

Technical Information

Introduction

Viton™ GLT-600S* fluoroelastomer is a 64% fluorine, peroxide-cured, low temperature fluoroelastomer. GLT-600S utilizes the latest technology from Chemours, Advanced Polymer Architecture (APA), which includes a novel peroxide cure site along with an optimized molecular weight distribution.

Features

- Cures exceptionally fast to a high state of cure
- Improved mold release/mold fouling properties
- Improved mold flow and less shear sensitivity for a 65 Mooney peroxy-cured FKM
- Excellent physical properties with high elongation, both original and aged
- Improved water resistance/lower volume swell in water
- Excellent compression set resistance with either low or no post-cure

Processing

A load factor of 72%+ for internal mixing of GLT-600S is preferred. The suggested process aids for GLT-600S are 0.75 phr of Struktol® HT290, either alone or in combination with 0.5 phr of PAT-777 or combinations of 0.5 phr Armeen® 18D with carnauba wax or Struktol® WS280. The use of TMAIC (trimethylalyl isocyanurate) is NOT suggested, as it causes poor mold release and high compression set. Viton™ Curative No. 7 (VC-7) is the suggested coagent for all GLT-600S compounds and is usually used at a 3 phr level or lower, unless high modulus is needed. High levels of VC-7 can bleed out and cause molding flaws. A peroxide level of 1.5–2 phr is suggested for this fast-curing FKM polymer.

Safety and Handling

Before handling or processing Viton™ GLT-600S, read and be guided by the suggestions in the Chemours technical bulletin, "Handling Precautions for Viton™ and Related Chemicals."

Product Description

Chemical Composition	Copolymer of perfluoromethylvinyl ether, vinylidene fluoride, and tetrafluoroethylene with a cure site monomer
Physical Form	Sheet
Appearance	White to tan
Odor	None
Mooney Viscosity, ML 1 + 10 at 121 °C (250 °F)	65
Specific Gravity	1.80
Storage Stability	Excellent
Fluorine, %	~ 64

*Viton™ GLT-600S was formerly named VTR-8500.

Table 1. The Fundamental Properties of Viton™ GLT-600S

Viton™ GLT-600S	
Viton™ GLT-600S	100
N990 (MT Black)	30
Zinc Oxide	3
Viton™ Curative No. 7 (VC-7)	3
Luperox® 101-XL	3
Total	139
Mooney Scorch at 121 °C (250 °F)	
Minimum	36
2 pt rise, min	16.1
5 pt rise, min	17.4
10 pt rise, min	18.5
ODR at 162 °C (324 °F), 3° Arc, 100 Range, 30 Min Clock	
M-L, dNm	19
ts-2, min	1.0
t'50, min	2.1
t'90, min	4.7
M-H, dNm	131
MDR 2000 at 177 °C (351 °F), 0.5° Arc, 100 Range, 6 Min Clock	
M-L, dNm	2.1
ts-2, min	0.4
t'50, min	0.5
t'90, min	0.8
t'95, min	1.0
M-H, dNm	27.4
Rosand Capillary Rheometer at 100 °C (212 °F), 1.5 mm die—L/D = 0/1 and 10/1	
<i>Shear Rate, sec⁻¹</i>	<i>Pressure, MPa, L/D=0/1 die</i>
44	4.5
113	5.5
452	7.0
1,129	8.5
2,222	9.8
Physical Properties at RT—Original (Cured 7 min at 177 °C (351 °F)—No Post-Cure)	
M-10, MPa	0.6
M-100, MPa	3.2
Tensile, MPa	13.2
T-B, psi	1,913
Elongation, %	292
Hardness, A, pts	65
Physical Properties at RT—Original (Cured 7 min at 177 °C (351 °F)—Post-Cure at 232 °C (450 °F) As Noted)	
	<i>2 hr Post-cure</i>
M-10, MPa	0.6
M-100, MPa	3.6
Tensile, MPa	17.8
(T-B, psi)	2,587
Elongation, %	267
Hardness, A, pts	67

continued

Table 1. The Fundamental Properties of Viton™ GLT-600S (continued)

