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# An Analysis of Variations in Published Secondary Electron Yield Measurements of Copper

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***An Analysis of Variations in Published Secondary Electron  
Yield Measurements of Copper \****

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***Abstract***

Secondary Electron Yield (SEY) is a critical material property that has had many different values reported in scientific literature for specific elements and compounds. SEY gauges the number of emitted electrons per incident electron and is a basic material property that is of critical importance for many physics-based applications. A study has been conducted on copper to identify the relative importance and origins of variations of SEY vs. incident energy curves. Variations may result from or be attributed to: bulk composition and impurities, surface modification (including roughness, oxidation, and contamination); sample modification (including thermal annealing and ion sputtering); sample charging; instrumentation effects (including collector efficiency and stray fields); and absolute calibrations techniques. Agreement between the various curves for copper found in the literature, is underwhelming, with a variation of ~60% observed. These results support the need to develop a detailed database of electron yield curves that include, where available, pertinent materials and background information for each study.

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