TECHNICAL BULLETIN

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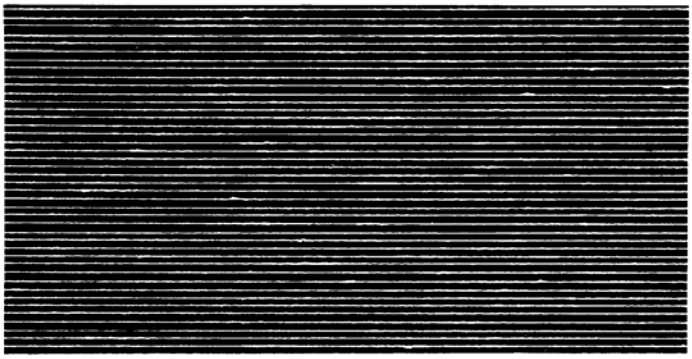
TRI 1009

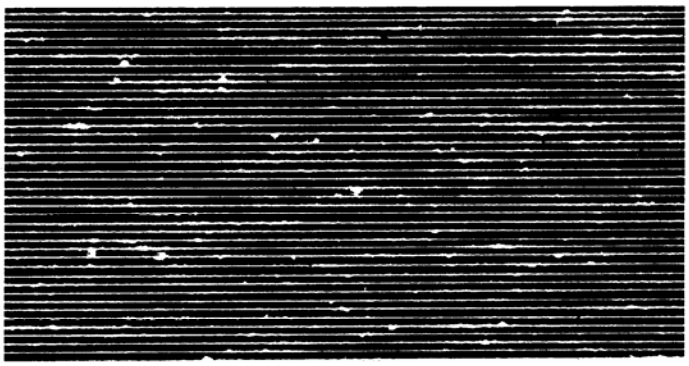
RECOMMENDATIONS FOR PRODUCING HOMESPUN-LOOK YARN ON CONVENTIONAL EQUIPMENT

INTRODUCTION

Novelty yarn looks which can be made inexpensively, on standard mill equipment, are always of interest to cotton yarn spinners and fabric manufacturers. Cotton Incorporated has developed a yarn which combines regular cotton fiber with linters fiber to produce a homespun novelty look. This yarn can be produced on standard ring spinning equipment, under normal conditions, and without any special attachments. The details of our recommendations are covered in this technical bulletin.



16/1 Regular Yarn



16/1 Homespun Look Yarn

LINTERS FIBER – THE BASIS FOR HOMESPUN NOVELTY YARN

Linters fiber is the short lint (usually less than ¼") left on the cottonseed after the ginning operation. The seed is sold to cottonseed oil mills, where the linters are removed with delinting machines. These machines, employing the principle of the cotton gin, consist of a series of circular saws on a horizontal revolving shaft. The saws project through a set of steel ribs. As seeds fall on the closely spaced ribs, the saws revolve, cutting off the short fibers. The linters are removed from the saws by brushes or air and are collected and pressed into bales. Another type of delinting, known as abrasive delinting, is used by a few mills. This process uses a physical rubbing action to remove the linters.

Seeds may be run through the delinting machines once, in which case the linters produced are known as "mill-run." Most mills run the seed through twice and produce "first-cut" and "second-cut" linters. First-cuts contain the longer, more resilient fibers, while second-cuts are made up of very short fibers or fuzz. The end uses for first-cuts typically include batting, felting, and nonwovens; second-cuts go into chemical end uses – photographic film, plastics, and thickeners for a variety of products. For the production of homespun yarns, first-cut linters should be used.

REGULAR COTTON FIBER

A good quality long staple cotton should be used for blending with the linters, since the linters fiber adds no strength to the yarn, only bulk. Fiber requirements are as follows:

Type – U.S. Upland Cotton
Grade – SLM
Length (inches) – $1\ ^{1}/_{16}$ minimum
Micronaire – 3.8 – 4.6
Strength (grams/tex) – 24 minimum

YARN PRODUCTION

The production of homespun yarn from linters requires blending hoppers or other means to control fiber blending. The yarn must be an intimate blend rather than a draw frame blend, since the linters fibers are too short to be carded alone. The blend level used by Cotton Incorporated is 80% regular cotton/20% linters. But after spinning, the actual blend is about 82/18 due to short fiber loss during carding.

After blending and carding normally, the sliver should be drawn twice and roving should be made in a normal fashion. Regular ring spinning should be used, since the rotor in open end spinning will tend to remove the neps and unevenness that produce the desired yarn effect. In summary, yarn processing is done in a normal manner at regular production speeds after the linters and regular cotton are combined.

REFERENCE

National Cottonseed Products Association, Inc., *Cottonseed and Its Products*, 1989.

YARN TEST RESULTS

	10/1 Ne	16/1 Ne
Sample ID	89-721	89-723
Lab Reference	7065	n/a
Date of Sample	6/1/89	6/20/89
Yarn Type	100% Cotton	100% Cotton
Processing System	Carded	Carded
Spinning System	Ring	Ring
Twist Multiple	4.30	4.50
Bobbins Tested,	6	10
Cotton Count	10.48	15.32
Percent C.V.	1.19	1.87
Tex	56.34	38.53
Skein Strength,		
Lbs.	157.58	109.48
Percent C.V.	5.02	3.96
Actual Break Factor	1652	1678
Adjusted Break Factor	1660	1666
Single End Breaking Strength,		
Grams	661	365
Percent Vo	6.82	10.80
Percent Vw	6.47	5.73
Percent Vb	2.15	9.16
G./Tex (RKM)	11.73	9.47

RESEARCH AND TECHNICAL SERVICES

Cotton Incorporated is a research and promotion company representing cotton worldwide. Through research and technical services, our company has the capability to develop, evaluate, and then commercialize the latest technology to benefit cotton.

- Agricultural research leads to improved agronomic practices, pest control, and fiber variants with properties required by the most modern textile processes and consumer preferences. Ginning development provides efficient and effective machines for preservation of fiber characteristics. Cottonseed value is enhanced with biotechnology research to improve nutritional qualities and expand the animal food market.

- Research in fiber quality leads to improved fiber testing methodology and seasonal fiber analyses to bring better value both to growers and then mill customers.

- Computerized fiber management techniques result from in-depth fiber processing research.

- Product Development and Implementation operates programs leading to the commercialization of new finishes and improved energy and water conserving dyeing and finishing systems. New cotton fabrics are engineered -- wovens, circular knits, warp knits, and nonwovens -- that meet today's standards for performance.

- Technology Implementation provides comprehensive and customized professional assistance to the cotton industry and its customers -- textile mills and manufacturers.

- A fiber-to-yarn pilot spinning center allows full exploration of alternative methods of producing yarn for various products from cotton with specific fiber profiles.

- The Company operates its own dyeing and finishing laboratory, knitting laboratory, and a laboratory for physical testing of yarn, fabric, and fiber properties including High Volume Instrument testing capable of measuring micronaire, staple length, strength, uniformity, color, and trash content.

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