

```

graph TD
    Ga[가] -- 25% --> Na[나]
    Ga -- 100% --> Da[다]
    Ga -- 8% --> Ra[라]
    Ga -- 12% --> Ma[마]
    Na -- 100% --> A[아]
    Na -- 100% --> Ba[바]
    Da -- 100% --> Sa[사]
    Da -- 100% --> Ja[자]
    Ra -- 100% --> Cha[차]
    Ra -- 100% --> Ka[카]
    Ma -- 4% --> Pa[파]
    Ma -- 100% --> Ma2[마]
  
```

가 . Nuding Sattler
- . Nuding

/Perlon() 가 Perlon/
 , .
 Kulikov .
 .
 가 가
 . Beevers /
 , 가
 Thornton Townend
 . Townend Marsden-Smedley / 32tex
 가 787 tpm(20tpi) .
 가 . Millard Thornton ,
 , .
 Shepherd /
 .
 . /
 .
 .
 100% / , /
 / .
 가

○

(m.f.l) 59.9mm cv 49.9%

220(Trevira) (orlon)

106mm, 108mm 90mm

Table 1

Table 1. Properties of fibres Used in the Blends

Type of Fibre	Breaking Strength (gf)	Breaking Extension (%)	Fibre Fineness (tex & den)	Tenacity (gf/tex)
Wool	6.6 (36.6) *	29.0 (37.5)	0.44tex 3.90den	15.1
Polyamide (nylon)	12.8 (18.7)	32.8 (18.2)	0.34tex 3.10den	37.7
Polyester (Trevira)	11.5 (16.9)	19.8 (15.4)	0.37tex 3.30den	31.2
Acrylic (Orlon)	6.5 (27.0)	17.7 (30.0)	0.49tex 4.40den	13.2

*Figures in parenthesis indicate coefficient of variation (per cent)

○

0~100%

intersecting gill box

100%

4

intersecting gill box

high draft rover

400tex

Rieter(Model H6) Table 2

(tex),

(tpm),

(cv%)

Table 2. Characteristics of Yarn Used

Yarn No.	Tex	Twist Factor	Turns per metre	Irregularity (C. of V. %)	Composition
1	18.2	2,489	583	21.7	100% Wool
2	21.4	2,500	540	19.4	
3	25.3	2,510	499	17.7	
4	29.1	2,587	480	16.9	
5	33.4	2,526	437	16.1	
6	35.1	2,415	408	15.4	
7	17.4	2,494	598	21.4	50/50 Wool/Polyamide
8	21.5	2,580	556	18.4	
9	25.3	2,575	512	17.5	
10	30.9	2,647	476	16.3	
11	32.8	2,612	459	16.0	
12	37.5	2,562	417	15.1	
13	17.7	2,458	584	20.6	50/50 Wool/Polyester
14	21.8	2,526	541	17.3	
15	26.6	2,575	499	14.5	
16	32.0	2,660	470	15.3	
17	33.6	2,569	443	15.4	
18	37.3	2,527	414	15.0	
19	19.5	2,683	607	18.6	50/50 Wool/Acrylic
20	21.5	2,645	570	17.9	
21	25.4	2,646	525	16.7	
22	30.1	2,630	479	15.8	
23	33.4	2,653	459	15.0	
24	39.4	2,694	429	14.5	
25	26.4	2,596	505	16.0	100% polyester
26	25.0	2,515	503	17.4	75% polyester
27	26.4	2,642	512	17.4	50% polyester
28	26.8	2,616	505	17.6	25% polyester
29	28.0	2,677	505	17.8	100% acrylic
30	27.4	2,725	520	17.8	75% acrylic
31	27.0	2,642	508	17.1	50% acrylic
32	28.0	2,671	504	17.4	25% acrylic
33	26.1	2,703	529	19.6	100% polyamide
34	26.4	2,627	511	19.9	75% polyamide
35	25.8	2,611	514	19.1	50% polyamide
36	27.0	2,616	503	18.8	25% polyamide

○

Almeter (mean fiber length) .
Instron 20mm ,
20mm/min . 100
Instron 250mm 100
m/min . Instron (integrator)
. 10 50 .
撚數 Zweigle 撚數 -가 .
Instron 履歷 250mm
100mm/min

Fig 1 Instron (jaw)
AB AE가
. AE
. D 가
가 A 2,3,4
F, G, H . CE, JE, KE

B C, J, K
. 5
65%
20 85% 30 y “Shirley
Crimp Tester” 0.2gf/tex .

