

## Technical Information

### Introduction

Viton™ B-601C\* is an incorporated cure “B-family” polymer that demonstrates improved processing properties when compared to older “B-family” terpolymer fluoroelastomers. The improved properties provide excellent compound flow in molding (compressions, injection, transfer) parts, where the heat and fluid characteristics of a “B-family” Viton™ are needed.

Compared with older “B-family” terpolymers, Viton™ B-601C provides:

- Fully precompounded
  - O-ring curative level
- Improved processing
  - Better mixing
  - Excellent scorch safety
  - Better mold release with less mold fouling
- Medium to fast cure rate
- Improved compression set

### Applications

O-rings, gaskets, and other molded parts requiring properties of a terpolymer “B-family” Viton™.

### Product Description

Chemical Composition	Terpolymer of hexafluoropropylene, vinylidene fluoride and tetrafluoroethylene plus cure chemicals
Physical Form	Slab
Appearance	Off-white
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)	60

### Safety and Handling

Before handling or processing Viton™ B-601C, read and follow the recommendations in the Chemours technical bulletin “Handling Precautions for Viton™ and Related Chemicals.”

Viton™ B-601C should be handled like other types of Viton™. Keep off skin and wash well after handling. For the safe handling of other compounding ingredients, please refer to the respective manufacturers’ literature.

\*Viton™ B-601C was formerly named VTR-6580.

**Table 1. Performance of Viton™ B-601C in Typical Compounds**

	Viton™ B-601C	Viton™ B	Viton™ B-50	Viton™ A-401C
Viton™ B-601C	100	—	—	—
Viton™ B	—	94.4	—	—
Viton™ B-50	—	—	94.4	—
Viton™ A-401C	—	—	—	100
High-Activity MgO	3	3	3	3
Calcium Hydroxide	6	6	6	6
MT Black (N-990)	30	30	30	30
Viton™ Curative No. 20	—	2	2	—
Viton™ Curative No. 30	—	3.6	3.6	—
<b>Stock Properties</b>				
<b>Viscosity, ML 1 + 10 at 121 °C (250 °F)</b>				
Units	103	144	116	79
<b>Mooney Scorch, MS at 121 °C (250 °F)</b>				
Minimum, in-lb	54	75	52	42
5-pt rise, min	>30	24.0	6.0	>30
<b>ODR at 177 °C (350 °F), Microdie, 3° Arc, 15 min</b>				
M <sub>t</sub> , in-lb	24	32	20	19
t <sub>3</sub> 2, min	2.9	3.4	4.0	2.1
t <sub>c</sub> 90, min	6.9	7.3	8.6	3.7
M <sub>c</sub> 90, in-lb	105	107	82	122
M <sub>H</sub> , in-lb	114	116	88	134
<b>Rosand Capillary Rheometer at 100 °C (212 °F), 1.5 mm Die, L/D = 0/1</b>				
<i>Piston Speeds</i>	<i>Shear Rate</i>	<i>Pressure, MPa</i>		
12.7 mm/min	113 sec <sup>-1</sup>	6.2	7.9	7.5
50.8 mm/min	452 sec <sup>-1</sup>	8.6	11.5	10.2
127 mm/min	1130 sec <sup>-1</sup>	10.7	19.2	13.1
<b>Vulcanizate Properties</b>				
Slabs Cured: 10 min at 177 °C (350 °F)—Post-Cured: 24 hr at 232 °C (450 °F)				
<b>Stress/Strain at 23 °C (73 °F)—Original, No post-cure</b>				
100% Modulus, MPa (psi)	4.2 (610)	4.8 (690)	4.2 (615)	4.7 (675)
Tensile Strength, MPa (psi)	10.1 (1,470)	10.2 (1,485)	9.1 (1,320)	8.8 (1,270)
Elongation at Break, %	293	270	303	211
Hardness, Durometer A, pts	80	80	82	79
<b>Stress/Strain at 23 °C (73 °F)—Original, Post-cured</b>				
100% Modulus, MPa (psi)	5.9 (850)	6.8 (980)	6.2 (895)	6.6 (955)
Tensile Strength, MPa (psi)	13.8 (2,005)	13.4 (1,945)	13.0 (1,890)	13.5 (1,960)
Elongation at Break, %	232	198	214	198
Hardness, Durometer A, pts	79	83	83	80

