

# Shin-Etsu

## Shin-Etsu Silicone

# KE 45 RTV Silicone

### **PRODUCT DESCRIPTION**

- One-component product
- Thixotropic
- Low corrosion
- Low odor
- General purpose sealing, bonding and gasketing

Shin-Etsu KE 45 RTV adhesive/sealant is a paste-like, one-component material that cures to a durable, resilient silicone rubber when exposed to moisture in the air at room temperature. Due to its non-sag, non-flowable features, it may be applied overhead or on sidewall joints and surfaces. It will adhere to glass, most types of wood, clean metals, silicone resins, ceramics, vulcanized silicone rubber, natural and synthetic fibers, and many

plastic surfaces. With its oxime neutral curing system, KE 45 RTV can be used for general sealing as well as electrical insulation. It presents no offensive odor during curing and will not corrode metal. (Discoloration of copper-based metals may occur when hermetically sealed.) In addition, KE 45 RTV silicone adheres well on alkali materials such as mortar and white cement.

Fully cured KE 45 RTV adhesive/sealant can withstand long-term temperatures of up to 450°F (232°C) and intermittent temperatures as high as 500°F (260°C).

Shin-Etsu KE 45 RTV silicone is available in clear, black, white, aluminum, gray, dark brown and bronze

### **APPLICATIONS**

- Electrical insulation sealing
- Adhering auto and appliance trim including metal, fabric and fabric-backed plastics
- Bonding gaskets in heating and refrigeration units
- Attaching screwless brackets or nameplates, and tacking plastic materials to metal
- Sealing windows in oven doors and flues on gas appliances, flanged pipe joints, access doors
- Formed-in-place gasketing for gear boxes, compressors, pumps
- Sealing trailers, truck cabs
- Bonding and sealing appliance parts
- Bonding signs and sign letters
- Anti-abrasion coating
- Sealing marine cabins and windows
- Filletting and caulking joints in sheet metal stacks, duct work and equipment housings

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## DIRECTIONS FOR USE

### Surface Preparations

Shin-Etsu KE 45 RTV adhesive/sealant will bond to many clean surfaces without the aid of a primer. A sample test/evaluation should be made to determine the bond strength for each specific application. For difficult-to-bond substrates, use of a compatible Shin-Etsu primer is recommended with this product. (Complete information and usage instructions for these primers are contained in a separate data sheet.)

Prior to bonding all surfaces should be thoroughly cleaned with an environmentally suitable solvent to remove dirt, oil, and grease. The surface should be allowed to dry before applying a primer or the elastomer.

When solvents are used, proper safety precautions must be observed. All solvents must be considered toxic and must be used only in well ventilated areas. Exposure to high vapor concentration must be avoided. Where flammable solvents are used, storage, mixing and use must be in areas away from heat, sparks, open flames or other sources of ignition.

### Dispensing

Shin-Etsu KE 45 RTV silicone is a ready-to-use, one-component material, available in collapsible squeeze tubes, caulking cartridges and bulk containers. Collapsible tubes may be squeezed by hand or with the aid of mechanical wringers. Air-operated dispensing guns may also be used with tubes. When dispensed from a caulking cartridge, the sealant may be dispensed using a simple mechanical caulking gun or an air-operated gun. *Note: When using air-powered caulking guns, do not exceed 45 psig.*

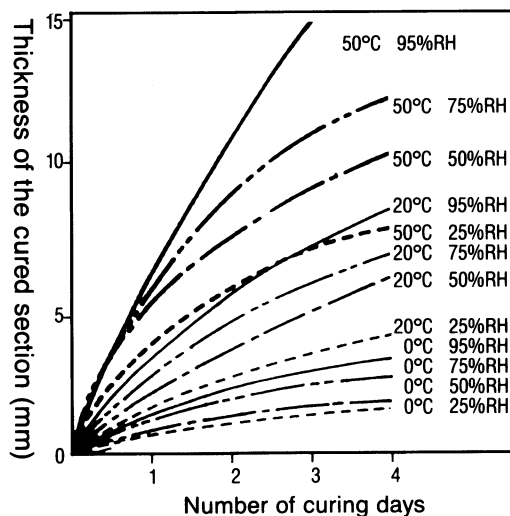
Bulk dispensing systems are air-operated extrusion pumps coupled to hand or automated dispensing units. Pumps specifically designed for one-component RTV silicone rubber have Teflon® seals, packings and lined hoses to prevent moisture permeation and pump cure problems. Specific details on dispensing systems and manufacturers are available from Shin-Etsu Silicones of America, Inc.