	Viton™ GLT-600S
Compression Set , Method B, 22 hr at 200 °C (392 °F), O-Rings	<i>2 hr Post-cure</i>
No Post-Cure	16
Post-Cured at 232 °C (450 °F) (as noted)	11
Physical Properties at RT—Heat-Aged 70 hr at 250 °C (482 °F) in Oven (Slabs Post-Cured)	
M-10, MPa	0.7
% Change, M10	16%
M-100, MPa	3.4
% Change, M100	-6
Tensile, MPa	18.8
% Change, T-B	5
Elongation, %	327
% Change, E-B	23
Hardness, A, pts	68
Pts Change	1
Physical Properties at RT—Heat-Aged 70 hr at 275 °C (527 °F) in Oven (Slabs Post-Cured)	
M-10, MPa	0.7
% Change, M10	18
M-100, MPa	3.4
% Change, M100	-6
Tensile, MPa	14.5
% Change, T-B	-19
Elongation, %	305
% Change, E-B	14
Hardness, A, pts	68
Pts Change	1
Physical Properties at RT—Aged 168 hr at 150 °C (302 °F) in ASTM #105 Oil (5W/30) (Slabs Post-Cured)	
M-10, MPa	0.8
% Change, M10	24
M-100, MPa	4.6
% Change, M100	25
Tensile, MPa	10.5
% Change, T-B	-41
Elongation, %	167
% Change, E-B	-37
Hardness, A, pts	69
Pts Change	2
Volume Swell, %	1.0
Volume Swell After Immersion—Time and Temperature as Noted	
Fuel C, 168 hr at 23 °C (73 °F)	7.5
CM15 Fuel*, 168 hr at 23 °C (73 °F)	32.9
Water, 168 hr at 100 °C (212 °F)	2.4
Low Temperature Testing—(Slabs Post-Cured)	
TR-10, °C	-31.4
Tg by DSC, °C	-32.9

*CM15 Fuel is a blend of 85% Fuel C with 15% Methanol

Table 2. Viton™ GLT-600S Filler Study

Table 2 shows the reinforcing effect of various levels of MT Black (N990) and some common mineral fillers in GLT-600S. All the compounds contain 0.5 phr of process aid Armeen® 18D. Subsequent experiments shown in Tables 3 and 4 indicate that when a process aid is present, more than a 2 hour at 232 °C (450 °F) post-cure is needed for optimal tensile strength, depending on the amount of the process aid. For these compounds, a 4-8 hour at 232 °C (450 °F) post-cure would normally be preferred.

Compound	A10-01 5-MT	A10-02 30-MT	A10-03 60-MT	A10-04 40-Wollast.	A10-05 40-Albaglos	A10-06 40-BaSO ₄
Viton™ GLT-600S	100	100	100	100	100	100
Zinc Oxide	3	3	3	3	3	3
N990 (MT Black)	5	30	60	—	—	—
Wollastocoat® 10022 (10 u)	—	—	40	—	—	—
Albaglos® (CaCO ₃)	—	—	—	—	40	—
Blanc Fixe (BaSO ₄)	—	—	—	—	—	40
Armeen® 18D	0.5	0.5	0.5	0.5	0.5	0.5
Viton™ Curative No. 7 (VC-7)	3	3	3	3	3	3
Varox® DBPH-50	3	3	3	3	3	3
Total phr	114.5	139.5	169.5	149.5	149.5	149.5
Mooney Scorch at 121 °C (250 °F)						
Minimum, MU	23	31	43	33	37	27
2 pt Rise, min	15.9	9.3	6.5	13.7	10.7	15.7
5 pt Rise, min	17.1	10.8	8.2	14.9	11.5	16.5
10 pt Rise, min	18.8	12.1	9.8	15.8	12.2	17.5
ODR at 162 °C (324 °F), 3° Arc, 100 Range, 30 Min Clock						
M-L, dam	15	18	20	21	24	19
ts-2, min	1.3	1.1	0.9	1.1	1.1	1.4
t'50, min	2.4	2.4	2.4	2.4	2.1	2.7
t'90, min	6.9	7.1	8.8	5.2	5.1	7.3
M-H, dam	101	136	182	136	137	120
MDR 2000 at 177 °C (351 °F), 0.5° Arc, 100 Range, 6 Min Clock						
M-L, dam	1.4	2.1	3.3	2.3	2.7	1.9
ts-2, min	0.5	0.4	0.3	0.4	0.4	0.4
t'50, min	0.6	0.5	0.5	0.5	0.5	0.6
t'90, min	0.9	1.0	1.3	0.8	0.7	0.9
t'95, min	1.2	1.5	2.2	0.9	0.9	1.1
M-H, dam	15.4	26.7	45.7	24.8	28.1	20.6
Physical Properties at RT—Original (Cured 5 min at 177 °C (351 °F)—No Post-Cure)						
M-10, MPa	0.4	0.8	1.5	1.0	0.6	0.7
M-100, MPa	1.2	3.2	6.7	7.0	2.1	1.6
Tensile, MPa	8.9	10.6	10.9	11.2	9.5	9.8
T-B, psi	1,286	1,538	1,575	1,617	1,372	1,415
Elongation, %	369	337	229	245	403	393
Hardness A, pts	52	67	79	66	64	58

