

Dow Corning[®] XTI-1003 RTV Silicone Rubber Insulation

FEATURES & BENEFITS

- High tensile strength
- High elongation
- Thermally stable
- Low thermal conductivity
- Two-part, Room Temperature Vulcanizing (RTV) Silicone Rubber
- Durable and flexible material with excellent insulating properties
- Excellent silicone to silicone adhesion for creating strong joints
- Material is easy to apply with good working time
- Addition cure reaction with no by-products

COMPOSITION

- Two-part silicone rubber supplied as a pourable liquid which cures to a flexible translucent or yellow rubber depending on selection of curing agent

High-strength silicone rubber insulating material for use on subsea energy production equipment

APPLICATIONS

- Thermal insulation and protective coating for application on subsea equipment components subjected to deep-water immersion

TYPICAL PROPERTIES

Specification Writers: These values are not intended for use in preparing specifications. Please contact your local Dow Corning sales office or your Global Dow Corning Connection before writing specifications on this product.

Property	Unit	Result
Appearance		Translucent or Yellow
Viscosity (Base)	cP	55,000
As Catalyzed 10:1 Ratio, by weight		
Working time at 25°C (77°F)	Minutes	90
Cure time at 25°C (77°F)	hours	12
As Cured – Physical Properties		
Specific gravity		1.08
Durometer Hardness, Shore A		40
Tensile strength	MPa	5.5
Elongation	%	325
Thermal conductivity (Dry 0°C to 100°C)	W/mK	0.17
Thermal conductivity (Aged Wet)	W/mK	0.17
Specific heat CP at 135°C	J/g°C	1.70
Tm	°C	-46

DESCRIPTION

Dow Corning[®] XTI-1003 RTV Silicone Rubber Insulation is a two-part silicone rubber designed as a flexible material which maintains excellent stability even in extreme conditions. This high-strength silicone rubber cures at room temperature through an addition-reaction cure in unlimited thickness, regardless of part configuration or degree of confinement.

HOW TO USE

Casting Preparation

The mold should be thoroughly cleaned using an appropriate solvent to remove any grease, oil or other surface contamination. Certain contaminants can inhibit or even prevent *Dow Corning* XTI-1003 RTV Silicone Rubber from curing so care should be used to insure all surfaces are cleaned including corners and crevices.

A light “blow over” with compressed air is advised should the mold have convoluted draws or undercuts.

A mold release agent should then be wiped or sprayed on the surface to facilitate easy de-molding. It is recommended that areas where material will be over cast silicone to silicone (making a joint) not have a release agent so as to not reduce the ability of the material to bond to itself.

If additional bonding is necessary to improve adhesion to corrosion coating or other substrate, it is recommended that a primer be used. Contact your local Dow Corning representative for primer recommendations appropriate to the desired substrate to be bonded with.

Addition of the Curing Agent

Dow Corning[®] XTI-1003 Base and Curing agent are produced as a two part system to be used in a 10:1 mix ratio. It should be noted that varying the ratio of the *Dow Corning* XTI-1003 Curing Agent will not hasten or slow the rate of cure appreciatively. It can however, result in lowering the physical properties of the cured rubber if gross errors in rationing occur. For best results and a consistent color when using *Dow Corning* XTI-1003 Yellow Curing Agent it is necessary to mix prior to use so as to re-disperse the pigment. The curing agent should be added just before use with the use of mechanical mixing with little or no introduction of air into the system as this may cause voids in the finished insulation.

Casting Catalyzed Material

When casting catalyzed *Dow Corning* XTI-1003 RTV Silicone Rubber it is best to pump material into the mold from the bottom up to avoid air entrapment. For large casts, it is necessary to include air vents at the top most portions of the mold to allow for proper venting of air. For intricate molds which have complex angles and joints, it may be necessary to have several air vents spaced along the tool.

Working Time

Upon mixing the curing agent into the base, the *Dow Corning* XTI-1003 RTV Silicone Rubber remains pourable for up to 90 minutes after being mixed at room temperature.

Curing

The cure of *Dow Corning* XTI-1003 RTV Silicone Rubber occurs by a reaction between the base polymer and the curing agent. This polymerization typically requires 12 hours after the addition of the curing agent at room temperature (23°C). For some applications, where applied in temperatures below RT, it is recommended to allow it to cure for 24 hours or until material reaches its final hardness before de-molding. This material will not revert or depolymerize, even under conditions of elevated temperature and confinement. Vulcanization can be accelerated by heating the catalyzed material. The rate at which a thick section will cure depends on the size and shape of the piece and the ability for heat to penetrate when casting at elevated temperatures.

It may be necessary to apply a primer to the surface of the corrosion coating substrate to improve bonding of the *Dow Corning* XTI-1003 insulation in service use. Contact your *Dow Corning* technical or sales representatives for further information.

Inhibition of Cure

All addition-cure silicone elastomers are susceptible to cure inhibition when in contact with certain chemicals. Amines and sulfur containing materials are strong inhibitors for silicone elastomers such as these. It is strongly recommended that mixing equipment, mold construction materials, areas to be insulated and even some release agents be checked for any inhibition effects before use. Inhibition can be identified when a catalyzed elastomer is only partially cured after 12 hours, or has a sticky surface in contact with another material. If noted, clean the

affected area with an appropriate solvent.

HANDLING

PRECAUTIONS

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. 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 ON THE DOW CORNING WEBSITE AT DOWCORNING.COM, OR FROM YOUR DOW CORNING SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CORNING CUSTOMER SERVICE.

USABLE LIFE AND STORAGE

Dow Corning XTI-1003 Base and Curing Agent should be stored in closed containers at or below room temperature for maximum stability.

The materials have a shelf life of 18 months from the date of manufacture.

PACKAGING INFORMATION

Dow Corning XTI-1003 Base is supplied in 200 kg drums with *Dow Corning* XTI-1003 Curing Agent supplied in 20 kg pails.

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 Corning* has an extensive Product Stewardship organization and a team of Product Safety and Regulatory Compliance (PS&RC) specialists available in each area.

For further information, please see our website, dowcorning.com or consult your local Dow Corning representative.

**LIMITED WARRANTY
INFORMATION – PLEASE
READ CAREFULLY**

The information contained herein is offered in good faith and is believed to be accurate. However, because conditions and methods of use of our products are beyond our control, this information should not be used in substitution for customer's tests to ensure that our products are safe, effective, and fully satisfactory for the intended end use. Suggestions of use shall not be taken as inducements to infringe any patent.

Dow Corning's sole warranty is that our products will meet the sales specifications in effect at the time of shipment.

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