Fig. 1

$$\begin{aligned}
 & 5 \qquad \qquad \qquad (\%) \\
 & = (\qquad \qquad \qquad DE/ \qquad \qquad \qquad AE) \times 100 \\
 & 24 \qquad \qquad \qquad = \frac{x-y}{x-25} \times 100 \\
 & x : \qquad \qquad (25\text{cm})+ \qquad \qquad (1\text{cm}, 2\text{cm}, 3\text{cm}) \\
 & y :
 \end{aligned}$$

Instron

65% 20 1

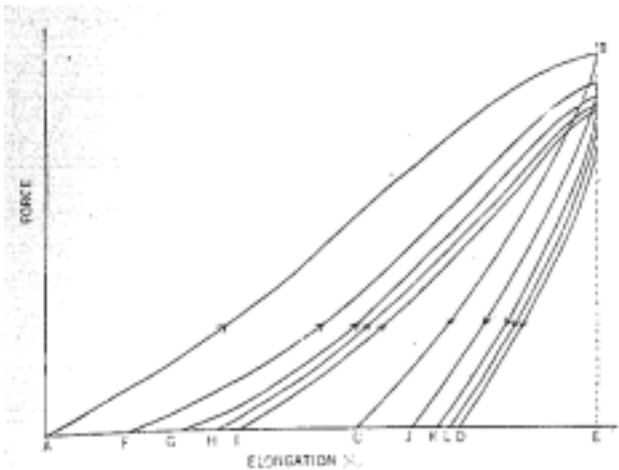


Fig. 1 Recovery behaviour during 5 cycles

26tex 100% , 50/50 / , 50/50 / 50/50 /

- fig. 2 . Beevers가

. 100% 3% 降

伏點 3 降伏點

100% 50/50 / 가
 (100% / 5,000 6,600gf/tex
 / , ./ 3,600 3,300g/tex)
 가 100%
 Fig. 2 18tex 38tex 100% ,
 50/50 / , 50/50 / 50/50 /
 (gf/tex), (%) (gf/tex) Fig. 3, 4 5
 (Yarn No.) 1 24 가 (Table 2).