continued

Table 2. Viton™ GLT-600S Filler Study (continued)

Compound	A10-01 5-MT	A10-02 30-MT	A10-03 60-MT	A10-04 40-Wollast.	A10-05 40-Albaglos	A10-06 40-BaSO ₄
Physical Properties at RT—Original (Cured 5 min at 177 °C [351 °F])—Post-Cured 2 hr at 232 °C [450 °F])						
M-10, MPa	0.4	1.0	1.8	1.1	0.7	0.7
M-100, MPa	1.3	4.0	8.6	8.3	2.6	1.7
Tensile, MPa	13.7	16.7	16.3	14.7	9.7	10.9
T-B, psi	1,981	2,422	2,364	2,129	1,408	1,583
Elongation, %	374	314	234	274	384	400
Hardness, A, pts	54	71	84	69	67	62
Physical Properties at RT—Heat-Aged 70 hr at 250 °C (482 °F) in Oven						
M-100, MPa	1.4	5.0	10.3	11.0	8.5	4.3
% Change, M100	5	25	19	33	235	160
Tensile, MPa	9.6	14.4	14.9	13.3	14.9	12.8
% Change, T-B	-17	-14	-9	-9	73	17
Elongation, %	305	235	144	203	204	298
% Change, E-B	-18	-25	-38	-26	-46	-26
Hardness A, pts	55	75	87	74	75	65
Pts Change	1	4	3	5	8	3
Physical Properties at RT—ASTM #105 Oil (5W/30) Aged 168 hr at 150 °C (302 °F) in Oven						
M-100, MPa	1.4	3.0	9.5	8.9	3.2	2.0
% Change, M100	5	-25	10	7	27	23
Tensile, MPa	3.4	9.3	11.5	10.1	4.2	3.1
% Change, T-B	-71	-44	-30	-31	-51	-71
Elongation, %	212	165	127	113	156	223
% Change, E-B	-43	-48	-46	-59	-58	-44
Hardness, A, pts	56	72	85	71	69	62
Pts Change	2	1	1	2	2	0
Volume Change, %	1.0	1.0	1.0	0.9	0.9	0.9
Compression Set, Method B, O-Rings—(Post-Cured 2 hr at 232 °C [450 °F])						
22 hr at 200 °C (392 °F)						
- No Post-cure	23	27	27	20	31	36
- Post-cured at 232 °C (450 °F)	15	14	20	12	17	17
70 hr at 200 °C (392 °F)						
- No Post-cure	34	37	39	26	43	47
- Post-cured at 232 °C (450 °F)	23	29	33	21	29	31
Compression Set, Method B, Plied Discs—(Post-Cured 2 hr at 232 °C [450 °F])						
22 hr at 200 °C (392 °F)						
- Post-cured at 232 °C (450 °F)	14	14	17	16	16	19
70 hr at 200 °C (392 °F)						
- Post-cured at 232 °C (450 °F)	23	19	21	20	19	27
Volume Swell After Immersion—Time and Temperature as Noted—(Post-Cured 2 hr at 232 °C [450 °F])						
Fuel C, 168 hr at 23 °C (73 °F)	10.8	8.6	8.3	8.6	7.8	8.8
CM15 Fuel, 168 hr at 23 °C (73 °F)	41.7	30.2	27.8	33.8	34.5	39.2
Water, 168 hr at 100 °C (212 °F)	7.0	5.0	4.0	7.4	9.5	12.0
Low Temperature Properties (Post-Cured 2 hr at 232 °C [450 °F])						
T _g by DSC, °C	-32.3	-33.0	-32.6	-33.0	-33.1	-33.0
TR-10, °C	-30.5	-29.6	-30.0	-29.5	-29.7	-29.9

