

KEVLAR®



KEVLAR® engineered elastomer with Neoprene GW

Merge 1F723

Test compound formulation and properties:

Neoprene GW		100	90.8	84.6	69.2
Engineered elastomer 1F723		0	12	20	40
Magnesia (Maglite D)		4	4	4	4
N772 carbon black		58	58	58	58
Rapeseed oil		10	10	10	10
Stearic acid		2	2	2	2
Octylated diphenylamine (Octamine)		2	2	2	2
Zinc oxide		5	5	5	5

<i>Kevlar®</i> Engineered Elastomer content	pphr	0	12	20	40
<i>Kevlar®</i> pulp content	pphr	0	2.8	4.6	9.2

Mooney Viscosity at 100°C					
ML 1 + 4	units	54.8	52.7	53.1	56.8

Mooney Scorch MS at 121°C					
Time to + 5 units raise	min	46.2	44.9	46.2	43.5
Time to + 10 units raise	min	53.4	54.1	55.1	54.5
Minimum	min	22.7	21	21.6	23.2

ODR 160°C, 30 min, 3° arc					
M _L	dN/m	9.4	9.6	10.3	12
t _{s2}	min	3.1	2.6	3	2.9
t ₉₀	min	14.7	17	18.5	19.4
M _H	dN/m	91	97	104	116

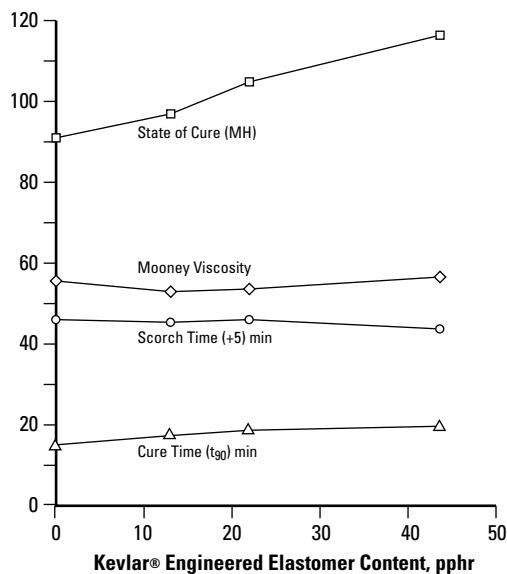
Vulcanizate properties measured on 2 mm sheet					
Cure time	min	15	20	20	20
Hardness	°IRHD	70	73	77	84
	°Shore A	71	74	78	85

Machine and cross direction:		MD	XD	MD	XD	MD	XD	MD	XD
Tensile strength	MPa	18.7	18.5	17.6	15.3	15.5	14.1	15.1	13.9
Modulus at 10%	MPa	0.6	0.6	1.2	1.1	4.7	1.3	9.4	2.3
Modulus at 15%	MPa	0.8	0.7	2.1	1.4	7.4	1.8	12.1	3.2
Modulus at 25%	MPa	1.1	1.1	4.6	2.1	10.1	2.7	12.2	4.3
Modulus at 30%	MPa	1.2		5.7	2.3	10.5	3.1	12.6	4.8
Modulus at 50%	MPa	1.9	1.9	6.8	2.8	9.2	3.8	14.3	5.6
Modulus at 100%	MPa	3.6	3.5	7.4	4.5	9.4	5.6	14.6	6.3
Modulus at 200%	MPa	9.8	9.3	11.2	8.7	11.7	9.4		9.4
Modulus at 300%	MPa	17.4	16.6	16.7	14.4	16.7	14.6		13.1
Elongation at break	%	390	417	347	344	324	313	179	191
Tear ISO 34C	kN/m	46.5	47.5	50.1	54.5	63.0	65.1	73.2	80.8
Tear ISO 34B	kN/m	63.2	59.5	57.1	66.8	55	69.1	73.2	80.8

