2	%	3.00	7345	0.8
99th Percentile Detect Value	(CAL DHS)	0.1	ug/L	2.00	7345	0.8
Max Concentration in Finished Water	(PDP 2001)	0.079	ug/L	2.00	582	1
Frequency Detection in Finished Water	(PDP 2001)	50.2	%	10.00	582	1

Compound Molinate

Update

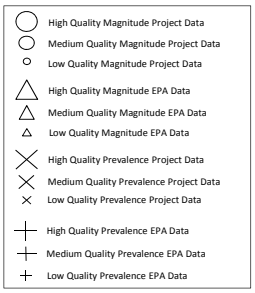
CAS 2212-67-1

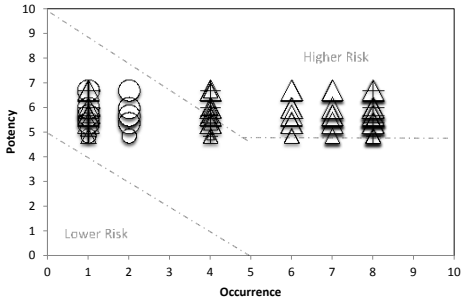
Category CCL3 Sh Lst

Molinate

Pesticide

Herbicide





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	5.9	3.5	5.8
All Data	5.7	3.5	5.6
EPA	6.0	1.0	8.0

Drinking Water Equivalent Level (DWEL) = 0.035
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
EPA OPP RfD	CCL3 Dossiers	0.001	mg/kg-d	6.00		1
EPA IRIS (ITER) RfD	CCL3 Dossiers	0.002	mg/kg-d	5.70		1
RAISHE RfD	CCL3 Dossiers	0.002	mg/kg-d	5.70		1
Lowest Oral Chronic Level LOAEL (RTECS)	CCL3 Dossiers	13.1	mg/kg-d	4.88		0.5
NOAEL	IRIS	0.2	mg/kg-d	6.70		1
LOAEL	IRIS	4	mg/kg-d	5.40		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Stream	(USGA, 2002)	0.096	ug/L	2.00	36	0.8
95th Percentile Concentration in Stream	(USGA, 2002)	0.004	ug/L	1.00	25	0.8
Max Concentration in Source Water	(Battaglin, 1998)	0.049	ug/L	2.00	64	0.6

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Finished Water	(UCMR 1)	190	ug/L	8.00	34298	1
Mean Concentration in Finished Water	(UCMR 1)	3.5	ug/L	8.00	34298	0.6
Frequency Detection in PWSs	(UCMR 1)	0.003	%	1.00	34298	1
Max Concentration in Finished Water	(UCMR Finished)	5.7	ug/L	6.00	3621	1
Median Concentration in Finished Water	(UCMR Finished)	5.7	ug/L	8.00	3621	0.6
Frequency Detection in PWSs/Sites	(UCMR Finished)	0.03	%	1.00	3621	1
90th Percentile in Finished Water	(UCMR Finished)	5.7	ug/L	7.00	3621	1
95th Percentile in Finished Water	(UCMR Finished)	5.7	ug/L	7.00	3621	1
Max Concentration in Finished Water	(NAWQA Ambient)	200	ug/L	8.00	7118	1
Median Concentration in Finished Water	(NAWQA Ambient)	0.0372	ug/L	4.00	7118	0.6
Frequency Detection in PWSs/Sites	(NAWQA Ambient)	1.68	%	8.00	7118	1
90th Percentile in Finished Water	(NAWQA Ambient)	3.41	ug/L	7.00	7118	1
99th Percentile in Finished Water	(NAWQA Ambient)	47.9	ug/L	8.00	7118	1
Max Concentration in Ambient Water	(NAWQA)	200	ug/L	8.00	24	0.8
Median Concentration in Ambient Water	(NAWQA)	0.0372	ug/L	4.00	24	0.4
90th Percentile Concentration in Ambient Water	(NAWQA)	3.41	ug/L	7.00	24	0.8
Max Concentration in Ambient Water	(PPMP)	0.004	ug/L	1.00	-	0.8
Percent Detection in Ambient Water	(PPMP)	0.3	%	4.00	-	0.8

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.2	88	0.00
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	5.4	87	0.01
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	4.9	83	0.06
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	4.6	88	0.01
Equal Potency (P) and M (no Pr)	(P + M) /2	5	5.7	96	0.09
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	5.0	87	0.01
Potency wt'd Magnitude	M^(P/10)	7	2.7	82	0.07
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	3.1	84	0.05
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	4.2	93	0.11

Compound Molybdenum

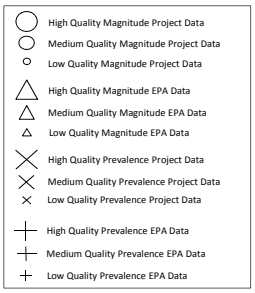
Update

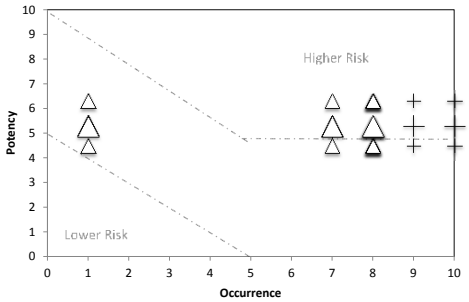
Molybdenum

Inorganic

CAS 7439-98-7

Category CCL3 Sh Lst





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	5.3	9.7	8.0
All Data	5.4	9.7	6.9
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = 0.175
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
EPA OPP RfD	CCL3 Dossiers	0.005	mg/kg-d	5.30		1
Lowest Oral Chronic Level LOAEL (RTECS)	CCL3 Dossiers	0.5	mg/kg-d	6.30		0.5
Supplemental RfD-like Value	Supplemental	0.03	mg/kg-d	4.52		0.5

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Finished Water	(NIRS)	180	ug/L	8.00	989	1
Median Concentration in Finished Water	(NIRS)	10	ug/L	8.00	989	0.6
Frequency Detection in Finished Water-	(NIRS)	7.79	%	9.00	989	1
90th Percentile Concentration in Finished Water	(NIRS)	30	ug/L	8.00	989	1
99th Percentile Concentration in Finished Water	(NIRS)	110	ug/L	8.00	989	1
Frequency Detection in total results >MRL	(UCMR 3 Total)	43	%	10.00	12019	1
Frequency Detection in PWS > MRL	(UCMR 3 PWS)	52	%	10.00	1432	1
Max Concentration in Finished Water	(UCMR 3 Total)	52	ug/L	8.00	12019	1
Median Concentration in Finished Water	(UCMR 3 Total)	0	ug/L	1.00	12019	0.6
95% percentile in Finished Water	(UCMR 3 Total)	6.3	ug/L	7.00	12019	0.6

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	6.8	NA	NA
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	6.1	NA	NA
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	7.5	NA	NA
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	7.5	NA	NA
Equal Potency (P) and M (no Pr)	(P + M) /2	5	6.1	NA	NA
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	6.6	NA	NA
Potency wt'd Magnitude	M^(P/10)	7	2.8	NA	NA
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	6.2	NA	NA
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	4.2	NA	NA

Compound Naproxen

Update

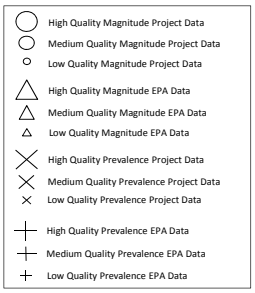
CAS 22204-53-1

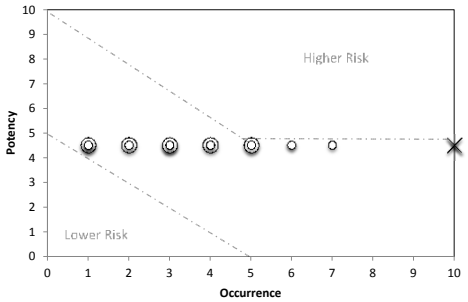
Category EC

Naproxen

PPCP

NSAID





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	4.0
All Data	4.5	10.0	3.2
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
NOEL	TAW Assumption	0.03	mg/kg-d	4.52		0.5

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.6	22	0.75
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	5.0	27	0.69
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	6.1	26	0.70
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	7.3	14	0.84
Equal Potency (P) and M (no Pr)	(P + M) /2	5	3.8	56	0.47
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	5.0	25	0.72
Potency wt'd Magnitude	M^(P/10)	7	1.7	38	0.57
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	5.8	17	0.81
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.3	49	0.53

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Fresh Surface Waters Study	(Fenech et al., 2012)	0.551	ug/L	4.00	-	0.4
Mean Concentration in Fresh Surface Waters Study	(Fenech et al., 2012)	0.1563	ug/L	5.00	-	0.2
Frequency Detection in Fresh Surface Waters Study	(Fenech et al., 2012)	76.1	%	10.00	-	0.4
Max Concentration of Pharmaceuticals in Drinking Water Study	(Daneshvar et al., 2012)	6.815	ug/L	6.00	14	0.1
Mean Concentration of Pharmaceuticals in Drinking Water Study	(Daneshvar et al., 2012)	1.899	ug/L	7.00	14	0.1
Frequency Detection of Pharmaceuticals in Drinking Water Study	(Daneshvar et al., 2012)	100	%	10.00	14	0.1
Mean Concentration of Wastewater Effluent Study	(Dickenson et al., 2010)	0.65	ug/L	6.00	7	0.15
Frequency Detection of Wastewater Effluent Study	(Dickenson et al., 2010)	100	%	10.00	7	0.15
Max Concentration of EDC and Pharmaceuticals in Wastewater	(Trenholm et al., 2006)	0.0051	ug/L	1.00	17	0.1
Max Concentration of PPCPs in Near Shore Lake Michigan	(Ferguson et al., 2013)	0.03	ug/L	1.00	64	0.6
Mean Max Concentration of PPCPs in Near Shore Lake Michigan	(Ferguson et al., 2013)	0.00632	ug/L	2.00	64	0.3
Frequency Detection of PPCPs in Near Shore Lake Michigan	(Ferguson et al., 2013)	100	%	10.00	64	0.6
Max Concentration of Pharmaceuticals and PPCPs in Water Treatment Plant	(Azzouz & Ballesteros, 2013)	0.0049	ug/L	1.00	4	0.5
Mean Concentration of Pharmaceuticals and PPCPs in Water Treatment Plant	(Azzouz & Ballesteros, 2013)	0.0015	ug/L	1.00	4	0.3
Max Concentration of Pharmaceuticals and PPCPs in Water Treatment Plant	(Azzouz & Ballesteros, 2013)	0.029	ug/L	1.00	4	0.4
Mean Concentration of Pharmaceuticals and PPCPs in Water Treatment Plant	(Azzouz & Ballesteros, 2013)	0.021	ug/L	3.00	4	0.2
Max Concentration of Pharmaceuticals and PPCPs in Surface Waters	(Bernot et al., 2013)	0.07	ug/L	2.00	102	0.6
Mean Concentration of Pharmaceuticals and PPCPs in Surface Waters	(Bernot et al., 2013)	0.0125	ug/L	3.00	102	0.3
Frequency Detection of Pharmaceuticals and PPCPs in Surface Waters	(Bernot et al., 2013)	28	%	10.00	102	0.6
Max Concentration of Pharmaceuticals in Surface Water in Ontario Canada	(Kleywegt et al., 2011)	0.199	ug/L	3.00	125	0.6
Median Concentration of Pharmaceuticals in Surface Water in Ontario Canada	(Kleywegt et al., 2011)	0.001	ug/L	1.00	125	0.3
Frequency Detection of Pharmaceuticals in Surface Water in Ontario Canada	(Kleywegt et al., 2011)	21	%	10.00	125	0.6
95th Percentile of Pharmaceuticals in Surface Water in Ontario Canada	(Kleywegt et al., 2011)	0.058	ug/L	3.00	125	0.6
Max Concentration of Organic Chemicals in U.S. Riverbank Filtration Systems	(Hoppe-Jones et al., 2010)	0.79	ug/L	4.00	18	0.4
Frequency Detection of Organic Chemicals in U.S. Riverbank Filtration Systems	(Hoppe-Jones et al., 2010)	100	%	10.00	18	0.4
Max Concentration of Emerging Contaminants in Freshwater	(Murray et al., 2010)	2	ug/L	5.00	-	0.6
Mean Concentration of Emerging Contaminants in Freshwater	(Murray et al., 2010)	0.004	ug/L	2.00	-	0.3
Frequency Detection of Emerging Contaminants in Freshwater	(Murray et al., 2010)	69	%	10.00	-	0.6
Max Concentration in Secondary/Tertiary Effluent in California	(Anderson et al., 2010)	0.86	ug/L	4.00		1
Median Concentration in Secondary/Tertiary Effluent in California	(Anderson et al., 2010)	0.023	ug/L	3.00		0.6
Mean Concentration in Secondary/Tertiary Effluent in California	(Anderson et al., 2010)	0.15	ug/L	5.00		0.6

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Compound NDEA

Update

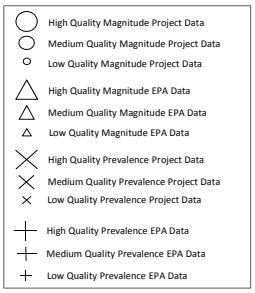
CAS 7261-97-4

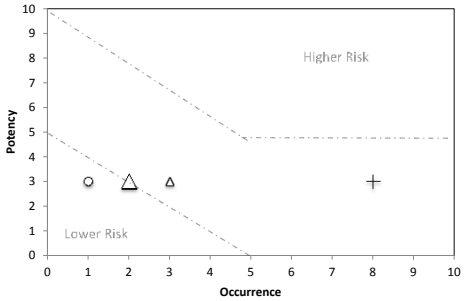
Category CCL3 Sh Lst

NDEA

DBP

Nitrosamine





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	8.0	2.0
All Data	3.0	8.0	2.0
EPA	9.0	1.0	2.0

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Assumed-Rfd	Wagner et al,2012	--	mg/kg-d	3.00		0.25

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration of DBPs in Drinking Water	(Bond et al., 2011)	0.023	ug/L	1.00	-	0.5

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Finished Water	(UCMR 2)	0.1	ug/L	2.00	18096	1
Mean Concentration in Finished Water	(UCMR 2)	0.015	ug/L	3.00	18096	0.6
Frequency Detection in PWSs	(UCMR 2)	2.2	%	8.00	18096	1

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	4.0	55	0.38
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	3.5	47	0.47
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	4.5	63	0.28
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	5.5	44	0.51
Equal Potency (P) and M (no Pr)	(P + M) /2	5	2.5	85	0.19
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	3.5	59	0.33
Potency wt'd Magnitude	M^(P/10)	7	1.2	70	0.20
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	4.6	51	0.42
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.0	81	0.23

Compound NDMA

Update

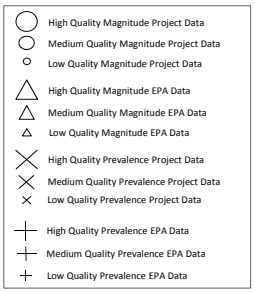
CAS 68392-35-8

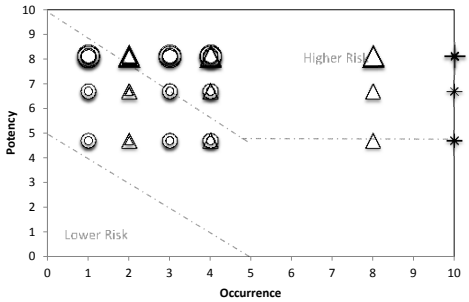
Category CCL3 Sh Lst

NDMA

DBP

Nitrosamine





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	8.1	10.0	3.6
All Data	6.9	10.0	3.0
EPA	8.0	10.0	2.0

Drinking Water Equivalent Level (DWEL) = 0.0003
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
RAISHE RfD	CCL3 Dossiers	0.000008	mg/kg-d	8.10		1
Lowest Oral Chronic Level LOAEL (RTECS)	CCL3 Dossiers	0.2	mg/kg-d	6.70		0.5
EPA Lifetime Cancer Risk, 10^-4	CCL3 Dossiers	0.00007	mg/L	8.15		1
Cancer Slope Factor	RAISHE	51	(mg/kg-d)^-1	4.71		0.5

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	6.7	43	0.51
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	6.8	55	0.38
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	6.6	33	0.63
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	8.5	26	0.71
Equal Potency (P) and M (no Pr)	(P + M) /2	5	5.0	83	0.21
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	6.2	49	0.44
Potency wt'd Magnitude	M^(P/10)	7	2.1	59	0.33
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	6.1	21	0.76
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.7	70	0.33

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Frequency Detection of Wastewater Effluent Study	(Dickenson et al., 2010)	88	%	10.00	7	0.15
Max Concentration in Drinking Water	(Zhao et al., 2006)	0.108	ug/L	3.00	-	0.5
Max Concentration of DBPs in Drinking Water	(Bond et al., 2011)	1	ug/L	4.00	-	0.5
Median Concentration of DBPs in Drinking Water Plant 1	(Bond et al., 2011)	0.045	ug/L	4.00	-	0.3
75th Percentile Concentration of DBPs in Drinking Water Plant 1	(Bond et al., 2011)	0.09	ug/L	3.00	-	0.3
Max Concentration of DBPs in Drinking Water Plant 2	(Bond et al., 2011)	0.0049	ug/L	1.00	-	0.5
Max Concentration of DBPs in Drinking Water Plant 3	(Bond et al., 2011)	0.11	ug/L	3.00	-	0.5
Max Concentration in California Drinking Water Study	(Krasner et al., 2012)	0.02	ug/L	1.00	-	0.75
75th Percentile Concentration in California Drinking Water Study	(Krasner et al., 2012)	0.0033	ug/L	1.00	-	0.45
95th Percentile Concentration in California Drinking Water Study	(Krasner et al., 2012)	0.01	ug/L	1.00	-	0.75
Max Concentration in Secondary/Tertiary Effluent in California	(Anderson et al., 2010)	0.33	ug/L	4.00		1
Median Concentration in Secondary/Tertiary Effluent in California	(Anderson et al., 2010)	0.029	ug/L	3.00		0.6
Mean Concentration in Secondary/Tertiary Effluent in California	(Anderson et al., 2010)	0.039	ug/L	4.00		0.6

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Finished Water	(UCMR 2)	0.63	ug/L	4.00	18098	1
Mean Concentration in Finished Water	(UCMR 2)	0.009	ug/L	2.00	18098	0.6
Frequency Detection in PWSs	(UCMR 2)	27	%	10.00	18098	1
Max Detect Value	(CAL DHS)	440	ug/L	8.00	409	0.8
Median Detect Value	(CAL DHS)	0.009	ug/L	2.00	409	0.4
Frequency Detection	(CAL DHS)	21.3	%	10.00	409	0.8

Compound NDPA

Update

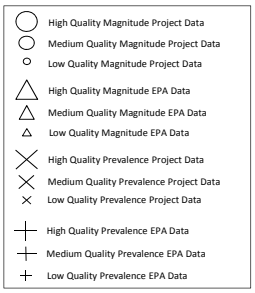
CAS 621-64-7

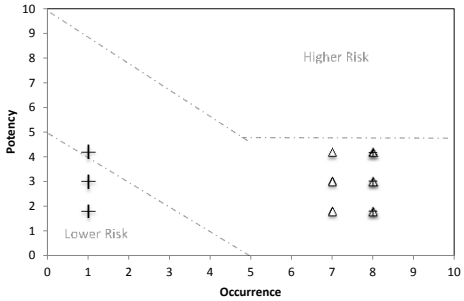
Category CCL3 Sh Lst

NDPA

DBP

Nitrosamine





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	1.0	7.5
All Data	3.0	4.5	7.7
EPA	7.0	2.0	2.0

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Cancer Slope Factor	CA OEHHA	16	(mg/kg-d)^-1	4.20		0.5
Oral Slope Factor	CA OEHHA	16	mg/kg-d	1.80		0.5
Cal. Prop. 65 MADL or NSRL	CA OEHHA	1	Boolean	3.00		0.5

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Frequency Detection in PWSs	(UCMR 2)	0	%	1.00	18107	1
Max Concentration	(STORET)	20	ug/L	7.00	1309	0.4
Median Concentration	(STORET)	10	ug/L	8.00	1309	0.2
Frequency Detection	(STORET)	1.68	%	8.00	1309	0.4
90th Percentile Concentration	(STORET)	10.24	ug/L	8.00	1309	0.2

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	4.5	71	0.19
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	3.8	80	0.09
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	5.3	56	0.36
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	3.8	79	0.11
Equal Potency (P) and M (no Pr)	(P + M) /2	5	5.3	37	0.65
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	4.2	71	0.19
Potency wt'd Magnitude	M^(P/10)	7	1.8	45	0.49
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	3.2	73	0.17
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.5	56	0.47

Compound NDPhA

Update

CAS 86-30-6

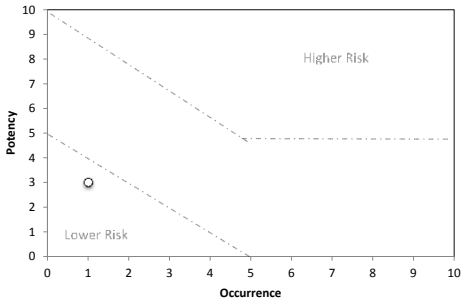
Category CCL3 Sh Lst

NDPhA

DBP

Nitrosamine

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	0.0
All Data	3.0	0.0	1.0
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Assumed-Rfd	Wagner et al,2012	--	mg/kg-d	3.00		0.25

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Drinking Water	(Zhao et al., 2006)	0.00186	ug/L	1.00	-	0.5

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	ND	NA	NA
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	ND	NA	NA
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	ND	NA	NA
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	ND	NA	NA
Equal Potency (P) and M (no Pr)	(P + M) /2	5	2.0	77	0.27
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	ND	NA	NA
Potency wt'd Magnitude	M^(P/10)	7	ND	NA	NA
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	ND	NA	NA
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	2.8	104	0.01

Compound Nitrobenzene

Update

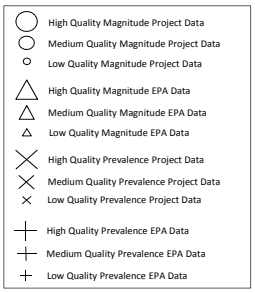
CAS 98-95-3

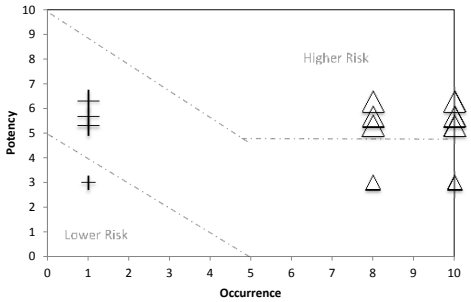
Category CCL3 Sh Lst

Nitrobenzene

VOC

cVOC list





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	5.8	1.0	8.0
All Data	5.1	1.0	9.0
EPA	6.0	1.0	10.0

Drinking Water Equivalent Level (DWEL) = 0.07
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
EPA IRIS (ITER) RfD	CCL3 Dossiers	0.002	mg/kg-d	5.70		1
RAISHE RfD	CCL3 Dossiers	0.0005	mg/kg-d	6.30		1
LOAEL	IRIS	4.6	mg/kg-d	5.34		1
Cal. Prop. 65 MADL or NSRL	CA OEHHA	1	Boolean	3.00		0.5

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Finished Water	(UCMR 1)	100	ug/L	8.00	33937	1
Mean Concentration in Finished Water	(UCMR 1)	60.8	ug/L	10.00	33937	0.6
Frequency Detection in PWSs	(UCMR 1)	0.05	%	1.00	33937	1

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.0	78	0.11
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	5.1	81	0.08
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	5.0	70	0.20
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	3.0	89	0.00
Equal Potency (P) and M (no Pr)	(P + M) /2	5	7.0	20	0.81
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	3.9	81	0.08
Potency wt'd Magnitude	M^(P/10)	7	3.1	39	0.56
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	2.0	86	0.02
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	4.4	50	0.52