Table 3. Fuel, Fluids, and Heat Resistance of Viton™ GLT-600S

	Viton™ GLT-600S	ASTM D2000/ SAE J200 Spec and Values
Viton™ GLT-600S	100	
Zinc Oxide	3	
N990	30	
Armeen® 18D	0.5	
Viton™ Curative No. 7 (VC-7)	3	
Varox® DBPH-50	2	
Total phr	138.5	
Mooney Scorch at 121 °C (250 °F)		
Minimum	34	
2 pt Rise, min	12.2	
5 pt Rise, min	14.8	
10 pt Rise, min	17.1	
MDR 2000 at 177 °C (351 °F), 0.5° Arc, 100 Range, 6 Min Clock		
M-L, dNm	2.0	
ts-2, min	0.4	
t'50, min	0.6	
t'90, min	1.1	
t'95, min	1.5	
M-H, dNm	24.7	
Physical Properties at RT—Original (Cured 7 min at 177 °C [351 °F]—No Post-Cure)		
M-10, MPa	0.7	
M-25, MPa	1.2	
M-100, MPa	2.8	
Tensile, MPa	9.3	
T-B, psi	1,353	
Elongation, %	353	
Hardness, A, pts	64	
Physical Properties at RT—Original (Cured 7 min at 177 °C [351 °F]—Post-Cured at 232 °C [450 °F] As Noted)		
	8 hr	
M-10, MPa	0.8	
M-25, MPa	1.4	
M-100, MPa	3.5	
Tensile, MPa	18.4	
T-B, psi	2,669	
Elongation, %	316	
Hardness, A, pts	70	

continued

Table 3. Fuel, Fluids, and Heat Resistance of Viton™ GLT-600S (continued)

	Viton™ GLT-600S	ASTM D2000/ SAE J200 Spec and Values
Physical Properties at RT—Heat-Aged 70 hr at 250 °C (482 °F) in Oven		A1-10
M-25, MPa	1.5	
% Change, M25	7	
M-100, MPa	3.5	
% Change, M100	0	
Tensile, MPa	17.6	
% Change, T-B	-5	-25 max.
Elongation, %	395	
% Change, E-B	25	-25 max.
Hardness, A, pts	71	
Pts Change	1	+10 max.
Physical Properties at RT—Aged 168 hr at 60 °C (140 °F) in Diesel Fuel		
M-25, MPa	1.4	
% Change, M25	4	
M-100, MPa	3.7	
% Change, M100	6	
Tensile, MPa	14.7	
% Change, T-B	-20	
Elongation, %	309	
% Change, E-B	-2	
Hardness, A, pts	69	
Pts Change	-1	
Volume Swell, %	3.1	
Physical Properties at RT—Aged 70 hr at 23 °C (73 °F) in Fuel C		EF31
M-25, MPa	1.2	
% Change, M25	-10	
M-100, MPa	3.3	
% Change, M100	-6	
Tensile, MPa	13.6	
% Change, T-B	-26	-25 max.
Elongation, %	274	
% Change, E-B	-13	-20 max.
Hardness, A, pts	68	
Pts Change	-2	± 5
Volume Swell, %	6.6	0 to +10

continued

Table 3. Fuel, Fluids, and Heat Resistance of Viton™ GLT-600S (continued)

