

Product Information

Introduction

Viton™ GAL-200S A fluoroelastomer is a 66% fluorine, peroxide-cured fluoroelastomer with a gum polymer viscosity of ~25 (ML at 121 °C (250 °F)). Viton™ GAL-200S A utilizes the latest Advanced Polymer Architecture (APA) and FWRD technologies from Chemours, enabling high performance in the most critical applications, without the use of a fluorinated surfactant during production.

Features

- Good balance of low temperature properties and chemical resistance.
- Excellent physical properties with high elongation, both original and aged in standard compounds and in formulations with no or low filler, even after aging.
- Outstanding compression set resistance with either low or no post-cure.
- Ideal for blending with other Viton™ FWRD APA grades to reach intermediate viscosity ranges for injection molding (e.g., GF-S A, GLT-S A, ...).
- Manufactured without fluorinated surfactant.

Compounding and processing

- Viton™ Curative No. 7 (VC-7) is the suggested coagent for all Viton™ GAL-200S A compounds and is usually used at a 2.5 phr level or lower, unless high modulus is needed. High levels of VC-7 can bleed out and cause molding flaws.
- The use of TMAIC (trimethylalyl isocyanurate) is not suggested, as it causes poor mold release and high compression set.
- 2,5-Bis(*tert*-butylbutoxy)-2,5-dimethylhexane is used

commonly as crosslinking peroxide, often as 45% active free flowing powder on a silica/calcium carbonate carrier. Typical levels are 1.5 phr or lower.

- The suggested process aids for Viton™ GAL-200S A are Struktol® HT-290, either alone or in combination with Struktol® WS-280 (recommended level 0.75 to 1.0phr). Armeen® 18D or PAT®-44/04 are also suitable for use with Viton™ GAL-200S A compounds.
- Viton™ GAL-200S A can be easily compounded on hot roll mills as well as in internal mixers (recommended >72% load factor for the latter)

Safety and Handling

Before handling or processing Viton™ GAL-200S A, be sure to read and be guided by the suggestions in the Chemours technical bulletin, "Handling Precautions for Viton™ and Related Chemicals".

Product Description

Viton™ GAL-200S A	
Chemical Composition	Terpolymer of hexafluoropropylene, vinylidene fluoride, tetrafluoroethylene, and a proprietary cure site monomer
Physical Form	Sheet
Appearance	Off-white to tan
Odor	None
Mooney Viscosity, ML 1 + 10 at 121 °C (250 °F)	25
Specific Gravity	1.80
Storage Stability	Excellent
Fluorine, %	~66

Table 1. General properties of Viton™ GAL-200S A

Compound		phr	
Viton™ GAL-200S A		100	
Thermax® Floform N990		30	
Zinc Oxide		3	
Viton™ Curative No. 7 (VC-7)		2.2	
Luperox® 101 XL 45		1.5	
Struktol® HT 290		1	
Rheological Properties			
Mooney Viscosity, ML 1+10 at 121 °C (250 °F)			
Final Mooney, MU		29	
Mooney Viscosity, ML 1+4 at 100 °C (212 °F)			
Final Mooney, MU		49	
MDR Cure Rate - 180 °C (356 °F) / 6 min / arc 0.5°			
ML, dNm		0.57	
MH, dNm		22.0	
Ts1, min		0.43	
Ts2, min		0.47	
T10, min		0.48	
T50, min		0.68	
T90, min		1.17	
Mooney Scorch - 135 °C (275 °F) / 45 min			
Initial Mooney, MU		21	
Minimum Mooney, MU		11	
Ts1, min		7.1	
Ts2, min		7.8	
T5, min		9.0	
T10, min		10.3	
T35, min		13.3	
Low Temperature Properties			
Tg by DSC - Polymer			
Tg, °C		-24	
Temperature Retraction – Press Cure: 10 min / 180°C (356 °F), Post-Cured: 16 hr / 230 °C (446 °F)			
TR10, °C		-21	
TR30, °C		-17	
Vulcanizate Properties			
Press Cure: 10 min / 180 °C (356 °F)	Post-Cured:	Post-Cured:	Post-Cured:
	None	4 hr / 200 °C (392 °F)	16 hr / 230 °C (446 °F)
Hardness Shore A, 1 sec			
Shore A, pts	70	72	76
Tensile Properties, Type 2, at 23 °C (73 °F)			
Tensile Strength, MPa	10.5	12.5	20.6
Elongation at Break, %	430	410	350
Modulus at 100%, MPa	2.3	2.6	3.6
Tear Strength			
Tear Strength Type B – Angle without nick Test Pieces			
Tear Strength, kN/m at 23 °C (73 °F)	23	24	28
Tear Strength, kN/m at 150 °C (302 °F)	4	4	6
Compression Set Properties:			
Curing conditions: 10 min / 180 °C (356 °F)	Post-Cured:	Post-Cured:	Post-Cured:
	None	4 hr / 200 °C (392 °F)	16 hr / 230 °C (446 °F)
Compression Set, 70 hr at 200 °C (392 °F), Type B			
Compression Set, %	29	27	24
Compression Set, 168 hr at 200 °C (392 °F), Type B			
Compression Set, %	42	39	35
Compression Set, VW, 94 hr at 180 °C (356 °F)			
Compression Set at 5 sec, %	-	-	58
Compression Set at 30 min, %	-	-	50

Table 2. Aging Properties of Viton™ GAL-200S A

Aging Properties	
Post-Cured: 16 hr / 230 °C (446 °F)	
Heat Aging, 168 hr at 250 °C (482 °F)	
Hardness Shore A, 1 sec	
Shore A, pts	78
Delta Hardness, pts	+1
Tensile Properties, Type 2, at 23 °C (73 °F)	
Tensile Strength, MPa	16.3
Delta TS, %	-21
Elongation at Break, %	365
Delta Elongation, %	+6
Modulus at 100%, MPa	3.9
Delta 100%, %	+9
Fluid Aging, 168 hr at 150 °C (302 °F) in Motul® ATF VI (Dexron® VI)	
Hardness Shore A, 1 sec	
Shore A, pts	75
Delta Hardness, pts	-2
Tensile Properties, Type 2, at 23 °C (73 °F)	
Tensile Strength, MPa	15.6
Delta TS, %	-24
Elongation at Break, %	330
Delta Elongation, %	-5
Modulus at 100%, MPa	3.4
Delta 100%, %	-6
Weight & Volume Change	
Weight Change, %	+0.7
Volume Change, %	+1.3

Table 3. Compound Ingredients

Compound Ingredients	Supplier
Thermax® Floform N990	Cancarb Limited
Zinc Oxide (99% pure, 5 microns)	Sigma-Aldrich
Viton™ Curative No. 7 (VC-7)	The Chemours Company
Luperox® 101 XL 45	Arkema
Struktol® HT 290	Schill+Seilacher

Table 4. Test Procedures

Property Measured	Test Procedure
Compression Set	ISO 815-1:2019
Compression Set VW	VW PV 3307:2004-08
Hardness	ISO 48-4:2018
MDR (moving die rheometer)	ISO 6502-3:2023
Mooney Viscosity	ISO 289-1:2015
Mooney Scorch	ISO 289-2:2020
DSC (differential scanning calorimetry)	ISO 22768:2020
Temperature Retraction	ISO 2921:2019
Fluid Aging	ISO 1817:2022
Heat Aging	ISO 188:2023
Stress/Strain Properties	ISO 37:2024
Tear Strength	ISO 34-1:2022

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

For more information, visit viton.com

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