Compound Nonylphenol ethoxylate

Update

CAS 9016-45-9

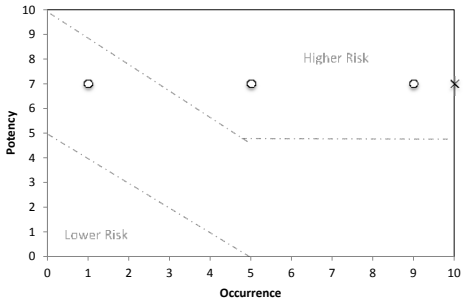
Category CCL4NOM

Nonylphenol ethoxylate

Industrial

Alkylphenol ethoxylates

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	0.0
All Data	7.0	10.0	5.0
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Assumed-Rfd	TAW Assumption	--	mg/kg-d	7.00		0.25

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Mean Concentration from Kalamazoo River, Michigan	(Kannan et al., 2002)	0.0027	ug/L	1.00	6	0.3
Max Concentration found in Cuyahoga River, Ohio	(Price et al., 2003)	2.5	ug/L	5.00	22	0.4
Frequency Detection in Monguagan Creek	(Synder et al., 1999)	70	%	10.00	23	0.6
Mean Concentration in Monguagan Creek	(Synder et al., 1999)	17.8	ug/L	9.00	23	0.3

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	7.3	20	0.77
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	7.1	37	0.58
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	7.4	16	0.82
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	8.5	18	0.80
Equal Potency (P) and M (no Pr)	(P + M) /2	5	6.0	40	0.62
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	7.0	19	0.78
Potency wt'd Magnitude	M^(P/10)	7	3.1	28	0.68
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	6.5	14	0.84
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	4.5	38	0.64

Compound Nonylphenol

Update

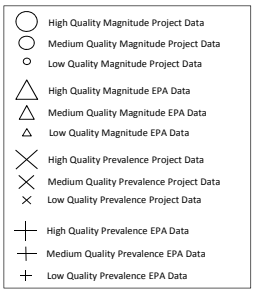
Nonylphenol

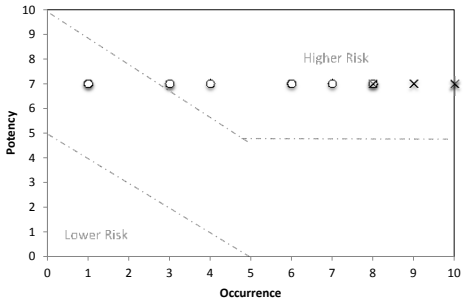
Industrial

Alkylphenols

CAS 25154-52-3

Category CCL4NOM





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	0.0
All Data	7.0	9.5	4.6
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Assumed-Rfd	TAW Assumption	--	mg/kg-d	7.00		0.25

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Frequency Detention in Untreated Drinking Water Study	(Focazio et al., 2008)	1.4	%	8.00	73	0.6
Frequency Detection of Wastewater Effluent Study	(Dickenson et al., 2010)	100	%	10.00	7	0.15
Max Concentration of Pharmaceuticals in Drinking Water Wells in Massachusetts	(Schaider et al., 2013)	0.02	ug/L	1.00	20	0.5
Frequency Detection of Pharmaceuticals in Drinking Water Wells in Massachusetts	(Schaider et al., 2013)	14	%	10.00	20	0.5
Max Concentration of Emerging Contaminants in Freshwater	(Murray et al., 2010)	40	ug/L	8.00	-	0.6
Mean Concentration of Emerging Contaminants in Freshwater	(Murray et al., 2010)	0.8	ug/L	6.00	-	0.3
Frequency Detection of Emerging Contaminants in Freshwater	(Murray et al., 2010)	50.6	%	10.00	-	0.6
Mean Concentration from Kalamazoo River, Michigan	(Kannan et al., 2002)	0.0026	ug/L	1.00	6	0.3
Mean Concentration in Monguagan Creek	(Synder et al., 1999)	1.19	ug/L	7.00	23	0.3
Max Concentration in River Waters	(Sharma et al., 2009)	32.5	ug/L	8.00	-	0.4
Maximum Concentration in the Lower Colorado River Watershed	(Guo et al., 2010)	0.143	ug/L	3.00	19	0.6
Median Concentration in the Lower Colorado River Watershed	(Guo et al., 2010)	0.05	ug/L	4.00	19	0.3
Percent Detection in the Lower Colorado River Watershed	(Guo et al., 2010)	5	%	9.00	19	0.6
Maximum Concentration in CEC Data from 2008-2010	(Guo et al., 2010)	0.143	ug/L	3.00	-	0.6
Percent Detection in CEC Data from 2008-2010	(Guo et al., 2010)	42	%	10.00	-	0.6

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	7.0	62	0.30
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	7.0	75	0.15
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	7.0	36	0.59
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	8.3	53	0.40
Equal Potency (P) and M (no Pr)	(P + M) /2	5	5.8	88	0.16
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	6.8	64	0.27
Potency wt'd Magnitude	M^(P/10)	7	2.9	64	0.27
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	6.2	34	0.61
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	4.3	75	0.29

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Compound n-Propylbenzene

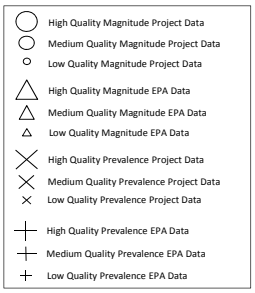
Update

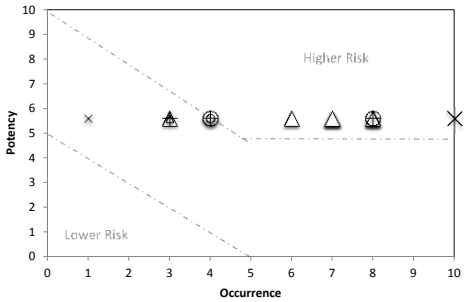
n-Propylbenzene

Industrial

CAS 103-65-1

Category AWWA CCL3





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	6.3	7.0
All Data	5.6	5.2	6.2
EPA	6.0	4.0	6.0

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Lowest Oral Chronic Level LOAEL	RTECS	2.5	mg/kg-d	5.60		0.5

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Median Concentration in Aquifer Samples	(USGS, 2006)	0.042	ug/L	4.00	52	0.4
Frequency Detection in Aquifer Samples	(USGS, 2006)	0.002	%	1.00	47	0.4
Max Concentration in Stream	(NAWQA DW-CF)	47	ug/L	8.00	50	0.8
Frequency Detection in Stream Samples	(NAWQA DW-CF)	11.1	%	10.00	58	0.8
75th Percentile Concentration in Stream	(NAWQA DW-CF)	0.2	ug/L	4.00	49	0.4
90th Percentile Concentration in Stream	(NAWQA DW-CF)	0.2	ug/L	4.00	50	0.8
95th Percentile Concentration in Stream	(NAWQA DW-CF)	0.2	ug/L	4.00	50	0.8

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.7	19	0.78
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	5.6	13	0.85
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	5.7	32	0.64
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	5.4	55	0.38
Equal Potency (P) and M (no Pr)	(P + M) /2	5	5.9	14	0.87
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	5.6	18	0.80
Potency wt'd Magnitude	M^(P/10)	7	2.8	9	0.90
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	4.0	57	0.35
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	4.2	10	0.90

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Finished Water	(NCOD Finished 1)	34	ug/L	8.00	12724	1
Median Concentration in Finished Water	(NCOD Finished 1)	0.7	ug/L	6.00	12724	0.6
Frequency Detection in PWSs/Sites	(NCOD Finished 1)	0.33	%	4.00	12724	1
90th Percentile in Finished Water	(NCOD Finished 1)	4.8	ug/L	7.00	12724	1
99th Percentile in Finished Water	(NCOD Finished 1)	34	ug/L	8.00	12724	1
Max Concentration in Finished Water	(NCOD Finished 2)	21	ug/L	7.00	22970	1
Median Concentration in Finished Water	(NCOD Finished 2)	0.6	ug/L	6.00	22970	0.6
Frequency Detection in PWSs/Sites	(NCOD Finished 2)	0.24	%	3.00	22970	1
90th Percentile in Finished Water	(NCOD Finished 2)	4	ug/L	7.00	22970	1
99th Percentile in Finished Water	(NCOD Finished 2)	21	ug/L	7.00	22970	1
Max Concentration in Finished Water	(NAWQA Ambient)	47	ug/L	8.00	4309	1
Median Concentration in Finished Water	(NAWQA Ambient)	0.024	ug/L	3.00	4309	0.6
Frequency Detection in PWSs/Sites	(NAWQA Ambient)	1.23	%	8.00	4309	1
90th Percentile in Finished Water	(NAWQA Ambient)	5	ug/L	7.00	4309	1
99th Percentile in Finished Water	(NAWQA Ambient)	47	ug/L	8.00	4309	1
Max Concentration in Ambient Water	(NAWQA)	47	ug/L	8.00	24	0.8
Median Concentration in Ambient Water	(NAWQA)	0.024	ug/L	3.00	24	0.4
90th Percentile Concentration in Ambient Water	(NAWQA)	5	ug/L	7.00	24	0.8

Compound NPYR

Update

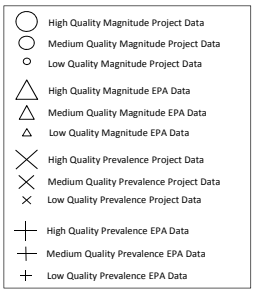
CAS 930-55-2

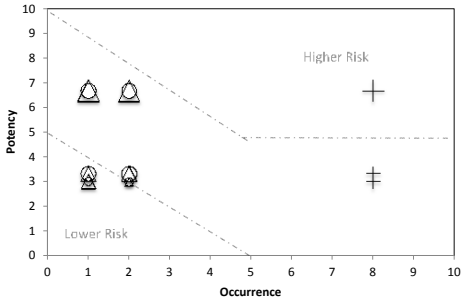
Category CCL3 Sh Lst

NPYR

DBP

Nitrosamine





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	6.7	8.0	1.0
All Data	4.3	8.0	1.5
EPA	7.0	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
RAISHE Slope Factor	CCL3 Dossiers	2.1	(mg/kg-d)^-1	3.32		0.5
EPA Lifetime Cancer Risk, 10^-4	CCL3 Dossiers	0.002	mg/L	6.70		1
Assumed-Rfd	Wagner et al,2012	--	mg/kg-d	3.00		0.25

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Drinking Water	(Zhao et al., 2006)	0.07	ug/L	2.00	-	0.5
Max Concentration of DBPs in Drinking Water	(Bond et al., 2011)	0.0076	ug/L	1.00	-	0.5

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Finished Water	(UCMR 2)	0.024	ug/L	1.00	18107	1
Mean Concentration in Finished Water	(UCMR 2)	0.005	ug/L	2.00	18107	0.6
Frequency Detection in PWSs	(UCMR 2)	1.8	%	8.00	18107	1

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	4.5	31	0.65
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	4.4	18	0.80
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	4.6	57	0.35
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	6.2	20	0.78
Equal Potency (P) and M (no Pr)	(P + M) /2	5	2.9	64	0.39
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	3.9	52	0.41
Potency wt'd Magnitude	M^(P/10)	7	1.2	73	0.17
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	4.6	53	0.40
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.0	84	0.20

Compound Octylphenol ethoxylate

Update

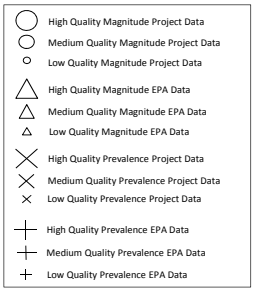
CAS 9036-19-5

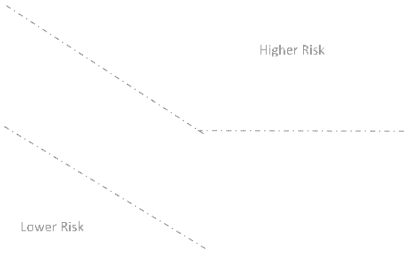
Category CCL4NOM

Octylphenol ethoxylate

Industrial

Alkylphenol





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	0.0
All Data	7.0	0.0	0.0
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Assumed-Rfd	TAW Assumption	--	mg/kg-d	7.00		0.25

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	ND	NA	NA
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	ND	NA	NA
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	ND	NA	NA
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	ND	NA	NA
Equal Potency (P) and M (no Pr)	(P + M) /2	5	ND	NA	NA
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	ND	NA	NA
Potency wt'd Magnitude	M^(P/10)	7	ND	NA	NA
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	ND	NA	NA
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	ND	NA	NA

Compound Octylphenol

Update

CAS 27193-28-8

Category CCL4NOM

Octylphenol

Industrial

Alkylphenol

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
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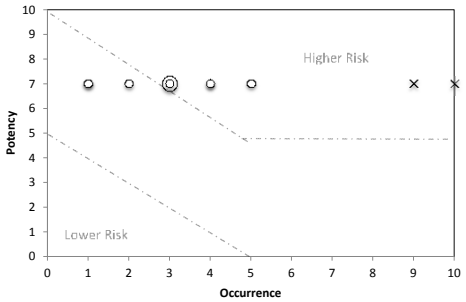


Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	3.0
All Data	7.0	9.5	2.9
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Assumed-Rfd	TAW Assumption	--	mg/kg-d	7.00		0.25

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Frequency Detection in Monguagan Creek	(Synder et al., 1999)	57	%	10.00	23	0.6
Mean Concentration in Monguagan Creek	(Synder et al., 1999)	0.081	ug/L	4.00	23	0.3
Max Concentration in River Waters	(Sharma et al., 2009)	1.44	ug/L	5.00	-	0.4
Max Concentration in Secondary/Tertiary Effluent in California	(Anderson et al., 2010)	0.21	ug/L	3.00		1
Median Concentration in Secondary/Tertiary Effluent in California	(Anderson et al., 2010)	0.025	ug/L	3.00		0.6
Mean Concentration in Secondary/Tertiary Effluent in California	(Anderson et al., 2010)	0.052	ug/L	4.00		0.6
Maximum Concentration in the Lower Colorado River Watershed	(Guo et al., 2010)	0.023	ug/L	1.00	19	0.6
Median Concentration in the Lower Colorado River Watershed	(Guo et al., 2010)	0.002	ug/L	1.00	19	0.3
Maximum Concentration within the State Water Project Watershed	(Guo et al., 2010)	0.068	ug/L	2.00	-	0.6
Percent Detection within the State Water Project Watershed	(Guo et al., 2010)	3	%	9.00	-	0.6

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	6.6	30	0.66
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	6.8	34	0.61
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	6.4	31	0.65
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	8.3	17	0.81
Equal Potency (P) and M (no Pr)	(P + M) /2	5	4.9	65	0.38
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	6.0	30	0.66
Potency wt'd Magnitude	M^(P/10)	7	2.1	49	0.44
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	5.8	29	0.67
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.7	60	0.43

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Compound Oxacillin

Update

CAS 66-79-5

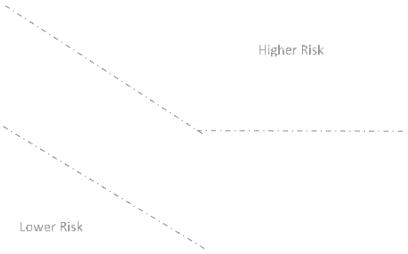
Category CCL4NOM

Oxacillin

PPCP

Antibiotic

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	0.0
All Data	6.0	0.0	0.0
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Assumed-Rfd	TAW Assumption	--	mg/kg-d	6.00		0.25

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	ND	NA	NA
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	ND	NA	NA
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	ND	NA	NA
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	ND	NA	NA
Equal Potency (P) and M (no Pr)	(P + M) /2	5	ND	NA	NA
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	ND	NA	NA
Potency wt'd Magnitude	M^(P/10)	7	ND	NA	NA
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	ND	NA	NA
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	ND	NA	NA

Compound Penicillin

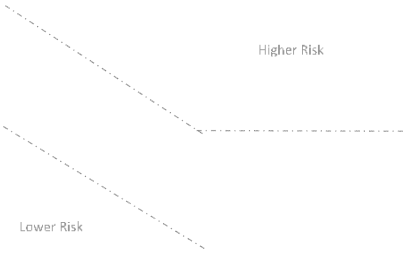
Update

CAS 61-33-6
Category CCL4NOM

Penicillin

PPCP
Antibiotic

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	0.0
All Data	8.0	0.0	0.0
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Assumed-Rfd	TAW Assumption	--	mg/kg-d	8.00		0.25

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	ND	NA	NA
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	ND	NA	NA
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	ND	NA	NA
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	ND	NA	NA
Equal Potency (P) and M (no Pr)	(P + M) /2	5	ND	NA	NA
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	ND	NA	NA
Potency wt'd Magnitude	M^(P/10)	7	ND	NA	NA
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	ND	NA	NA
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	ND	NA	NA

Compound Perchlorate

Update

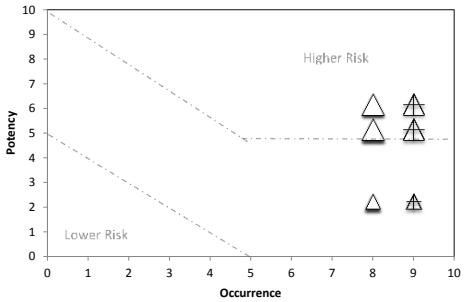
Perchlorate

Industrial

CAS 14797-73-0

Category AWWA CCL3

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	5.7	9.0	8.3
All Data	4.5	9.0	8.2
EPA	6.0	9.0	8.0

Drinking Water Equivalent Level (DWEL) = 0.245
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
RfD	2012 Health Advisory	0.007	mg/kg-d	5.15		1
EPA IRIS (ITER) RfD	CCL3 Dossiers	0.0007	mg/kg-d	6.15		1
Supplemental RfD-like Value	Supplemental	6	mg/kg-d	2.22		0.5

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Mean Concentration in Finished Water	(UCMR 1)	9.9	ug/L	8.00	34728	0.6
Frequency Detection in PWSs	(UCMR 1)	4.1	%	9.00	34728	1
Max Concentration in Finished Water	(UCMR Finished)	420	ug/L	8.00	3554	1
Median Concentration in Finished Water	(UCMR Finished)	6.5	ug/L	8.00	3554	0.6
Frequency Detection in PWSs/Sites	(UCMR Finished)	4.14	%	9.00	3554	1
90th Percentile in Finished Water	(UCMR Finished)	14	ug/L	8.00	3554	1
95th Percentile in Finished Water	(UCMR Finished)	59	ug/L	9.00	3554	1

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	6.6	9	0.90
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	5.5	14	0.84
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	7.6	9	0.90
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	6.8	21	0.76
Equal Potency (P) and M (no Pr)	(P + M) /2	5	6.4	9	0.91
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	6.2	7	0.92
Potency wt'd Magnitude	M^(P/10)	7	2.6	10	0.89
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	5.8	12	0.86
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	4.1	11	0.90

Compound Perfluorooctanoic acid (PFOA)

Update

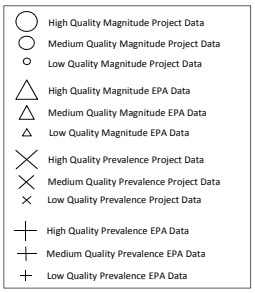
Perfluorooctanoic acid (PFOA)

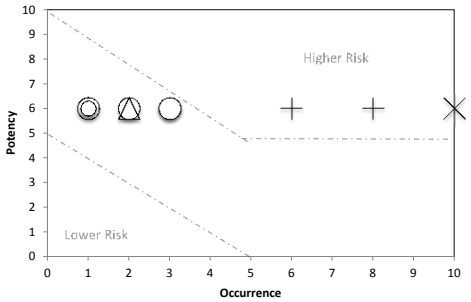
Industrial

Fluoro Surfactant

CAS 335-67-1

Category CCL4NOM





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	6.0	7.0	1.5
All Data	6.0	8.5	1.9
EPA	6.0	10.0	6.0

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
LOAEL	IRIS	1	mg/kg-d	6.00		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration of Pharmaceuticals in Drinking Water Wells in Massachusetts	(Schaider et al., 2013)	0.022	ug/L	1.00	20	0.5
Frequency Detection of Pharmaceuticals in Drinking Water Wells in Massachusetts	(Schaider et al., 2013)	10	%	10.00	20	0.5
Max Concentration in Secondary/Tertiary Effluent in California	(Anderson et al., 2010)	0.028	ug/L	1.00		1
Median Concentration in Secondary/Tertiary Effluent in California	(Anderson et al., 2010)	0.021	ug/L	3.00		0.6
Mean Concentration in Secondary/Tertiary Effluent in California	(Anderson et al., 2010)	0.0212	ug/L	3.00		0.6
Maximum Concentration in CEC Data from 2008-2010	(Guo et al., 2010)	0.031	ug/L	2.00	-	0.6
Median Concentration in CEC Data from 2008-2010	(Guo et al., 2010)		ug/L	1.00	-	0.3
Percent Detection in CEC Data from 2008-2010	(Guo et al., 2010)	47	%	10.00	-	0.6

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.6	18	0.80
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	5.8	10	0.89
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	5.4	37	0.58
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	7.3	9	0.90
Equal Potency (P) and M (no Pr)	(P + M) /2	5	3.9	43	0.59
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	4.9	27	0.69
Potency wt'd Magnitude	M^(P/10)	7	1.4	60	0.32
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	5.0	43	0.51
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.2	71	0.32

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Frequency Detection in total results >MRL	(UCMR 3 Total)	0.7	%	6.00	7411	1
Frequency Detection in PWS > MRL	(UCMR 3 PWS)	1.6	%	8.00	1470	1
Max Concentration in Finished Water	(UCMR 3 Total)	0.053	ug/L	2.00	7411	1

Compound Perfluorooctanoic sulfonate (PFOS)

Update

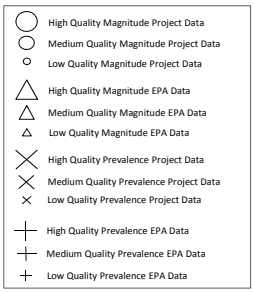
Perfluorooctanoic sulfonate (PFOS)

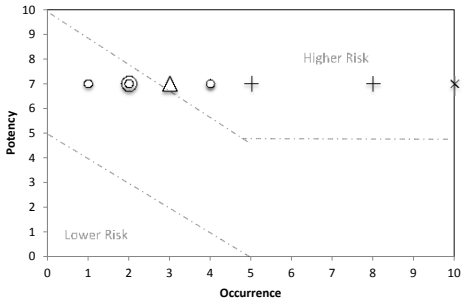
Industrial

Fluoro Surfactant

CAS 1763-23-1

Category CCL3 Sh Lst





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	6.5	2.5
All Data	7.0	7.7	2.7
EPA	8.0	10.0	7.0

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Assumed-Rfd	Wigle,2003	--	mg/kg-d	7.00		0.25

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration of Pharmaceuticals in Drinking Water Wells in Massachusetts	(Schaider et al., 2013)	0.097	ug/L	2.00	20	0.5
Frequency Detection of Pharmaceuticals in Drinking Water Wells in Massachusetts	(Schaider et al., 2013)	40	%	10.00	20	0.5
Max Concentration in Secondary/Tertiary Effluent in California	(Anderson et al., 2010)	0.09	ug/L	2.00		1
Median Concentration in Secondary/Tertiary Effluent in California	(Anderson et al., 2010)	0.053	ug/L	4.00		0.6
Mean Concentration in Secondary/Tertiary Effluent in California	(Anderson et al., 2010)	0.055	ug/L	4.00		0.6
Maximum Concentration in CEC Data from 2008-2010	(Guo et al., 2010)	0.022	ug/L	1.00	-	0.6

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	6.1	41	0.53
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	6.5	32	0.64
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	5.6	55	0.38
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	7.3	37	0.58
Equal Potency (P) and M (no Pr)	(P + M) /2	5	4.8	60	0.43
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	5.6	36	0.59
Potency wt'd Magnitude	M^(P/10)	7	2.0	50	0.43
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	4.8	50	0.43
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.6	61	0.42

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Frequency Detection in total results >MRL	(UCMR 3 Total)	0.6	%	5.00	7411	1
Frequency Detection in PWS > MRL	(UCMR 3 PWS)	1.6	%	8.00	1470	1
Max Concentration in Finished Water	(UCMR 3 Total)	0.29	ug/L	3.00	7411	1