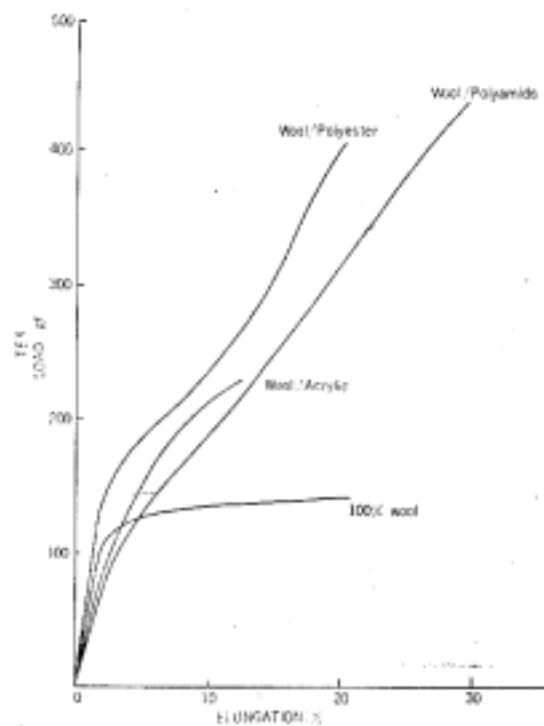


Fig. 2 Average load-elongation curves

100% / tex가 가
 / / 가 가

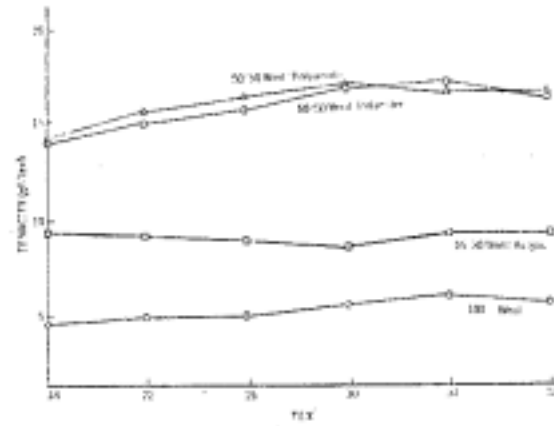


Fig. 3 Yarn tenacity versus tex for different blend

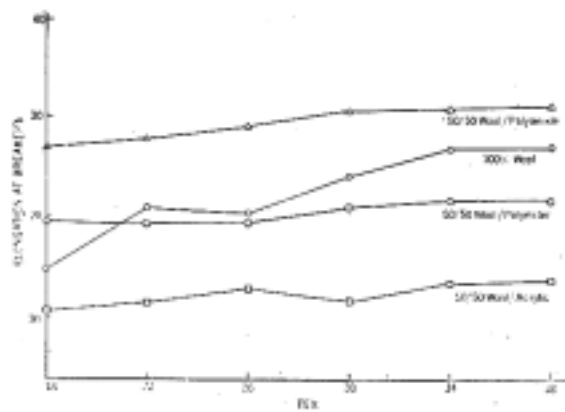


Fig. 4 Yarn elongation at break versus tex for different blends

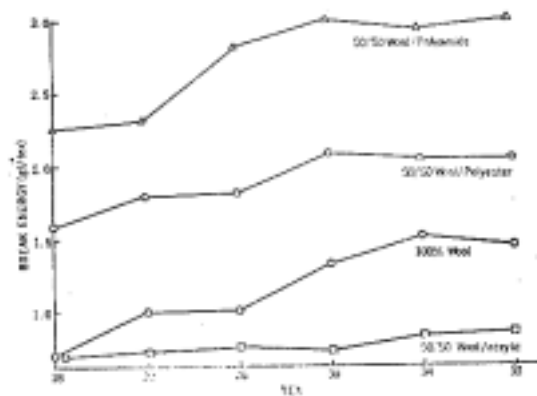


Fig. 5 Yarn elongation at break versus tex for different blends

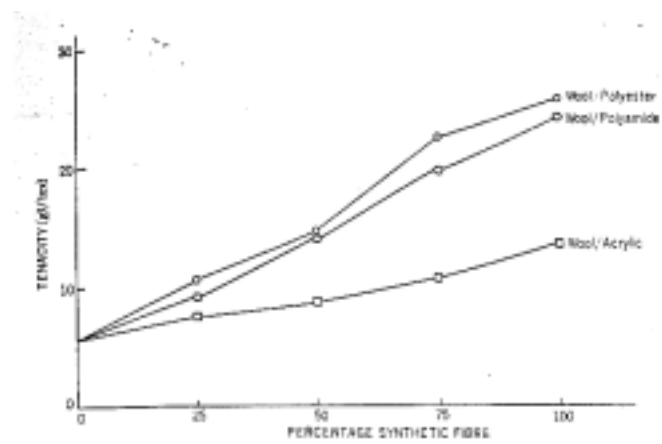


Fig. 6 Yarn tenacity versus blend composition

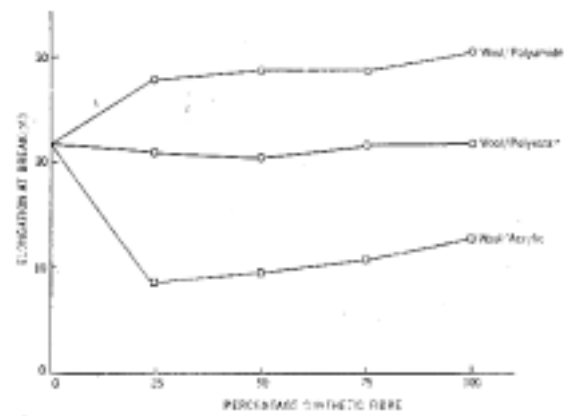


Fig. 7 Elongation at break versus blend composition

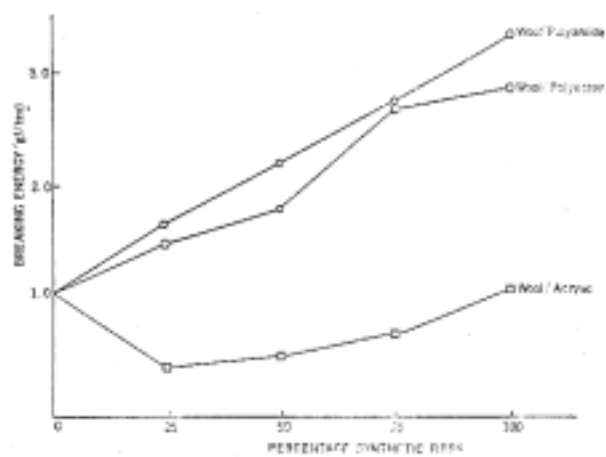


Fig. 8 Yarn breaking energy versus blend composition

100% tex 가 가 .
 × 18tex 38tex 가 /
 / 30%, 100% 85% 가 .
 / tex 가
 .

