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Fibers into fashions: Monsanto Textiles

Anonymous
The clothes on your back might have started out as a tiny synthetic fiber a fraction of the size of one of the hairs on your head. A major producer of these man-made fibers is the Monsanto Textiles Company, an operating unit of Monsanto Company. The latter is a client of the H&S St. Louis office. At Monsanto, fiber production is just one aspect of a company whose products touch on just about every phase of our daily lives. And in a fast-paced world of changing lifestyles, Monsanto is constantly searching for new ideas that will help it make fibers that can better answer the needs of modern consumers.

Synthetic fibers, fibers produced through a chemical process, first came into use during the 1930s. Shortly after the Second World War, the Monsanto Chemical Company began investigating the possibilities for mass production of synthetics. In 1949 Monsanto joined forces with the American Viscose Corporation to form Chemstrand Corporation, which soon became one of the world's largest producers of chemical textile fibers. Today Monsanto manufactures four types of synthetic fiber—Acrylonitrite, nylon, polyester and modacrylic. These fibers are turned into yarns and then by customers for use in apparel, hosiery, carpeting, home furnishings and tire cord.

One person at Monsanto Textiles in New York, women's-sweater merchandising. Nancy Schaefer, has developed an unusual merchandising technique that takes into account the concerns of garment manufacturers and designers, as well as those of the buying public, in fiber production. In order to demonstrate what Monsanto Textiles can do for the sweater industry, Nancy became a merchandiser, designer, knitter and promotion writer wrapped up in one. She has the fibers made into yarns and then knits the yarn into clothing she has designed herself. "By making yarns into actual garments," Nancy explains, "we can give the clothing manufacturers a better idea of how they can be used."

A graduate of Iowa State University, Nancy joined Monsanto in 1974 after receiving a B.S. degree in fashion merchandising and design. Her first six months with Monsanto were spent in a training program at the Decatur, Alabama plant. "The laboratory in the Decatur plant," Nancy recalls, "is where experimentation with new fibers takes place. While I was there I was able to get a closeup view of the testing procedures used in the development of fibers and yarns. This firsthand knowledge of production techniques was very valuable to me when I came to New York as a women's sweater merchandiser, because it gave me a better idea of exactly what can be done with fiber."

Nancy Schaefer shows a garment manufacturer a sweater outfit she knitted with yarn made from Monsanto fiber. Nancy designs and then knits garments with a computerized machine in order to give clothing designers a better idea of what can be accomplished with various types of yarns.
Monsanto Textiles

Fibers into Fashions
As a sweater merchandiser, Nancy is concerned with marketing Acrilan acrylic fiber for use in all types of knitted garments. Acrilan was the first synthetic produced by Monsanto when it opened its Decatur plant in 1952. The chemical base for Acrilan is acrylonitrile, a colorless liquid derived from natural gas and oil. The acrylonitrile molecules are heated in a reactor for several hours until they combine to form larger molecules, or polymers. When the polymerization process is completed, the white, powder-like substance that has been created is put into a dissolver, where it liquifies into a honeylike spinning solution called dope. Once the dope has been filtered and the moisture content reduced, the spinning solution passes through spinnerettes, small metal plates with tiny holes, and filaments are formed. The filaments are then extruded into a coagulation bath where they adhere to each other and become fibers. The fibers are washed, dried, stretched, cut and cramped, and then remain as synthetic staple, a tumbled mass of short fibers of random length, or are made into tow, mile-long continuous strands that contain thousands of unbroken filaments.

At this stage, the fibers are sent to the yarn spinners where they must undergo a series of production steps before they become yarn usable by the knitter. In the case of synthetic tow, which is a continuous rope, the filaments must be pulled and broken into short pieces with the airy texture necessary for most knitting. This stretching and breaking process is accomplished by passing the filaments through a series of rollers in order first to shorten, and then flatten, tighten and respace the filaments to form a sliver which has the proper bulk and strength to be made into knitting yarn. If the fiber arrives at the yarn spinners in the form of synthetic staple, it must first go through the carding process during which it is straightened and organized into lengths of parallel strands. This is done by moving the staple through huge revolving cylinders which have tiny, sharp steel teeth that constantly comb, separate and straighten the filaments. The next step in the drawing and blending process during which the sliver is gently pulled in order to lengthen it and reduce its diameter. At the same time, it is constantly being combed by metal teeth so that the fibers will not become entangled. During the roving and spinning procedures, the sliver is further drawn out and given a twist for strength, forming a single strand of yarn. Since most knitted garments are made from multi-ply rather than single-ply yarns, the individual strands are twisted together until they reach the size desired by the manufacturer. Finally, the yarn is wound onto cones and dyed.

