

MED-4174

Silicone Elastomer

Product Profile

Description

- An uncatalyzed high consistency material
- Catalyze with various peroxides to form a medium durometer rubber
- Strained through fine mesh stainless steel screens to ensure freedom from particulate contamination

Applications

- For fabricating molded and extruded silicone rubber parts

NuSil Technology's MED-4174 is a restricted product. It shall not be considered for use in human implantation for a period of greater than 29 days.

Typical Properties	Result	Metric Conv.	ASTM	NT-TM
Uncured:				
Plasticity	105 mils	-	D926	058
Appearance	Translucent	-	D9020	002
Cured: 5 minutes @ 116°C in heat press. Mix ratio: Add 1.0 pph of catalyst (Percadox PD-50S) to 100 pph base				
Specific Gravity	1.15	-	D792	003
Post Cured: 4 hours at 205°C (400°F)				
Durometer, Type A	50	-	D2240	006
Tensile Strength	1,200 psi	8.3 MPa	D412, D882	007
Elongation	775%	-	D412, D882	007
Tear Strength, Die B	225 ppi	39.7 kN/m	D624	009
Stress @ 200% Strain	325 psi	2.2 MPa	D412, D882	007

Instructions for Use

Unvulcanized MED-4174 is a soft, translucent material that typically will crepe-harden with time. This phenomenon is reversible, and the elastomer may be "re-softened" by two-roll milling. 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. It is important to minimize heating of the material when milling to prevent premature partial curing when adding the peroxide. Maintain the elastomer at less than 43°C (109°F) during milling.

Molding

Mold using standard techniques. Molding cycle times depend on mold temperature and the part's cross-sectional thickness. Use highly polished chrome-plated or stainless steel molds for these operations. If using other polished metals, use release agents to prevent sticking. If using release agents, clean the parts prior to use. It is recommended that the vulcanized parts be adequately post-cured.

Extrusion

For maximum uniformity, resoften the elastomer on a two-roll mill the same day it is being extruded. Extrude through an unheated die to make rod, tubing and coated wire. Accomplish vulcanization by passing the extrusion through a horizontal or vertical heated chamber. The residence time in the chamber varies with the extrusion's size. It is recommended that the vulcanized tubing be adequately post-cured.

Packaging

1 Lb. (450 g)
 5 Lb. (2.27 kg)
 25 Lb. (11.38 kg)

Warranty

6 Months

Post-curing

Post-curing removes volatile components and other residuals generated from peroxide decomposition during vulcanization. Post-curing also stabilizes and enhances the elastomer's physical properties. 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.

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.

FDA Master Access File

A Master Access File for MED-4174 has been filed with the U.S. Food and Drug Administration. Customers interested in authorization to reference the Master Access File must contact NuSil Technology.

Warnings About Product Safety

NuSil Technology believes the information and the data contained herein are accurate and reliable. However, the user is responsible to determine the material's suitability and safety of use. NuSil Technology 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 makes no warranty concerning fitness for any use or purpose. NuSil Technology has completed no testing to establish safety of use in any medical application.

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, 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 for assistance and recommendations in establishing particular specifications.

Patent Warning

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Warranty Information

NuSil Technology's warranty period is 6 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 any other expressed or implied warranty, including 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.