continued

**Table 1. Performance of Viton™ B-601C in Typical Compounds (continued)**

	Viton™ B-601C	Viton™ B	Viton™ B-50	Viton™ A-401C
<b>Stress/Strain at 23 °C (73 °F)—After Aging 70 hr at 200 °C (392 °F)</b>				
100% Modulus, MPa (psi)	5.9 (860)	7.3 (1,065)	7.1 (1,025)	6.8 (985)
Tensile Strength, MPa (psi)	14.5 (2,100)	14.4 (2,085)	13.2 (1,915)	13.4 (1,940)
Elongation at Break, %	232	195	189	183
Hardness, Durometer A, pts	80	82	85	81
<b>Stress/Strain at 23 °C (73 °F)—After Aging 168 hr at 200 °C (392 °F)</b>				
100% Modulus, MPa (psi)	5.8 (840)	7.4 (1,070)	7.1 (1,030)	6.7 (975)
Tensile Strength, MPa (psi)	12.1 (1,755)	13.6 (1,965)	13.5 (1,960)	13.6 (1,970)
Elongation at Break, %	194	181	190	187
Hardness, Durometer A, pts	81	82	83	79
<b>Stress/Strain at 23 °C (73 °F)—After Aging 70 hr at 232 °C (450 °F)</b>				
100% Modulus, MPa (psi)	6.7 (970)	7.8 (1,125)	7.1 (1,030)	7.1 (1,035)
Tensile Strength, MPa (psi)	13.6 (1,975)	14.4 (2,085)	12.8 (1,860)	12.9 (1,875)
Elongation at Break, %	186	177	173	158
Hardness, Durometer A, pts	81	82	85	79
<b>Compression Set, Method B, O-Rings, %</b>				
70 hr at 23 °C (73 °F)	12	11	17	7
70 hr at 200 °C (392 °F)	21	31	47	13
70 hr at 232 °C (450 °F)	43	59	75	30
<b>Fluid Resistance, Volume Swell, %</b>				
Fuel C, 168 hr at 23 °C (73 °F)	4	4	4	5
Methanol, 168 hr at 23 °C (73 °F)	15	16	15	62

\*1 MPa is equal to 145 psi

**Table 2. Effect of Carbon Black Level in Viton™ B-601C**

	60 phr	45 phr	30 phr	15 phr	5 phr	2 phr
Viton™ B-601C	100	100	100	100	100	100
High-Activity MgO	3	3	3	3	3	3
Calcium Hydroxide	6	6	6	6	6	3
MT Black (N-990)	45	30	15	5	2	2
<b>Stock Properties</b>						
<b>Viscosity, ML 1 + 10 at 121 °C (250 °F)</b>						
Units	123	103	90	85	83	77
<b>Mooney Scorch, MS at 121 °C (250 °F)</b>						
Minimum, in-lb	68	54	50	46	45	40
5-pt rise, min	>30	>30	>30	>30	>30	>30
<b>ODR at 177 °C (350 °F), Microdie, 3° Arc, 15 min</b>						
M <sub>v</sub> , in-lb	27	24	22	20	24	18
t <sub>5</sub> 2, min	2.2	2.9	4.0	5.0	6.1	6.9
t <sub>c</sub> 90, min	5.6	6.9	7.6	8.2	8.3	11.7
M <sub>c</sub> 90, in-lb	108	105	97	87	84	83
M <sub>H</sub> , in-lb	117	114	105	95	91	91