Fig. 6, 7, 8 .

25 36 .(Table 2) 3

가 가 . / , /
 가 가
 가
 가
 가

가 가

(17.7 % 29.0%). - 가

가

25%

/

/

가 30%

가 / 60%가 <Fig. 7>.

25%

100%

가

/

,

/

가

25%

. / ,

/ 가
 가 /
 <Fig. 8>.
 50/50 / , / / 撚數가
 Fig. 9 . / 320tpm
 . / 가
 / 320tpm .
 / / / 가 100%
 가
 Fig.9 26tex 50%
 撚數 / 800tpm, / , /
 650tpm . / Townend
 Marsden-Smedley가

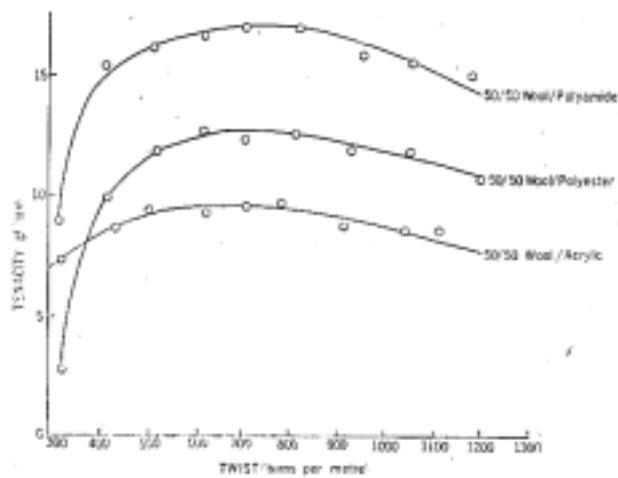


Fig. 9 Yarn tenacity versus twist(t.p.m.)
 (Yarn count = 26tex)

가

5

가

4

1

5

Elongation at Break

Percentage elongation	Number of cycles	100% Wool		50/50 Wool/Polyamide		50/50 Wool/Polyester		50/50 Wool/Acrylic	
		Tenacity (gf/tex)	Elongation at break (%)	Tenacity (gf/tex)	Elongation at break (%)	Tenacity (gf/tex)	Elongation at break (%)	Tenacity (gf/tex)	Elongation at break (%)
0	0	5.4	20.4	16.2	29.4	15.6	19.6	9.1	13.0
0-4	1	5.6	19.5	15.0	31.4	15.5	19.7	9.2	11.2
0-4	5	5.5	19.5	15.0	29.4	15.5	19.3	9.4	12.4
0-8	1	5.6	19.7	14.2	29.5	14.7	17.0	9.1	10.0
0-8	5	5.5	16.9	16.3	30.3	15.6	16.7	9.4	9.7
0-12	1	5.6	17.4	14.9	26.8	16.2	15.9	—	—
0-12	5	5.5	15.8	14.8	27.1	15.9	14.5	—	—

Yarn Count—26 Tex
Twist —510 t. p. m.

/

Fig. 10, 11, 12

Fig.10 5

100%

65% RH, 20 24

가 . <Fig.11> 100% , / /

100% ()

