

FROM FIBER TO FABRIC: ACRYLIC

INTRODUCTION

First manufactured in Germany in 1893, acrylic was created with similar characteristics and properties of wool. The E.I. Dupont Company then introduced acrylic into the United States market in 1950. By 1991, acrylic became a widely used fabric for sweaters, blankets, and other items that consumers needed to wash and wear often. Acrylic fibers can be produced using one of two methods. The first is most commonly known as wet and dry spinning. This process produces fibers with very different characteristics; because of this, customers are required to follow the care labels exactly when the garment enters the laundering process (Kadolph, Langford, Hallen & Saddler, 1993).

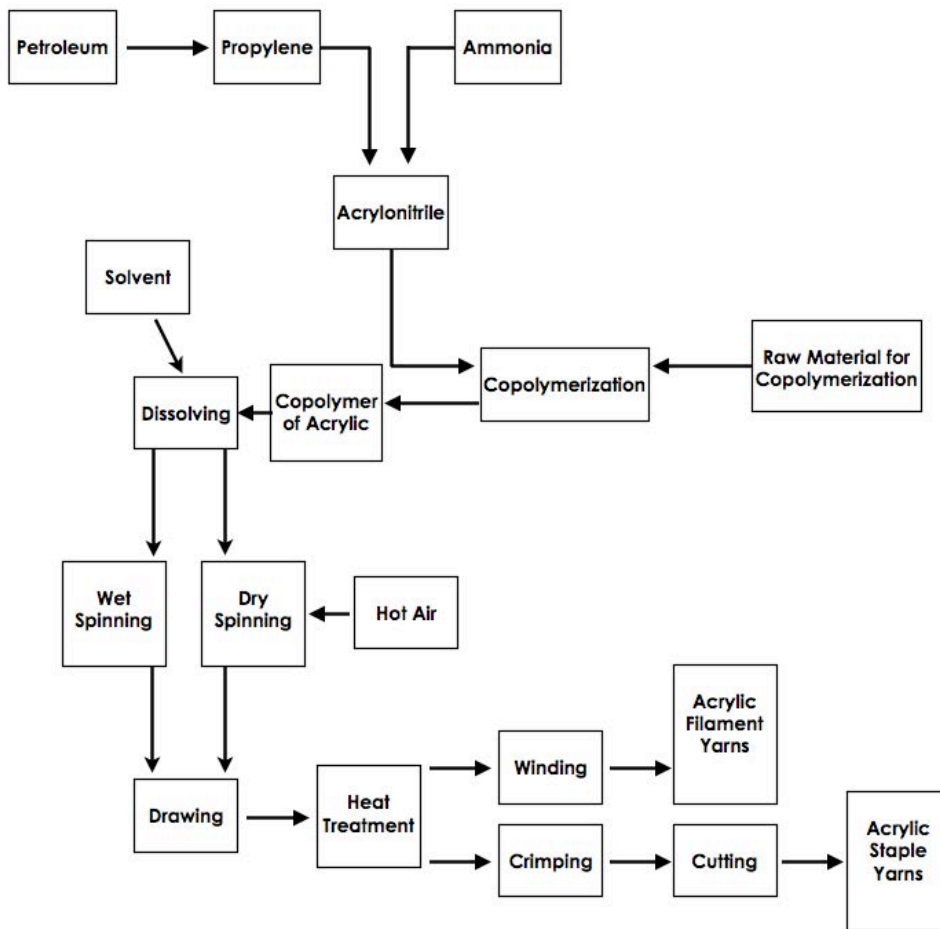


Figure 1: Manufacturing process for acrylic fibers.

Even though acrylic can be considered a replacement for wool, there are some differences and similarities between wool and acrylic. Like wool, acrylic is crimped when it goes through the dry spinning process, but acrylic unlike wool provides bulk and warmth with no excess weight (Kadolph, Langford, Hallen & Saddler, 1993). Due to the fact that acrylic is the best substitute for wool, it is readily available to consumers and is significantly less expensive (Cohen & Johnson, 2010).

