

Final $\approx$ 21M denier after coating

AR226-1652

CFY - plied

Teflon 9450 I&T
7 (1350)
Kevlar 7500 "
5 (1500)

cc: J. A. Geneneux - Centre Road
P. E. Frankenburg - Exp. Station
W. G. Henkel - Centre Road
J. L. McDaniel
R. W. McNeer
J. B. Rhodes - Centre Road
W. J. Sullivan
M. T. Waroblak
File

Spruance Research Laboratory
July 6, 1981

TO: R. GOULD
CENTRE ROAD

- has received

FROM: P. P. BURKS
SPRUANCE

PPB

2 hrs @ 190°C

3 hrs @ 190°C

HEAT TREATED PACKING YARNS

Per our discussion I have shipped you 4 tubes each of Teflon® 9450 I&T and Kevlar® 7500 I&T yarns. You have arranged for these samples to be braided into packing at Green Tweed, and then returned to P. E. Frankenburg for evaluation on the laboratory packing tester. Please request Green Tweed to return tube cores and any leftover yarn.

BRAIDED
7/9/81

These yarns were heated 5 hours at about 190°C in a plant bleaching oven to remove detectable FC-143. Please examine these tubes and give me your opinion on their trade acceptability and needed improvements. We noted some discoloration of yarns and tube cores, loss of about 5-10% of oil from Teflon® but not from Kevlar® yarns, and a tendency for the "Kevlar®" yarn cake to slide off the core.

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From section

Our initial results showed 6/8 tubes in total denier limits. (Table) Apparently, shrinkage of "Teflon" forces oil to migrate outward, increasing total denier of surface yarn and reducing core yarn denier. Work in progress will show whether along end denier uniformity and "Teflon" oil levels (especially at the core) are acceptable. We have not been able to measure tensiles on I&T yarns because of slippage at the clamps, but heated I-only "Teflon" yarns showed insignificant changes in tenacity and elongation.

PPB jha
Attachment

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TABLE

<u>Sample</u>	<u>Total Denier</u>		<u>% Change</u>
	<u>Before Heating</u>	<u>After Heating</u>	
Teflon® 2	22,170	24,750	+ 11.6%
4	20,400	21,670	+ 6.2
5	20,310	20,580	+ 1.3
6	21,340	21,700	+ 1.7
Kevlar® 1	17,920	17,590	- 1.8
2	19,150	18,630	- 2.7
5	18,300	17,550	- 4.1
6	17,420	16,430	- 5.7

PPB jha
7/6/81

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