50/50 / . 85% RH, 30 24

. <Fig. 12>

100% 98% 100% 50/50

/ . Fig. 12 100% 12%

4%

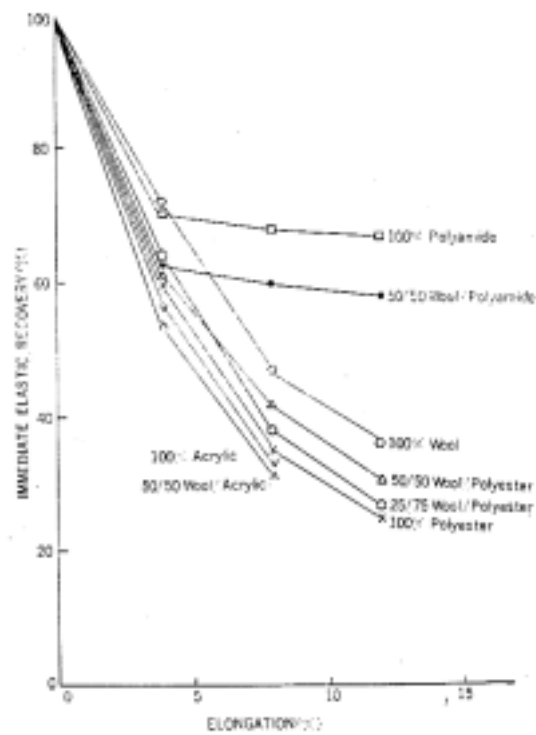


Fig. 10 Immediate elastic recovery versus elongation for different blends

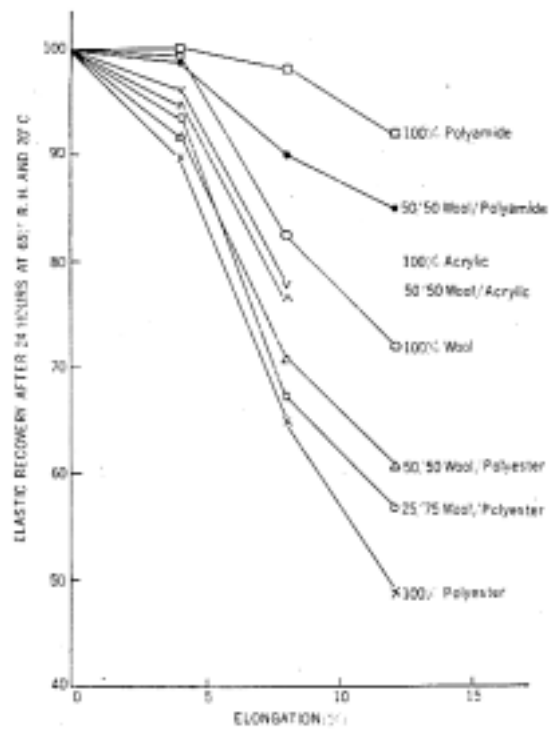


Fig. 11 Elastic recovery after 24 hours at 65% r. h. and 20 versus elongation

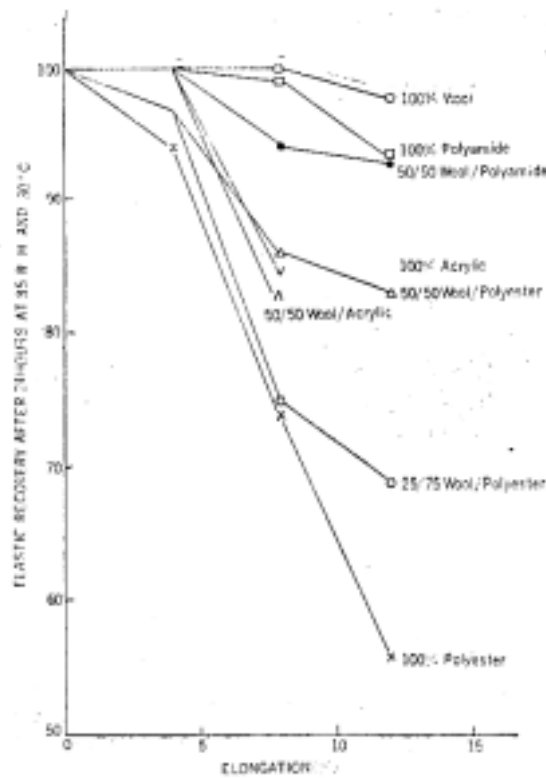


Fig. 12 Elastic recovery after 24 hours at 85% r. h and 30 versus elongation

가 .

Poller MCDougall , ,

.

가 15% 40% .

.

1%, 3%, 5%, 15%

가 . <Fig. 10> 100% , ,

.

50% 100% 35%

70% 가 . / /

200% 가 /

가 .

/

가

100% 가 .

가

가 0% 25%

가 .

가 50/50

/

/

/

가 . / /

/

.

/ / 4%, 8%, 12% 100%
/ . 100% /
12% /
/ 4%

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