Made with **Advanced Polymer Architecture**

Viton® Extreme™ fluoroelastomer

A Product of DuPont Dow Elastomers

Viton® Extreme™ ETP-600S
A New, Peroxide-Cured ETP-S Polymer

Viton® Extreme™ ETP-600S (developmental product VTR-8710) is a new specialty fluoroelastomer, built on DuPont Dow's proprietary **Advanced Polymer Architecture (APA)** technology, that provides the excellent end-use performance of Viton® Extreme™ ETP-900 with significant improvements in processing and cure characteristics. The APA technology upgrades the peroxide cure site and optimizes the molecular structure to deliver a polymer which:

- Cures faster, and to a higher state of cure, than Viton® Extreme™ ETP-900
- Provides excellent mold release and low mold fouling
- Exhibits better mold flow and less shear sensitivity
- Has improved compression set resistance when compared to ETP-900
- Gives the same broad fluid and heat resistance of other Viton® Extreme™ ETP polymers

Viton® Extreme™ ETP-600S takes specialty fluoroelastomer performance to a new level of processing ease combined with the excellent end-use performance.

Compound Formulation	ETP-600S	ETP-900
Viton® Extreme™ ETP-600S	100	—
Viton® Extreme™ ETP-900	—	100
Zinc Oxide	3	3
DIAK™ #7	3	3
Luperox® 101XL45	3	3
N990 Carbon Black	30	30
	139	139
Polymer Mooney Viscosity		
ML, 1+10 at 121°C	63	81
Mooney Scorch at 121°C		
M_L, Mooney units	26	48
2 pt rise, min	23.9	5.1
5 pt rise, min	26.3	7.2
10 pt rise, min	29.7	18.7
15 pt rise, min	> 30	> 30
ODR at 177°C, 3° arc, 12 min clock		
M_L, dNm	14	23
ts1, min	0.8	0.7
ts2, min	0.8	0.8
t'50, min	1.7	1.9
t'90, min	3.4	6.9
M_H, dNm	127	87

	ETP-600S	ETP-900
MDR at 177°C, 0.5° arc, 6 min clock		
M_L, dNm	1.7	2.5
ts1, min	0.4	0.5
ts2, min	0.4	0.5
t'50, min	0.7	0.9
t'90, min	1.6	3.3
t'95, min	2.5	4.3
M_H, dNm	25.4	14.4
Rosand Capillary Rheometer at 100°C, 1.5 mm die, L/D + 0/1 and 10/1		
Shear Rate, s^{-1}	**Pressure, MPa [L/D = 0/1 die]**	
50	3.8	5.2
100	4.5	5.9
1000	6.9	10.4
2000	7.2	16.2
4000	9.1	50.9
	Pressure, MPa [L/D = 10/1 die]	
50	19.4	23.1
100	20.6	24.9
1000	26.4	38.5
2000	29.2	69.5
4000	35.0	104.0
Physical Properties at 23°C, cured 7 min at 177°C, no postcure		
M50, MPa	2.8	2.7
M100, MPa	5.7	5.3
Tensile Break, MPa	13.6	11.2
Elongation at Break, %	218	220
Hardness, Shore A	75	74
Physical Properties at 23°C, cured 7 min at 177°C, postcured 16 hr at 200°C		
M50, MPa	3.6	3.6
M100, MPa	8.8	8.8
Tensile Break, MPa	19.0	17.3
Elongation at Break, %	202	213
Hardness, Shore A	79	77
Physical Properties at 23°C, cured 7 min at 177°C, postcured 16 hr at 232°C		
M50, MPa	4.0	3.4
M100, MPa	9.1	8.9
Tensile Break, MPa	19.0	18.3
Elongation at Break, %	191	201
Hardness, Shore A	80	76
Physical Properties at 23°C, aged 168 hr at 250°C, postcured 16 hr at 232°C		
M50, MPa	3.5	2.9
M100, MPa	6.9	7.2
Tensile Break, MPa	16.4	16.7
Elongation at Break, %	263	225
Hardness, Shore A	80	75
% Change in S/S after 168 hr at 250°C		
Change in M50, %	–13	–16
Change in M100, %	–24	–19
Change in Tensile Break, %	–14	–9
Change in Elongation at Break, %	38	12
Change in Hardness, # of pts	0	–1

(continued)

	ETP-600S	ETP-900
Physical Properties at 23°C, aged 168 hr at 23°C in MEK, postcured 16 hr at 232°C		
M50, MPa	2.0	1.5
M100, MPa	4.6	3.8
Tensile Break, MPa	12.2	10.2
Elongation at Break, %	202	191
Hardness, Shore A	67	59
% Change in S/S after 168 hr at 23°C in MEK		
Change in M50, %	–49	–57
Change in M100, %	–49	–57
Change in Tensile Break, %	–36	–44
Change in Elongation at Break, %	6	–5
Change in Hardness, # of pts	–13	–17
Volume Change, %	18	21
Physical Properties at 23°C, aged 168 hr at 150°C in service fluid 105, postcured 16 hr at 232°C		
M50, MPa	3.7	3.0
M100, MPa	8.5	7.3
Tensile Break, MPa	17.5	15.0
Elongation at Break, %	228	191
Hardness, Shore A	79	75
% Change in S/S after 168 hr at 150°C in ASTM service fluid 105		
Change in M50, %	–7	–13
Change in M100, %	–7	–18
Change in Tensile Break, %	–8	–19
Change in Elongation at Break, %	19	–5
Change in Hardness, # of pts	–1	–1
Volume Change, %	2	2
Physical Properties at 23°C, aged 168 hr at 150°C in Stuarco 7061 with 6% 7098 modifier, postcured 16 hr at 232°C		
M50, MPa	2.8	2.5
M100, MPa	5.7	6.0
Tensile Break, MPa	13.9	12.3
Elongation at Break, %	227	195
Hardness, Shore A	77	72
% Change in S/S After 168 hr at 150°C in Stuarco 7061 with 6% 7098 modifier		
Change in M50, %	–30	–27
Change in M100, %	–37	–33
Change in Tensile Break, %	–27	–33
Change in Elongation at Break, %	19	–3
Change in Hardness, # of pts	–3	–4
Volume Change, %	3	3
Volume Change after immersion, time and temperature as noted		
Water, 168 hr 100°C	5	8
30% Potassium Hydroxide in Water, 168 hr at 100°C	4	1
Compression Set, method B, O-rings		
Aged 70 hr at 150°C		
postcured 16 hr at 200°C, %	26	40
postcured 16 hr at 232°C, %	31	46
Aged 70 hr at 200°C		
postcured 16 hr at 200°C, %	44	57
postcured 16 hr at 232°C, %	43	49
Aged 336 hr at 150°C		
postcured 16 hr at 200°C, %	34	51
postcured 16 hr at 232°C, %	37	46
Aged 336 hr at 200°C		
postcured 16 hr at 200°C, %	70	77
postcured 16 hr at 232°C, %	70	67
Low Temperature Properties		
TR10, °C	–7	–6
Tg by MDSC, °C	–11	–11
Gheman, T10, °C	–9	–9

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