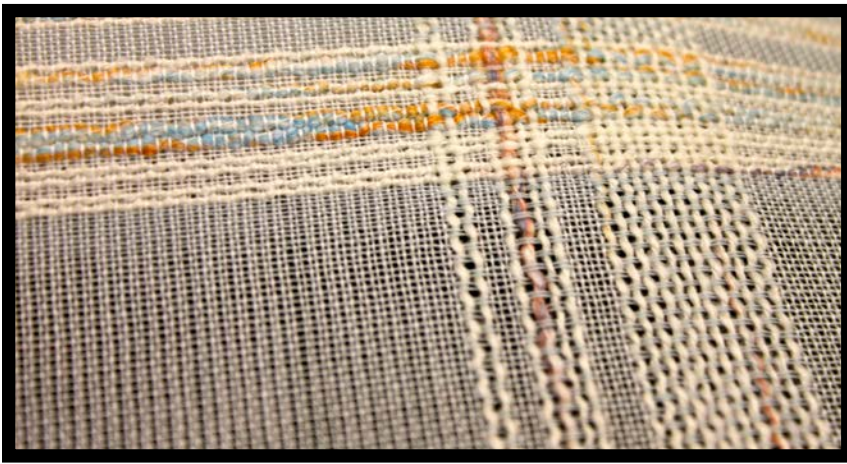


Figure 3: Acrylic fabric.

DISADVANTAGES OF ACRYLIC FABRIC:

- Susceptible to stretching and shrinkage
- Fair strength
- Hydrophobic nature results in static electricity and pilling
- Decomposes and discolors when exposed to extreme heat



Figure 4: Fiber content label for acrylic blend fabric.

ADVANTAGES OF ACRYLIC FABRIC:

- Lightweight
- Good resiliency (fabric returns to original shape and form after washing or being altered)
- Good elasticity (the fabric can stretch and recover after tension is created)
- Soft hand
- Provides warmth to wearer
- Wicks moisture away from skin
- Excellent resistance to sunlight and weathering
- Washable (depending on type and finish)

END USES OF ACRYLIC FABRIC:

- Apparel: sweaters, socks, fleece fabrics, knitted apparel
- Interior: window treatments (some drapery includes acrylic fabric), furniture coverings, and rugs
- Industrial: awnings, luggage, boat and vehicle covers
- Miscellaneous: blankets, stuffed animals (fur)



Figure 5: Care label for acrylic blend fabric.

REFERENCES:

- Cohen, A.C., & Johnson, I. (2010). *J.J. pizzuto's fabric science* (9th ed.). New York: Fairchild Books.
- Kadolph, S.J., Langford, A.L., Hollen, N., & Saddler, J. (1993). *Textiles* (7th ed.). New York: Macmillan Publishing Company.
- Liddell, L., & Samuels, C. (2012). *Apparel: Design, textiles & construction* (10th ed.). Tinley Park, IL: Goodheart-Wilcox.

Kate Black, USU Extension Intern
Lindsey Shirley, PhD, Clothing and Textiles Specialist

Sarah Hatch, USU Extension Intern
Jacqueline Hatch, USU Extension Intern



Utah State University
COOPERATIVE EXTENSION

Utah State is an affirmative action / equal opportunity institution.



FIBER & FABRIC
BASICS

Utah State University is committed to providing an environment free from harassment and other forms of illegal discrimination based on race, color, religion, sex, national origin, age (40 and older), disability, and veteran's status. USU's policy also prohibits discrimination on the basis of sexual orientation in employment and academic related practices and decision.

Utah State University employees and students cannot, because of race, color, religion, sex, national origin, age, disability, or veteran's status, refuse to hire; discharge; promote; demote; terminate; discriminate in compensation; or discriminate regarding terms, privileges, or conditions of employment, against any person otherwise qualified. Employees and students also cannot discriminate in the classroom, residence halls, or in on/off campus, USU-sponsored events and activities.

This publication is issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Noelle E. Cockett, Vice President for Extension and Agriculture, Utah State University.(FC/Clothing&Textiles/2012-20pr)