Compound Permethrin

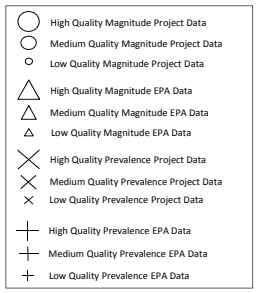
Update

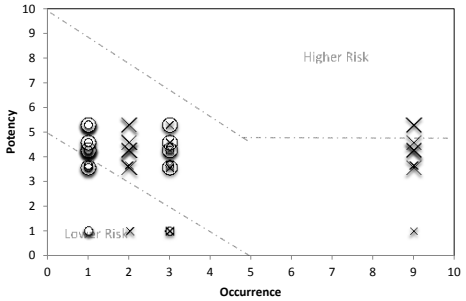
CAS 52645-53-1
Category CCL4NOM

Permethrin

Pesticide

Insecticide





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	4.5	0.0	0.0
All Data	4.1	5.0	1.4
EPA	4.0	10.0	7.0

Drinking Water Equivalent Level (DWEL) = 8.75
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
RfD (EPA OPP)	IRIS	0.25	mg/kg-d	3.60		1
RfD	IRIS	0.05	mg/kg-d	4.30		1
RfD	RAISHE	0.05	mg/kg-d	4.30		1
Cancer Slope Factor	RAISHE	0.0096	(mg/kg-d)^-1	1.00		0.5
Minimum Risk Level	ASTOR (ITER)	0.2	mg/kg-d	3.70		0.5
Max Acceptable Daily Intake	JMPR	0.05	mg/kg-d	4.30		0.5
EPA RfD	IRIS	0.05	mg/kg-d	4.30		1
NOAEL	IRIS	5	mg/kg-d	5.30		1
LOAEL	IRIS	25	mg/kg-d	4.60		1
NOAEL	EPA (IRIS-Online)	5	mg/kg-d	5.30		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Streams	Eckert, 2013	0.019	ug/L	1.00	-	0.4
Max Concentration in Groundwater	Eckert, 2013	0.007	ug/L	1.00	-	0.2
Frequency Detection in Streams	Eckert, 2013	0.14	%	2.00	-	0.4
Frequency Detection in Groundwater	Eckert, 2013	0.18	%	3.00	-	0.2
Max Concentration in Urban Creeks of Sacramento	(Ensminger et al., 2012)	0.03	ug/L	1.00	82	0.4
Max Concentration in Urban Creeks of San Francisco	(Ensminger et al., 2012)	0.02	ug/L	1.00	50	0.4
Max Concentration in Urban Creeks of Orange County	(Ensminger et al., 2012)	0.25	ug/L	3.00	106	0.4
Frequency Detection in Urban Creeks of Sacramento	(Ensminger et al., 2012)	6.1	%	9.00	82	0.4
Frequency Detections in Urban Creeks of San Francisco	(Ensminger et al., 2012)	4	%	9.00	50	0.4
Frequency Detections in Urban Creeks of Orange County	(Ensminger et al., 2012)	0.13	%	2.00	106	0.4

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	3.6	81	0.08
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	3.9	71	0.19
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	3.4	85	0.03
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	4.5	70	0.21
Equal Potency (P) and M (no Pr)	(P + M) /2	5	2.7	101	0.04
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	3.3	79	0.10
Potency wt'd Magnitude	M^(P/10)	7	1.1	84	0.05
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	3.1	74	0.16
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	2.9	95	0.10

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Compound Phosmet

Update

CAS 732-11-6

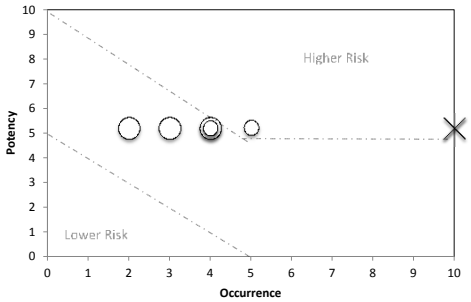
Category CCL4NOM

Phosmet

Pesticide

Insecticide

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	5.2	10.0	3.3
All Data	5.2	10.0	3.7
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = 0.21
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Chronic RfD	EPA Health Benchmark Pest List	0.006	mg/kg-d	5.22		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Hood River Basin, Effluent of stream Lenz	(USGS, 2011)	0.25	ug/L	3.00	15	0.8
Frequency Detection in Hood River Basin, Effluent of stream Lenz	(USGS, 2011)	25	%	10.00	15	0.8
Median Concentration in Hood River Basin, Effluent of stream Lenz	(USGS, 2011)	0.097	ug/L	4.00	15	0.4
Max Concentration in Hood River Basin, Effluent of stream Odell	(USGS, 2011)	0.65	ug/L	4.00	2	0.8
Frequency Detection in Hood River Basin, Effluent of stream Odell	(USGS, 2011)	50	%	10.00	2	0.8
Max Concentration in Hood River Basin, Surface Water of stream Lenz	(USGS, 2011)	0.65	ug/L	4.00	10	0.8
Median Concentration in Hood River Basin, Surface Water of stream Lenz	(USGS, 2011)	0.14	ug/L	5.00	10	0.4
Frequency Detection in Hood River Basin, Surface Water of stream Lenz	(USGS, 2011)	40	%	10.00	10	0.8
Max Concentration in Hood River Basin, Surface Water of stream Odell	(USGS, 2011)	0.043	ug/L	2.00	10	0.8
Median Concentration in Hood River Basin, Surface Water of stream Odell	(USGS, 2011)	0.043	ug/L	4.00	10	0.4
Frequency Detection in Hood River Basin, Surface Water of stream Lenz	(USGS, 2011)	30	%	10.00	10	0.8

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	6.0	48	0.45
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	5.6	62	0.30
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	6.4	27	0.69
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	7.6	31	0.65
Equal Potency (P) and M (no Pr)	(P + M) /2	5	4.5	79	0.25
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	5.6	48	0.45
Potency wt'd Magnitude	M^(P/10)	7	2.0	58	0.34
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	6.0	20	0.77
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.6	69	0.34

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Compound Progesterone

Update

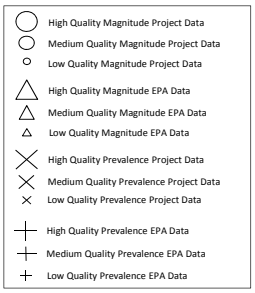
CAS 57-83-0

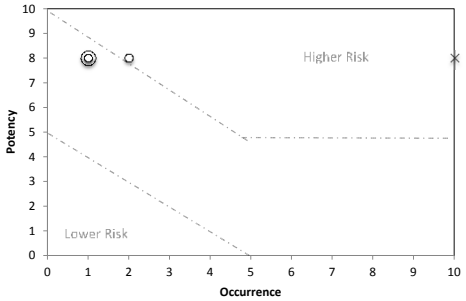
Category CCL4NOM

Progesterone

PPCP

Hormone





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	1.0
All Data	8.0	10.0	1.3
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Assumed-Rfd	TAW Assumption	--	mg/kg-d	8.00		0.25

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Secondary/Tertiary Effluent in California	(Anderson et al., 2010)	0.018	ug/L	1.00		1
Median Concentration in Secondary/Tertiary Effluent in California	(Anderson et al., 2010)	0.001	ug/L	1.00		0.6
Mean Concentration in Secondary/Tertiary Effluent in California	(Anderson et al., 2010)	0.0043	ug/L	2.00		0.6
Maximum Concentration in CEC Data from 2008-2010	(Guo et al., 2010)	0.0031	ug/L	1.00	-	0.6
Percent Detection in CEC Data from 2008-2010	(Guo et al., 2010)	21	%	10.00	-	0.6

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

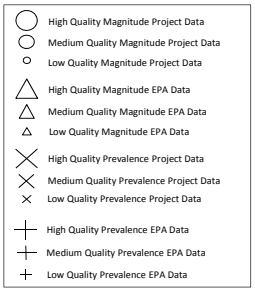
Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	6.8	27	0.69
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	7.4	16	0.82
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	6.2	45	0.49
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	9.0	12	0.87
Equal Potency (P) and M (no Pr)	(P + M) /2	5	4.6	67	0.36
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	5.3	54	0.39
Potency wt'd Magnitude	M^(P/10)	7	1.2	83	0.06
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	5.6	42	0.52
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.0	94	0.10

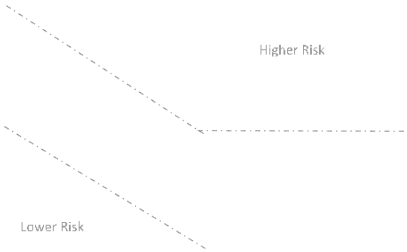
Compound Radon

Update

CAS 14859-67-7
Category CCL4NOM

Radon
Inorganic





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	0.0
All Data	8.0	0.0	0.0
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Assumed-Rfd	TAW Assumption	--	mg/kg-d	8.00		0.25

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

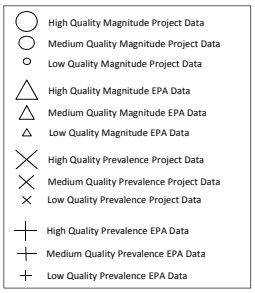
Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	ND	NA	NA
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	ND	NA	NA
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	ND	NA	NA
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	ND	NA	NA
Equal Potency (P) and M (no Pr)	(P + M) /2	5	ND	NA	NA
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	ND	NA	NA
Potency wt'd Magnitude	M^(P/10)	7	ND	NA	NA
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	ND	NA	NA
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	ND	NA	NA

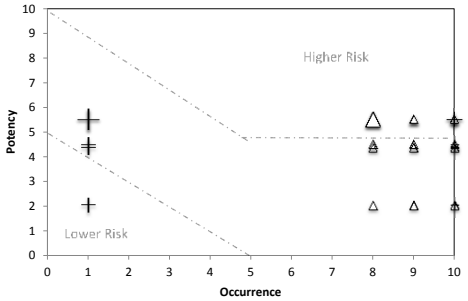
Compound RDX

Update

CAS 121-82-4
Category CCL3 Sh Lst

RDX
Industrial





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	5.5	1.0	8.5
All Data	4.6	5.5	9.0
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = 0.105
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
EPA IRIS (ITER) RfD	CCL3 Dossiers	0.003	mg/kg-d	5.52		1
EPA HA (2006) RfD	CCL3 Dossiers	0.003	mg/kg-d	5.52		1
Minimum Risk Level (ATSDR (ITER))	CCL3 Dossiers	0.03	mg/kg-d	4.52		0.5
Lowest Oral Chronic Level LOAEL (RTECS)	CCL3 Dossiers	40	mg/kg-d	4.40		0.5
RAISHE Slope Factor	CCL3 Dossiers	0.11	(mg/kg-d)^-1	2.04		0.5
EPA Lifetime Cancer Risk, 10^-4	CCL3 Dossiers	0.03	mg/L	5.52		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Frequency Detection in PWSs	(UCMR 2)	0	%	1.00	32150	1
Max Concentration	(STORET)	270	ug/L	8.00	23	0.4
Median Concentration	(STORET)	140	ug/L	10.00	23	0.2
Frequency Detection	(STORET)	100	%	10.00	23	0.4
90th Percentile Concentration	(STORET)	229	ug/L	9.00	23	0.2

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.9	6	0.93
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	5.3	6	0.93
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	6.6	13	0.85
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	5.0	41	0.54
Equal Potency (P) and M (no Pr)	(P + M) /2	5	6.8	1	0.99
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	5.7	6	0.93
Potency wt'd Magnitude	M^(P/10)	7	2.7	2	0.98
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	4.1	30	0.66
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	4.2	2	0.98

Compound Saxitoxin related PST

Update

CAS 0

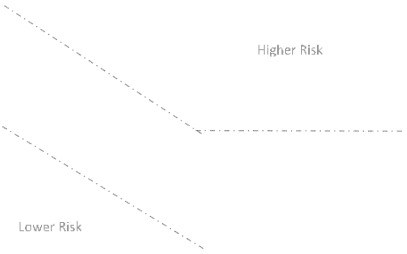
Category EC

Saxitoxin related PST

Cyanotoxin

Saxitoxins

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	0.0
All Data	7.0	0.0	0.0
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Assumed-Rfd	Watts,1996	--	mg/kg-d	7.00		0.25

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	ND	NA	NA
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	ND	NA	NA
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	ND	NA	NA
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	ND	NA	NA
Equal Potency (P) and M (no Pr)	(P + M) /2	5	ND	NA	NA
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	ND	NA	NA
Potency wt'd Magnitude	M^(P/10)	7	ND	NA	NA
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	ND	NA	NA
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	ND	NA	NA

Compound Saxitoxin

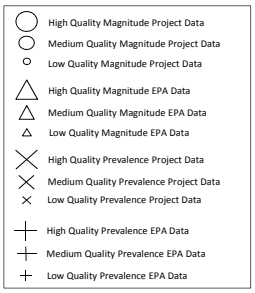
Update

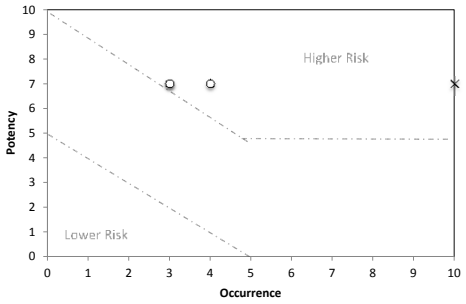
CAS 35523-89-8
Category EC

Saxitoxin

Cyanotoxin

Saxitoxins





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	0.0
All Data	7.0	10.0	3.3
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Assumed-Rfd	Watts,1996	--	mg/kg-d	7.00		0.25

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Midwestern United States Study	(Graham et al., 2010)	0.19	ug/L	3.00	23	0.6
Median Concentration in Midwestern United States Study	(Graham et al., 2010)	0.03	ug/L	3.00	23	0.3
Mean Concentration in Midwestern United States Study	(Graham et al., 2010)	0.07	ug/L	4.00	23	0.3
Frequency Detection in Midwestern United States Study	(Graham et al., 2010)	17	%	10.00	23	0.6

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	6.8	8	0.91
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	6.9	7	0.92
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	6.8	15	0.83
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	8.5	6	0.93
Equal Potency (P) and M (no Pr)	(P + M) /2	5	5.2	25	0.76
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	6.4	12	0.86
Potency wt'd Magnitude	M^(P/10)	7	2.3	19	0.78
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	6.2	11	0.88
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.9	25	0.76

Compound sec-Butylbenzene

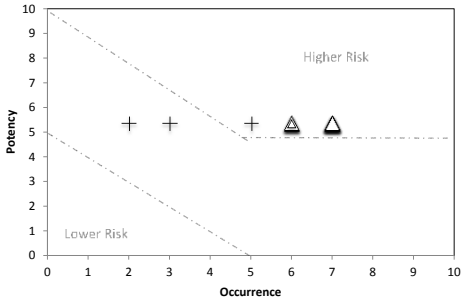
Update

CAS 135-98-8
Category AWWA CCL3

sec-Butylbenzene

Industrial

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	3.3	6.8
All Data	5.4	3.3	6.6
EPA	5.0	3.0	6.0

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Lowest Oral Chronic Level LOAEL	RTECS	4.42	mg/kg-d	5.35		0.5

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Finished Water	(NCOD Finished 1)	19.8	ug/L	7.00	12343	1
Median Concentration in Finished Water	(NCOD Finished 1)	0.7	ug/L	6.00	12343	0.6
Frequency Detection in PWSs/Sites	(NCOD Finished 1)	0.23	%	3.00	12343	1
90th Percentile in Finished Water	(NCOD Finished 1)	10	ug/L	7.00	12343	1
99th Percentile in Finished Water	(NCOD Finished 1)	19.8	ug/L	7.00	12343	1
Max Concentration in Finished Water	(NCOD Finished 2)	22	ug/L	7.00	22974	1
Median Concentration in Finished Water	(NCOD Finished 2)	0.6	ug/L	6.00	22974	0.6
Frequency Detection in PWSs/Sites	(NCOD Finished 2)	0.148	%	2.00	22974	1
90th Percentile in Finished Water	(NCOD Finished 2)	4.6	ug/L	7.00	22974	1
99th Percentile in Finished Water	(NCOD Finished 2)	22	ug/L	7.00	22974	1
Max Concentration in Finished Water	(NAWQA Ambient)	11	ug/L	7.00	4309	1
Median Concentration in Finished Water	(NAWQA Ambient)	0.39	ug/L	6.00	4309	0.6
Frequency Detection in PWSs/Sites	(NAWQA Ambient)	0.58	%	5.00	4309	1
90th Percentile in Finished Water	(NAWQA Ambient)	2.81	ug/L	6.00	4309	1
99th Percentile in Finished Water	(NAWQA Ambient)	11	ug/L	7.00	4309	1
Max Concentration in Ambient Water	(NAWQA)	11	ug/L	7.00	24	0.8
Median Concentration in Ambient Water	(NAWQA)	0.39	ug/L	6.00	24	0.4
90th Percentile Concentration in Ambient Water	(NAWQA)	2.81	ug/L	6.00	24	0.8

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.2	29	0.67
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	5.3	17	0.81
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	5.1	51	0.42
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	4.3	67	0.25
Equal Potency (P) and M (no Pr)	(P + M) /2	5	6.0	12	0.89
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	5.0	24	0.73
Potency wt'd Magnitude	M^(P/10)	7	2.7	8	0.91
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	3.0	68	0.23
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	4.2	9	0.91

Compound Spiramycin

Update

CAS 8025-81-8

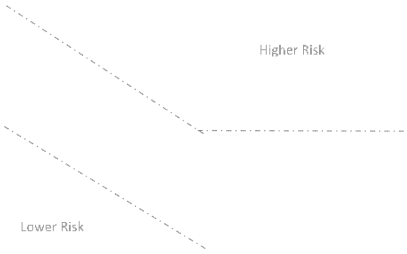
Category CCL4NOM

Spiramycin

PPCP

Antibiotic

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	0.0
All Data	6.0	0.0	0.0
EPA	NA	0.0	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	ND	NA	NA
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	ND	NA	NA
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	ND	NA	NA
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	ND	NA	NA
Equal Potency (P) and M (no Pr)	(P + M) /2	5	ND	NA	NA
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	ND	NA	NA
Potency wt'd Magnitude	M^(P/10)	7	ND	NA	NA
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	ND	NA	NA
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	ND	NA	NA

Compound Strontium

Update

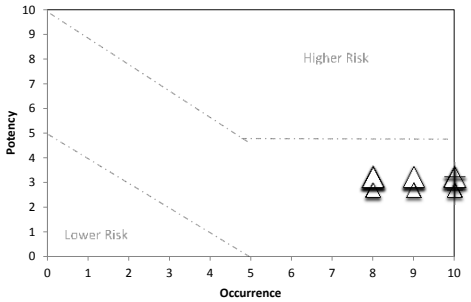
Strontium

Inorganic

CAS 7440-24-6

Category CCL3 Sh Lst

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	3.2	10.0	8.3
All Data	3.1	10.0	8.9
EPA	3.0	10.0	10.0

Drinking Water Equivalent Level (DWEL) = 21
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
EPA IRIS (ITER) RfD	CCL3 Dossiers	0.6	mg/kg-d	3.22		1
EPA HA (2006) RfD	CCL3 Dossiers	0.6	mg/kg-d	3.22		1
RAISHE RfD	CCL3 Dossiers	0.6	mg/kg-d	3.22		1
Minimum Risk Level (ATSDR (ITER))	CCL3 Dossiers	2	mg/kg-d	2.70		0.5

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Finished Water	(NIRS)	43550	ug/L	8.00	989	1
Median Concentration in Finished Water	(NIRS)	180	ug/L	10.00	989	0.6
Frequency Detection in Finished Water-	(NIRS)	99.1	%	10.00	989	1
90th Percentile Concentration in Finished Water	(NIRS)	1080	ug/L	9.00	989	1
99th Percentile Concentration in Finished Water	(NIRS)	7340	ug/L	8.00	989	1
Frequency Detection in total results >MRL	(UCMR 3 Total)	99	%	10.00	12006	1
Frequency Detection in PWS > MRL	(UCMR 3 PWS)	100	%	10.00	1431	1
Max Concentration in Finished Water	(UCMR 3 Total)	55100	ug/L	8.00	12006	1
Median Concentration in Finished Water	(UCMR 3 Total)	152	ug/L	10.00	12006	0.6
95% percentile in Finished Water	(UCMR 3 Total)	1300	ug/L	9.00	12006	0.6

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	6.3	7	0.92
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	4.7	19	0.78
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	7.8	4	0.95
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	6.5	16	0.82
Equal Potency (P) and M (no Pr)	(P + M) /2	5	6.0	8	0.92
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	5.4	8	0.91
Potency wt'd Magnitude	M^(P/10)	7	2.0	12	0.86
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	6.0	6	0.93
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.6	14	0.87

Compound Sulfamethazine

Update

Sulfamethazine

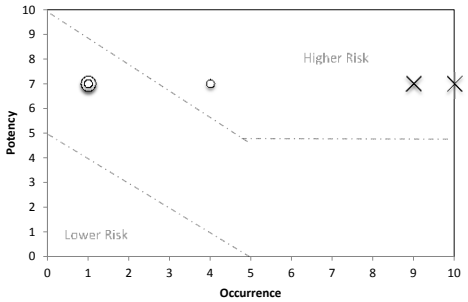
PPCP

Antibiotic

CAS 57-68-1

Category EC

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	0.0
All Data	7.0	9.3	1.8
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
NOEL	TAW Assumption	0.0001	mg/kg-d	7.00		0.5

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration of PPCPs in Near Shore Lake Michigan	(Ferguson et al., 2013)	0.0015	ug/L	1.00	64	0.6
Mean Max Concentration of PPCPs in Near Shore Lake Michigan	(Ferguson et al., 2013)	0.00092	ug/L	1.00	64	0.3
Frequency Detection of PPCPs in Near Shore Lake Michigan	(Ferguson et al., 2013)	97	%	10.00	64	0.6
Max Concentration of Pharmaceuticals Found in Groundwater	(Barnes et al., 2008)	0.36	ug/L	4.00	47	0.3
Frequency Detection of Pharmaceuticals Found in Groundwater	(Barnes et al., 2008)	2.7	%	9.00	47	0.3
Max Concentration of Pharmaceuticals in Lake Erie Basin	(Wu et al., 2009)	0.01	ug/L	1.00	161	0.6
Frequency Detection of Pharmaceuticals in Lake Erie Basin	(Wu et al., 2009)	7	%	9.00	161	0.6

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	6.3	66	0.25
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	6.6	44	0.50
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	5.9	74	0.16
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	8.2	56	0.37
Equal Potency (P) and M (no Pr)	(P + M) /2	5	4.4	84	0.20
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	5.3	68	0.23
Potency wt'd Magnitude	M^(P/10)	7	1.5	78	0.11
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	5.4	65	0.26
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.2	89	0.15

Compound Sulfamethoxazole

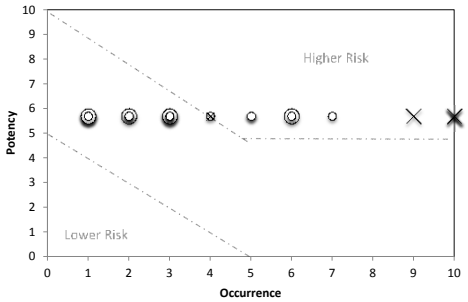
Update

CAS 723-46-6
Category EC

Sulfamethoxazole

PPCP
Antibiotic

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	1.0
All Data	5.7	9.5	3.1
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
NOEL	TAW Assumption	0.002	mg/kg-d	5.70		0.5

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	6.0	69	0.22
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	5.8	77	0.13
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	6.1	53	0.40
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	7.6	50	0.44
Equal Potency (P) and M (no Pr)	(P + M) /2	5	4.4	100	0.05
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	5.5	74	0.16
Potency wt'd Magnitude	M^(P/10)	7	1.9	72	0.18
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	5.7	35	0.60
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.5	83	0.21