	Viton™ GLT-600S	ASTM D2000/ SAE J200 Spec and Values
Physical Properties at RT—Aged 168 hr at 23 °C (73 °F) in CE10 (90% Fuel C/10% Ethanol)		
M-25, MPa	1.0	
% Change, M25	-28	
M-100, MPa	3.0	
% Change, M100	-16	
Tensile, MPa	10.2	
% Change, T-B	-45	
Elongation, %	226	
% Change, E-B	-29	
Hardness, A, pts	63	
Pts Change	-7	
Volume Swell, %	18.8	
Physical Properties at RT—Aged 168 hr at 23 °C (73 °F) in CM15 (85% Fuel C/15% Methanol)		
M-25, MPa	0.9	
% Change, M25	-36	
M-100, MPa	2.7	
% Change, M100	-23	
Tensile, MPa	9.3	
% Change, T-B	-50	
Elongation, %	218	
% Change, E-B	-31	
Hardness, A, pts	61	
Pts Change	-9	
Volume Swell, %	32.0	
Physical Properties at RT—Aged 70 hr at 200 °C (392 °F) in Service Fluid 101		E078
M-25, MPa	1.0	
% Change, M25	-27	
M-100, MPa	3.1	
% Change, M100	-12	
Tensile, MPa	15.8	
% Change, T-B	-14	-40 max.
Elongation, %	309	
% Change, E-B	-2	-20 max.
Hardness, A, pts	65	
Pts Change	-5	-15 to +5
Volume Swell, %	15.4	0 to +15

continued

Table 3. Fuel, Fluids, and Heat Resistance of Viton™ GLT-600S (continued)

	Viton™ GLT-600S	ASTM D2000/ SAE J200 Spec and Values
Physical Properties at RT—Aged 336 hr at 60 °C (140 °F) in 180 PN Sour Fuel (Ford Method)*		
M-25, MPa	0.8	
% Change, M25	-42	
M-100, MPa	2.6	
% Change, M100	-25	
Tensile, MPa	7.5	
% Change, T-B	-59	
Elongation, %	210	
% Change, E-B	-33	
Hardness, A, pts	56	
Pts Change	-14	
Volume Swell, %	36.9	
<small>*Ford "Sour Fuel" is a 80% Fuel C/15% Methanol/5% T-Butyl Alcohol blend with copper ion and t-butyl hydroperoxide added to bring up the peroxide number to 180</small>		
Physical Properties at RT—Aged 70 hr at 200 °C (392 °F) in 7700 Fluid/SAE Fluid #2		
M-25, MPa	0.9	E088
% Change, M25	-33	
M-100, MPa	3.0	
% Change, M100	-16	
Tensile, MPa	13.3	
% Change, T-B	-28	-40 max.
Elongation, %	267	
% Change, E-B	-16	-20 max.
Hardness, A, pts	63	
Pts Change	-7	-15 to +5
Volume Swell, %	19.4	+25 max.
Compression Set, Method B, O-Rings (Post-Cured at 232 °C [450 °F] As Noted)		
	8 hr	
70 hr at 200 °C (392 °F)	23	
Low Temperature Testing		
Tg by DSC (Modulated), °C	-31.7	
TR-10, °C	-30.0	

