Technical Data Sheet

DOWSIL™ 3-8219 RF Silicone Foam

FEATURES & BENEFITS

- Medium hardness (Shore 00)
- Reduced flow aids application to inclined surfaces
- User-friendly, easy to handle 1:1 mix ratio
- Fast ambient temperature cure, no need for temporary storage of equipped parts
- Low compression set which is retained at high service temperatures
- Stable and flexible over a wide temperature range

Two-part, room temperature curing silicone foam system

APPLICATIONS

- DOWSIL™ 3-8219 RF Silicone Foam is designed to be dispensed and cured directly on parts to form an integrated compression gasket.
- Typical applications include automotive parts, housings for electric devices, exterior lighting and domestic appliance components.

TYPICAL PROPERTIES

Specification Writers: These values are not intended for use in preparing specifications.

CTM[1]	Property	Unit	Result	
As supplied			**Part A**	**Part B**
0176	Appearance		Dark gray	Translucent
0050	Viscosity[2] at 23°C	mPa.s	15,000–30,000	20,000–70,000
0001	Specific gravity at 23°C		1.07	0.99
After mixing Part A and Part B 1:1 at 23°C				
0092	Snap time	sec	150–210	
0095	Tack free time	min	maximum 10	
1149	Flow	cm	maximum 23	
Physical properties cured at 23°C and tested after 24 hours				
0016	Density	kg/m³	240–320	
0099	Hardness Shore 00		45	
0085 Compression set 50% compression				
	22 hours at 70°C non-post-cured	%	24	
	22 hours at 70°C post-cured (post-cured 1 hour at 100°C)	%	5	
	Stress-strain characteristics in compression, 50% compression	kPa	110	

[1]CTM: Corporate Test Method, copies of CTMs are available on request.
[2]Part B is thixotropic - hence the wide viscosity range obtainable after shear thinning.

DESCRIPTION

DOWSIL 3-8219 RF Silicone Foam is a reduced-flow medium hardness product, primarily developed as a dispensed 'foamed-in-place' gasket material for the automotive and industrial assembly & maintenance industries. When the A and B liquid components are thoroughly mixed in a 1:1 ratio by volume, the product will expand and cure to a foamed elastomer in approximately 10 minutes at room temperature. This foam has a fine cell structure and functions as a seal or gasket where long service life, chemical resistance, good weatherability and low compression set are required. The product has been formulated such that the flow of the curing material is limited in order to aid application to inclined surfaces. The hardness makes the product suitable for applications with medium clamping pressure. Furthermore, the inherent properties of a silicone elastomer mean that the product can be used over a broad temperature range.

HOW TO USE

Mixing

To ensure a uniform final foam structure an equal volume of Part A and Part B should be thoroughly mixed. The product has been specifically designed with a favorable 1:1 mix ratio to suit robotic application via meter/mix/dispense equipment. Mixing can be achieved either by static or (preferably) dynamic mixing. The type and degree of mixing and shear can significantly affect the cell structure, cure and density of the final foam product.

How to apply

The meter/mix equipment can be attached to a robotic arm/wrist applicator or on an X-Y-Z table for automatic dispensing. The mixed material can be applied into a groove onto flat surfaces or contoured parts depending on the specific flow characteristics.

Cure time

DOWSIL 3-8219 RF Silicone Foam is a fast reacting material, thus allowing parts to be equipped at a high production rate and avoiding the need for temporary storage to fully develop the cure. As supplied and when properly mixed, DOWSIL 3-8219 RF Silicone Foam has a snap time of typically 3 minutes at 23°C and is cured within about 10 minutes. Being a highly reactive system, the cure and snap time are very dependent upon the temperature of the components just before and after they are mixed.

Exposure of the foam material to elevated temperatures up to 50°C can shorten the cure time. In order to eliminate eventual residual surface tackiness a brief heat treatment for 5–10 minutes at 60–90°C can be carried out. Additionally, to optimize compression set, a post-cure at higher temperatures (100°C) can be performed (see Typical Properties table).

Note: See handling precautions, gas evolution. Larger pieces of cured foam should be conditioned for 24 hours at room temperature before exposure to higher temperatures.

Adhesion

DOWSIL 3-8219 RF Silicone Foam is not designed to build up adhesion but it exhibits some adhesion to most common substrates such as glass, steel and to some plastics. Adhesion to most substrates can usually be promoted by use of DOWSIL™ 1200 OS Primer. Substrates to which good adhesion is not normally obtained include PTFE, polyethylene, polypropylene and related materials.

Good adhesion cannot be expected to substrates known to inhibit the cure of DOWSIL 3-8219 RF Silicone Foam.

Inhibition of cure

DOWSIL 3-8219 RF Silicone Foam is susceptible to cure inhibition when in contact with certain materials and chemicals. This can result in incomplete cure or a sticky product. Amines and sulphur containing materials are strong inhibitors, as are organotin salts as used in condensation cure silicones. Some epoxies, amides and related materials can also cause inhibition, although the effect is not generally seen with plastics derived from such materials. Substrates must be clean, dry and free of contaminants such as plasticizers or oils.

To avoid inhibitor contamination of the A and B liquid components, dispensing tubes and seals used in meter/mix equipment must be made of PTFE rather than conventional plastic or rubber materials.

In all cases it is recommended that Dow be consulted in order to advise on potential inhibition problems.

Gas Evolution

Immediately upon mixing DOWSIL 3-8219 RF Silicone Foam Part A and Part B, a chemical reaction takes place that results in the evolution of flammable hydrogen gas. APPROPRIATE CAUTION SHOULD BE EXERCISED!

Keep away from sparks and open flames. Adequate ventilation must be provided to prevent localized build-up of hydrogen gas concentration. Also on mixing, some exotherm accompanies the reaction and waste material must be handled, disposed and stored with due regard to this precautionary information, e.g. it should NOT be sealed in plastic bags and large quantities should NOT be allowed to accumulate.

If Part B of DOWSIL 3-8219 RF Silicone Foam comes in contact with strong acids, bases or oxidizing materials, it could generate hydrogen. Ensure that containers are properly closed after use in order to avoid any contamination of the contents.

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HANDLING PRECAUTIONS

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USABLE LIFE AND STORAGE

When stored at or below 30°C in the original unopened containers, DOWSIL 3-8219 RF Silicone Foam has a usable life of 6 months from the date of production.

PACKAGING INFORMATION

DOWSIL 3-8219 RF Silicone Foam is available as kits in standard industrial containers sizes suitable for use in commercially available meter/mix equipment. For details please refer to your sales office.

LIMITATIONS

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

HEALTH AND ENVIRONMENTAL INFORMATION

To support customers in their product safety needs, Dow has an extensive Product Stewardship organization and a team of product safety and regulatory compliance specialists available in each area.

For further information, please see our website, www.consumer.dow.com or consult your local Dow representative.

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