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Frequency Detention in Untreated Drinking Water Study	(Focazio et al., 2008)	2.7	%	9.00	73	0.6
Mean Concentration of Wastewater Effluent Study	(Dickenson et al., 2010)	1.2	ug/L	7.00	7	0.15
Frequency Detection of Wastewater Effluent Study	(Dickenson et al., 2010)	100	%	10.00	7	0.15
Max Concentration of EDC and Pharmaceuticals in Wastewater	(Trenholm et al., 2006)	0.187	ug/L	3.00	17	0.1
Max Concentration of PPCPs in Near Shore Lake Michigan	(Ferguson et al., 2013)	0.22	ug/L	3.00	64	0.6
Mean Max Concentration of PPCPs in Near Shore Lake Michigan	(Ferguson et al., 2013)	0.026	ug/L	3.00	64	0.3
Frequency Detection of PPCPs in Near Shore Lake Michigan	(Ferguson et al., 2013)	100	%	10.00	64	0.6
Max Concentration of Pharmaceuticals in Drinking Water Wells in Massachusetts	(Schaider et al., 2013)	0.113	ug/L	3.00	20	0.5
Frequency Detection of Pharmaceuticals in Drinking Water Wells in Massachusetts	(Schaider et al., 2013)	60	%	10.00	20	0.5
Max Concentration of Pharmaceuticals and PPCPs in Surface Waters	(Bernot et al., 2013)	0.03	ug/L	1.00	102	0.6
Mean Concentration of Pharmaceuticals and PPCPs in Surface Waters	(Bernot et al., 2013)	0.0039	ug/L	2.00	102	0.3
Frequency Detection of Pharmaceuticals and PPCPs in Surface Waters	(Bernot et al., 2013)	30	%	10.00	102	0.6
Frequency Detection of Organic Wastewater Contaminants in Untreated Drinking Water Sources	(Focazio et al., 2008)	2.7	%	9.00	73	0.6
Max Concentration of Pharmaceuticals in Treated Drinking Water in Missouri	(Wang et al., 2010)	0.0228	ug/L	1.00	9	0.6
Mean Concentration of Organic Chemicals in Treated Wastewater	(Oppenheimer et al., 2011)	0.907	ug/L	6.00	12	0.1
Frequency Detection of Organic Chemicals in Treated Wastewater	(Oppenheimer et al., 2011)	55	%	10.00	12	0.1
Max Concentration of Pharmaceuticals in Groundwater Used For Public Drinking Water in California	(Fram & Belitz, 2011)	0.17	ug/L	3.00	1231	0.2
Median Concentration of Pharmaceuticals in Groundwater Used For Public Drinking Water in California	(Fram & Belitz, 2011)	0.16	ug/L	5.00	1231	0.2
Frequency Detection of Pharmaceuticals in Groundwater Used For Public Drinking Water in California	(Fram & Belitz, 2011)	0.41	%	4.00	1231	0.2
Max Concentration of Pharmaceuticals in Surface Water in Ontario Canada	(Kleywegt et al., 2011)	0.284	ug/L	3.00	125	0.6
Median Concentration of Pharmaceuticals in Surface Water in Ontario Canada	(Kleywegt et al., 2011)	0.00017	ug/L	1.00	125	0.3
Frequency Detection of Pharmaceuticals in Surface Water in Ontario Canada	(Kleywegt et al., 2011)	18	%	10.00	125	0.6
95th Percentile of Pharmaceuticals in Surface Water in Ontario Canada	(Kleywegt et al., 2011)	0.028	ug/L	2.00	125	0.6
Max Concentration of Pharmaceuticals and PPCPs in Treated Wastewater	(Yang et al., 2011)	0.14	ug/L	3.00	-	0.1
Mean Concentration of Pharmaceuticals and PPCPs in Treated Wastewater	(Yang et al., 2011)	0.08	ug/L	4.00	-	0.1
Max Concentration of Pharmaceuticals Found in Groundwater	(Barnes et al., 2008)	1.11	ug/L	5.00	47	0.3
Frequency Detection of Pharmaceuticals Found in Groundwater	(Barnes et al., 2008)	23.4	%	10.00	47	0.3
Max Concentration of Pharmaceuticals in the Upper Tennessee River Basin	(Conley et al., 2008)	0.033	ug/L	2.00	120	0.4
Median Concentration of Pharmaceuticals in the Upper Tennessee River Basin	(Conley et al., 2008)	0.0079	ug/L	2.00	120	0.2
Frequency Detection of Pharmaceuticals in the Upper Tennessee River Basin	(Conley et al., 2008)	85.9	%	10.00	120	0.4
Max Concentration of Pharmaceuticals in Lake Erie Basin	(Wu et al., 2009)	0.112	ug/L	3.00	161	0.6
Frequency Detection of Pharmaceuticals in Lake Erie Basin	(Wu et al., 2009)	24	%	10.00	161	0.6
Max Concentration of Emerging Contaminants in Freshwater	(Murray et al., 2010)	4.1	ug/L	6.00	-	0.6
Mean Concentration of Emerging Contaminants in Freshwater	(Murray et al., 2010)	0.015	ug/L	3.00	-	0.3
Frequency Detection of Emerging Contaminants in Freshwater	(Murray et al., 2010)	75	%	10.00	-	0.6
Maximum Concentration in Source Waters	(Guo et al., 2010)	0.016	ug/L	1.00		0.6
Median Concentration in Source Waters	(Guo et al., 2010)	0.006	ug/L	2.00		0.3
Percent Detection in Source Waters	(Guo et al., 2010)	70	%	10.00		0.6
Maximum Concentration in Plant Effluent	(Guo et al., 2010)	0.001	ug/L	1.00		0.75
Maximum Concentration in the Lower Colorado River Watershed	(Guo et al., 2010)	0.017	ug/L	1.00	19	0.6
Median Concentration in the Lower Colorado River Watershed	(Guo et al., 2010)	0.01	ug/L	2.00	19	0.3
Percent Detection in the Lower Colorado River Watershed	(Guo et al., 2010)	84	%	10.00	19	0.6
Maximum Concentration in Nevada WWTP	(Guo et al., 2010)	1.24	ug/L	5.00	4	0.15

Compound Tellurium

Update

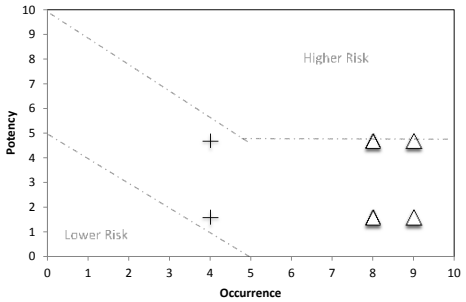
Tellurium

Inorganic

CAS 13494-80-9

Category AWWA CCL3

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	4.0	8.3
All Data	3.2	4.0	8.5
EPA	5.0	4.0	9.0

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Supplemental NOEL	CCL3 Dossiers	25	mg/kg-d	1.60		0.5
Lowest Oral Chronic Level LOAEL (RTECS)	CCL3 Dossiers	20	mg/kg-d	4.70		0.5

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Finished Water	(NCOD Finished 2)	370	ug/L	8.00		1
Median Concentration in Finished Water	(NCOD Finished 2)	22	ug/L	9.00		0.6
Frequency Detection in PWSs/Sites	(NCOD Finished 2)	0.4	%	4.00		1
90th Percentile in Finished Water	(NCOD Finished 2)	260	ug/L	9.00		1
99th Percentile in Finished Water	(NCOD Finished 2)	360	ug/L	8.00		1

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	4.7	17	0.81
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	3.9	11	0.88
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	5.5	25	0.72
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	3.6	62	0.30
Equal Potency (P) and M (no Pr)	(P + M) /2	5	5.8	5	0.95
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	4.3	15	0.83
Potency wt'd Magnitude	M^(P/10)	7	2.0	6	0.93
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	3.0	59	0.33
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.6	6	0.94

Compound Terbufos Sulfone

Update

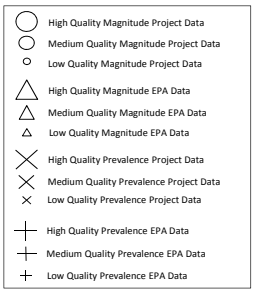
Terbufos Sulfone

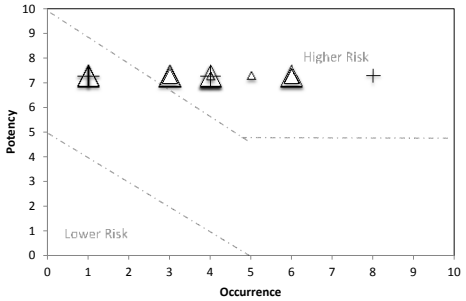
Pesticide

Terbufos + degradates

CAS 56070-16-7

Category AWWA CCL3





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	7.3	2.0	4.1
All Data	7.3	3.5	3.9
EPA	7.0	1.0	1.0

Drinking Water Equivalent Level (DWEL) = 0.0018
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
EPA OPP RfD	CCL3 Dossiers	0.00005	mg/kg-d	7.30		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Finished Water	(UCMR 2)	0.42	ug/L	4.00	32149	1
Mean Concentration in Finished Water	(UCMR 2)	0.42	ug/L	6.00	32149	0.6
Frequency Detection in PWSs	(UCMR 2)	0.02	%	1.00	32149	1
Median Concentration in Finished Water	(UCMR Finished)	0	ug/L	1.00	300	0.6
Frequency Detection in PWSs/Sites	(UCMR Finished)	0	%	1.00	300	1
Max Concentration in Finished Water	(NAWQA Ambient)	0.56	ug/L	4.00		1
Median Concentration in Finished Water	(NAWQA Ambient)	0.017	ug/L	3.00		0.6
Frequency Detection in PWSs/Sites	(NAWQA Ambient)	0.31	%	4.00		1
99th Percentile in Finished Water	(NAWQA Ambient)	0.56	ug/L	4.00		1
Max Concentration in Ambient Water	(NAWQA)	0.56	ug/L	4.00	24	0.8
Median Concentration in Ambient Water	(NAWQA)	0.017	ug/L	3.00	24	0.4
90th Percentile Concentration in Ambient Water	(NAWQA)	0.21	ug/L	4.00	24	0.8
Max Concentration	(STORET)	3.2	ug/L	6.00	915	0.4
Median Concentration	(STORET)	0.185	ug/L	5.00	915	0.2
Frequency Detection	(STORET)	1.2	%	8.00	915	0.4
90th Percentile Concentration	(STORET)	0.202	ug/L	4.00	915	0.2
Maximum Concentration in Finished Water	(PPMP)	0.016	ug/L	1.00	-	1
Frequency Detection in Finished Water	(PPMP)	0.9	ug/L	6.00	-	1

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.5	83	0.06
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	6.4	83	0.06
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	4.6	84	0.05
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	5.4	84	0.06
Equal Potency (P) and M (no Pr)	(P + M) /2	5	5.6	89	0.15
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	5.2	80	0.09
Potency wt'd Magnitude	M^(P/10)	7	2.7	63	0.28
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	3.1	81	0.08
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	4.2	74	0.30

Compound Terbufos

Update

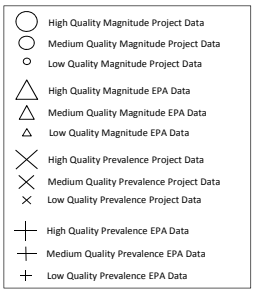
CAS 13071-79-9

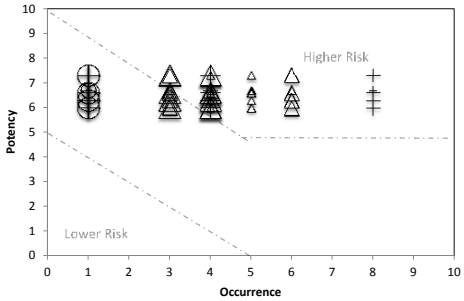
Category CCL3 Sh Lst

Terbufos

Pesticide

Terbufos + degradates





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	6.6	2.0	3.9
All Data	6.6	3.5	3.5
EPA	7.0	1.0	1.0

Drinking Water Equivalent Level (DWEL) = 0.0018
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Chronic RfD	EPA Health Benchmark Pest List	0.001	mg/kg-d	6.00		1
EPA OPP RfD	CCL3 Dossiers	0.00005	mg/kg-d	7.30		1
EPA HA (2006) RfD	CCL3 Dossiers	0.0005	mg/kg-d	6.30		1
RAISHE RfD	CCL3 Dossiers	0.00025	mg/kg-d	6.60		1
Max Acceptable Daily Intake	JMPR	0.0002	mg/kg-d	6.70		0.5

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Stream	(USGA, 2002)	0.011	ug/L	1.00	36	0.8

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Frequency Detection in PWSs	(UCMR 1)	0	%	1.00	2349	1
Median Concentration in Finished Water	(UCMR Finished)	0	ug/L	1.00	300	0.6
Frequency Detection in PWSs/Sites	(UCMR Finished)	0	%	1.00	300	1
Max Concentration in Finished Water	(NAWQA Ambient)	0.56	ug/L	4.00		1
Median Concentration in Finished Water	(NAWQA Ambient)	0.017	ug/L	3.00		0.6
Frequency Detection in PWSs/Sites	(NAWQA Ambient)	0.31	%	4.00		1
99th Percentile in Finished Water	(NAWQA Ambient)	0.56	ug/L	4.00		1
Max Concentration in Ambient Water	(NAWQA)	0.56	ug/L	4.00	24	0.8
Median Concentration in Ambient Water	(NAWQA)	0.017	ug/L	3.00	24	0.4
90th Percentile Concentration in Ambient Water	(NAWQA)	0.21	ug/L	4.00	24	0.8
Max Concentration	(STORET)	3.2	ug/L	6.00	915	0.4
Median Concentration	(STORET)	0.185	ug/L	5.00	915	0.2
Frequency Detection	(STORET)	1.2	%	8.00	915	0.4
90th Percentile Concentration	(STORET)	0.202	ug/L	4.00	915	0.2

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.1	70	0.20
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	5.8	50	0.43
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	4.3	79	0.10
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	5.0	72	0.19
Equal Potency (P) and M (no Pr)	(P + M) /2	5	5.1	53	0.50
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	4.8	62	0.30
Potency wt'd Magnitude	M^(P/10)	7	2.3	33	0.63
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	2.9	78	0.11
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.8	44	0.58

Compound Testosterone

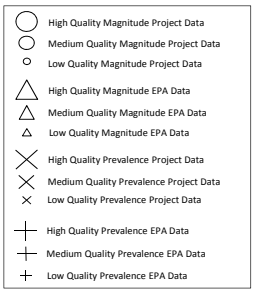
Update

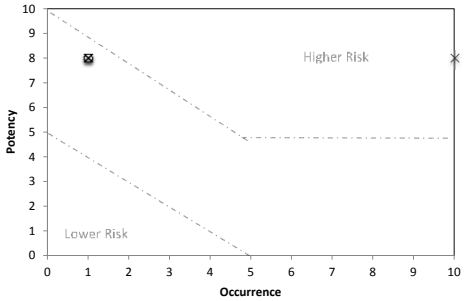
CAS 58-22-0
Category CCL4NOM

Testosterone

PPCP

Hormone





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	0.0
All Data	8.0	4.0	1.0
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Assumed-Rfd	TAW Assumption	--	mg/kg-d	8.00		0.25

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration of EDC and Pharmaceuticals in Wastewater	(Trenholm et al., 2006)	0.0011	ug/L	1.00	17	0.1
Frequency Detection of PPCPs in Treated Wastewater	(Hedgespeth et al., 2012)	0	%	1.00	-	0.15
Frequency Detection of PPCPs in Surface Water	(Hedgespeth et al., 2012)	0	%	1.00	-	0.3
Maximum Concentration in CEC Data from 2008-2010	(Guo et al., 2010)	0.0012	ug/L	1.00	-	0.6
Percent Detection in CEC Data from 2008-2010	(Guo et al., 2010)	11	%	10.00	-	0.6

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.3	72	0.18
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	6.6	39	0.56
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	3.9	86	0.02
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	6.0	65	0.27
Equal Potency (P) and M (no Pr)	(P + M) /2	5	4.5	80	0.24
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	4.0	77	0.13
Potency wt'd Magnitude	M^(P/10)	7	1.0	88	0.00
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	2.5	82	0.07
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	2.8	105	0.00

Compound TIM

Update

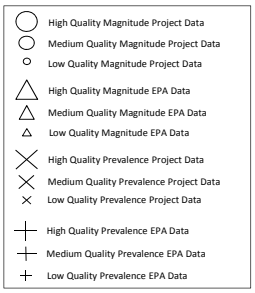
CAS 75-47-8

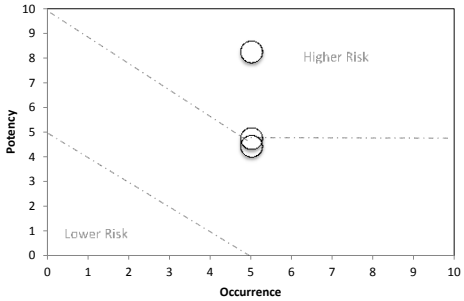
Category EC

TIM

DBP

Halomethane





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	5.8	0.0	5.0
All Data	5.8	0.0	5.0
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = 7
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Rfd (chronic oral exposure)	EPA (IRIS-Online)	0.2	mg/kg-d	8.27		1
NOAEL	EPA (IRIS-Online)	17.9	mg/kg-d	4.75		1
LOAEL	EPA (IRIS-Online)	35.7	mg/kg-d	4.45		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration of DBP's in Drinking Water	(Krasner, 2011)	2	ug/L	5.00	12	0.75

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	ND	NA	NA
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	ND	NA	NA
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	ND	NA	NA
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	ND	NA	NA
Equal Potency (P) and M (no Pr)	(P + M) /2	5	5.4	35	0.67
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	ND	NA	NA
Potency wt'd Magnitude	M^(P/10)	7	ND	NA	NA
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	ND	NA	NA
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	4.0	30	0.71

Compound Trichlorfon

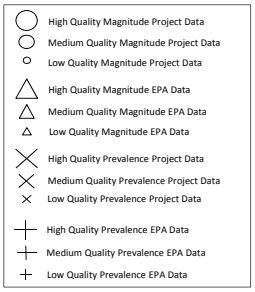
Update

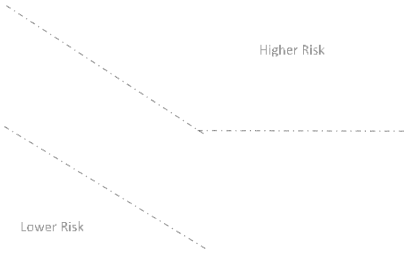
CAS 52-68-6
Category CCL4NOM

Trichlorfon

Pesticide

Insecticide





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	5.7	0.0	0.0
All Data	5.7	0.0	0.0
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = 0.07
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Chronic RfD	EPA Health Benchmark Pest List	0.002	mg/kg-d	5.70		1

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	ND	NA	NA
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	ND	NA	NA
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	ND	NA	NA
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	ND	NA	NA
Equal Potency (P) and M (no Pr)	(P + M) /2	5	ND	NA	NA
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	ND	NA	NA
Potency wt'd Magnitude	M^(P/10)	7	ND	NA	NA
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	ND	NA	NA
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	ND	NA	NA

Compound Triclocarban

Update

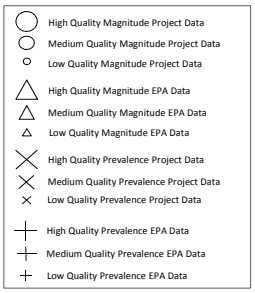
CAS 101-20-2

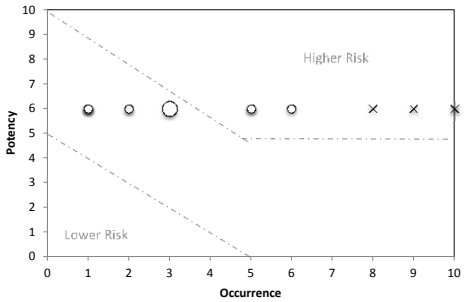
Category CCL4NOM

Triclocarban

PPCP

Antibiotic





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	3.0
All Data	6.0	9.5	2.7
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Assumed-Rfd	TAW Assumption	--	mg/kg-d	6.00		0.25

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	6.1	14	0.84
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	6.0	8	0.91
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	6.1	20	0.77
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	7.8	7	0.92
Equal Potency (P) and M (no Pr)	(P + M) /2	5	4.4	36	0.66
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	5.5	16	0.82
Potency wt'd Magnitude	M^(P/10)	7	1.8	29	0.67
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	5.7	19	0.78
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.5	40	0.62

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Frequency Detection of Wastewater Effluent Study	(Dickenson et al., 2010)	100	%	10.00	7	0.15
Mean Concentration of Household Chemicals in Wastewater	(Trenholm et al., 2008)	0.00017	ug/L	1.00	7	0.1
Frequency Detection of Household Chemicals in Wastewater	(Trenholm et al., 2008)	43	%	10.00	7	0.1
Max Concentration of PPCPs in Near Shore Lake Michigan	(Ferguson et al., 2013)	0.014	ug/L	1.00	64	0.6
Mean Max Concentration of PPCPs in Near Shore Lake Michigan	(Ferguson et al., 2013)	0.00572	ug/L	2.00	64	0.3
Frequency Detection of PPCPs in Near Shore Lake Michigan	(Ferguson et al., 2013)	98	%	10.00	64	0.6
Max Concentration of Pharmaceuticals and PPCPs in Surface Waters	(Bernot et al., 2013)	0.021	ug/L	1.00	102	0.6
Mean Concentration of Pharmaceuticals and PPCPs in Surface Waters	(Bernot et al., 2013)	0.0063	ug/L	2.00	102	0.3
Frequency Detection of Pharmaceuticals and PPCPs in Surface Waters	(Bernot et al., 2013)	1	%	8.00	102	0.6
Mean Concentration of PPCPs in Treated Wastewater	(Hedgespeth et al., 2012)	0.617	ug/L	6.00	-	0.15
Frequency Detection of PPCPs in Treated Wastewater	(Hedgespeth et al., 2012)	100	%	10.00	-	0.15
Mean Concentration of PPCPs in Surface Water	(Hedgespeth et al., 2012)	0.003	ug/L	1.00	-	0.3
Frequency Detection of PPCPs in Surface Water	(Hedgespeth et al., 2012)	6.9	%	9.00	-	0.3
Max Concentration in Secondary/Tertiary Effluent in California	(Anderson et al., 2010)	0.223	ug/L	3.00		1
Median Concentration in Secondary/Tertiary Effluent in California	(Anderson et al., 2010)	0.223	ug/L	5.00		0.6
Mean Concentration in Secondary/Tertiary Effluent in California	(Anderson et al., 2010)	0.223	ug/L	5.00		0.6

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

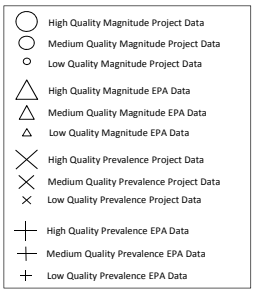
Compound Triclosan

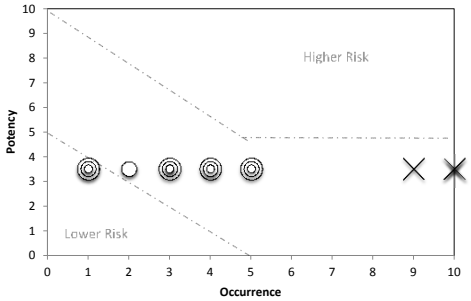
Update

CAS 3380-34-5
Category CCL4NOM

Triclosan

PPCP
Antibiotic





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	1.8	0.0	0.0
All Data	3.5	9.7	2.9
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = 10.5
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Chronic RfD	EPA Health Benchmark Pest List	0.3	mg/kg-d	3.52		1

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	4.9	28	0.68
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	4.2	30	0.66
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	5.6	28	0.68
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	6.6	15	0.83
Equal Potency (P) and M (no Pr)	(P + M) /2	5	3.2	61	0.42
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	4.3	29	0.67
Potency wt'd Magnitude	M^(P/10)	7	1.5	46	0.48
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	5.6	22	0.75
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.2	57	0.46

