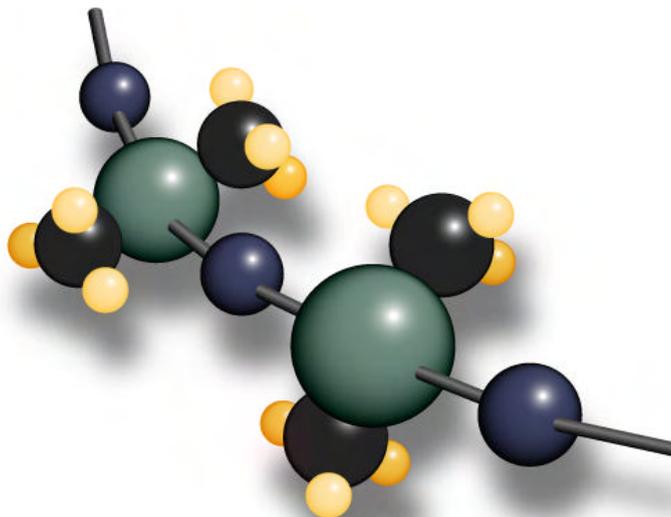


Polymer Systems Technology Limited

UK & Ireland Distributor



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FS-3780

Fluorosilicone High Consistency Elastomer

Product Profile

Description

- Un-catalyzed, high consistency elastomers (HCR)
- Strained through a 400-mesh screen (minimum) to ensure freedom from particulate contamination

Applications

- Applications requiring solvent resistance
- Transfer and compression molding parts such as: o-rings, gaskets, stoppers and seals
- Calendering and extruding
- Applications requiring an operating temperature range of -65°C to 240°C (-85°F to 465°F)

Typical Properties

	Result	Metric Conv.	ASTM	NT-TM
Uncured:				
Appearance	Translucent, white to light gray	-	D2090	002
Plasticity	165 mils	4.2 mm	D926	058
Volatile Content	1.0 %	-	D2288	004
Cured, Peroxide (CAT-102): 5 minutes @ 116°C in heat press				
Mix Ratio: 100 : 1.2 Base:Catalyst*				
Specific Gravity	1.44	-	D792	003
Post-Cured: 2 hours @ 177°C in oven. Stabilize for 3 hours minimum at ambient temp. and humidity				
Durometer, Type A	50	-	D2240	006
Tensile Strength	1400 psi	9.7 MPa	D412	007
Elongation	325%	-	D412	007
Tear Strength	150 ppi	26.5 kN/m	D624	009
Stress @ 200% Strain	800 psi	5.5 MPa	D412	007
Cured, Addition (CAT-50): 10 minutes @ 150°C in heat press. Stabilize for 3 hours minimum at ambient temp. and humidity				
Mix Ratio: 100 : 0.85 : 0.03 : 0.04 Base:Crosslinker:Inhibitor:Catalyst* (FS-3780 : XL-110 : CAT-41 : CAT-50)				
Specific Gravity	1.44	-	D792	003
Durometer, Type A	50	-	D2240	006
Tensile Strength	1200 psi	8.3 MPa	D412	007
Elongation	500%	-	D412	007
Tear Strength	160 ppi	28.2 kN/m	D624	009
Stress @ 200% Strain	415 psi	2.9 MPa	D412	007

*Catalyst, Crosslinker, and Inhibitor are all sold separately

Instructions for Use, Peroxide

FS-3780 is fully compounded except for catalyst. As a result, the amount of catalyst needed for a given application often cannot be determined accurately by theory or laboratory experiments. The most practical way to establish the correct amount of catalyst is to experiment using the elastomer and equipment that will be used for production. It is the responsibility of the user to observe all precautions for the safe handling of the peroxide and appropriate removal of decomposition products. Several organic catalyst are suitable for vulcanizing this product. Contact NuSil Technology LLC for information on catalyst selection.

Catalyst Addition

On a two-roll mill, soften the product to a smooth consistency. Add the peroxide and thoroughly blend into the product, taking care not to generate excess heat.

Packaging

1 Pound (450 g)
 5 Pound (2.27 kg)
 25 Pound (11.38 kg)

Warranty

12 Months

Caution

During vulcanization, oven-curing, and post-curing, vapors containing polychlorinated biphenyl (PCB), and other residual volatile byproducts of vulcanization may be released in small amounts, which may be harmful. Work areas must be well ventilated, and workers should avoid inhalation of vapors. Review the Material Safety Data Sheets for specific information.

Molding

Mold these thermosetting elastomers by the standard techniques of compression, transfer or injection molding. Molding cycle times are dependent on the mold temperature and cross-sectional thickness of the part. It is best to use highly polished, chrome-plated or stainless steel molds for these operations. Other polished metals will normally require release agents to prevent sticking. If using release agents, clean the parts prior to use.