Table 4. Process Aid Study in N990 Filled Viton™ GLT-600S Stocks

Process Aid	None	C. Wax	18D	WS280	HT-290	PAT777	18D/ WS280	HT-290/ PAT-777
Compound*	A34-01	A34-02	A34-03	A34-04	A34-05	A34-06	A34-07	A34-08
Viton™ GLT-600S	100	100	100	100	100	100	100	100
Zinc Oxide	3	3	3	3	3	3	3	3
N990	30	30	30	30	30	30	30	30
Viton™ Curative No. 7 (VC-7)	3	3	3	3	3	3	3	3
Varox® DBPH-50	2	2	2	2	2	2	2	2
Carnauba Wax	—	1	—	—	—	—	—	—
Armeen® 18D	—	—	0.5	—	—	—	0.5	—
Struktol® WS280	—	—	—	0.5	—	—	0.5	—
Struktol® HT-290	—	—	—	—	0.75	—	—	0.75
PAT-777	—	—	—	—	—	0.5	—	0.5
Total phr	138	139	138.5	138.5	138.75	138.5	139	139.25
Mooney Scorch at 121 °C (250 °F)								
Minimum, MU	30	27	26	30	25	29	26	24
2 Pt. Rise, min	>30	29.9	12.8	28.5	19.7	23.0	15.5	21.5
5 Pt. Rise, min	—	>30	16.1	>30	22.9	25.6	19.2	25.2
10 Pt. Rise, min	—	—	19.0	—	25.7	28.7	22.3	28.7
ODR at 162 °C (324 °F), 3° Arc, 100 Range, 30 Min Clock								
M-L, dNm	14	13	13	14	13	14	13	12
ts-2, min	1.3	1.4	1.1	1.2	1.2	1.3	1.1	1.2
t'50, min	2.6	2.9	2.4	2.4	2.5	2.5	2.8	2.6
t'90, min	5.0	4.8	4.9	4.1	7.0	4.3	9.9	7.1
M-H, dNm	143	134	133	138	128	137	128	111
MDR 2000 at 177 °C (351 °F), 0.5° Arc, 100 Range, 6 Min Clock								
M-L, dNm	1.6	1.5	1.5	1.6	1.4	1.6	1.5	1.4
ts-2, min	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
t'50, min	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6
t'90, min	1.3	1.3	1.2	1.1	1.2	1.1	1.2	1.2
t'95, min	1.8	1.7	1.6	1.5	1.7	1.5	1.7	1.8
M-H, dNm	25.4	24.8	24.8	26.9	25.4	25.5	23.5	23.5
"Hot" Tear Die B at 150 °C (302 °F) (Cured 5 min at 177 °C [351 °F]—No Post-Cure)								
Tear Die B, N/mm	7.5	6.2	6.3	7.5	6.4	7.4	6.2	6.6
Spider Mold Flow Test—Sprue ~0.8 mm at 124 bar (1,800 psi) Transfer Pressure (Cured 7 min at 177 °C [351 °F])								
Total Shot Weight, g	39.9	39.9	39.9	39.9	40.0	40.0	40.0	39.9
Weight of Spider, g	14.6	21.5	18.4	19.0	23.3	19.9	22.2	22.9
Fill Factor, %	36	54	46	48	58	50	55	57
Physical Properties at RT—Original (Cured 5 min at 177 °C [351 °F]—No Post-Cure)								
M-10, MPa	0.7	0.8	0.7	0.7	0.8	0.8	0.7	0.8
M-100, MPa	2.8	2.8	2.7	3.1	2.8	2.8	2.4	2.5
Tensile, MPa	9.0	8.3	7.9	10.2	8.6	9.5	7.1	7.3
T-B, psi	1,311	1,204	1,143	1,473	1,253	1,372	1,028	1,063
Elongation, %	278	320	329	297	338	335	353	332
Hardness, A, pts	62	66	64	65	66	64	63	65

continued

Table 4. Process Aid Study in N990 Filled Viton™ GLT-600S Stocks (continued)