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Untreated Drinking Water Study	(Focazio et al., 2008)	1	ug/L	4.00	73	0.6
Frequency Detention in Untreated Drinking Water Study	(Focazio et al., 2008)	8.1	%	9.00	73	0.6
Max Concentration in Fresh Surface Waters Study	(Fenech et al., 2012)	0.074	ug/L	2.00	-	0.4
Mean Concentration in Fresh Surface Waters Study	(Fenech et al., 2012)	0.013	ug/L	3.00	-	0.2
Frequency Detection in Fresh Surface Waters Study	(Fenech et al., 2012)	100	%	10.00	-	0.4
Mean Concentration of Wastewater Effluent Study	(Dickenson et al., 2010)	0.02	ug/L	3.00	7	0.15
Frequency Detection of Wastewater Effluent Study	(Dickenson et al., 2010)	88	%	10.00	7	0.15
Max Concentration of EDC and Pharmaceuticals in Wastewater	(Trenholm et al., 2006)	0.0041	ug/L	1.00	17	0.1
Mean Concentration of Household Chemicals in Wastewater	(Trenholm et al., 2008)	0.0016	ug/L	1.00	7	0.1
Frequency Detection of Household Chemicals in Wastewater	(Trenholm et al., 2008)	43	%	10.00	7	0.1
Max Concentration of Pharmaceuticals and PPCPs in Water Treatment Plant	(Azzouz & Ballesteros, 2013)	0.073	ug/L	2.00	4	0.4
Mean Concentration of Pharmaceuticals and PPCPs in Water Treatment Plant	(Azzouz & Ballesteros, 2013)	0.035	ug/L	4.00	4	0.2
Max Concentration of Pharmaceuticals and PPCPs in Surface Waters	(Bernot et al., 2013)	0.23	ug/L	3.00	102	0.6
Mean Concentration of Pharmaceuticals and PPCPs in Surface Waters	(Bernot et al., 2013)	0.0709	ug/L	4.00	102	0.3
Frequency Detection of Pharmaceuticals and PPCPs in Surface Waters	(Bernot et al., 2013)	57	%	10.00	102	0.6
Mean Concentration of PPCPs in Treated Wastewater	(Hedgespeth et al., 2012)	0.129	ug/L	5.00	-	0.15
Frequency Detection of PPCPs in Treated Wastewater	(Hedgespeth et al., 2012)	75	%	10.00	-	0.15
Mean Concentration of PPCPs in Surface Water	(Hedgespeth et al., 2012)	0.02	ug/L	3.00	-	0.3
Frequency Detection of PPCPs in Surface Water	(Hedgespeth et al., 2012)	6.9	%	9.00	-	0.3
Max Concentration of Pharmaceuticals in Treated Drinking Water in Missouri	(Wang et al., 2010)	0.0098	ug/L	1.00	9	0.6
Median Concentration of Pharmaceuticals in Urban Streams	(Veach & Bernot, 2011)	0.022	ug/L	3.00	25	0.2
Frequency Detection of Pharmaceuticals in Urban Streams	(Veach & Bernot, 2011)	12	%	10.00	25	0.4
Max Concentration of Pharmaceuticals Found in Groundwater	(Barnes et al., 2008)	1	ug/L	4.00	47	0.3
Frequency Detection of Pharmaceuticals Found in Groundwater	(Barnes et al., 2008)	14.9	%	10.00	47	0.3
Max Concentration of Emerging Contaminants in Freshwater	(Murray et al., 2010)	2.3	ug/L	5.00	-	0.6
Mean Concentration of Emerging Contaminants in Freshwater	(Murray et al., 2010)	0.14	ug/L	5.00	-	0.3
Frequency Detection of Emerging Contaminants in Freshwater	(Murray et al., 2010)	57.6	%	10.00	-	0.6
Maximum Concentration in Source Waters	(Guo et al., 2010)	0.001	ug/L	1.00		0.6
Median Concentration in Source Waters	(Guo et al., 2010)	0.002	ug/L	1.00		0.3
Percent Detection in Source Waters	(Guo et al., 2010)	4	%	9.00		0.6

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Compound Tylosin

Update

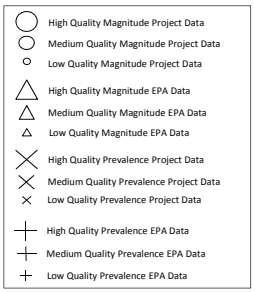
CAS 1401-69-0

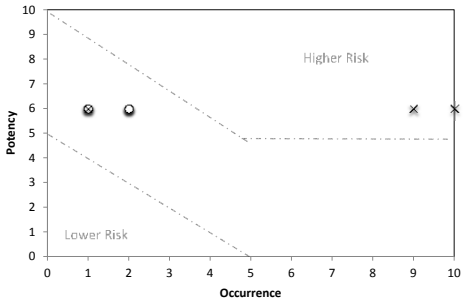
Category CCL4NOM

Tylosin

PPCP

Antibiotic





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	2.0
All Data	6.0	7.8	1.6
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Assumed-Rfd	TAW Assumption	--	mg/kg-d	6.00		0.25

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	5.4	64	0.27
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	5.7	43	0.51
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	5.0	72	0.18
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	6.9	57	0.36
Equal Potency (P) and M (no Pr)	(P + M) /2	5	3.8	82	0.22
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	4.6	66	0.25
Potency wt'd Magnitude	M^(P/10)	7	1.3	76	0.14
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	4.6	64	0.27
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.1	87	0.17

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Fresh Surface Waters Study	(Fenech et al., 2012)	0.039	ug/L	2.00	-	0.4
Mean Concentration in Fresh Surface Waters Study	(Fenech et al., 2012)	0.0098	ug/L	2.00	-	0.2
Frequency Detection in Fresh Surface Waters Study	(Fenech et al., 2012)	32.4	%	10.00	-	0.4
Max Concentration of PPCPs in Near Shore Lake Michigan	(Ferguson et al., 2013)	0.0067	ug/L	1.00	64	0.6
Mean Max Concentration of PPCPs in Near Shore Lake Michigan	(Ferguson et al., 2013)	0.00375	ug/L	2.00	64	0.3
Frequency Detection of PPCPs in Near Shore Lake Michigan	(Ferguson et al., 2013)	88	%	10.00	64	0.6
Max Concentration of Pharmaceuticals in Treated Drinking Water in Missouri	(Wang et al., 2010)	0.0043	ug/L	1.00	9	0.6
Max Concentration of Pharmaceuticals in Surface Water in Ontario Canada	(Kleywegt et al., 2011)	0.031	ug/L	2.00	125	0.6
Median Concentration of Pharmaceuticals in Surface Water in Ontario Canada	(Kleywegt et al., 2011)	0.00214	ug/L	1.00	125	0.3
Frequency Detection of Pharmaceuticals in Surface Water in Ontario Canada	(Kleywegt et al., 2011)	4	%	9.00	125	0.6
Max Concentration of Pharmaceuticals in Drinking Water in Ontario Canada	(Kleywegt et al., 2011)	0.031	ug/L	2.00	123	0.75
Median Concentration of Pharmaceuticals in Drinking Water in Ontario Canada	(Kleywegt et al., 2011)	0.00214	ug/L	1.00	123	0.45
Frequency Detection of Pharmaceuticals in Drinking Water in Ontario Canada	(Kleywegt et al., 2011)	6	%	9.00	123	0.75
95th Percentile Concentration of Pharmaceuticals in Drinking Water in Ontario Canada	(Kleywegt et al., 2011)	0.013	ug/L	2.00	123	0.75
Frequency Detection of Pharmaceuticals Found in Groundwater	(Barnes et al., 2008)	0	%	1.00	47	0.3

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Compound Vanadium

Update

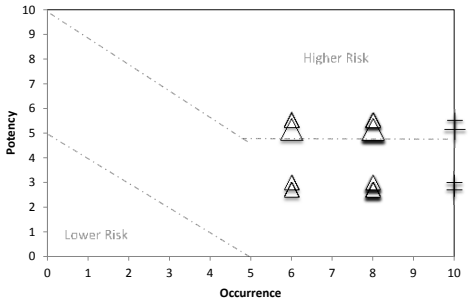
Vanadium

Inorganic

CAS 7440-62-2

Category CCL3 Sh Lst

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	5.2	10.0	8.0
All Data	4.1	10.0	7.7
EPA	6.0	10.0	8.0

Drinking Water Equivalent Level (DWEL) = 0.245
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
RAISHE RfD	CCL3 Dossiers	0.007	mg/kg-d	5.15		1
Minimum Risk Level (ATSDR (ITER))	CCL3 Dossiers	0.003	mg/kg-d	5.52		0.5
Lowest Oral Chronic Level LOAEL (RTECS)	CCL3 Dossiers	960	mg/kg-d	3.02		0.5
Supplemental RfD-like Value	Supplemental	1.8	mg/kg-d	2.74		0.5

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score
Max Concentration in Finished Water	(NIRS)	70.4	ug/L	8.00	989	1
Median Concentration in Finished Water	(NIRS)	7.3	ug/L	8.00	989	0.6
Frequency Detection in Finished Water-	(NIRS)	14.76	%	10.00	989	1
90th Percentile Concentration in Finished Water	(NIRS)	23	ug/L	8.00	989	1
99th Percentile Concentration in Finished Water	(NIRS)	45	ug/L	8.00	989	1
Frequency Detection in total results >MRL	(UCMR 3 Total)	64	%	10.00	12016	1
Frequency Detection in PWS > MRL	(UCMR 3 PWS)	76.8	%	10.00	1432	1
Max Concentration in Finished Water	(UCMR 3 Total)	107	ug/L	8.00	12016	1
Median Concentration in Finished Water	(UCMR 3 Total)	0.4	ug/L	6.00	12016	0.6
95% percentile in Finished Water	(UCMR 3 Total)	15	ug/L	8.00	12016	0.6

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	6.5	21	0.76
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	5.3	60	0.32
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	7.7	12	0.86
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	7.1	40	0.55
Equal Potency (P) and M (no Pr)	(P + M) /2	5	5.9	27	0.74
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	6.0	28	0.68
Potency wt'd Magnitude	M^(P/10)	7	2.3	35	0.60
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	6.2	15	0.83
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	3.9	46	0.56

Compound Vancomycin

Update

CAS 1404-90-6

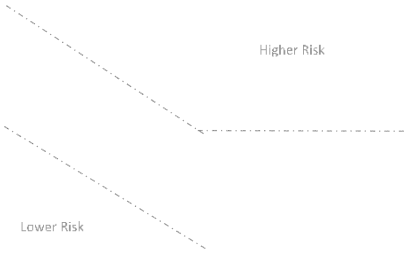
Category CCL4NOM

Vancomycin

PPCP

Antibiotic

High Quality Magnitude Project Data
Medium Quality Magnitude Project Data
Low Quality Magnitude Project Data
High Quality Magnitude EPA Data
Medium Quality Magnitude EPA Data
Low Quality Magnitude EPA Data
High Quality Prevalence Project Data
Medium Quality Prevalence Project Data
Low Quality Prevalence Project Data
High Quality Prevalence EPA Data
Medium Quality Prevalence EPA Data
Low Quality Prevalence EPA Data



Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	0.0
All Data	6.0	0.0	0.0
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Assumed-Rfd	TAW Assumption	--	mg/kg-d	6.00		0.25

Occurrence (Project Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Occurrence (EPA, Dossiers + UCMR Data)

Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	ND	NA	NA
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	ND	NA	NA
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	ND	NA	NA
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	ND	NA	NA
Equal Potency (P) and M (no Pr)	(P + M) /2	5	ND	NA	NA
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	ND	NA	NA
Potency wt'd Magnitude	M^(P/10)	7	ND	NA	NA
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	ND	NA	NA
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	ND	NA	NA

Compound Virginiamycin

Update

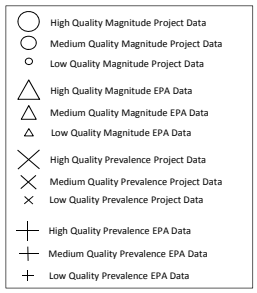
CAS 11006-76-1

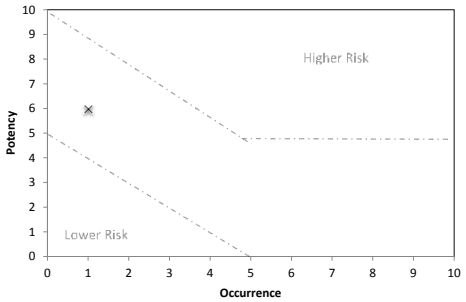
Category CCL4NOM

Virginiamycin

PPCP

Antibiotic





Mean Attribute Scores

Parameter	P	Pr	M
High Quality Data	0.0	0.0	0.0
All Data	6.0	1.0	0.0
EPA	NA	NA	NA

Drinking Water Equivalent Level (DWEL) = NA
(based on EPA RfD, 70 yrs, 2 L/day)

Potency (EPA, Dossiers + UCMR)

Parameter	Source	Value	Units	Normalized	n	Data Score
Assumed-Rfd	TAW Assumption	--	mg/kg-d	6.00		0.25

Occurrence (Project Data)

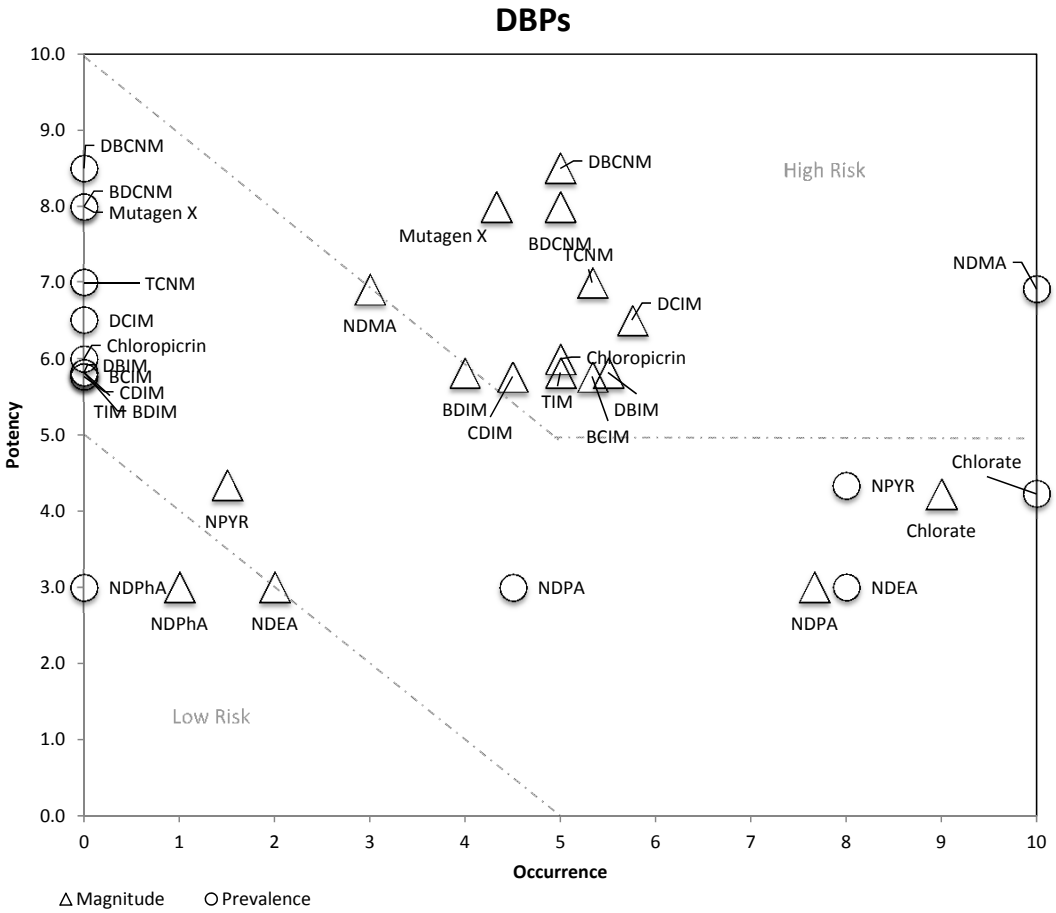
Parameter	(Source)	Value	Units	Normalized	n	Data Score
Frequency Detention in Untreated Drinking Water Study	(Focazio et al., 2008)	0	%	1.00	73	0.6
Frequency Detection of Pharmaceuticals Found in Groundwater	(Barnes et al., 2008)	0	%	1.00	47	0.3

Occurrence (EPA, Dossiers + UCMR Data)

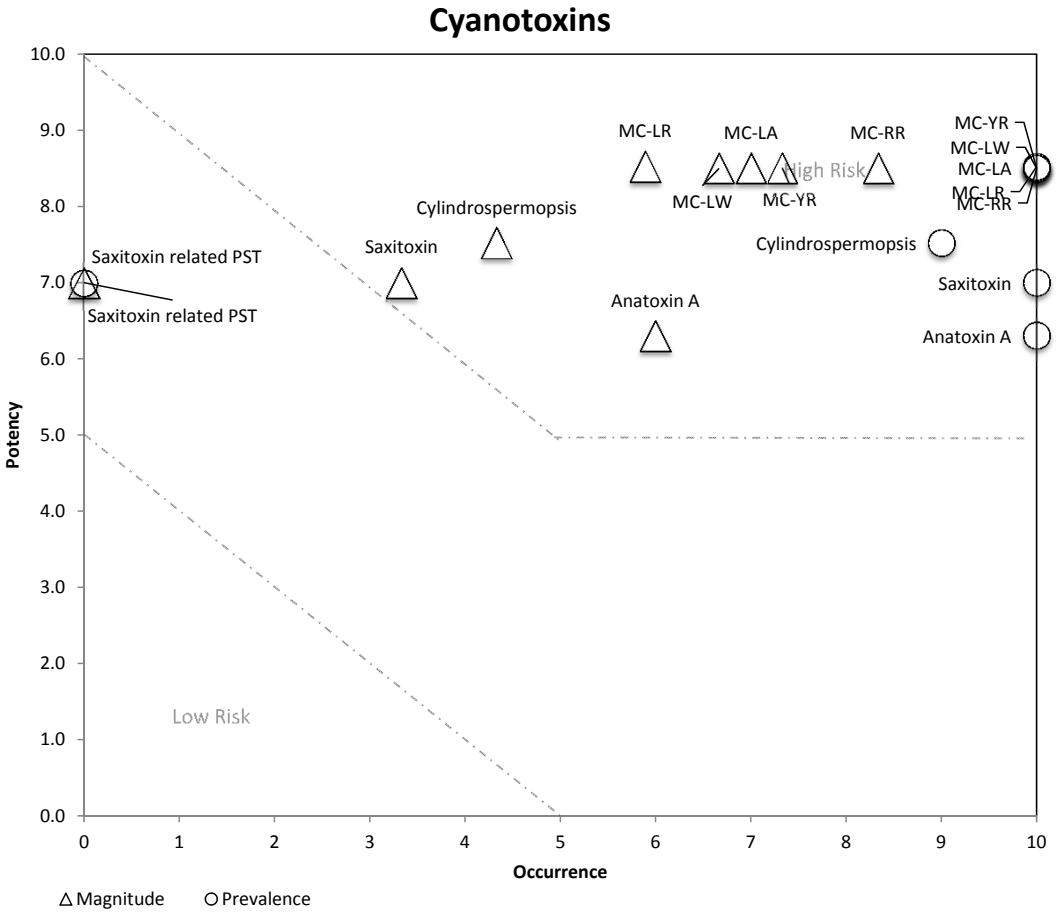
Parameter	(Source)	Value	Units	Normalized	n	Data Score

Title	Formula	Algorithm #	Score	Rank	Percentile
Equal weight P and Occur. (Pr, M)	(2P + Pr + M)/4	1	ND	NA	NA
3x wt'd P and Occur. (Pr, M)	(6P + Pr + M)/8	2	ND	NA	NA
P and 3x wt'd Occur. (Pr, M)	(2P + 3Pr + 3M)/8	3	ND	NA	NA
Equal Potency (P) and Pr (no M)	P + Pr) /2	4	3.5	87	0.02
Equal Potency (P) and M (no Pr)	(P + M) /2	5	ND	NA	NA
Equal weight Potency (P) and Occurrence (Pr, M) with geometric mean	(P2 * Pr * M)^0.25	6	ND	NA	NA
Potency wt'd Magnitude	M^(P/10)	7	ND	NA	NA
Potency wt'd Magnitude plus Pr	((M^(P/10))+Pr)/2	8	ND	NA	NA
Potency wt'd Magnitude + 2	(0.8*M^(P/10))+2	9	ND	NA	NA