Extrusion

Extrude the elastomer through an unheated die to make rod, tubing and coated wire. Accomplish vulcanization with this fabricating technique by passing the extrusion through a horizontal or vertical heated chamber. The residence time in the chamber varies with the size of the extrusion. For maximum uniformity, re-soften the elastomer on a two-roll mill the same day it is extruded.

Cure Considerations

Cures in contact with most materials. Exceptions include butyl and chlorinated rubbers, some RTV silicones and unreacted residues of some curing agents. Containers and dispensers being used should be clean and dry. Cure inhibition can usually be prevented by washing all containers with clean solvent or volatilizing the contaminants by heating.

Post-curing

The peroxide vulcanized elastomer contains 2,4-dichlorobenzoyl peroxide. The post-cure serves two purposes: post-curing removes the volatile components and other residuals generated from the decomposition of the peroxide during vulcanization, and post-curing stabilizes and enhances the physical properties of the elastomers.

Accomplish post-curing by heating the vulcanized material in a hot air circulating oven to a predetermined temperature for the required length of time. The oven must have an exhaust system of sufficient capacity to prevent volatiles from reaching an explosive level. The exhaust system should be vented so as to prevent worker exposure. The time required for post-curing at a given temperature depends upon the rate at which the volatiles can escape from the elastomer, which in turn depends upon the thickness of the part, the exposed surface area and the oven loading.

Instructions for Use, Addition

FS-3780 is fully compounded except for catalyst, crosslinker, and inhibitor. As a result, the amount of catalyst, crosslinker, and inhibitor needed for a given application often cannot be determined accurately by theory or laboratory experiments. The most practical way to establish the correct amount of catalyst is to experiment using the elastomer and equipment that will be used for production. It is the responsibility of the user to observe all precautions for the safe handling of the peroxide and appropriate removal of decomposition products. Several organic catalyst are suitable for vulcanizing this product. Contact NuSil Technology LLC for information on catalyst selection.

Curing Agent Addition

On a two-roll mill, soften the product to a smooth consistency. Add the catalyst, crosslinker, and inhibitor and thoroughly blend into the product, taking care not to generate excess heat.

Molding

Mold these thermosetting elastomers by the standard techniques of compression, transfer or injection molding. Molding cycle times are dependent on the mold temperature. It is best to use highly polished, chrome-plated or stainless steel molds for these operations. Other polished metals will normally require release agents to prevent sticking. If using release agents, clean the parts prior to use.

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Warnings About Product Safety

NuSil Technology LLC believes that the information and data contained herein are accurate and reliable. However, the user is responsible to determine the material's suitability and safety of use. NuSil Technology LLC cannot know each application's specific requirements and hereby notifies the user that it has not tested or determined this material's suitability or safety for use in any application. The user is responsible to adequately test and determine the safety and suitability for their application and NuSil Technology LLC makes no warranty concerning fitness for any use or purpose. NuSil Technology LLC has completed no testing to establish safety of use in any medical application.

NuSil Technology LLC has tested this material only to determine if the product meets the applicable specifications. (Please contact NuSil Technology LLC for assistance and recommendations when establishing specifications.) When considering the use of NuSil Technology LLC products in a particular application, review the latest Material Safety Data Sheets and contact NuSil Technology LLC with any questions about product safety information.

Do not use any chemical in a food, drug, cosmetic, or medical application or process until having determined the safety and legality of the use. The user is responsible to meet the requirements of the U.S. Food and Drug Administration (FDA) and any other regulatory agencies. Before handling any other materials mentioned in the text, obtain available product safety information and take the necessary steps to ensure safety of use.

Specifications

Do not use the typical properties shown in this technical profile as a basis for preparing specifications. Please contact NuSil Technology LLC for assistance and recommendations in establishing particular specifications.

Patent Warning

NuSil Technology LLC disclaims any expressed or implied warranty against the infringement of any patent. NuSil Technology LLC does not warrant the use or sale of the products described herein will not infringe the claims of any United States' or other country's patents covering the product itself, its use in combination with other products or its use in the operation of any process.

Warranty Information

NuSil Technology LLC's warranty period is 12 months from the date of shipment when stored below 40°C in original unopened containers. Unless NuSil Technology LLC provides a specific written warranty of fitness for a particular use, NuSil Technology LLC's sole warranty is that the product will meet NuSil Technology LLC's then current specification. NuSil Technology LLC specifically disclaims any other expressed or implied warranty, including warranties of merchantability and fitness for use. The exclusive remedy and NuSil Technology LLC's sole liability for breach of warranty is limited to refund of purchase price or replacement of any product shown to be other than as warranted. NuSil Technology LLC expressly disclaims any liability for incidental or consequential damages.