"The yarn is the finished product that designers and manufacturers must work with," Nancy points out, "but unlike working with a fabric which has a distinct weight, color and pattern, it is often difficult for people in the fashion world to relate a cone of yarn to a finished garment. I became aware of this problem shortly after I became involved in the sweater merchandising program, and my solution was to find a way to show buyers the fashion possibilities of a particular yarn by knitting it into a particular style."

What started out as a school project and turned into a useful hobby eventually provided Nancy with a key asset for her work at Monsanto. "Using the knitting machine," Nancy said, "gave me a basic understanding of numerous knitting stitches. It also provided me with insight into what yarns are best for different types of garments. All of this knowledge, of course, helps me understand and meet the needs of the consumer and the garment manufacturers."

Before she began knitting garments to show manufacturers, Nancy needed to get some ideas on what would interest them. "I started out by taking to a lot of different people both inside and outside Monsanto. At Monsanto I spoke to salespeople, designers and other merchandisers, and I worked closely with the people in our Decatur plant in order to get a better understanding of exactly what can be done with the yarns from a technical standpoint. Then I went out on cold calls to garment manufacturers and simply asked them what they wanted Monsanto to do for them in the way of yarn production."

Nancy, who's been sewing since she was seven years old, does her knitting on a computerized machine that she first became familiar with while working on an independent study project in college. "I was given a $100 grant which allowed me to explore the potential of the computerized machine," Nancy said, "and the more I worked on it, the more intrigued I became. I was eventually able to buy the machine and have been knitting dresses, skirts, sweaters—all types of garments—I do for myself and for my friends ever since!"
After talking with all of these people, Nancy had a better understanding of what fashions were popular in the sweater market, and she began experimenting with various yarns, stitches and styles so that the manufacturers could see for themselves which yarns would be most effective for each individual garment. "There are many characteristics," Nancy explained, "that determine the proper yarn for a particular article of clothing. Before the manufacturers select a yarn they must consider the weight, diameter, how it will dye, how well it blends with other yarns, its cross-sectional shape and texture. Once the yarn has been chosen, the manufacturer must decide what kind of stitch to use. The most popular stitch by far is the jersey, a very small, tight knit that's used in 90 percent of all garments in the sweater market."

In designing and making her demonstration garments, Nancy has become a keen observer of today's ever-changing fashion trends. "Sweaters have experienced a real upsurge in popularity recently," she noted, "and there is new interest in coordinating fabric with knitted material in the same garment. Patterned full sleeves that are gathered at the cuff and the cowl neckline are also very big in sweater design today."

After Nancy has interested the manufacturers in Monsanto products through her unique merchandising methods, an important part of her job is to convince them of the benefits of participating in the Wear-Dated program, an unusual technique first introduced by Monsanto in 1962 as a means of protecting the consumer. Very simply, Monsanto promises on any garment that wears its red and yellow Wear-Dated tag that "you get what you pay for or we pay for it." Monsanto provides a refund or replacement if the buyer finds any defect in a Wear-Dated product during one full year of normal wear. "Monsanto warrants everything on Wear-Dated items," Nancy explains, "including zippers, seams, colorfastness and shrink-resistance. Therefore, each garment must undergo a series of stringent tests before it is Wear-Dated to insure that it will live up to our exacting standards." Each product is tested for shrinkage, seam strength, abrasion resistance, pilling and any other relevant qualities. Even after a garment has been Wear-Dated, Monsanto sends field representatives to retail outlets to inspect the clothes on the racks and make sure they are continuing to conform to the original standards.

"The benefits of this program to the consumer are obvious," Nancy said, "but manufacturers also have a great deal to gain from Wear-Dating their products. During the inspection process, for instance, our technicians are able to help with laboratory and production problems such as finding the right fiber blend or developing a new dyeing technique. As a merchandiser, I provide assistance with promotion and advertising campaigns for Wear-Dated garments. Millions of dollars in advertising have kept the Wear-Dated name in the public eye so that it assures buyers that they are getting the highest-quality products for their money."

The Wear-Dated program has achieved worldwide recognition, and over $6 billion worth of merchandise bears the familiar red and yellow tag. "This rapid growth," Nancy said, "is proof of Wear-Dating's success."

The success of the Wear-Dated program is testimony to the fact that a company that takes into consideration the needs of the consumer gains respect and loyalty from the buying public. By her concern for her customers' interests, Nancy Schaeffer is following a similar path that should prove beneficial to her and to Monsanto.

Nancy Schaeffer (l.), designer for New York City-based sweater manufacturer Sidney Gould, Inc., and her assistant Rosanna Buonocore select the proper yarn to be used in the production of a new sweater. By monitoring fashion trends through close contact with manufacturers, Nancy is able to get a better idea of what types of fibers Monsanto should be developing.