Process Aid	None	C. Wax	18D	WS280	HT-290	PAT777	18D/ WS280	HT-290/ PAT-777
Compound*	A34-01	A34-02	A34-03	A34-04	A34-05	A34-06	A34-07	A34-08
Physical Properties at RT—Original (Cured 5 min at 177 °C [351 °F])—Post-Cured 2 hr at 232 °C [450 °F])								
M-10, MPa	0.8	0.9	0.9	0.9	0.9	0.9	1.0	1.0
M-100, MPa	3.1	3.3	3.3	3.5	3.2	3.3	3.1	3.0
Tensile, MPa	13.7	12.3	13.4	15.1	11.6	14.3	11.2	10.1
T-B, psi	1,989	1,776	1,937	2,187	1,681	2,071	1,628	1,457
Elongation, %	291	318	339	311	298	310	372	354
Hardness, A, pts	68	70	71	69	71	70	70	71
Physical Properties at RT—Original (Cured 5 min at 177 °C [351 °F])—Post-Cured 6 hr at 232 °C [450 °F])								
M-10, MPa	0.8	0.9	0.9	0.9	1.0	0.9	1.0	1.1
M-100, MPa	3.4	3.4	3.7	3.8	3.6	3.6	3.5	3.4
Tensile, MPa	16.8	15.0	17.6	17.7	16.3	18.2	15.2	13.5
T-B, psi	2,429	2,174	2,546	2,564	2,366	2,635	2,205	1,955
Elongation, %	321	292	306	296	343	322	326	327
Hardness, A, pts	70	71	72	71	73	71	73	73
Physical Properties at RT—Heat-Aged 70 hr at 250 °C (482 °F) in Oven (2 hr Post-Cure at 232 °C [450 °F])								
M-100, MPa	3.1	3.5	3.6	3.5	3.7	3.4	3.6	3.7
% Change, M100	0	6	9	-2	14	5	19	24
Tensile, MPa	15.5	15.6	16.0	16.5	16.1	16.5	15.9	15.1
% Change, T-B	13	28	20	10	39	15	42	51
Elongation, %	412	351	398	380	350	392	391	364
% Change, E-B	42	10	18	22	17	26	5	3
Hardness, A, pts	71	74	74	72	75	73	74	77
Pts Change	3	4	3	3	4	3	4	6
Physical Properties at RT—Heat-Aged 70 hr at 275 °C (527 °F) in Oven (2 hr Post-Cure at 232 °C [450 °F])								
M-100, MPa	3.0	3.4	3.8	3.4	3.6	3.2	3.5	3.4
% Change, M100	-4	4	13	-4	13	-1	15	15
Tensile, MPa	12.1	12.3	12.0	12.5	11.8	12.0	11.1	11.2
% Change, T-B	-12	0	-10	-17	2	-16	-1	12
Elongation, %	340	303	302	304	300	314	306	324
% Change, E-B	17	-5	-11	-2	1	1	-18	-9
Hardness, A, pts	71	74	75	72	75	73	76	77
Pts Change	3	4	4	3	4	3	6	6
Compression Set, Method B, O-Rings—(2 hr Post-Cure at 232 °C [450 °F])								
70 hr at 200 °C (392 °F)								
- No Post-cure	26	42	37	18	35	39	42	49
- Post-cured: 2 hr at 232 °C (450 °F)	24	31	39	22	32	27	35	39
- Post-cured: 6 hr at 232 °C (450 °F)	24	24	25	22	25	23	26	25
Volume Swell After Immersion—168 hr at 23 °C (73 °F) (2 hr Post-Cure at 232 °C [450 °F])								
Fuel C, %VS	9.8	12.3	12.0	10.0	11.8	10.5	13.1	13.6
Compound Sp. Gravity	1.817	1.804	1.811	1.813	1.809	1.815	1.811	1.811
Low Temperature Properties—(2 hr Post-Cure at 232 °C [450 °F])								
Tg by DSC, °C	-32.7	-32.8	-32.4	-32.5	-32.6	-32.7	-32.7	-32.7
TR-10, °C	-30.2	-29.7	-29.8	-30.0	-30.0	-29.8	-30.0	-30.1

*Compound reference number: DD-1992A34

Test Procedures

Property Measured	Test Procedure
Compression Set	ASTM D395, Method B (25% deflection)
Compression Set, O-Rings	ASTM D395, Method B (25% deflection)
Hardness	ASTM D1414, durometer A
Mooney Scorch	ASTM D1646, small rotor at 121 °C (250 °F)
Mooney Viscosity	ASTM D1646, ten pass at 121 °C (250 °F)
ODR (oscillating disk rheometer)	ASTM D2084
Property Change After Heat Aging	ASTM D573
Stress/Strain Properties	
100% Modulus	
Tensile Strength (T-B)	ASTM D412, pulled at 8.5 mm/sec (20 in/min)
Elongation (E-B)	
Temperature Retraction (TR-10)	ASTM D1329
Volume Change in Fluids	ASTM D471

Test temperature is 23 °C (73 °F), except where specified otherwise.

For more information, visit Viton.com

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