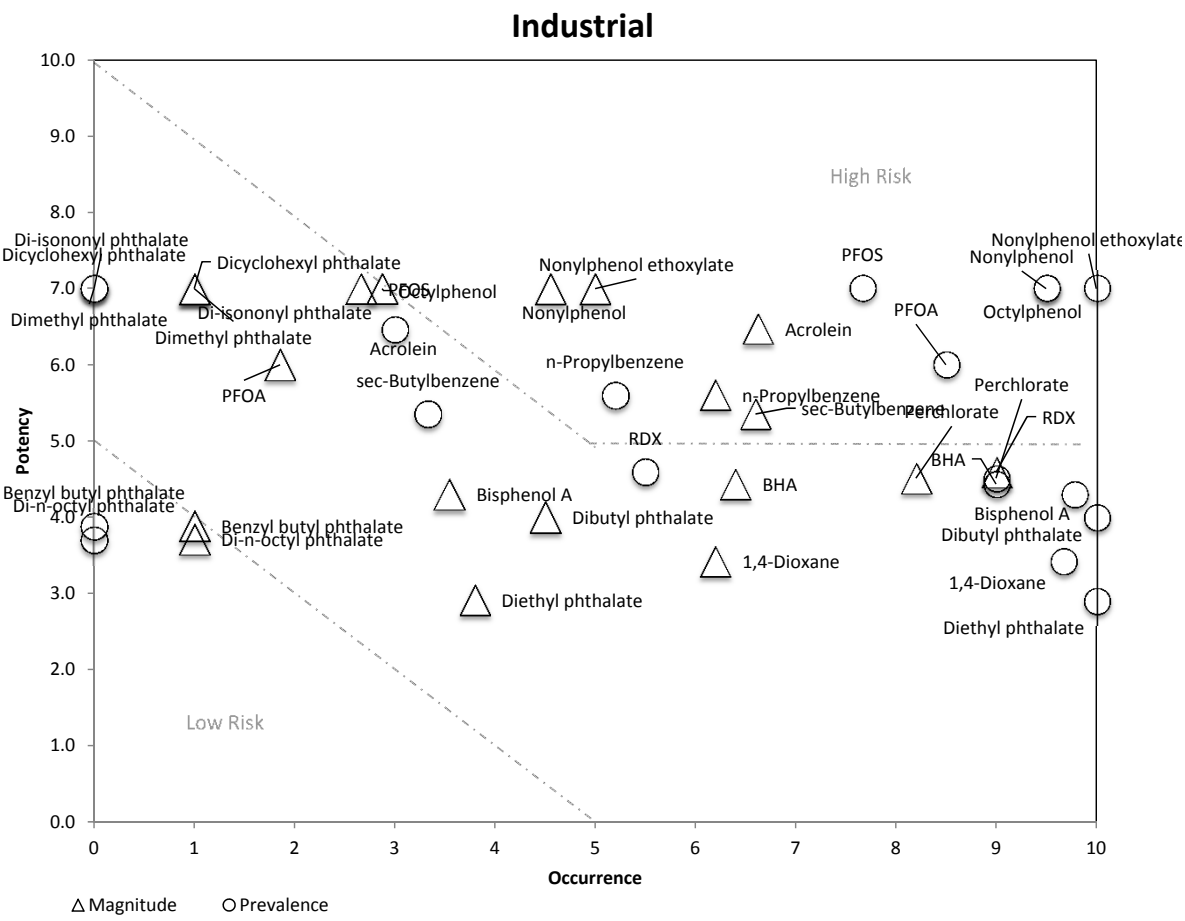
Appendix B. Group Space Diagrams



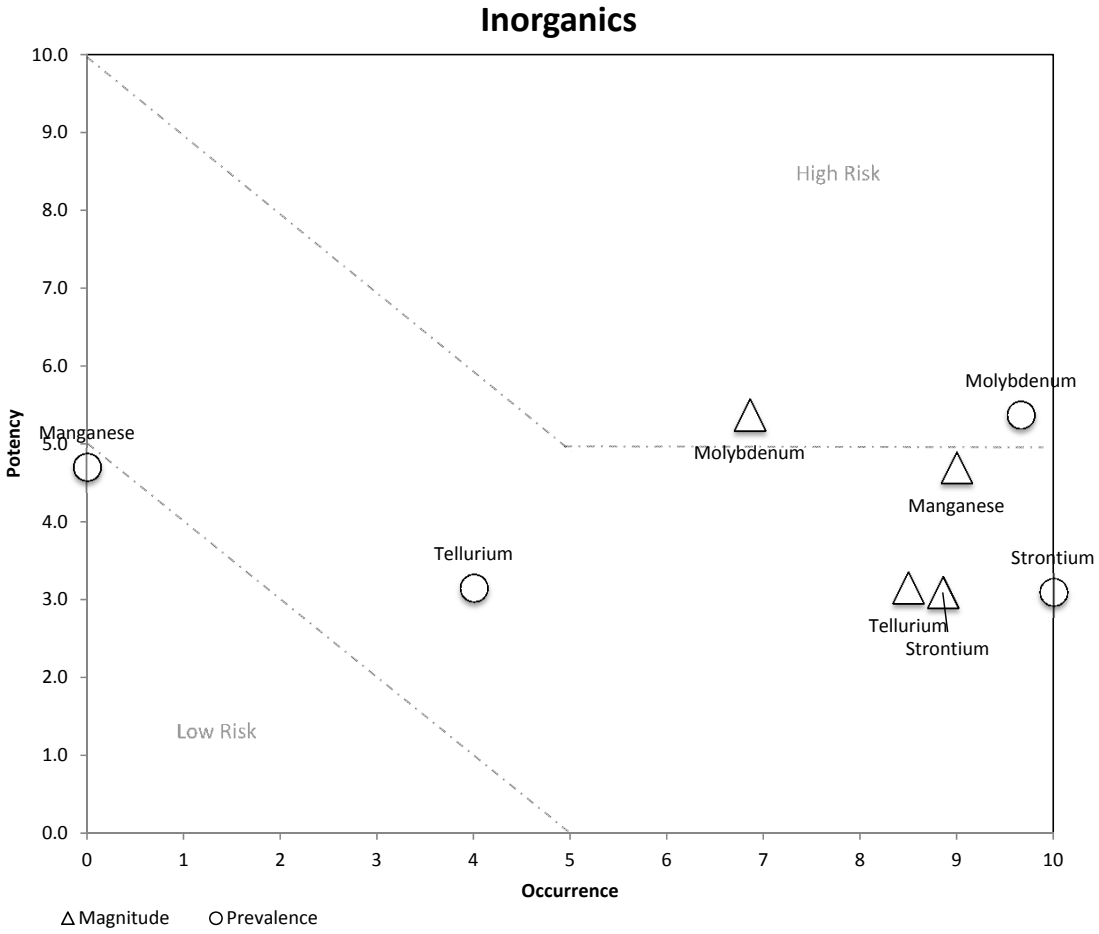
Compound	Potency	Magnitude	Prevalence
Mutagen X	8.0	4.3	0.0
Chlorate	4.2	9.0	10.0
NDEA	3.0	2.0	8.0
NDMA	6.9	3.0	10.0
NDPA	3.0	7.7	4.5
NDPhA	3.0	1.0	0.0
NPYR	4.3	1.5	8.0
DCIM	6.5	5.8	0.0
BCIM	5.8	5.3	0.0
DBIM	5.8	5.5	0.0
CDIM	5.8	4.5	0.0
BDIM	5.8	4.0	0.0
TIM	5.8	5.0	0.0
BDCNM	8.0	5.0	0.0
DBCNM	8.5	5.0	0.0
TCNM	7.0	5.3	0.0
Chloropicrin	6.0	5.0	0.0



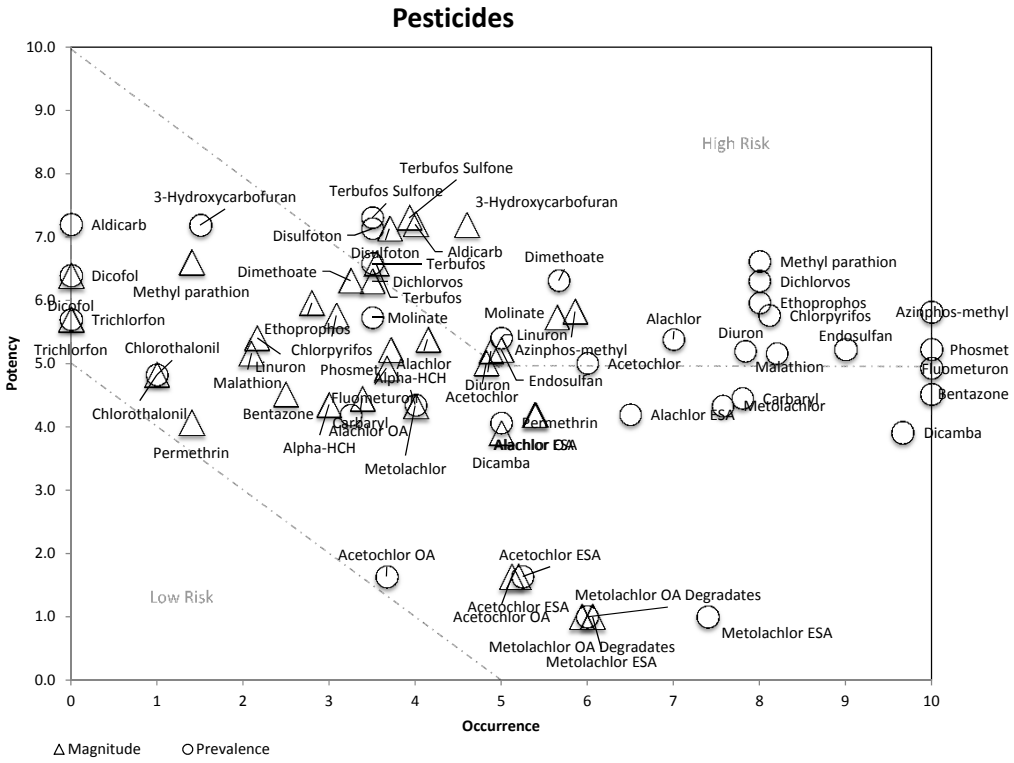
Compound	Potency	Magnitude	Prevalence
Anatoxin A	6.3	6.0	10.0
Cylindrospermopsis	7.5	4.3	9.0
MC-LA	8.5	7.0	10.0
MC-LR	8.5	5.9	10.0
MC-LW	8.5	6.7	10.0
MC-RR	8.5	8.3	10.0
MC-YR	8.5	7.3	10.0
Saxitoxin	7.0	3.3	10.0
Saxitoxin related PST	7.0	0.0	0.0



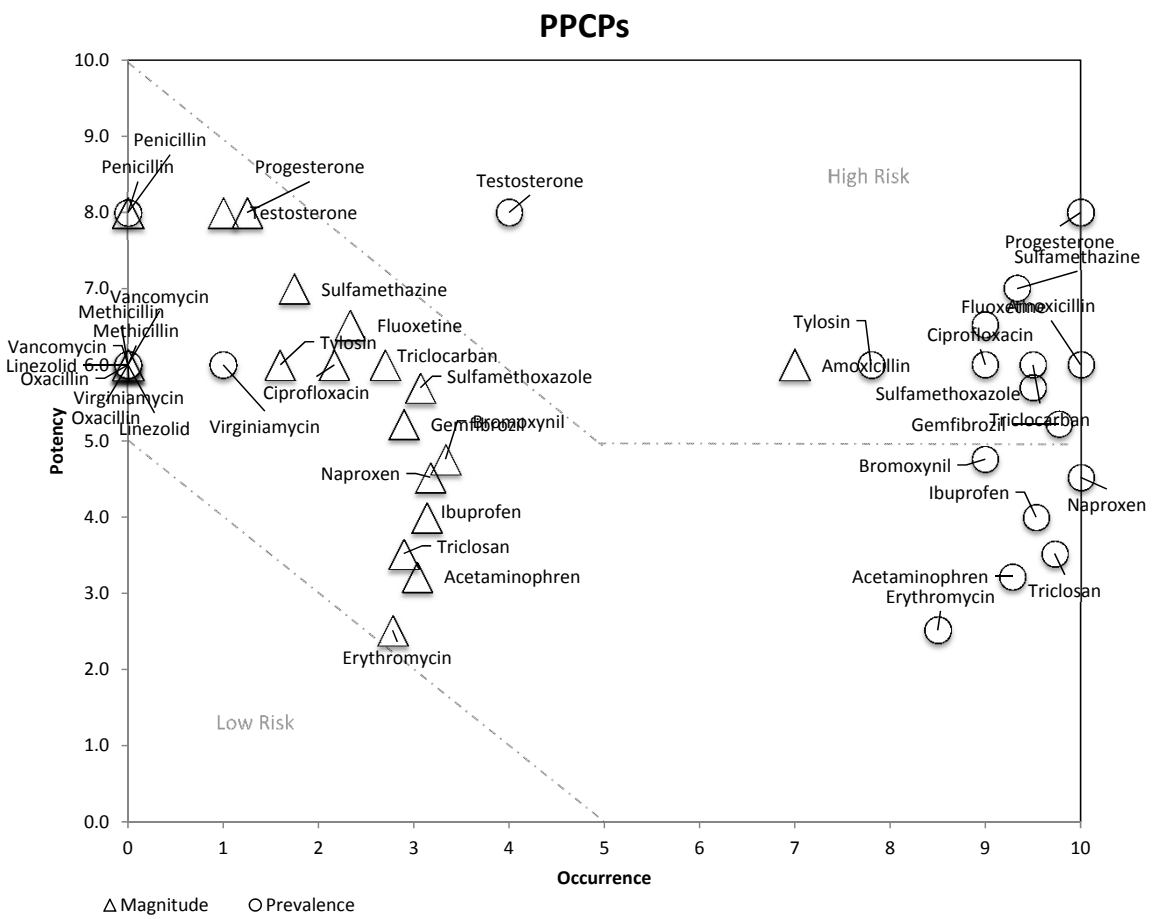
Compound	Potency	Magnitude	Prevalence
1,4-Dioxane	3.4	6.2	9.7
Acrolein	6.5	6.6	3.0
Benzyl butyl phthalate	3.9	1.0	0.0
Bisphenol A	4.3	3.5	9.8
BHA	4.4	6.4	9.0
Dibutyl phthalate	4.0	4.5	10.0
Dicyclohexyl phthalate	7.0	1.0	0.0
Diethyl phthalate	2.9	3.8	10.0
Di-isononyl phthalate	7.0	1.0	0.0
Dimethyl phthalate	7.0	1.0	0.0
Di-n-octyl phthalate	3.7	1.0	0.0
Nonylphenol	7.0	4.6	9.5
Nonylphenol ethoxylate	7.0	5.0	10.0
n-Propylbenzene	5.6	6.2	5.2
Octylphenol	7.0	2.9	9.5
Perchlorate	4.5	8.2	9.0
PFOA	6.0	1.9	8.5
PFOS	7.0	2.7	7.7
RDX	4.6	9.0	5.5
sec-Butylbenzene	5.4	6.6	3.3



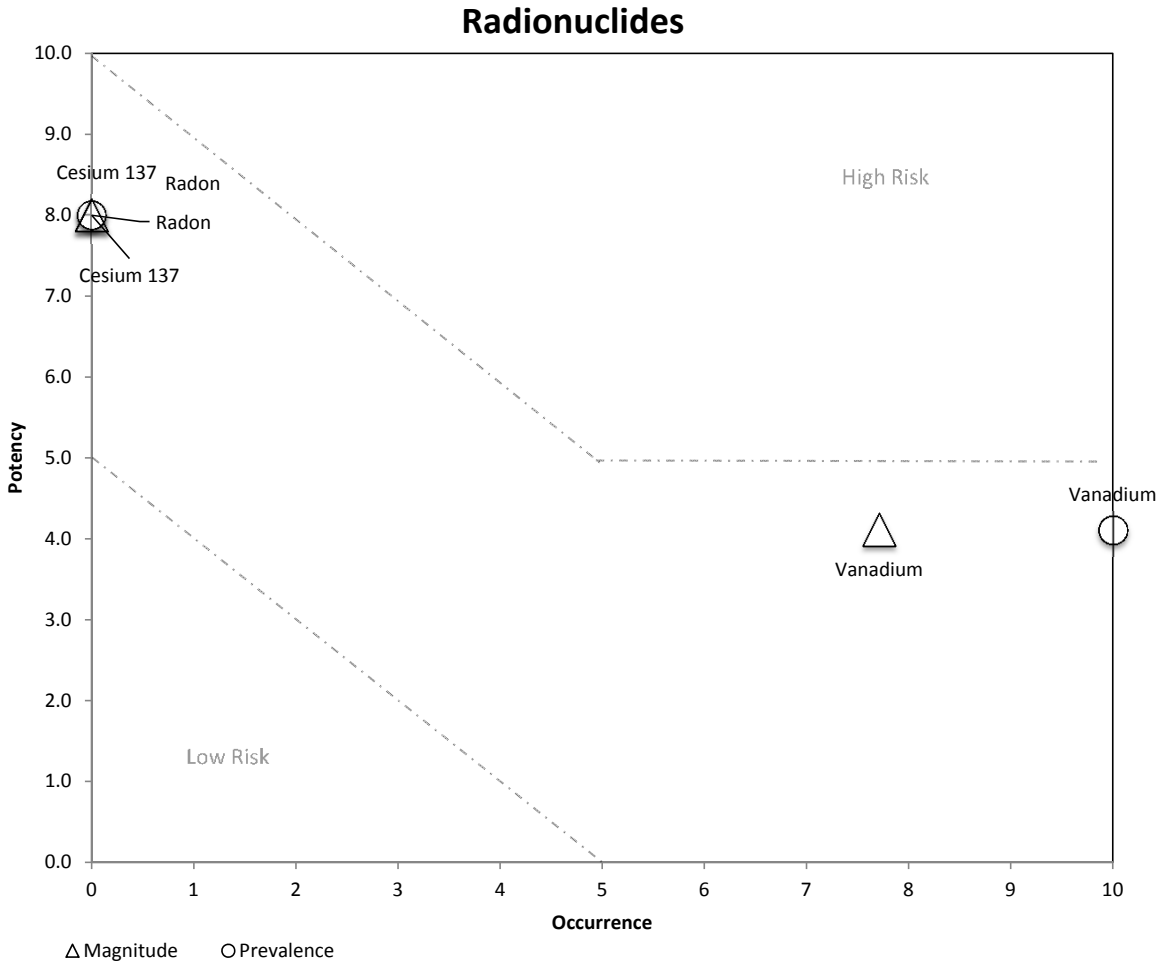
Compound	Potency	Magnitude	Prevalence
Manganese	4.7	9.0	0.0
Molybdenum	5.4	6.9	9.7
Strontium	3.1	8.9	10.0
Tellurium	3.2	8.5	4.0



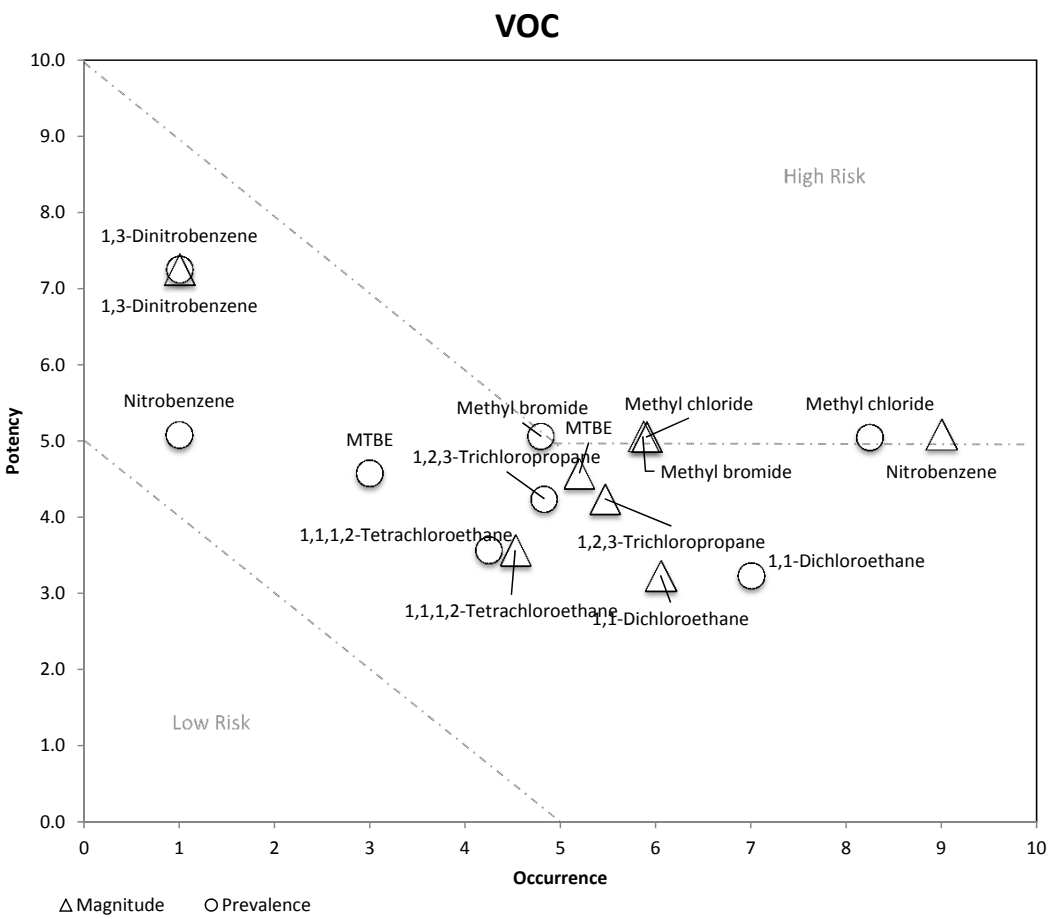
Compound	Potency	Magnitude	Prevalence
3-Hydroxycarbofuran	7.2	4.6	1.5
Acetochlor	5.0	4.8	6.0
Acetochlor ESA	1.6	5.2	5.3
Acetochlor OA	1.6	5.1	3.7
Alachlor	5.4	4.1	7.0
Alachlor ESA	4.2	5.4	6.5
Alachlor OA	4.2	5.4	3.3
Aldicarb	7.2	4.0	0.0
Alpha-HCH	4.4	3.0	4.0
Azinphos-methyl	5.8	5.9	10.0
Bentazone	4.5	2.5	10.0
Carbaryl	4.5	3.4	7.8
Chlorothalonil	4.8	1.0	1.0
Chlorpyrifos	5.8	3.1	8.1
Dicamba	3.9	5.0	9.7
Dichlorvos	6.3	3.5	8.0
Dicofol	6.4	0.0	0.0
Dimethoate	6.3	3.3	5.7
Disulfoton	7.1	3.7	3.5
Diuron	5.2	4.9	7.8
Endosulfan	5.2	5.0	9.0
Ethoprophos	6.0	2.8	8.0
Fluometuron	4.9	3.7	10.0
Linuron	5.4	2.2	5.0
Malathion	5.2	2.1	8.2
Methyl parathion	6.6	1.4	8.0
Metolachlor	4.3	4.0	7.6
Metolachlor OA Degradates	1.0	5.9	6.0
Metolachlor ESA	1.0	6.1	7.4
Molinate	5.7	5.6	3.5
Permethrin	4.1	1.4	5.0
Phosmet	5.2	3.7	10.0
Terbufos	6.6	3.5	3.5
Terbufos Sulfone	7.3	3.9	3.5
Trichlorfon	5.7	0.0	0.0



Compound	Potency	Magnitude	Prevalence
Acetaminophren	3.2	3.0	9.3
Amoxicillin	6.0	7.0	10.0
Bromoxynil	4.8	3.3	9.0
Ciprofloxacin	6.0	2.2	9.0
Erythromycin	2.5	2.8	8.5
Fluoxetine	6.5	2.3	9.0
Gemfibrozil	5.2	2.9	9.8
Ibuprofen	4.0	3.1	9.5
Linezolid	6.0	0.0	0.0
Methicillin	6.0	0.0	0.0
Naproxen	4.5	3.2	10.0
Oxacillin	6.0	0.0	0.0
Penicillin	8.0	0.0	0.0
Progesterone	8.0	1.3	10.0
Sulfamethazine	7.0	1.8	9.3
Sulfamethoxazole	5.7	3.1	9.5
Testosterone	8.0	1.0	4.0
Triclocarban	6.0	2.7	9.5
Triclosan	3.5	2.9	9.7
Tylosin	6.0	1.6	7.8
Vancomycin	6.0	0.0	0.0
Virginiamycin	6.0	0.0	1.0



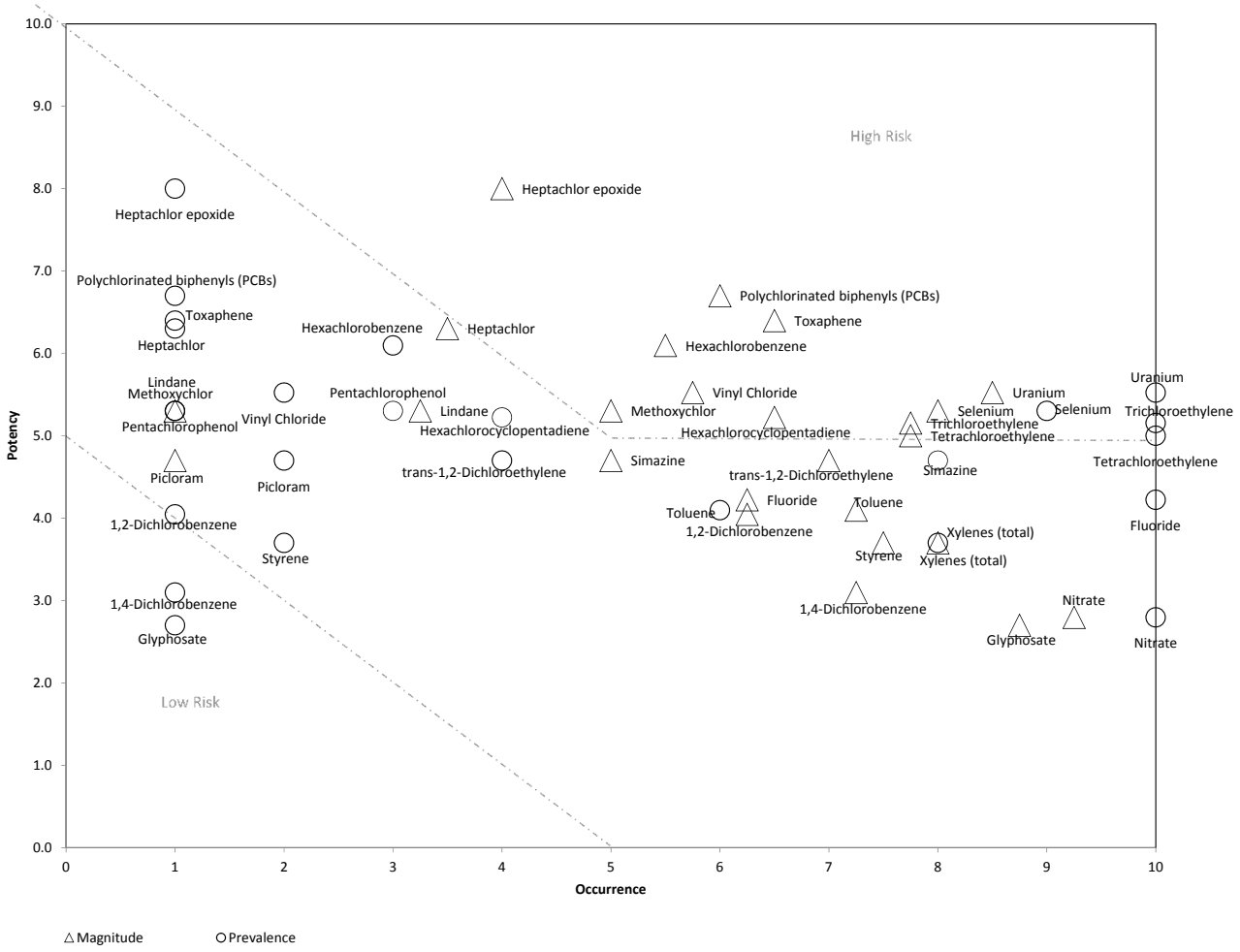
Compound	Potency	Magnitude	Prevalence
Cesium 137	8.0	0.0	0.0
Radon	8.0	0.0	0.0
Vanadium	4.1	7.7	10.0



