MOMENTIVE
performance materials

FSE7140

Fuel & Solvent Resistant
40 Durometer Fluorosilicone Compound

Product Description

FSE7140 compound is a 40-durometer high strength fluorosilicone compound useful for a wide variety of solvent resistant silicone rubber applications. FSE7140 accepts extended fillers and can be blended with other fluorosilicone rubber compounds.

Key Performance Properties

- Fuel and solvent resistant elastomer
- Useful over a broad temperature range
- Accepts filler for compounding stocks to higher durometers

Applications

- Seals
- Gaskets
- Connectors

Typical Properties Data

Typical Properties of Uncured Compound

Properties	FSE7140
Specific Gravity	1.42±03
Appearance	Light Tan
Polymer Classification (ASTM D-1418)	FVMQ

The following properties were obtained on compression molded 0.075 inch ASTM sheets of FSE7140 fluorosilicone gum. The curing agent quantity level is based on 100 parts by weight of compound.

Formulation of Test Specimens
Curing Agent Type:
2.5 dimethyl 2,5 di(t-butyl peroxy) hexane 50% active powder
Press Cure: 10 Minutes @ 177C (350F)
Curing Agent Level: 1.0
Post Cure: 4 hours @ 200C (392F)

ASTM Test Method	**Property**	**Typical Values**	**GE Quality Control Specifications**
	Specific Gravity, gr/cm^3	1.41	1.42±.03
D-2240	Hardness, Durometer A	41	40±5
D-412	Tensile Strength, psi	1500	1100 min.
D-412	Elongation,%	500	300 min.
D-624	Tear Resistance, Die B, pi	165	150 min.
D-395	Compression Set, % 22 hrs. @ 177C (350F)	15	25 max.
	Heat Age (70 hrs. @ 200C (392F)		
D-573	Durometer A, points change	+2	

	Tensile Strength, % change	-13	-30% max.
	Elongation, % change	-10	-30% max.
	Electrical Properties		
D-149	Dielectric Strength, volt per mil	378	
D-150	Dielectric Constant at 102 cps.	6.45	
	@ 103 cps.	6.44	
	@ 104 cps.	6.43	
	@ 105 cps.	6.40	
D-150	Dissipation Factor		
	@ 102 cps.	0.0031	
	@ 103 cps.	0.0016	
	@ 104 cps.	0.003	
	@ 105 cps.	0.005	
D-257	Volume Resistivity, ohm-centimeters	4.50 x 1012	

Electrical test run on 74 mil sheets.

Fuel & Solvent Resistance

Fluid	**Durometer A Immersion Condition**	**Tensile Point Change**	**Strength %Change**	**Elongation %Change**	**%Volume Change**
Fuel B	22 hrs. @ 25C (77F)	-7	-62	-49	22
Mil H-5606	2 hrs. @ 24C (77F)	-4	-24	-10	2
JP-4	70 hrs. @ 25C (77F)	-5	-45	-29	12
JP-5	70 hrs. @ 25C (77f)	-4	-38	-18	7
Methanol	7 days @ 25C (77F)	-5	-45	-12	3
Ethanol	7 days @ 25C (77F)	-4	-40	-18	9
Unleaded Gasoline	7 days @ 25C (77F)	-9	-61	-41	36
Skydrol 500 B-4	48 hrs. @ 70C (158F)	-13	-70	-39	25
Skydrol LD-4	48 hrs. @ 70C (158F)	-20	-88	-67	80
Mil L-7808	70 hrs. @ 150C (302F)	-7	-29	-10	8

Filler Loadings - Typical Values (Comparison Against MIL-R-25988B)

Formulation				
SE7140	100	100	100	100
Micron Minusil		20	50	50
MS-7 Cabosil				5
Varox Powder (50% active)	1.0	1.0	1.0	1.0

Sheet Preparation: Press Cure: 10 Minutes @ 177C(350F)
Post Cure: 4 Hrs. @ 204C (400F)
Mil Spec Limits: Type II, Class 1

	Grade 40		Grade 50		Grade 60		Grade 70	

A - Typical Physical Properties
B - GE Quality Control Specifications

Physical Properties	**A**	**B**	**A**	**B**	**A**	**B**	**A**	**B**
Hardness, Shore A	39	40±5	47	50±5	59	60±5	70	70±5
Tensile Strength, psi	1,490	800	1,040	900	930	900	980	950
Elongation, %	540	225	350	200	195	175	170	150
Tear-B ppi	175	40	160	40	120	40	135	75
Specific Gravity	1.41		1.54		1.67		1.69	
Comp. Set % 70 hr. @ 25C(77F)	6	15	7	15	9	15	15	15
22 hr. @ 177C (350F)	16	25	11	35	16	40	23	25
Heat Age 70 hrs. @ 200C (392F)								
Durometer A, Point Change	+2	+10,-5	+2	+10,-5	+3	+10,-5	+3	+10,-5
Tensile Strength, % Change	-13	-130	-4	-25	+2	-25	-7	-20
Elongation, % Change	-10	-25	-4	-25	-5	-25	-12	-25
Fluid Immersion Fuel B (TT-S-735 TY III) 22 hrs. @ 25C(77F)								
Durometer A, Point Change	-9	-15	-10	-15	-13	-20	-10	-20
Tensile Strength, % Change	-47	-65	-18	-55	-16	-50	-21	-45
Elongation, % Change	-31	-60	-17	-50	-13	-40	-24	-35
Volume Change, %	23	30	22	25	19	25	16	25
Fluid Immersion Stauffer 7700 (AMS 3021) 70 hrs. @ 150C (302F)								
Durometer A, Point Change	-7	±15	-7	±15	-9	±15	-6	±15
Tensile Strength, % Change	-18	-45	-12	-45	-27	-45	-21	-40
Elongation, % Change	-8	-30	-4	-30	+3	-30	-6	-25
Volume Change, %	8	15	8	15	6	15	6	15

Note: The above data comparison to the military specification does not imply that these formulations will meet the requirements of that specification. It is only offered for preliminary formulation guidelines. You must determine for yourself whether your formulation and your compound satisfy MIL-R-25988B requirements.