## Curing

The cure process begins with the formation of a skin on the exposed surface of the sealant and progresses inward through the material. In conditions of 75°F (24°C) and 50% relative humidity, a tack free skin should form within 20 minutes of application. All tooling should be completed within the first 5 to 10 minutes, and is no longer practical once the tack-free skin has formed. Should masking tape be used to mask off an area, it too should be removed within this initial 5 to 10-minute period and prior to the formation of the tack-free skin.

High temperatures and high humidity will accelerate the cure process; low temperatures and low humidity will conversely slow the cure rate.

### KE 45



Relationship between the curing speed and the temperature

## Bond Strength

In addition to the effects of temperature and relative humidity, development of maximum bond strength will depend on joint configuration, degree of confinement, sealant thickness and substrate porosity. Normally, sufficient bond strength will develop in 12 to 24 hours to permit handling of parts. Minimum stress should be applied to the bonded joint until full adhesive strength is developed. Eventually the adhesive strength of the bond will exceed the cohesive strength of the silicone rubber adhesive/sealant itself. Always allow maximum cure time available for best results.

## Clean Up and Removal

Before curing, use the same environmentally suitable solvent used to clean the substrate. After cure, selected chemical strippers which will remove the silicone rubber are available from other manufacturers. Specific product information may be obtained upon request.

## Handling and Safety

These products are manufactured and sold for industrial use only.

Uncured product contact irritates eyes. In case of contact with eyes, immediately flush eyes with water for 15 minutes. If irritation persists, get medical attention. Wearers of contact lenses should not handle lenses until all sealant has been cleaned from the fingertips; sealant will transfer to lenses and cause severe eye irritation. To clean from the skin, wipe very thoroughly with a dry cloth or paper towel before washing with soap and water. Uncured product contact may irritate the skin.

Material Safety Data Sheets are available upon request from Shin-Etsu Silicones of America, Inc. Similar information for solvents and other chemicals used with our products may be obtained from your suppliers.

## Storage

When stored in the original unopened containers in a dry location at temperatures less than 80°F (27°C), Shin-Etsu KE 45 RTV offers a shelf life of up to six months from date of shipment.

To prevent curing of the unused portion of an opened container, reseal tightly.

## MILITARY SPECIFICATIONS

Shin-Etsu KE 45 RTV silicone is designed to meet the requirements of MIL-A-46106A, Amend 2, Type I.

## BUILDING SPECIFICATIONS

Shin-Etsu KE 45 RTV silicone is designed to meet the requirements of TTS-001543C Class A and TTS-00230C Class A.

## TYPICAL CURED PROPERTIES KE 45 RTV SILICONE

<b>Uncured Properties:</b>	
Color	Various
Viscosity	Thixotropic
Specific Gravity	1.05
<b>Cured Properties<sup>(1)</sup>:</b>	
Hardness, (Shore-A)	30
Tensile Strength, kg/cm <sup>2</sup> (1b/in <sup>2</sup> )	19 (270)
Elongation, (%)	310
Tear Strength, kg/cm (1b/in)	7.2 (40)
Peel Strength, kg/cm (1b/in) <sup>(2)</sup>	2.7 (15)
<b>Electrical Properties:</b>	
Dielectric Strength, (v/mil)	500
Dielectric Constant @ 60 Hz	2.6
Dissipation Factor @ 60 Hz	.001
Volume Resistivity, (ohm-cm)	1 x 10 <sup>15</sup>

(1) Cure time 7 days/77°F (25°C)/50% RH

(2) at 100% cohesive failure using 1 in. x 8 in. stainless steel screen at 180° pull angle

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## **SPECIFICATIONS**

The information and data contained herein are believed to be accurate and reliable; however, it is the user's responsibility to determine suitability of use. Since Shin-Etsu Silicones cannot know all of the uses to which its products may be put or the conditions of use, it makes no warranties concerning the fitness or suitability of its products for a particular use or purpose.

You should thoroughly test any proposed use of our products and independently conclude satisfactory performance in your application. Likewise, if the manner in which our products are used requires governmental approval or clearance, you must obtain it.

Shin-Etsu Silicones warrants only that its products will meet its specifications. There is no warranty of merchantability of fitness for use, nor any other expressed or implied warranties. The user's exclusive remedy and Shin-Etsu Silicones' sole liability is limited to refund of the purchase price or replacement of any product shown to be otherwise than as warranted. Shin-Etsu Silicones will not be liable for incidental or consequential damages of any kind.

Suggestions of uses should not be taken as inducements to infringe any patents.

## **AVAILABILITY**

Shin-Etsu silicone rubber silicone sealants are available from Shin-Etsu Silicones of America, Inc. or from its authorized silicone products distributors. For the name of your nearest distributor or for more information on these products contact:

The logo for Shin-Etsu, featuring the word "Shin-Etsu" in a bold, stylized, italicized font. The letters are black with a white outline, and the "E" in "Etsu" is particularly prominent.

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