Compound	Potency	Magnitude	Prevalence
1,1,1,2-Tetrachloroethane	3.6	4.5	4.3
1,1-Dichloroethane	3.2	6.1	7.0
1,2,3-Trichloropropane	4.2	5.5	4.8
1,3-Dinitrobenzene	7.3	1.0	1.0
Methyl bromide	5.1	5.9	4.8
Methyl chloride	5.1	5.9	8.3
MTBE	4.6	5.2	3.0
Nitrobenzene	5.1	9.0	1.0

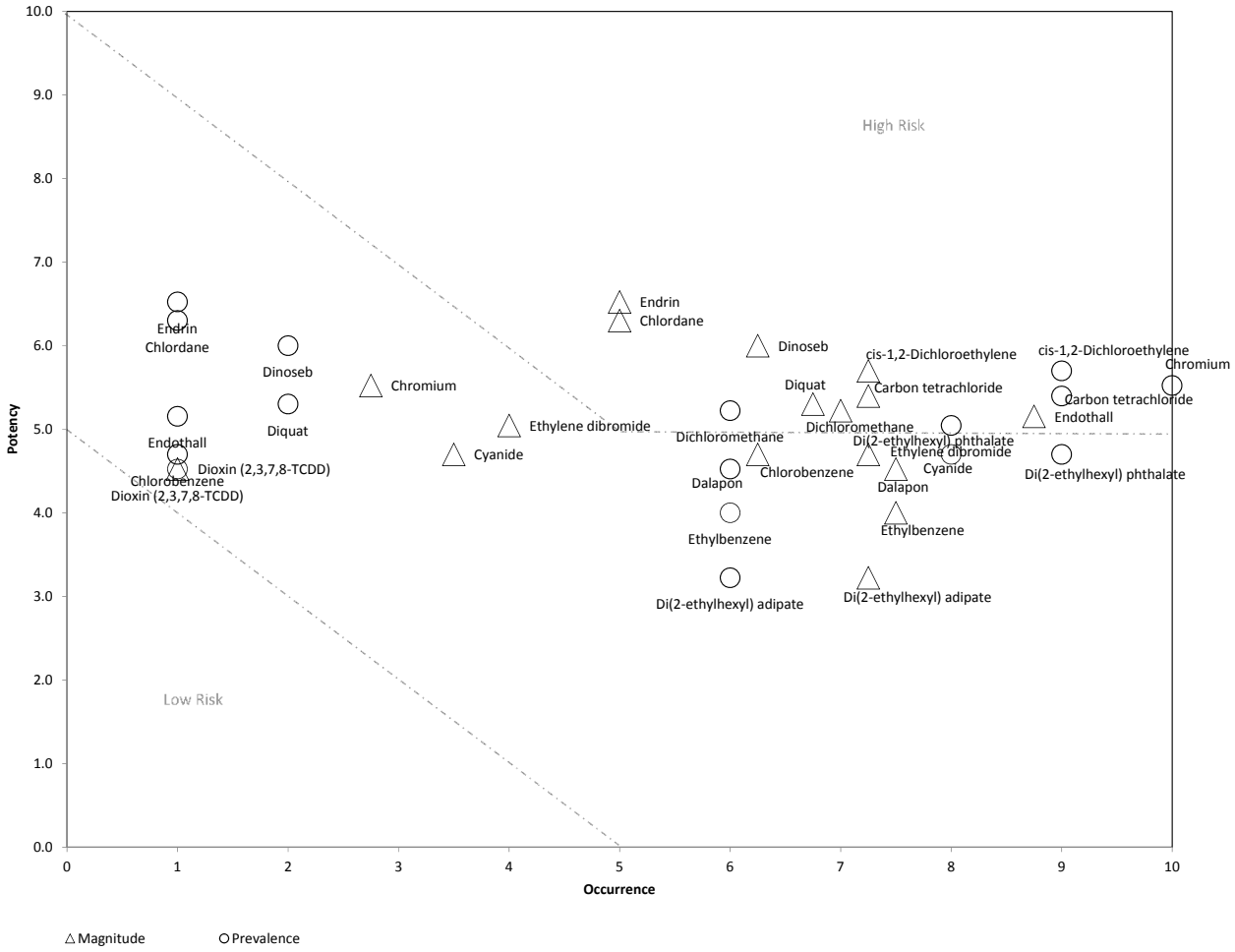
Appendix C. Regulated Space Diagrams

Regulated Compounds (3)



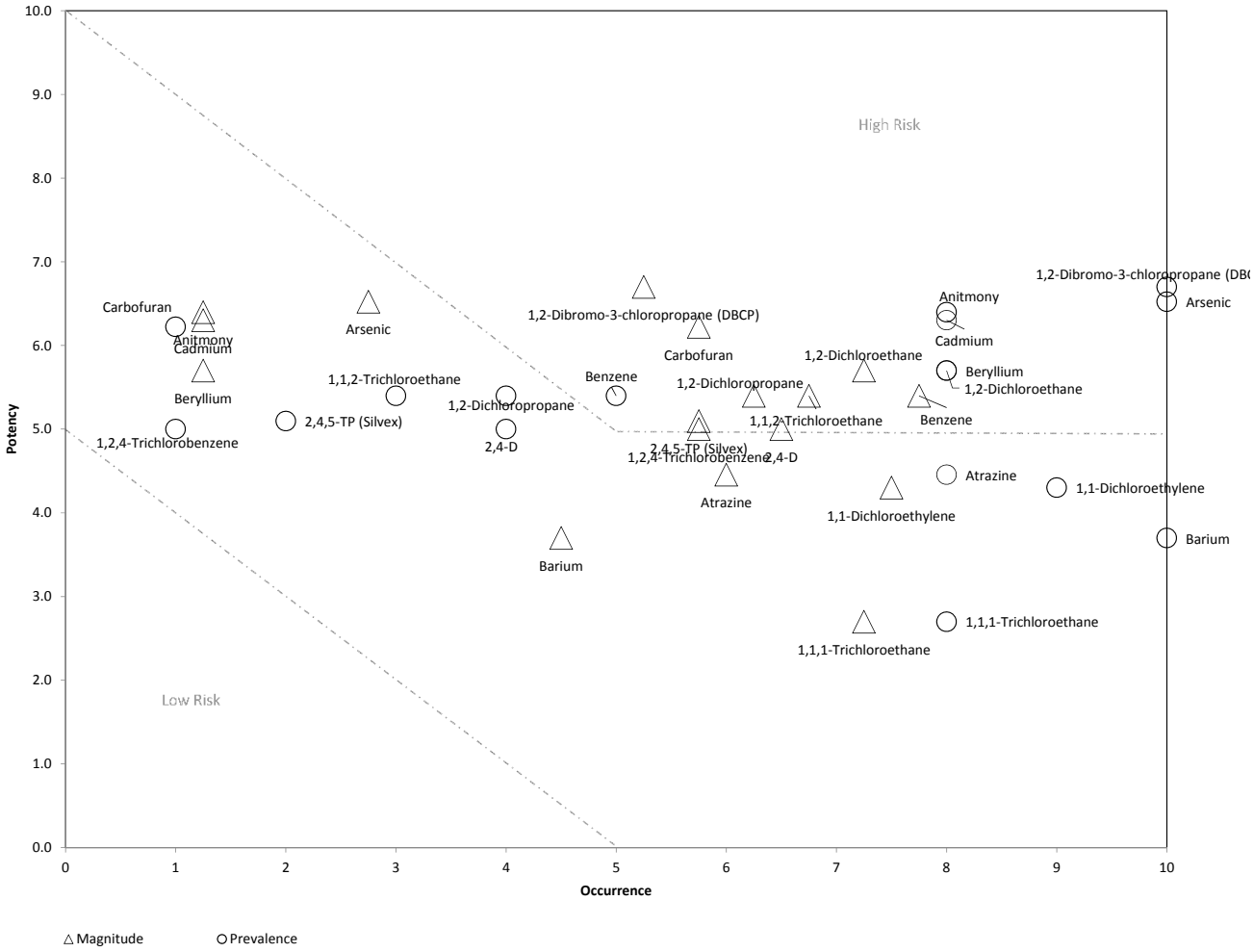
Compound	Potency	Magnitude	Prevalence
Fluoride	4.2	6.3	10.0
Glyphosate	2.7	8.8	1.0
Heptachlor	6.3	3.5	1.0
Heptachlor epoxide	8.0	4.0	1.0
Hexachlorobenzene	6.1	5.5	3.0
Hexachlorocyclopentad	5.2	6.5	4.0
Lindane	5.3	3.3	1.0
Methoxychlor	5.3	5.0	1.0
Nitrate	2.8	9.3	10.0
1,2-Dichlorobenzene	4.0	6.3	1.0
1,4-Dichlorobenzene	3.1	7.3	1.0
Pentachlorophenol	5.3	1.0	3.0
Picloram	4.7	1.0	2.0
Polychlorinated biphen	6.7	6.0	1.0
Selenium	5.3	8.0	9.0
Simazine	4.7	5.0	8.0
Styrene	3.7	7.5	2.0
Tetrachloroethylene	5.0	7.8	10.0
Toluene	4.1	7.3	6.0
Toxaphene	6.4	6.5	1.0
trans-1,2-Dichloroethy	4.7	7.0	4.0
Trichloroethylene	5.2	7.8	10.0
Uranium	5.5	8.5	10.0
Vinyl Chloride	5.5	5.8	2.0
Xylenes (total)	3.7	8.0	8.0

Regulated Compounds (2)



Compound	Potency	Magnitude	Prevalence
Carbon tetrachloride	5.4	7.3	9.0
Chlordane	6.3	5.0	1.0
Chlorobenzene	4.7	6.3	1.0
Chromium	5.5	2.8	10.0
cis-1,2-Dichloroethyler	5.7	7.3	9.0
Cyanide	4.7	3.5	8.0
Dalapon	4.5	7.5	6.0
Di(2-ethylhexyl) adipat	3.2	7.3	6.0
Di(2-ethylhexyl) phtha	4.7	7.3	9.0
Dichloromethane	5.2	7.0	6.0
Dinoseb	6.0	6.3	2.0
Dioxin (2,3,7,8-TCDD)	4.5	1.0	1.0
Diquat	5.3	6.8	2.0
Endothall	5.2	8.8	1.0
Endrin	6.5	5.0	1.0
Ethylbenzene	4.0	7.5	6.0
Ethylene dibromide	5.0	4.0	8.0

Regulated Compounds (1)



Compound	Potency	Magnitude	Prevalence
1,1,1-Trichloroethane	2.7	7.3	8.0
1,1,2-Trichloroethane	5.4	6.8	3.0
1,1-Dichloroethylene	4.3	7.5	9.0
1,2,4-Trichlorobenzene	5.0	5.8	1.0
1,2-Dibromo-3-chlorop	6.7	5.3	10.0
1,2-Dichloroethane	5.7	7.3	8.0
1,2-Dichloropropane	5.4	6.3	4.0
2,4,5-TP (Silvex)	5.1	5.8	2.0
2,4-D	5.0	6.5	4.0
Anitmony	6.4	1.3	8.0
Arsenic	6.5	2.8	10.0
Atrazine	4.5	6.0	8.0
Barium	3.7	4.5	10.0
Benzene	5.4	7.8	5.0
Beryllium	5.7	1.3	8.0
Cadmium	6.3	1.3	8.0
Carbofuran	6.2	5.8	1.0

