MOMENTIVE™

Technical Data Sheet

FRV138

FRV138

Description

FRV138 is a flowable, two-component fluorosilicone encapsulant that cures to a soft, flexible silicone rubber.

FRV138 encapsulant, which has the consistency of a firm gel, is an ideal candidate to consider for use in applications where resistance to the swelling effects of fuels, oils, solvents and other chemicals is needed. The flowable consistency of this product allows it to be applied in parts where small or deep crevices need to be filled. FRV138 encapsulant is easily dispensed via manual or automated dispense equipment. Typical applications include, but are not limited to, potting and encapsulation of sensors and other electronic circuit assemblies.

Key Features and Benefits

- Chemical Resistance: Resists swelling by hydrocarbon solvents, dimethyl silicone fluids and fuels
- Primerless Adhesion: Adheres to many substrates
- Low Temperature Cure: 90°C for approximately 1 hour
- Broad Temperature Range: Retains elastomeric properties at temperatures of -40°C to 150°C
- Ozone Resistant: High quality weatherability
- Electrical Insulation: Excellent properties

Typical Physical Properties

UNCURED PROPERTIES	
Appearance	Translucent flowable liquid
Pot life [hr]	> 8
Cure Time at 90°C [hr]	1
Viscosity, Part A at 25°C [cSt]	11500
Viscosity, Part B at 25°C [cSt]	8000
Mix Ratio (by weight or volume)	1:1
CURED PROPERTIES(1)	
Specific Gravity (25°C)	1.3
Hardness -Shore 00	55
Tensile Strength [psi]	44
Elongation [%]	73
Storage Modulus, G' (25°C) [psi]	6
CTE(2) [ppm/°C]	630
a_1, a_2 [ppm/°C]	-20, 870
Glass Transition [°C]	-45
Electrical Properties	
Dielectric Constant	7.2
Volume Resistivity (Ohm•cm)	1.6×10^{10}

Chemical Resistance[3] Swell %	
ASTM Oil #1	0.2
Synthetic Motor Oil	0.5
Automatic Transmission Fluid	1.1
JP-8 Jet Fuel (25°C)	4.8

(1) Cured for 1 hour at 150°C

(2) Measured by TMA from -35°C to 170°C

(3) Properties obtained after 70-hour immersion at 150°C except as noted.

Information is provided for customer convenience. These properties are not tested on a routine basis.

Patent Status

Nothing contained herein shall be construed to imply the nonexistence of any relevant patents or to constitute a permission, inducement or recommendation to practice any invention covered by any patent, without authority from the owner of the patent.

Product Safety, Handling and Storage

Customers should review the latest Material Safety Data Sheet (MSDS) and label for product safety information, safe handling instructions, personal protective equipment if necessary, and any special storage conditions required for safety. MSDS are available at www.momentive.com or, upon request, from any Momentive Performance Materials (MPM) representative. **For product storage and handling procedures to maintain the product quality within our stated specifications, please review Certificates of Analysis, which are available in the Order Center**. Use of other materials in conjunction with MPM products (for example, primers) may require additional precautions. Please review and follow the safety information provided by the manufacturer of such other materials.

Processing Recommendations

Compatibility

FRV138 silicone encapsulant will cure in contact with most clean and dry surfaces. However, certain materials, such as butyl and chlorinated rubber, sulfur-containing materials, amines, and certain metal soap can cause cure inhibition. Cure inhibition is characterized by a lack of cure of the silicone rubber at the interface between it and the substrate. Compatibility tests should be performed on all materials in contact with silicone rubber, including painted surfaces, to ensure adequate cure. It is recommended that a sample patch test be performed with the silicone adhesive to determine if a barrier coating or other inhibition-preventing measures are necessary before using the material.

Mixing

When hand mixing, select a mixing container 4-5 times larger than the volume of RTV silicone rubber compound to be used.Weigh out equal amounts of parts A and B. With clean tools,horoughly mix the two components, scraping the sides and bottom of the container carefully to produce a homogenous mixture. When using power mixers, avoid excessive speeds, which could entrap large amounts of air or cause overheating of the mixture, resulting in shorter pot life.

De-Aeration

Air entrapped during mixing should be removed to eliminate voids in the cured product. Expose the mixed material to a vacuum of about 29 inches (25mm) of mercury. The material will expand,crest, and recede to about the original level as the bubbles break.Degassing is usually complete about two minutes after frothing ceases. Automatic equipment designed to meter, mix, de-aerate,and dispense two component silicone rubber products will add convenience to continuous or large volume operations.

Curing

FRV138 is designed to be thermally (heat) cured and will cure sufficiently in approximately 1 hour at 90°C. Cure times may be affected by many variables including but not limited to thickness of specimen, temperature used, oven type, oven loading,and the equipment used. For more detailed information on curing properties, contact Momentive Performance Materials at 800.295.2392.

Equipment

Pumping and meter-mixing systems for two part silicones are available from a number of manufacturers, most of whom will provide a complete integrated system. Contact Momentive Performance Materials for further information.

Surface Preparation

FRV138 silicone encapsulant will bond to many surfaces without the aid of a primer. Surfaces should be thoroughly cleaned with a suitable solvent to remove dirt, oil, grease and other contaminants. Particular attention should be paid to those areas that will come in direct contact with the adhesive during the curing process.

Bonding

For best adhesion, surfaces to be bonded should be thoroughly cleaned and dry. If a solvent is used to clean the substrates prior to use, steps must be taken to ensure the solvent has completely evaporated prior to application of the silicone rubber compound.or difficult-to-bond-to substrates or where more aggressive chemical adhesion is desired, a Momentive Performance Materials silicone primer may be used. For more details on priming and adhesion, please refer to the Momentive Performance Materials product data sheet on silicone primers.

Limitations

Customers must evaluate Momentive Performance Materials products and make their own determination as to fitness of use in their particular applications.

From automotive to healthcare, from electronics to construction, products from Momentive Performance Materials Inc. are practically everywhere you look. We are a global leader in silicones and advanced materials with a 70+ year heritage of innovation and being first to market – with performance applications that improve everyday life. By knowing our customers' needs and creating custom technology platforms for them, we provide science based solutions to help customers increase performance, solve product development issues and engineer better manufacturing processes.

Contact Information For product prices, availability, or order placement, contact our customer service by visiting momentive.com/ContactSilicones.

For literature and technical assistance, visit our website at: www.momentive.com