continued

**Table 2. Effect of Carbon Black Level in Viton™ B-601C (continued)**

	60 phr	45 phr	30 phr	15 phr	5 phr	2 phr
<b>Vulcanizate Properties</b>						
Slabs Cured: 10 min at 177 °C (350 °F)—Post-Cured: 24 hr at 232 °C (450 °F)						
<b>Stress/Strain at 23 °C (73 °F)—Original, No post-cure</b>						
100% Modulus, MPa (psi)	5.3 (765)	4.2 (610)	2.7 (390)	1.7 (245)	1.5 (215)	1.3 (195)
Tensile Strength, MPa (psi)	8.9 (1,285)	10.1 (1,470)	9.6 (1,390)	6.8 (990)	5.7 (830)	5.3 (770)
Elongation at Break, %	220	293	290	247	244	237
Hardness, Durometer A, pts	87	80	68	60	58	57
<b>Stress/Strain at 23 °C (73 °F)—Original, Post-cured</b>						
100% Modulus, MPa (psi)	7.8 (1,135)	5.9 (850)	3.3 (485)	1.9 (275)	1.7 (240)	1.4 (205)
Tensile Strength, MPa (psi)	14.3 (2,075)	13.8 (2,005)	11.9 (1,730)	9.1 (1,320)	9.3 (1,350)	6.6 (950)
Elongation at Break, %	198	232	232	234	254	231
Hardness, Durometer A, pts	89	79	68	60	59	56
<b>Stress/Strain at 23 °C (73 °F)—After Aging 70 hr at 200 °C (392 °F)</b>						
100% Modulus, MPa (psi)	8.1 (1,175)	5.9 (860)	3.6 (520)	1.9 (280)	1.6 (230)	1.4 (205)
Tensile Strength, MPa (psi)	14.8 (2,140)	14.5 (2,100)	12.6 (1,825)	9.7 (1,405)	8.8 (1,275)	8.6 (1,245)
Elongation at Break, %	189	232	226	229	242	248
Hardness, Durometer A, pts	89	80	68	62	58	57
<b>Stress/Strain at 23 °C (73 °F)—After Aging 168 hr at 200 °C (392 °F)</b>						
100% Modulus, MPa (psi)	8.3 (1,205)	5.8 (840)	3.6 (525)	2.0 (290)	1.7 (245)	1.4 (205)
Tensile Strength, MPa (psi)	14.4 (2,095)	12.1 (1,755)	12.2 (1,775)	9.0 (1,300)	7.6 (1,105)	7.9 (1,140)
Elongation at Break, %	180	194	219	219	222	242
Hardness, Durometer A, pts	89	81	69	62	59	57
<b>Stress/Strain at 23 °C (73 °F)—After Aging 70 hr at 232 °C (450 °F)</b>						
100% Modulus, MPa (psi)	9.0 (1,300)	6.7 (970)	3.5 (505)	1.9 (270)	1.7 (240)	1.3 (195)
Tensile Strength, MPa (psi)	16.0 (2,320)	13.6 (1,975)	13.0 (1,885)	9.5 (1,375)	8.8 (1,280)	8.0 (1,16)
Elongation at Break, %	175	186	221	228	241	249
Hardness, Durometer A, pts	88	81	69	60	57	55
<b>Compression Set, Method B, O-Rings, %</b>						
22 hr at 177 °C (350 °F)	12	12	6	6	6	6
22 hr at 200 °C (392 °F)	21	21	15	15	15	12
70 hr at 200 °C (392 °F)	46	43	35	38	38	43
<b>Fluid Resistance, Volume Swell, %</b>						
Fuel C, 70 hr at 23 °C (73 °F)	3	4	5	5	6	6
Methanol, 70 hr at 23 °C (73 °F)	10	15	16	18	19	20

\*1 MPa is equal to 145 psi

**Table 3. Effect of Mineral Fillers in Viton™ B-601C**

	A	B	C	D	E
Viton™ B-601C	100	100	100	100	100
High-Activity MgO	3	3	3	3	3
Calcium Hydroxide	6	3	6	6	6
MT Black (N-990)	30	30	30	30	30
VPA No. 3	—	—	0.5	1	1
Carnauba Wax	—	—	—	—	1
<b>Stock Properties</b>					
<b>Viscosity, ML 1 + 10 at 121 °C (250 °F)</b>					
Units	103	95	108	108	106
<b>Mooney Scorch, MS at 121 °C (250 °F)</b>					
Minimum, in-lb	54	53	59	59	58
2-pt rise, min	>30	>30	>30	>30	>30
<b>ODR at 177 °C (350 °F), Microdie, 3° Arc, 15 min</b>					
M <sub>L</sub> , in-lb	24	22	26	26	24
t <sub>2</sub> , min	2.9	3.5	2.6	2.3	2.4
t <sub>90</sub> , min	6.9	9.5	5.5	4.6	4.9
M <sub>c90</sub> , in-lb	105	104	105	106	113
M <sub>1+</sub> , in-lb	114	114	114	115	122
<b>Vulcanizate Properties</b>					
Slabs Cured: 10 min at 177 °C (350 °F)—Post-Cured: 24 hr at 232 °C (450 °F)					
<b>Stress/Strain at 23 °C (73 °F)—Original, No post-cure</b>					
100% Modulus, MPa (psi)	4.2 (610)	3.9 (570)	4.2 (605)	4.3 (625)	4.0 (575)
Tensile Strength, MPa (psi)	10.1 (1,470)	8.7 (1,260)	9.3 (1,350)	9.0 (1,305)	7.2 (1,045)
Elongation at Break, %	293	241	279	259	234
Hardness, Durometer A, pts	80	76	80	80	80
<b>Stress/Strain at 23 °C (73 °F)—Original, Post-cured</b>					
100% Modulus, MPa (psi)	5.9 (850)	5.1 (740)	6.0 (875)	6.0 (870)	7.1 (1,035)
Tensile Strength, MPa (psi)	13.8 (2,005)	12.2 (1,770)	12.6 (1,830)	12.0 (1,740)	13.5 (1,960)
Elongation at Break, %	232	217	207	192	177
Hardness, Durometer A, pts	79	79	82	81	82
<b>Stress/Strain at 23 °C (73 °F)—After Aging 70 hr at 200 °C (392 °F)</b>					
100% Modulus, MPa (% change)	5.9 (860)	5.3 (775)	6.1 (885)	6.5 (940)	7.7 (1,115)
Tensile Strength, MPa (% change)	14.5 (2,100)	13.6 (1,975)	13.1 (1,905)	13.7 (1,985)	14.3 (2,070)
Elongation at Break, % change	232	221	200	196	184
Hardness, Durometer A, pts	80	80	82	82	82
<b>Stress/Strain at 23 °C (73 °F)—After Aging 168 hr at 200 °C (392 °F)</b>					
100% Modulus, MPa (% change)	5.8 (840)	5.5 (795)	6.7 (970)	6.7 (965)	6.9 (1,000)
Tensile Strength, MPa (% change)	12.1 (1,755)	12.5 (1,810)	13.6 (1,970)	12.5 (1,810)	12.1 (1,760)
Elongation at Break, % change	194	207	200	182	182
Hardness, Durometer A, pts	81	79	80	82	83

