Viton™ A-500
Fluoroelastomers

Technical Information

Introduction

Viton™ A-500* fluoroelastomer is a new generation "A-family" gum polymer that provides improved processing when compared with existing fluoroelastomers.

Viton™ A-500 is designed for use with the clean molding bisphenol curative, Viton™ Curative No. 50.

Compared with "A-family" dipolymers, Viton™ A-500 provides:

- Improved compression molding
- Better mold release
- Less mold fouling
- Faster cure rate
- Improved compression set resistance

Applications

- Compression and transfer molding
  - O-Rings
  - Gaskets
  - Seals
- Profile extrusion
- Calendered goods

Safety and Handling

Before handling or processing Viton™ A-500, please read and be guided by the recommendations as described in the Chemours technical bulletin, "Handling Precautions for Viton™ and Related Chemicals."

Viton™ A-500 should be handled similar to other types of Viton™. Keep off skin and wash well after handling. For safe handling of other compounding ingredients, please refer to the respective manufacturers' information.

Product Description

Chemical Composition	Dipolymer of hexafluoropropylene and vinylidene fluoride
Physical Form	Free-flowing pellets
Color	Silver-gray
Odor	None
Specific Gravity	1.82
Solubility	Low molecular weight esters and ketones
Storage Stability	Excellent
Mooney Viscosity, ML 1 + 10 at 121 °C (250 °F)	50

*Viton™ A-500 was formerly named VTR-6517.

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Table 1. General Properties of Viton™ A-500 Compared with Viton™ E-60C

	Viton™ A-500	Viton™ E-60C
Viton™ A-500	96.5	—
Viton™ E-60C	—	100
MT Black	30	30
High-Activity Magnesium Oxide	3	3
Calcium Hydroxide	6	6
VC-50	2.5	—
VPA No. 1	0.5	—
VPA No. 3	0.5	—
Stock Properties		
Mooney Scorch, MS at 121 °C (250 °F)		
Minimum, in·lb	47	41
Time to 1-unit rise, min	30	30
ODR at 177 °C (350 °F), Microdie, 3° Arc, 12 min		
M_L, N·m in·lbf	2.0 (17)	1.7 (15)
t_s2, min	1.5	2.1
t'90, min	2.9	4.4
M_H, N·m in·lbf	14.2 (123)	13.8 (119)
Vulcanizate Properties		
Press-Cure: 10 min at 177 °C (350 °F) Post-Cure: 24 hr at 232 °C (450 °F)		
Stress/Strain—Original		
100% Modulus, MPa (psi)	7.2 (1,050)	7.2 (1,050)
Tensile Strength, MPa (psi)	15.6 (2,260)	14.2 (2,060)
Elongation at Break, %	195	180
Hardness, durometer A, points	78	79
Stress/Strain—After 70 hr at 275 °C (528 °F)		
100% Modulus, MPa (psi)	5.6 (810)	6.6 (950)
Tensile Strength, MPa (psi)	12.5 (1,810)	12.0 (1,740)
Elongation at Break, %	205	185
Hardness, durometer A, points	78	79
Compression Set, Method B, O-Rings, %		
22 hr at 200 °C (392 °F)	9	11
70 hr at 200 °C (392 °F)	15	22
70 hr at 232 °C (450 °F)	31	43
336 hr at 200 °C (392 °F)	26	43

Test Procedures

Property Measured	Test Procedure
Compression Set	ASTM D395-85, Method B (25% deflection)
Compression Set—Low Temperature	ASTM D1299-87, Method B (25% deflection)
Compression Set, O-Rings	ASTM D1414-78 (87)
Hardness	ASTM D2240-87, durometer A
Mooney Scorch	ASTM D1646-87, using the small rotor. Minimum viscosity and time to a 1-, 5-, and 10-unit rise are reported.
Mooney Viscosity	ASTM D1646, ten pass 100 °C (212 °F) and 121 °C (250 °F)
ODR (vulcanization characteristics measured with an oscillating disk cure meter)	ASTM D2084
Property Change After Oven Heat-Aging	ASTM D573-88
Stress/Strain Properties 100% Modulus Tensile Strength Elongation at Break	ASTM D412-87, pulled at 8.5 mm/sec (20 in/min)
Stiffness, Torsional, Clash-Berg	ASTM D1043-87
Temperature Retraction	ASTM D1329-88
Volume Change in Fluids	ASTM D471-79

Note: Test temperature is 24 °C (75 °F), except where specified otherwise.

For more information, visit Viton.com

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