Typical Curing Agents

Peroxides	Commercial Grades	Form	Level %	Typical Molding Temperatures	Recommended Use
Bis (2,4 Di-chlorobenzoyl Peroxide	Perkadox[1] PD50-S	50% Active Paste		104-132C (220-270F)	Hot Air Vulcanization
Benzoyl Peroxide	CADOX[1] BS or LUPERCO[2] AST	50% Active Paste		116-138C (240-280F)	Molding, Steam Curing
DiCumyl Peroxide	DI-CUP[3] 40C	40% Active Powder		154-177C (310-360F)	Molding Thick Sections, Bonding, Steam Curing
2,5 DiMethyl 2,5 Di(t-butyl Peroxy) Hexane	VAROX[4] or LUPERCO[2]101-XL	50% Active Powder		166-182C (330-360F)	Molding Thick Sections, Bonding, Steam Curing

CURING AGENT SUPPLIERS

[1] Perkadox and Cadox are registered trademarks of Akzo Chemical
[2] Luperco is a registered trademark of Atochem North America
[3] Di-Cup is a registered trademark of Hercules, Inc.
[4] Varox is a registered trademark of R.T. Vanderbilt Co.

Specifications

Typical product data values should not be used as specifications. Assistance and specifications are available by contacting Momentive Performance Materials at 800/255-8886.

FABRICATION

Various organic peroxides will vulcanize FSE7140 fluorosilicone compound. Fabricators should make their selection of curing agent on the basis of method of fabrication, desired properties, and safety considerations. The optimum cure cycle will depend on the method of processing used and the physical dimensions of the vulcanized product. Specific applications will require the use of air oven post cures.

Handling and Safety

Material Safety Data Sheets are available upon request from Momentive Performance Materials. Similar information for solvents and other chemicals used with GE products may be obtained from your suppliers. When solvents are used, proper safety precautions must be observed.

Caution: FSE7140 fluorosilicone should not be heated or used above 288C (550F). At higher temperatures toxic decomposition products may be evloved.2,4-Cichlorobenzoyl peroxide catalyst (CAS#133-14-2) may generate polychlorinated biphenyls during the curing process. Consult Federal Regulation 40CFR part 761 for inadvertent PCB generation regulation.

Storage & Warranty Period

The warranty period is 8 months from date of shipment from Momentive Performance Materials if stored in the original unopened container at 43C (110F).

Availability

Momentive Performance Materials products may be ordered from Momentive Performance Materials, Waterford, N.Y. 12188, the Momentive Performance Materials sales office nearest you or where appropriate, an authorized Momentive Performance Materials product distributor.

Government Requirement

Prior to considering use of a Momentive Performance Materials' product in fulfilling any Government requirement, please contact the Government and Trade Compliance office at 413-448-4624.

LEGAL DISCLAIMER

THE MATERIALS, PRODUCTS AND SERVICES OF MOMENTIVE PERFORMANCE MATERIALS, THEIR SUBSIDIARIES OR AFFILIATES (THE "SUPPLIER"), ARE SOLD SUBJECT TO THE SUPPLIER'S STANDARD CONDITIONS OF SALE, WHICH ARE INCLUDED IN APPLICABLE SALES AGREEMENTS, PRINTED ON THE BACK OF ACKNOWLEDGMENTS AND INVOICES, OR AVAILABLE UPON REQUEST. ALTHOUGH THE INFORMATION, RECOMMENDATIONS OR ADVICE CONTAINED HEREIN IS GIVEN IN GOOD FAITH, SUPPLIER MAKES NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, (I) THAT THE RESULTS DESCRIBED HEREIN WILL BE OBTAINED UNDER END-USE CONDITIONS, OR (II) AS TO THE EFFECTIVENESS OR SAFETY OF ANY DESIGN INCORPORATING SUPPLIER'S MATERIALS, PRODUCTS, SERVICES, RECOMMENDATIONS OR ADVICE. NOTHING IN THIS OR ANY OTHER DOCUMENT SHALL ALTER, VARY, SUPERSEDE OR OPERATE AS A WAIVER OF ANY OF THE SUPPLIER'S STANDARD CONDITIONS OF SALE.

Each user bears the full responsibility for making its own determination as to the suitability of Supplier's materials, products, services, recommendations or advice for its own particular purpose. Each user must identify and perform tests and analyses sufficient to assure it that its finished parts will be safe and suitable for use under end-use conditions. Because actual use of products by the user is beyond the control of Supplier, such use is within the exclusive responsibility of the user, and Supplier cannot be held responsible for any loss incurred through incorrect or faulty use of the products. Further, no statement contained herein concerning a possible or suggested use of any material, product, service or design is intended or should be construed to grant any license under any patent or other intellectual property right of Supplier or any of its subsidiaries or affiliated companies, or as a recommendation for the use of such material, product, service or design in the infringement of any patent or other intellectual property right.