continued

**Table 3. Effect of Mineral Fillers in Viton™ B-601C (continued)**

	A	B	C	D	E
<b>Stress/Strain at 23 °C (73 °F)—After Aging 70 hr at 232 °C (450 °F)</b>					
100% Modulus, MPa (% change)	6.7 (970)	5.7 (820)	7.0 (1,020)	7.4 (1,070)	7.6 (1,105)
Tensile Strength, MPa (% change)	13.6 (1,975)	13.0 (1,885)	13.6 (1,965)	14.6 (2,120)	13.7 (1,980)
Elongation at Break, % change	186	192	177	181	170
Hardness, Durometer A, pts	81	79	82	82	82
<b>Compression Set, Method B, O-Rings, %</b>					
70 hr at 23 °C (73 °F)	12	9	9	9	9
70 hr at 200 °C (392 °F)	21	16	18	18	25
70 hr at 232 °C (450 °F)	43	35	41	43	54
<b>Fluid Resistance, Volume Swell, %</b>					
Fuel C, 70 hr at 23 °C (73 °F)	4	4	4	4	4
Methanol, 70 hr at 23 °C (73 °F)	15	16	15	15	17

### Test Procedures

Property Measured	Test Procedure
Compression Set	ASTM D3955, Method B (25% deflection)
Compression Set, O-Rings	ASTM D1414
Hardness	ASTM D2240, durometer A
Mooney Scorch	ASTM D1646, using the small rotor. Minimum viscosity and time to a 1-, 2-, 5-, and 10-unit rise are reported.
Mooney Viscosity	ASTM D1646, ten pass 121 °C (250 °F)
ODR (vulcanization characteristics measured with an oscillating disk cure meter)	ASTM D2084
Property Change After Oven Heat-Aging	ASTM D573
Stress/Strain Properties 100% Modulus Tensile Strength Elongation at Break	ASTM D412, pulled at 8.5 mm/sec (20 in/min)
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](http://Viton.com)

The information set forth herein is furnished free of charge and based on technical data that Chemours believes to be reliable. It is intended for use by persons having technical skill, at their own discretion and risk. The handling precaution information contained herein is given with the understanding that those using it will satisfy themselves that their particular conditions of use present no health or safety hazards. Because conditions of product use are outside our control, Chemours makes no warranties, express or implied, and assumes no liability in connection with any use of this information. As with any material, evaluation of any compound under end-use conditions prior to specification is essential. Nothing herein is to be taken as a license to operate under or a recommendation to infringe any patents.

NO PART OF THIS MATERIAL MAY BE REPRODUCED, STORED IN A RETRIEVAL SYSTEM OR TRANSMITTED IN ANY FORM OR BY ANY MEANS ELECTRONIC, MECHANICAL, PHOTOCOPYING, RECORDING OR OTHERWISE WITHOUT THE PRIOR WRITTEN PERMISSION OF CHEMOURS.

© 2016 The Chemours Company FC, LLC. Viton™ and any associated logos are trademarks or copyrights of The Chemours Company FC, LLC. Chemours™ and the Chemours Logo are trademarks of The Chemours Company.

Replaces: VTE-H71114-00-D0710

C-11085 (12/16)