FS-3781

Fluorosilicone high consistency elastomer

DESCRIPTION

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

APPLICATION

- Applications requiring solvent resistance
- Transfer and compression molding parts such as: o-rings, gaskets, stoppers and seals
- Calendering and extruding

PROPERTIES

Typical Properties	Average Result	Standard	NT-TM
Uncured:			
Appearance	Translucent	ASTM D2090	002
Plasticity	110 mils (2.8 mm)	ASTM D926	058
Cured: 30 minutes at 120°C (248°F), then post-cured 1 hour at 150°C (302°F)			
Specific Gravity	1.33	ASTM D792	003
Durometer, Type A	30	ASTM D2240	006
Tensile Strength	850 psi (5.9 MPa)	ASTM D412	007
Elongation	300%	ASTM D412	007
Tear Strength	40 ppi (7.1 kN/m)	ASTM D624	009
Percent Swell (166 hours in JP8 at 60°C (140°F))	15%	ASTM D471	038

Properties tested on a lot-to-lot basis. Do not use the properties shown in this technical profile as a basis for preparing specifications. Please contact NuSil Technology for assistance and recommendations in establishing particular specifications.

INSTRUCTIONS FOR USE

The unvulcanized elastomer is a soft material that typically will crepe-harden with time. This phenomenon is reversible by "re-softening" the material on a two-roll mill. In general, freshly softened elastomers have better processing characteristics; therefore, milling to a smooth consistency before use is advised regardless of the elastomer's age. Minimize heating the material when milling to prevent premature partial curing. Also accomplish addition of fillers and pigments on the mill.

Caution

Avoid foreign organic material absorption through contact or vapor and contamination from handling or processing equipment. 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 by standard techniques of compression, transfer or injection molding. Molding cycle times depend 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.

Calendering

Calender the elastomer into sheeting with or without reinforcement. Make sheeting by calendering onto a laminate such as Mylar or polyethylene for vulcanized and unvulcanized sheeting, respectively. If using Mylar, strip off the Mylar after vulcanization while the sheet is still hot. If using polyethylene, strip off the polyethylene before vulcanization. Long lengths of Mylar laminated sheeting can be calendered on a core and vulcanized in a hot air oven or steam autoclaved.

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.

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.

Packaging	Warranty
5 Pound (2.27 kg) 10 Pound (4.54 kg)	12 Months

OPERATING TEMPERATURE

The operating temperature range of a silicone in any application is dependent on many variables, including but not limited to: temperature, time of exposure, type of atmosphere, exposure of the material's surface to the atmosphere, and mechanical stress. In addition, a material's physical properties will vary at both the high and low end of the operating temperature range. Silicone typically remains flexible at extremely low temperatures and has been known to perform at -50°C (-58°F) as well as resist breakdown at elevated temperatures up to 250°C (482°F). The user is responsible to verify performance of a material in a specific application.

ROHS AND REACH COMPLIANCE

Please contact NuSil Technology's Regulatory Compliance department with any questions or for further assistance

SPECIFICATIONS

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

WARRANTY INFORMATION

The warranty period provided by NuSil Technology LLC (hereinafter "NuSil Technology") is 12 months from the date of shipment when stored below 40°C in original unopened containers. Unless NuSil Technology provides a specific written warranty of fitness for a particular use, NuSil Technology's sole warranty is that the product will meet NuSil Technology's then current specification. NuSil Technology specifically disclaims all other expressed or implied warranties, including, but not limited to, warranties of merchantability and fitness for use. The exclusive remedy and NuSil Technology'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 expressly disclaims any liability for incidental or consequential damages.

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NuSil Technology has tested this material only to determine if the product meets the applicable specifications. (Please contact NuSil Technology for assistance and recommendations when establishing specifications.) When considering the use of NuSil Technology products in a particular application, review the latest Material Safety Data Sheet and contact NuSil Technology 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, the user is advised to obtain available product safety information and take the necessary steps to ensure safety of use.

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