Information about Fluorosilicone Sealants

DOW CORNING

DESCRIPTION

DOW CORNING® Q4-2817 fluorosilicone sealant, resistant to fuels, oils and solvent, is designed and manufactured for use by the aerospace, aircraft and automotive industries.

Supplied as a ready-to-use material, DOW CORNING Q4-2817 fluorosilicone sealant cures completely at room temperature to a tough, rubbery solid that is flexible from -57 to 260 C (-70 to 500 F). It resists weathering, moisture and ozone, has good adhesion to most materials, and retains most of its properties under exposure to fuel and oil.

USES

DOW CORNING Q4-2817 fluorosilicone sealant was specifically developed for use on equipment that is exposed to solvents, oil or fuel. As a coating, it protects surfaces exposed to fuel from erosion and corrosion. Typical uses include bonding or sealing components exposed for long periods to moisture, vibration, shock, fuel and solvents. Additionally, DOW CORNING Q4-2817 fluorosilicone sealant is an excellent material for sealing fuel tanks.

HOW TO USE

Application

DOW CORNING Q4-2817 fluorosilicone sealant is supplied in a polyethylene cartridge which can be used with handguns or power-operated guns. A source listed for this equipment is available upon request.

Once extruded, DOW CORNING Q4-2817 fluorosilicone sealant will not flow or slump and can be easily tooled with a spatula or knife blade before it starts to skin over.

DOW CORNING Q4-2817 fluorosilicone sealant may be dispersed in methyl ethyl detone (MEK) and applied by brushing, dipping or spraying.

DOW CORNING® Q4-2817 Fluorosilicone Sealant

Type	Ready-to-use fluorosilicone rubber adhesive
Physical Form, as supplied	One-part paste
as cured	Tough, rubbery solid
Cure	Room Temperature
Special Properties	Good adhesion and bond strength; fuel- and solvent-resistant; easy to use
Primary uses	Environmental protection and bonding or sealing of aircraft components exposed to fuels

TYPICAL PROPERTIES

These values are not intended for use in preparing specifications.

As Supplied	
Color	Red
Specific Gravity at 25 C (77 F)	1.8
Nonvolatile Content, after 24 hrs at 70 C (158 F), percent	96
Application Data[1]	
Rate of Extrusion, g/minute (1/8-inch orifice, 90 psi air)	60
Flow (MIL-S-7502 Jig), inches	Nil
Skinover Time, minutes	15
Tack-Free Time, minutes	60
Set-up Time, hours (for cure to penetrate 1/8 inch from exposed surface)	120
Full Cure Time, days (to develop optimum physical properties)	14
As Cured – After 7 days at 25 C (77 F) and 50% RH	
Durometer Hardness, Shore A	45
Tensile Strength, psi	600
Elongation, percent	300
Tear Strength, die B, ppi	85
Brittle Point, °C (°F)	Below -65 (-85)
Peel Strength[2], ppi	40
Fuel Resistance – After Exposure in Jet Reference Fuel for 7 days at 60 C (140 F)	
Durometer Hardness, Shore A	37
Tensile Strength, psi	550
Elongation, percent	255
Peel Strength[2], ppi	30

[1]Standard conditions: 25 ± 2 C (77 ± 3.6 F), 50 ± 5% relative humidity.

[2]Measured on specimens cured for 7 days at standard conditions on 2024 clad aluminum treated with DOW CORNING 1200 RTV prime coat.

Specification Writers: Please obtain a copy of the Dow Corning Sales Specification for this product, and use it as a basis for your specifications. It may be obtained from any Dow Corning Sales Office, or from Dow Corning Product Information in Midland, MI. Call (517) 496-6000.

CAUTION: On contact, uncured sealant causes irritation. Avoid contact with eyes and skin. Contact lens wearers take appropriate precautions. In case of contact, flush eyes with water. Call a physician. Remove from skin with a dry cloth or paper towel. Sealant releases acetic acid (vinegar-like odor) during cure. Keep out of reach of children.

Curing

DOW CORNING Q4-2817 fluorosilicone sealant begins curing on exposure to moisture in the air. It will skin over in 15 minutes or less at ordinary room temperature. Skinover time may be reduced under conditions of high temperature or humidity. The material beneath the "skin" continues to cure, and sections up to 1/8-inch thick become a rubbery solid in about 120 hours. Curing time increases as the thickness of the rubber increases and also as the degree of confinement increases.

Absolute confinement can prevent cure and cause inferior adhesion. Every application involving confinement during cure should be thoroughly tested before commercialization. Inadequate cure can result in a softening of the sealant at elevated temperatures.

Bonding

DOW CORNING Q4-2817 fluorosilicone sealant bonds well to most materials used in the aerospace, aircraft and automotive industries, including glass, cured silicone rubber, cork, phenolic, polyester, epoxy, silicone resin laminates, stainless steel, titanium and aluminum. Materials to which the sealant will not adhere include polyethylene, and certain rubbers, plastics and organic materials which bleed or exude fluids such as plasticizers.

The substrate should be cleaned with an appropriate solvent and a slightly abrasive pad, rinsed with acetone, and then primed with a thin film of DOW CORNING® 1200 RTV prime coat. The primer should be allowed to dry for at least 30 minutes. Silicone rubber surfaces should not be primed, but only roughened slightly with sandpaper and rinsed with acetone.

If this produce is being used as an adhesive between two surfaces, it should be applied to one surface in a uniform thickness of 10 to 30 mils. The other surface should then be put in place and enough pressure exerted to displace the air and ensure uniform contact between the adhesive and both surfaces. Best adhesion is obtained with a 10- to 30-mil glue line.

After applying DOW CORNING Q4-2817 fluorosilicone sealant, let the unit stand undisturbed at room temperature. Cure time will depend upon the thickness of material, degree of confinement, and the permeability of the parts being joined.

If adhesion fails to develop due to confinement or excessive sealant thickness, a layer of dispersed sealant in MEK should be applied and allowed to cure completely before applying sealant.

STORAGE AND SHELF LIFE

DOW CORNING Q4-2817 fluoro-silicone silicone sealant has a shelf life of 12 months from date of manufacture.

CAUTION

TOXIC VAPORS MAY BE EVOLVED IF MATERIAL BURNS. TRACE AMOUNTS OF TOXIC VAPORS MAY ALSO BE EVOLVED IF MATERIAL IS HEATED ABOVE 149 C (300 F). CONSULT MATERIAL SAFETY DATA SHEET IF USE TEMPERATURE WILL EXCEED 149 C (300 F). Provide adequate ventilation if temperatures are likely to range above this point.

DOW CORNING 1200 RTV prime coat is flammable. Keep away from heat and open flame. Use only with adequate ventilation. Avoid prolonged breathing of vapor or prolonged repeated skin contact.

SAFE HANDLING INFORMATION

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED. BEFORE HANDLING, READ PRODUCT AND MATERIAL SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE MATERIAL SAFETY DATA SHEET IS AVAILABLE FROM YOUR DOW CORNING REPRESENTATIVE, OR DISTRIBUTOR, OR BY WRITING TO DOW CORNING CUSTOMER SERVICE, OR BY CALLING (517) 496-6000.

LIMITED WARRANTY – PLEASE READ CAREFULLY

Dow Corning believes that the information contained in this publication is an accurate description of the typical characteristics and/or uses of the product or products, but it is your responsibility to thoroughly test the product in your specific application to determine its performance, efficacy and safety. Suggestions of uses should not be taken as inducements to infringe any particular patent.

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