



# TEXTILE TOPICS

TEXTILE RESEARCH CENTER • TEXAS TECH UNIVERSITY • LUBBOCK, TEXAS • USA

Volume XI, No. 5  
January 1983

**DATE CHANGED FOR HVI CONFERENCE** The conference on the use of high volume instruments (HVI) that was announced in the December issue of *Textile Topics* has been rescheduled for March 21, 1983. This was originally scheduled for March 7. It is an interesting bit of irony that we mailed December's *Topics* one morning and learned during the afternoon of the same day that the conference would have to be delayed by two weeks. The program will be the same as originally planned.

Because it appears there may be a rather large attendance at this meeting, we have decided to hold it in the Lubbock Memorial Civic Center. It will begin at 1:50 p.m. and is expected to be completed by about 5:30 p.m. For those coming from outside Lubbock, we are including a list of hotels. All of these are quite close to the Civic Center and should be convenient for rooms and meals.

Again, we want to emphasize that the date for this HVI conference has been rescheduled for *Monday afternoon, March 21, 1983*. We hope to see many of you there.

Holiday Inn Civic Center  
801 Avenue Q  
Lubbock, TX 79401  
806/763-1200

Lubbock Hilton Inn  
505 Avenue Q  
Lubbock, TX 79401  
806/747-0171

La Quinta Motor Inn  
601 Avenue Q  
Lubbock, TX 79401  
806/763-9441

Civic Center Inn  
1202 Main  
Lubbock, TX 79401  
806/762-0681

**DURABLE-PRESS FINISH RESEARCH** Programs at the Textile Research Center include investigation of textile fibers, processing research, fabric development, and dyeing and finishing. *Textile Topics* is not designed to cover all of these, but we try to give brief reports on subjects that seem to be of interest to our readers. This month we are presenting a summary of a program dealing with what may be a new method of applying durable-press finish to fabrics made from cotton. The following was prepared by Dr. R. D. Mehta of the TRC staff.

The Moist-Cure process for imparting easy-care, durable-press finish to cellulosic textiles is widely used by several manufacturers in the United Kingdom. In this process, the fabrics are padded through a padding liquor consisting of a 12%–15% dimethyloldihydroxyethylene urea (DMDHEU) which has been adjusted to a 1.0–1.2 pH with hydrochloric acid. After impregnation, the fabric is dried on a pin tenter at 100°–110°C so that a residual moisture content of between 6% and 10% is obtained. After drying, the fabric is rolled into a batch, wrapped in a polyethylene sheet and maintained at room temperature for about 24 hours before being washed.

Moisture in the fabric in the Moist-Cure process can be controlled by utilizing the novel flame drying technique of the Remafam process, which was developed and patented by Messrs. Hoechst, A. G. and Bruckner, Trockntechnik, K. G. In this procedure, the mixture of flammable liquid, e.g. methanol and water, is applied to the fabric in conjunction with the pad liquors (to be applied at the mangle), and moisture present in the fabric is evaporated by igniting the flammable liquid. Thermal energy generated in

**VISITORS** The 1983 National Maid of Cotton, Janie Lea Taylor, a student at Memphis State University, Memphis, Tennessee visited the Textile Research Center on January 17. She was accompanied by Llana Tollison, tour director for the Maid of Cotton program. Other visitors during the month included Hal Coleman, Avco, Lowell, MA; John T. Moss, Ring Around Products, Inc., Dallas, TX; Dan Mills, Johnson & Johnson, Sherman, TX; Don Williams, Northrup King Company, Richardson, TX; Glenn Moore, Barber-Colman Company, Gastonia, NC; Ed Bateman, WestPoint Pepperell Mission Valley Mills, New Braunfels, TX; J. S. Kim and Yong Hok Kim, Jinil & Company, Seoul, Korea; Lorraine Friend, University of Otago, Dunedin, New Zealand; and Sandi Gray, Da Gama Textiles (Pty) Ltd., King Williams Town, South Africa. (Sandi came for a two-day visit and stayed for more than a week after becoming stranded by a record-breaking snowstorm which descended on Lubbock in January.)

the Remafam process is independent of gas or electricity. To our knowledge, no work has been reported in literature on the use of Remafam in easy-care or durable-press finishing applications, and particularly in conjunction with the Moist-Cure technique.

On the basis of the above mentioned flame drying concept, a study is being conducted at the Textile Research Center in which cotton fabrics are padded for 75% wet pickup through a padding liquor containing 60 g Permafresh 183 (45%  $\pm$  2% DMDHEU), 180 ml methanol, and sufficient hydrochloric acid to obtain a pH of 1.0. The padded fabrics are mounted on a frame and ignited at the bottom. As soon as the flames of the burning methanol are extinguished, the fabrics are weighed, wound onto a glass rod, wrapped in polyethylene to stop moisture from escaping, and batched overnight at room temperature. The treated fabrics are then washed repeatedly with deionized water at 40°C, hydroextracted and tumble dried. For the sake of comparison, the same fabrics have been treated by the conventional pad/dry/cure process using 30% Permafresh 183, 5.4% Catalyst X-4 (18% on the weight of resin), 2% Fabritone PE and 0.05% Triton X-100 (all chemicals on wt/vol basis). In this process, the fabrics are padded for 75% wet pickup, dried at 90°C for 3 minutes, and cured at 160°C for 2 minutes. The resulting physical properties of the cotton fabrics finished by the Remafam Moist-Cure process and conventional pad/dry/cure process are given in the following table:

Process	Add-On (%)	Wrinkle Recovery (W+F)°		Breaking Strength (lbs)		Flex Abrasion (cycles)	
		Dry	Wet	W	F	W	F
Remafam/Moist-Cure	10.2	302	297	32	28	308	346
Pad/Dry/Cure	8.4	319	285	18	15	16	21
Untreated		211	140	42	42	1416	1583

Fabric finished by the Remafam Moist-Cure process retains superior strength when compared to the fabric that was finished by the pad/dry/cure process. High dry and wet wrinkle recoveries of the cotton finished by the Remafam process indicate a high level of permanent-press performance. The finished fabric exhibited excellent hand without any softener in the formulation. These desirable properties obtained could be ascribed to a very uniform distribution of the resin within the cotton fibers. This process also appears to have a great potential for imparting durable-press properties to fabrics manufactured from cotton/polyester blends. The program is continuing, and we expect to make another report on this in some future issue of *Textile Topics*.

This research is sponsored by the Natural Fibers & Food Protein Commission of Texas and is being conducted at the Textile Research Center by R. D. Mehta, manager of finishing research, who is assisted by Ali Salame.

**TTU'S DEPARTMENT OF TEXTILE ENGINEERING: STUDENT HONORS** We are always pleased when we can recognize outstanding ability in one of the students in Texas Tech's Department of Textile Engineering, and it is with a good bit of pride that we announce the selection of Twila Ann Braun to the 1982 Who's Who Among Students in American Universities and Colleges. Miss Braun was selected on the basis of her academic achievement which has led to an overall grade point average of 3.93. She has been listed on the President's and Dean's Honor Rolls and has been awarded scholarships in her three years at Tech. Twila's leadership ability has been shown by offices held in the Engineering Student Council, Stangel Hall Council, Phi Psi Fraternity, and the American Association of Textile Technologists. Her service activities include high school recruiting programs, the promotion of textile education, and a volunteer tutorial program.

Twila is the daughter of Mr. & Mrs. Kenneth Braun of Seminole, Texas. We are pleased with the outstanding record she has made while studying with us.