Appendix D. VBA Coding of Master Sheet

```
Private Sub Update_Click()
    Application.ScreenUpdating = False
    Dim i As Integer
    Dim k As Integer
    Dim j As Integer
    Dim R As Integer
    Dim refnum As String
    Dim Name As String
    Dim value As Variant
    Dim norm As Double
    Dim units As String
    Dim datascore As Double
    Dim parameter As String
    Dim reference As String
    Dim source As Integer
    Dim p As Integer
    Dim d As Integer
    Dim indicator As Integer
    Dim q As Integer
    Dim w As Integer
    Dim e As Integer
    Dim t As Integer
    Dim f As Integer
    Dim number As Double
    Dim normtoxcount As Double
    Dim z As Integer
    Dim x As Integer
    Dim c As Integer
```

```
Dim a As Integer
Dim b As Integer
Dim counter As Integer
Dim counter1 As Integer
Dim counter2 As Integer
Dim toxdatascore As Double
Dim occdatascore As Double
Dim geomean As Double
Dim o As Integer
Dim v As Variant
Dim g As Integer
Dim strName As String
Dim RowCount As Integer
Dim rngXs As Range
Dim rngYs As Range
Dim Series As String
Dim Ri As Integer
Dim s As Series
Dim n As Integer
Dim storevalue As Variant
Dim storevalue1 As Double
Dim sample As Variant
Dim oTextBox As textbox
Dim title As String
Dim formula As String
Dim algorithm As String
Dim score As String
Dim score1 As Variant
Dim rank As String
```

```
Dim percentile As String
Dim Potency1 As Variant
Dim Potency2 As Variant
Dim Potency3 As Variant
Dim Mag1 As Variant
Dim Mag2 As Variant
Dim Mag3 As Variant
Dim Pr1 As Variant
Dim Pr2 As Variant
Dim Pr3 As Variant
Dim potencycount As Integer
Dim epacount As Integer
Dim rk As Variant
Dim per As Variant
Dim Group As String
Dim Subgroup As String
Dim refnum1 As String
Dim store As String
Dim storen As Variant
Dim row1 As Integer
Dim average1 As Double
Dim average2 As Variant
Dim average3 As Variant
Dim row2 As Integer
Dim Prevcount As Integer
Dim Magcount As Integer

refnum = Sheets("Plot").Cells(1, 2)
Name = Sheets("Plot").Cells(3, 5).value
```

```
    Prevcount = 0
    Magcount = 0
    p = 2
    d = 24
    q = 24
    z = 20
    c = 0
    a = 24
    counter = 0
    counter1 = 0
    indicator = 1
    g = 20
    RowCount = 20
    Ri = 1
'Clearn Contents
    Sheets("Plot").Activate
    Sheets("Plot").Range("A24:G200").ClearContents
    Sheets("Plot").Range("A24:G200").ClearFormats
    For d = 24 To 200
       If Sheets("Plot").Cells(d, 16) = p Then
          Sheets("Plot").Range(Cells(d, 8), Cells(d, 16)).ClearContents
       End If
    Next d
    Sheets("Plot").Range(Cells(28, 8), Cells(200, 8)).ClearContents
    Sheets("Plot").Range(Cells(20, 19), Cells(300, 24)).ClearContents
    Sheets("Plot").Range(Cells(20, 19), Cells(300, 24)).ClearFormats

'clear textbox
    For Each oTextBox In ActiveSheet.TextBoxes
```

```
        oTextBox.Delete
    Next oTextBox

'Clear Graph
    ActiveSheet.ChartObjects("Chart 1").Activate
    For Each s In ActiveChart.SeriesCollection
        s.Delete
    Next s
'Replace the 1 in cell 8,28
    Sheets("Plot").Cells(29, 8).value = indicator

'Cut and paste Occurrence Project Data
    Do Until Sheets("Plot").Cells(q, 9).text = "Occurrence (EPA, Dossiers + UCMR Data)"
        q = q + 1
    Loop
    Sheets("Plot").Range(Cells(q, 9), Cells(q + 1, 15)).Cut
    Range("I27").Select
    ActiveSheet.Paste
    Sheets("Master Occurrence").Activate
    i = 13
    Do Until Sheets("Master Occurrence").Cells(i, 2) = refnum
        i = i + 1
    Loop

    'change if needed master occurance length
    j = 24
    For k = 5 To 303
        If Sheets("Master Occurrence").Cells(i, k).value = "-" Then
        Else
```

```
value = Sheets("Master Occurrence").Cells(i, k)
units = Sheets("Master Occurrence").Cells(11, k)
datascore = Sheets("Master Occurrence").Cells(3, k)
norm = Sheets("Normalized Occ").Cells(i - 3, k)
parameter = Sheets("Master Occurrence").Cells(12, k)
reference = Sheets("Master Occurrence").Cells(10, k)
sample = Sheets("Master Occurrence").Cells(8, k)

If Sheets("Master Occurrence").Cells(i, k).Interior.ColorIndex = -4142 Then
   source = 1
Else
   source = 2
End If

If source = 1 Then
   Sheets("Plot").Cells(j, 9).value = parameter
   Sheets("Plot").Cells(j, 10).value = reference
   Sheets("Plot").Cells(j, 11).value = value
   Sheets("Plot").Cells(j, 12).value = units
   Sheets("Plot").Cells(j, 13).value = norm
   Sheets("Plot").Cells(j, 15).value = datascore
   Sheets("Plot").Cells(j, 16).value = p
   Sheets("Plot").Cells(j, 14).value = sample
   Sheets("Plot").Activate
   Sheets("Plot").Cells(j + 1, 1).Activate
   ActiveCell.Offset(1).EntireRow.Insert
   j = j + 1
Else 'If source = 2 Then
   R = 24
```

```
            Do Until Sheets("Plot").Cells(R, 8).value = "1"
               R = R + 1
            Loop
            Sheets("Plot").Cells(R, 9).value = parameter
            Sheets("Plot").Cells(R, 10).value = reference
            Sheets("Plot").Cells(R, 11).value = value
            Sheets("Plot").Cells(R, 12).value = units
            Sheets("Plot").Cells(R, 13).value = norm
            Sheets("Plot").Cells(R, 15).value = datascore
            Sheets("Plot").Cells(R, 8).ClearContents
            Sheets("Plot").Cells(R, 16).value = p
            Sheets("Plot").Cells(R + 1, 8).value = "1"
         End If
      End If
   Next k
   Sheets("Plot").Activate

'Enter Tox Data
Sheets("Master Tox").Activate
   w = 12
   Do Until Sheets("Master Tox").Cells(w, 3) = refnum
      w = w + 1
   Loop
   t = 24
   For e = 5 To 50
      If Sheets("Master Tox").Cells(w, e).value = "-" Then
      Else
         value = Sheets("Master Tox").Cells(w, e)
         units = Sheets("Master Tox").Cells(8, e)
```

```
        datascore = Sheets("Master Tox").Cells(2, e)
        norm = Sheets("Normalized Tox").Cells(w - 2, e)
        parameter = Sheets("Master Tox").Cells(11, e)
        reference = Sheets("Master Tox").Cells(10, e)

        Sheets("Plot").Cells(t, 1).value = parameter
        Sheets("Plot").Cells(t, 2).value = reference
        Sheets("Plot").Cells(t, 3).value = value
        Sheets("Plot").Cells(t, 4).value = units
        Sheets("Plot").Cells(t, 5).value = norm
        Sheets("Plot").Cells(t, 7).value = datascore
        t = t + 1
      End If
   Next e
'count the number of occurence parameters
For x = 24 To 100
      If Sheets("Plot").Cells(x, 16) = p Then
        c = c + 1
      End If
   Next x
Sheets("Plot").Activate

'count the number of Potency parameters
   For x = 24 To 35
      If Sheets("Plot").Cells(x, 1) = "" Then
        Else
          potencycount = potencycount + 1
      End If
   Next x
```

```
'Normalized Potency data paste for plot
   For f = 24 To 50
      If Sheets("Plot").Cells(f, 5).value = "" Then
      Else
      If c >= 1 Then
      normtoxcount = Sheets("Plot").Cells(f, 5).value
      Sheets("Plot").Range(Cells(z, 19), Cells(z + (c - 1), 19)) = normtoxcount
      toxdatascore = Sheets("Plot").Cells(f, 7).value
      Sheets("Plot").Range(Cells(z, 22), Cells(z + (c - 1), 22)) = toxdatascore
      z = z + c
      counter1 = counter1 + 1
      Else
      normtoxcount = Sheets("Plot").Cells(f, 5).value
      Sheets("Plot").Range(Cells(z, 19), Cells((z + c), 19)) = normtoxcount
      toxdatascore = Sheets("Plot").Cells(f, 7).value
      Sheets("Plot").Range(Cells(z, 22), Cells((z + c), 22)) = toxdatascore
      z = z + 1
      counter1 = counter1 + 1
   End If
   End If
   Next f

'Occ Data paste for plot
   Do Until Sheets("Plot").Cells(a, 16) = ""
      a = a + 1
      counter = counter + 1
   Loop
```

```
    Sheets("Plot").Range(Cells(24, 13), Cells(a - 1, 13)).Copy
    Sheets("Plot").Cells(20, 20).Select
    ActiveSheet.Paste
    'data score paste
    Sheets("Plot").Range(Cells(24, 15), Cells(a - 1, 15)).Copy
    Sheets("Plot").Cells(20, 23).Select
    ActiveSheet.Paste
    'data value paste
    Sheets("Plot").Range(Cells(24, 11), Cells(a - 1, 11)).Copy
    Sheets("Plot").Cells(20, 24).Select
    ActiveSheet.Paste
    b = a
  Do Until Sheets("Plot").Cells(a, 8) = "1"
    a = a + 1
  Loop

'Formatting Cells
  With Sheets("Plot").Range(Cells(b + 5, 9), Cells(a, 15))
    .Font.Size = 8
    .VerticalAlignment = xlCenter
  End With
  With Sheets("Plot").Range(Cells(b + 5, 13), Cells(a, 13))
    .Select
    Selection.NumberFormat = "0.00"
  End With
  With Sheets("Plot").Range(Cells(24, 5), Cells((24 + counter1), 5))
    .Select
    Selection.NumberFormat = "0.00"
  End With
```

```
    With Sheets("Plot").Range(Cells(24, 13), Cells(24 + counter, 13))
        .Select
        Selection.NumberFormat = "0.00"
    End With

'Copy EPA occurence Data to plot
    Sheets("Plot").Range(Cells(b + 5, 13), Cells(a, 13)).Copy
    Cells(20 + counter, 20).Select
    ActiveSheet.Paste
'count number of EPA occurrence paramters
    epacount = a - b - 1 - 4

'Change Color of EPA Data on plotting range
    If Sheets("Plot").Cells(b + 5, 9) = "" Then
        Else
        With Sheets("Plot").Range(Cells(20 + counter, 20), Cells((20 + counter + (a - (b + 6))), 20))
            .Interior.ColorIndex = 3
        End With
    End If

'data score paste
        Sheets("Plot").Range(Cells(b + 5, 15), Cells(a, 15)).Copy
        Cells(20 + counter, 23).Select
        ActiveSheet.Paste
'data value paste
        Sheets("Plot").Range(Cells(b + 5, 11), Cells(a, 11)).Copy
        Cells(20 + counter, 24).Select
        ActiveSheet.Paste
'Paste Group Norm Occ and Occ Data Score
```

```
    If c >= 1 Then
    Sheets("Plot").Range(Cells(20, 20), Cells(19 + c, 20)).Copy
       For x = 1 To (counter1 - 1)
          Cells(20 + (c * x), 20).Select
          ActiveSheet.Paste
       Next x
    Sheets("Plot").Range(Cells(20, 23), Cells(19 + c, 23)).Copy
       For x = 1 To (counter1 - 1)
          Cells(20 + (c * x), 23).Select
          ActiveSheet.Paste
       Next x
    Sheets("Plot").Range(Cells(20, 24), Cells(19 + c, 24)).Copy
    For x = 1 To (counter1 - 1)
       Cells(20 + (c * x), 24).Select
       ActiveSheet.Paste
    Next x
    End If

'Geometric Mean
    For x = 20 To (19 + (c * counter1))
       toxdatascore = Sheets("Plot").Cells(x, 22)
       occdatascore = Sheets("Plot").Cells(x, 23)
       geomean = Sqr(toxdatascore * occdatascore)
       Sheets("Plot").Cells(x, 21) = geomean
    Next x
    With Sheets("Plot").Range(Cells(20, 21), Cells(20 + x, 21))
       .Select
       Selection.NumberFormat = "0.00"
    End With
```

```
        Sheets("Plot").Activate


'wrap text
For n = 24 To 200
    If Sheets("Plot").Cells(n, 16) = p Then
        Sheets("Plot").Cells(n, 9).Select
            With Selection
                .HorizontalAlignment = xlGeneral
                .VerticalAlignment = xlBottom
                .WrapText = True
                .Orientation = 0
                .AddIndent = False
                .IndentLevel = 0
                .ShrinkToFit = False
                .ReadingOrder = xlContext
                .MergeCells = False
            End With
        Sheets("Plot").Range(Cells(n, 10), Cells(n, 15)).Select
            With Selection
                .VerticalAlignment = xlCenter
                .WrapText = False
                .Orientation = 0
                .AddIndent = False
                .IndentLevel = 0
                .ShrinkToFit = False
                .ReadingOrder = xlContext
                .MergeCells = False
            End With
    End If
```

```
Next n
'coloring the % detections for Project Data
   q = 24
   k = 24
   Do Until Sheets("Plot").Cells(q, 9) = "Occurrence (EPA, Dossiers + UCMR Data)"
      If Sheets("plot").Cells(k, 12) = "%" Then
         storevalue = Sheets("Plot").Cells(k, 13)
         storevalue1 = Sheets("Plot").Cells(q, 11)
            For o = 20 To x
               If storevalue = Sheets("plot").Cells(o, 20) And storevalue1 = Sheets("plot").Cells(o,
24).value Then
                  Cells(o, 20).Select
                  With Selection.Interior
                     .ColorIndex = 4
                  End With
               End If
            Next o
      End If
      k = k + 1
   q = q + 1
   Loop


'coloring the % detections for Epa Data
   Do Until Sheets("Plot").Cells(q, 8) = "1"
      If Sheets("plot").Cells(k, 12) = "%" Then
         storevalue = Sheets("plot").Cells(k, 13)
         storevalue1 = Sheets("plot").Cells(k, 11)
            For o = 20 To x
```

```
            If storevalue = Sheets("plot").Cells(o, 20) And storevalue1 = Sheets("plot").Cells(o,
24) Then
              Cells(o, 20).Select
              With Selection.Interior
                .ColorIndex = 5
              End With
            End If
          Next o
      End If
      k = k + 1
   q = q + 1
   Loop

'adding xy coordinates
 For o = 0 To (x - 21)
   strName = o
   ActiveSheet.ChartObjects("Chart 1").Activate
   Set rngXs = Sheets("Plot").Cells(RowCount, 20)
   Set rngYs = Sheets("Plot").Cells(RowCount, 19)
   ActiveChart.SeriesCollection.newseries
   ActiveChart.FullSeriesCollection(strName).Name = strName
   ActiveChart.FullSeriesCollection(strName).XValues = rngXs
   ActiveChart.FullSeriesCollection(strName).Values = rngYs
   RowCount = RowCount + 1
 Next o

'Adding Shapes and Sizes to Plot
For o = 20 To (x - 1)
'EPA Magnitude HIGH
```

```
    If Sheets("Plot").Cells(o, 21).value >= 0.75 And Sheets("Plot").Cells(o, 20).Interior.ColorIndex =
3 Then
        ActiveSheet.ChartObjects("Chart 1").Activate
        ActiveChart.FullSeriesCollection((o - 19)).Select
        With Selection
          .MarkerStyle = 5
          .MarkerSize = 9
        End With
        Selection.MarkerStyle = 3
        Selection.MarkerSize = 16
        Selection.Format.Fill.Visible = msoFalse
        With Selection.Format.line
          .Visible = msoTrue
          .ForeColor.ObjectThemeColor = msoThemeColorText1
          .ForeColor.TintAndShade = 0
          .ForeColor.Brightness = 0
        End With
'EPA Magnitude MEDIUM
    ElseIf Sheets("Plot").Cells(o, 21).value <= 0.75 And Sheets("Plot").Cells(o, 21).value >= 0.5 And
Sheets("Plot").Cells(o, 20).Interior.ColorIndex = 3 Then
        ActiveSheet.ChartObjects("Chart 1").Activate
        ActiveChart.FullSeriesCollection((o - 19)).Select
        With Selection
          .MarkerStyle = 5
          .MarkerSize = 9
        End With
        Selection.MarkerStyle = 3
        Selection.MarkerSize = 11
        Selection.Format.Fill.Visible = msoFalse
```

```
        With Selection.Format.line
          .Visible = msoTrue
          .ForeColor.ObjectThemeColor = msoThemeColorText1
          .ForeColor.TintAndShade = 0
          .ForeColor.Brightness = 0
        End With
'EPA Magnitude Low
   ElseIf Sheets("Plot").Cells(o, 21).value <= 0.5 And Sheets("Plot").Cells(o,
20).Interior.ColorIndex = 3 Then
        ActiveSheet.ChartObjects("Chart 1").Activate
        ActiveChart.FullSeriesCollection((o - 19)).Select
        With Selection
          .MarkerStyle = 5
          .MarkerSize = 9
        End With
        Selection.MarkerStyle = 3
        Selection.MarkerSize = 6
        Selection.Format.Fill.Visible = msoFalse
        With Selection.Format.line
          .Visible = msoTrue
          .ForeColor.ObjectThemeColor = msoThemeColorText1
          .ForeColor.TintAndShade = 0
          .ForeColor.Brightness = 0
        End With
'Project Magnitude High
   ElseIf Sheets("Plot").Cells(o, 21).value >= 0.75 And Sheets("Plot").Cells(o,
20).Interior.ColorIndex = -4142 Then
        ActiveSheet.ChartObjects("Chart 1").Activate
        ActiveChart.FullSeriesCollection((o - 19)).Select
```

```
        With Selection
          .MarkerStyle = 8
          .MarkerSize = 9
        End With
        Selection.MarkerStyle = 8
        Selection.MarkerSize = 16
        Selection.Format.Fill.Visible = msoFalse
        With Selection.Format.line
          .Visible = msoTrue
          .ForeColor.ObjectThemeColor = msoThemeColorText1
          .ForeColor.TintAndShade = 0
          .ForeColor.Brightness = 0
        End With
'Project Magitude Medium
    ElseIf Sheets("Plot").Cells(o, 21).value <= 0.75 And Sheets("Plot").Cells(o, 21).value >= 0.5 And
Sheets("Plot").Cells(o, 20).Interior.ColorIndex = -4142 Then
        ActiveSheet.ChartObjects("Chart 1").Activate
        ActiveChart.FullSeriesCollection((o - 19)).Select
        With Selection
          .MarkerStyle = 8
          .MarkerSize = 9
        End With
        Selection.MarkerStyle = 8
        Selection.MarkerSize = 11
        Selection.Format.Fill.Visible = msoFalse
        With Selection.Format.line
          .Visible = msoTrue
          .ForeColor.ObjectThemeColor = msoThemeColorText1
          .ForeColor.TintAndShade = 0
```

```
            .ForeColor.Brightness = 0
        End With
'Project Magitude Low
    ElseIf Sheets("Plot").Cells(o, 21).value <= 0.5 And Sheets("Plot").Cells(o,
20).Interior.ColorIndex = -4142 Then
        ActiveSheet.ChartObjects("Chart 1").Activate
        ActiveChart.FullSeriesCollection((o - 19)).Select
        With Selection
            .MarkerStyle = 8
            .MarkerSize = 9
        End With
        Selection.MarkerStyle = 8
        Selection.MarkerSize = 6
        Selection.Format.Fill.Visible = msoFalse
        With Selection.Format.line
            .Visible = msoTrue
            .ForeColor.ObjectThemeColor = msoThemeColorText1
            .ForeColor.TintAndShade = 0
            .ForeColor.Brightness = 0
        End With
'EPA Prevalence High
    ElseIf Sheets("Plot").Cells(o, 21).value >= 0.75 And Sheets("Plot").Cells(o,
20).Interior.ColorIndex = 5 Then
        ActiveSheet.ChartObjects("Chart 1").Activate
        ActiveChart.FullSeriesCollection((o - 19)).Select
        With Selection
            .MarkerStyle = 9
            .MarkerSize = 9
        End With
```

```
        Selection.MarkerStyle = 9
        Selection.MarkerSize = 16
        Selection.Format.Fill.Visible = msoTrue
        With Selection.Format.line
          .Visible = msoTrue
          .ForeColor.ObjectThemeColor = msoThemeColorText1
          .ForeColor.TintAndShade = 0
          .ForeColor.Brightness = 0
        End With
'EPA Prevalence Medium
   ElseIf Sheets("Plot").Cells(o, 21).value <= 0.75 And Sheets("Plot").Cells(o, 21).value >= 0.5 And
Sheets("Plot").Cells(o, 20).Interior.ColorIndex = 5 Then
        ActiveSheet.ChartObjects("Chart 1").Activate
        ActiveChart.FullSeriesCollection((o - 19)).Select
        With Selection
          .MarkerStyle = 9
          .MarkerSize = 9
        End With
        Selection.MarkerStyle = 9
        Selection.MarkerSize = 11
        Selection.Format.Fill.Visible = msoTrue
        With Selection.Format.line
          .Visible = msoTrue
          .ForeColor.ObjectThemeColor = msoThemeColorText1
          .ForeColor.TintAndShade = 0
          .ForeColor.Brightness = 0
        End With
'EPA Prevalence Low
```

```
   ElseIf Sheets("Plot").Cells(o, 21).value <= 0.5 And Sheets("Plot").Cells(o,
20).Interior.ColorIndex = 5 Then

        ActiveSheet.ChartObjects("Chart 1").Activate

        ActiveChart.FullSeriesCollection((o - 19)).Select

        With Selection

          .MarkerStyle = 9

          .MarkerSize = 9

        End With

        Selection.MarkerStyle = 9

        Selection.MarkerSize = 6

        Selection.Format.Fill.Visible = msoTrue

        With Selection.Format.line

          .Visible = msoTrue

          .ForeColor.ObjectThemeColor = msoThemeColorText1

          .ForeColor.TintAndShade = 0

          .ForeColor.Brightness = 0

        End With

'Project Prevalence High

   ElseIf Sheets("Plot").Cells(o, 21).value >= 0.75 And Sheets("Plot").Cells(o,
20).Interior.ColorIndex = 4 Then

        ActiveSheet.ChartObjects("Chart 1").Activate

        ActiveChart.FullSeriesCollection((o - 19)).Select

        With Selection

          .MarkerStyle = -4168

          .MarkerSize = 9

        End With

        Selection.MarkerStyle = -4168

        Selection.MarkerSize = 16

        Selection.Format.Fill.Visible = msoTrue
```

```
        With Selection.Format.line
          .Visible = msoTrue
          .ForeColor.ObjectThemeColor = msoThemeColorText1
          .ForeColor.TintAndShade = 0
          .ForeColor.Brightness = 0
        End With
'Project Prevalence Medium
   ElseIf Sheets("Plot").Cells(o, 21).value <= 0.75 And Sheets("Plot").Cells(o, 21).value >= 0.5 And
Sheets("Plot").Cells(o, 20).Interior.ColorIndex = 4 Then
        ActiveSheet.ChartObjects("Chart 1").Activate
        ActiveChart.FullSeriesCollection((o - 19)).Select
        With Selection
          .MarkerStyle = -4168
          .MarkerSize = 9
        End With
        Selection.MarkerStyle = -4168
        Selection.MarkerSize = 11
        Selection.Format.Fill.Visible = msoTrue
        With Selection.Format.line
          .Visible = msoTrue
          .ForeColor.ObjectThemeColor = msoThemeColorText1
          .ForeColor.TintAndShade = 0
          .ForeColor.Brightness = 0
        End With
'Poject Prevalence Low
   ElseIf Sheets("Plot").Cells(o, 21).value <= 0.5 And Sheets("Plot").Cells(o,
20).Interior.ColorIndex = 4 Then
        ActiveSheet.ChartObjects("Chart 1").Activate
        ActiveChart.FullSeriesCollection((o - 19)).Select
```

```
        With Selection
          .MarkerStyle = -4168
          .MarkerSize = 9
        End With
        Selection.MarkerStyle = -4168
        Selection.MarkerSize = 6
        Selection.Format.Fill.Visible = msoTrue
        With Selection.Format.line
          .Visible = msoTrue
          .ForeColor.ObjectThemeColor = msoThemeColorText1
          .ForeColor.TintAndShade = 0
          .ForeColor.Brightness = 0
        End With
    End If
Next o
'format x and y axis
    ActiveSheet.ChartObjects("Chart 1").Activate
    ActiveChart.Axes(xlCategory).Select
    Selection.TickLabels.NumberFormat = "0"
    ActiveChart.Axes(xlCategory).MinimumScale = 0
    ActiveChart.Axes(xlCategory).MaximumScale = 10
    ActiveChart.Axes(xlCategory).MajorUnit = 1
    ActiveSheet.ChartObjects("Chart 1").Activate
    ActiveChart.Axes(xlValue).Select
    ActiveChart.Axes(xlValue).MinimumScale = 0
    ActiveChart.Axes(xlValue).MaximumScale = 10
    ActiveChart.Axes(xlValue).MajorUnit = 1

'add algorium titles
```

```
    title = Sheets("Grouping").Cells(13, 11)
    formula = Sheets("Grouping").Cells(14, 11)
    algorithm = Sheets("Grouping").Cells(15, 11)
    score = Sheets("Grouping").Cells(16, 11)
    rank = Sheets("Grouping").Cells(17, 11)
    percentile = Sheets("Grouping").Cells(18, 11)
    Sheets("Plot").Cells(36, 1) = title
    Sheets("Plot").Cells(36, 2) = formula
    Sheets("Plot").Cells(36, 3) = algorithm
    Sheets("Plot").Cells(36, 4) = score
    Sheets("Plot").Cells(36, 5) = rank
    Sheets("Plot").Cells(36, 6) = percentile
    Sheets("Plot").Range(Cells(36, 1), Cells(36, 6)).Select
    With Selection
       .Font.Size = 10
    End With

'moving text box
    Sheets("Grouping").Activate
    ActiveSheet.Shapes.Range(Array("TextBox 1")).Select
    Selection.Copy
    Sheets("Plot").Select
    Range("T12").Select
    ActiveSheet.Paste
    Sheets("Grouping").Select
    ActiveSheet.Shapes.Range(Array("TextBox 2")).Select
    Selection.Copy
    Sheets("Plot").Select
    Range("U12").Select
```

```
    ActiveSheet.Paste
    Selection.ShapeRange.IncrementLeft 34.5651968504
    Selection.ShapeRange.IncrementTop -1.3044094488

'adding P, Pr, and M
w = 14
Do Until Sheets("Potency").Cells(w, 2) = refnum
        w = w + 1
Loop
        Potency1 = Sheets("Potency").Cells(w, 8)
        Potency2 = Sheets("Potency").Cells(w, 9)
        Potency3 = Sheets("Potency").Cells(w, 7)
        Pr1 = Sheets("Prevalence").Cells(w, 8)
        Pr2 = Sheets("Prevalence").Cells(w, 9)
        Pr3 = Sheets("Prevalence").Cells(w, 7)
        Mag1 = Sheets("Magnitude").Cells(w, 8)
        Mag2 = Sheets("Magnitude").Cells(w, 9)
        Mag3 = Sheets("Magnitude").Cells(w, 7)
        Sheets("Plot").Cells(10, 11) = Potency1
        Sheets("Plot").Cells(11, 11) = Potency2
        Sheets("Plot").Cells(12, 11) = Potency3
        Sheets("Plot").Cells(10, 12) = Pr1
        Sheets("Plot").Cells(11, 12) = Pr2
        Sheets("Plot").Cells(12, 12) = Pr3
        Sheets("Plot").Cells(10, 13) = Mag1
        Sheets("Plot").Cells(11, 13) = Mag2
        Sheets("Plot").Cells(12, 13) = Mag3

'adding algorithium values and text
```

```
        a = 37
        i = 42
        x = 40
        Do Until Sheets("Algorithms").Cells(13, x) = 9
        x = i
        title = Sheets("Algorithms").Cells(14, i)
        formula = Sheets("Algorithms").Cells(15, i)
        algorithm = Sheets("Algorithms").Cells(2, i)
        score1 = Sheets("Algorithms").Cells(w + 4, i + 1)
        Sheets("Plot").Cells(a, 1) = title
        Sheets("Plot").Cells(a, 2) = formula
        Sheets("Plot").Cells(a, 3) = algorithm
        Sheets("Plot").Cells(a, 4) = score1
        a = a + 1
        i = i + 5
        Loop

'editing potency and algorithms
    Range("A36:F36").Select
    Selection.Font.Bold = True
    With Selection
        .HorizontalAlignment = xlCenter
        .VerticalAlignment = xlCenter
    End With
    With Selection.Borders(xlEdgeTop)
        .LineStyle = xlContinuous
        .Weight = xlThin
    End With
    With Selection.Borders(xlEdgeBottom)
```

```
    .LineStyle = xlContinuous
    .Weight = xlMedium
End With
Range("F36").Select
Selection.WrapText = True
Range("A37:F49").Select
With Selection
    .Font.Size = 8
    .VerticalAlignment = xlCenter
End With
Range("D37:D49").Select
Selection.NumberFormat = "0.00000000"
Selection.NumberFormat = "0.0000000"
Selection.NumberFormat = "0.000000"
Selection.NumberFormat = "0.00000"
Selection.NumberFormat = "0.0000"
Selection.NumberFormat = "0.000"
Selection.NumberFormat = "0.00"
Selection.NumberFormat = "0.0"
Range("f37:f49").Select
Selection.NumberFormat = "0.00"
Range("B37:F49").Select
Selection.HorizontalAlignment = xlCenter
Range("A37:A49").Select
Selection.VerticalAlignment = xlCenter
Range("A37:A42").Select
Selection.WrapText = True
Range("A47:A49").Select
Selection.WrapText = True
```

```
    Range(Cells(24, 1), Cells(24 + potencycount, 7)).Select
    Selection.Font.Size = 8
    Selection.VerticalAlignment = xlCenter
    Range(Cells(24, 2), Cells(24 + potencycount, 7)).Select
    Selection.HorizontalAlignment = xlCenter
    epacount = a - b - 1

'ranking and percentile
    a = 37
    x = 1
    w = 3
    For i = 1 To 9
    Do Until Sheets("Ranking for Plot").Cells(1, x) = i
    x = x + 1
    Loop
    w = 3
    Do Until Sheets("Ranking for Plot").Cells(w, x) = refnum
       w = w + 1
    Loop
       rk = Sheets("Ranking for Plot").Cells(w, x + 1)
       per = Sheets("Ranking for Plot").Cells(w, x + 2)
       Sheets("Plot").Cells(a, 5) = rk
       Sheets("Plot").Cells(a, 6) = per
       a = a + 1
    Next i

'Text Cells (Merged cells)
    'Sheets("Plot").Cells(51, 1) = "Occurrence Notes:"
```

```
'Sheets("Plot").Cells(61, 1) = "Potency Notes:"
    'Range("A52:G60").Select
        'With Selection
            '.HorizontalAlignment = xlLeft
            '.VerticalAlignment = xlTop
            '.WrapText = True
            '.MergeCells = True
        'End With
        'With Selection.Borders(xlEdgeLeft)
            '.LineStyle = xlContinuous
        'End With
        'With Selection.Borders(xlEdgeTop)
            '.LineStyle = xlContinuous
        'End With
        'With Selection.Borders(xlEdgeBottom)
            '.LineStyle = xlContinuous
        'End With
        'With Selection.Borders(xlEdgeRight)
            '.LineStyle = xlContinuous
        'End With
    'Range("A62:G70").Select
        'With Selection
            '.HorizontalAlignment = xlLeft
            '.VerticalAlignment = xlTop
            '.WrapText = True
            '.MergeCells = True
        'End With
        'With Selection.Borders(xlEdgeLeft)
            '.LineStyle = xlContinuous
```

```
        'End With
        'With Selection.Borders(xlEdgeTop)
            '.LineStyle = xlContinuous
        'End With
        'With Selection.Borders(xlEdgeBottom)
            '.LineStyle = xlContinuous
        'End With
        'With Selection.Borders(xlEdgeRight)
            '.LineStyle = xlContinuous
        'End With

'Copy and paste notes
    'w = 1
    'Do Until Sheets("Notes").Cells(w, 2) = refnum
        'w = w + 1
    'Loop
    'Sheets("Notes").Cells(w, 3).Copy
    'Sheets("Plot").Cells(52, 1).Select
    'ActiveSheet.Paste

    'Sheets("Notes").Cells(w, 4).Copy
    'Sheets("Plot").Cells(62, 1).Select
    'ActiveSheet.Paste

    'Sheets("Plot").Cells(52, 1).Select
    'Selection.Font.Size = 10
    'Sheets("Plot").Cells(62, 1).Select
    'Selection.Font.Size = 10
```

```
'adding n values for EPA data
      w = 1
      x = 24
      c = 1
      Do Until Sheets("EPA n").Cells(w, 1) = refnum
        w = w + 1
      Loop
      Do Until Sheets("plot").Cells(x, 9) = "Occurrence (EPA, Dossiers + UCMR Data)"
        x = x + 1
      Loop
      For row1 = x To (x + 40)
        If Sheets("plot").Cells((row1 + 2), 9) = "" Then
        Else
          store = Sheets("plot").Cells((row1 + 2), 10)
          c = 1
          Do Until Sheets("EPA n").Cells(4, c) = store
            c = c + 1
           Loop

          storen = Sheets("EPA n").Cells(w, c)
          Sheets("Plot").Cells((row1 + 2), 14) = storen
        End If
      Next row1

'Average Potency, Magnitude and Prevelance for each compount
    Sheets("Group").Range("K9:L100").ClearContents
    w = 1
    row1 = 9
    row2 = 9
```

```
    Do Until Sheets("Group").Cells(w, 2) = refnum
            w = w + 1
        Loop
     average1 = Application.WorksheetFunction.average(Sheets("Plot").Range(Cells(24, 5),
Cells(23 + potencycount, 5)))
     Sheets("Group").Cells(w, 4) = average1
  x = 24
  Do Until Sheets("plot").Cells(x, 8) = "1"
    If Sheets("plot").Cells(x, 12) = "%" Then
       storevalue = Sheets("Plot").Cells(x, 13)
       Sheets("Group").Cells(row1, 12) = storevalue
       row1 = row1 + 1
       Prevcount = Prevcount + 1
    ElseIf Sheets("plot").Cells(x, 12) = "ug/L" Then
       storevalue = Sheets("Plot").Cells(x, 13)
       Sheets("Group").Cells(row2, 11) = storevalue
       row2 = row2 + 1
       Magcount = Magcount + 1
    End If
       x = x + 1
  Loop
     Sheets("Group").Activate
    average2 = Sheets("Group").Cells(9, 9)
    average3 = Sheets("Group").Cells(9, 10)
    Sheets("Group").Cells(w, 5) = average2
    Sheets("Group").Cells(w, 6) = average3

'addding grouping to ranking
     'x = 101
```

```
        'For a = 6 To 129
           'refnum1 = Sheets("Ranking").Cells(a, x)
           'w = 1
        'Do Until Sheets("Grouping").Cells(w, 2) = refnum1
           'w = w + 1
        'Loop’
        'Group = Sheets("Grouping").Cells(w, 3)
        'Subgroup = Sheets("Grouping").Cells(w, 4)
        'Sheets("Ranking").Cells(a, x + 4) = Group
        'Sheets("Ranking").Cells(a, x + 5) = Subgroup
        ''Next a
With Sheets("Plot").Range(Cells(b + 5, 9), Cells(100, 15))
        .Font.Size = 8
        .VerticalAlignment = xlCenter
End With
    Sheets("Plot").Activate
    Sheets("Plot").Cells(1, 2).Select
 End Sub
```