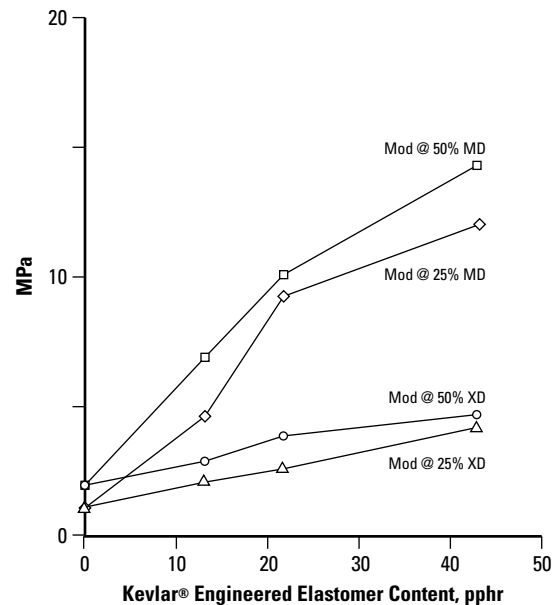
This information represents our current knowledge on the subject. It is offered solely to provide possible suggestions for you own experimentation. It is not intended, however, to substitute for any testing you may need to conduct to determine for yourself the suitability of our products for your particular purposes. This information is subject to revision as new knowledge and experience becomes available. Since we cannot anticipate all variations in actual end-use conditions, DuPont makes no warranties and assumes no liability in connection with any use of this information. Nothing in this publication is to be considered as a license to operate under or a recommendation to infringe any patent right.

Kevlar® Engineered Elastomer content	pphr	0	12	20	40
Kevlar® pulp content	pphr	0	2.8	4.6	9.2
Air Aged 10 days at 120°C					
Hardness	°IRHD	90	89	93	94
Change	°IRHD	20	16	16	10
Tensile strength	MPa	15.2	14.5	13.3	12.1
Change	%	-19	-16	-14	-20
Elongation at break	%	86	104	68	45
Change	%	-78	-70	-78	-75
Compression Set					
24 h at 100°C	%	49.2	52.3	56.2	59.1
72 h at 100°C	%	67.1	69.2	70.4	72.1
Water swell 7 days at 80°C (ASTM D471)					
Weight change	%	7.1	7.8	8.8	9.6
Volume change	%	9.5	10.3	11.4	12.2

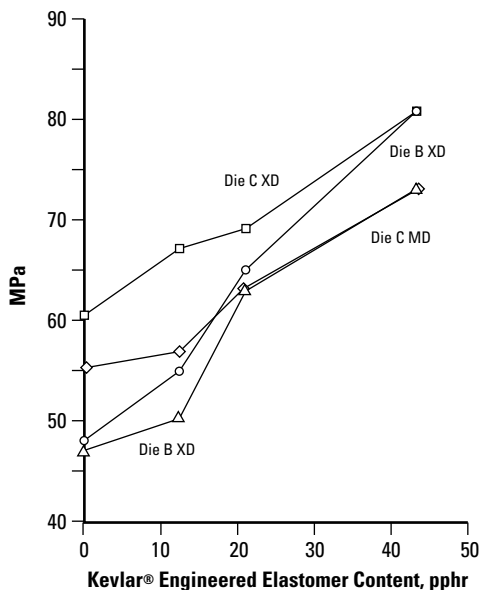
Effect of KEVLAR® Engineered Elastomer Content on Processing



Effect of Orientation of KEVLAR® Engineered Elastomer on Stiffness



Effect of KEVLAR® Engineered Elastomer Content on Tear Strength



- Engineered elastomer merge 1F723 contains:
 - 23 weight percent reinforcement
 - 77 weight percent Neoprene GW
- Specific Gravity is 1.28
- “Nugget” shape product form
- Packaged in 15 kilogram kraft bags with a low melt (<100°C) EVA liner

DuPont Advanced Fibers Systems
 Customer Inquiry Center
 5401 Jefferson Davis Highway
 Richmond, VA 23234
 Tel: (800) 453-8527
 (804) 383-4400
 Fax: (800) 787-7086
 (804) 383-4132
 E-Mail: afscdt@usa.dupont.com

Web Address: www.kevlar.com

KEVLAR®



KEVLAR® is a registered trademark of E. I. du Pont de Nemours and Company