



# XIAMETER® RBL-9694-45M Kit

## Two-part silicone elastomer for integrated compression seals

### FEATURES

- Two-part addition cure silicone elastomer
- User-friendly, easy to handle 1:1 mix ratio
- High tear resistance
- Low compression set
- Good adhesion to many substrates
- Long term stability over a wide temperature range (-50°C to +200°C)

### BENEFITS

- Hardness suitable for sealing applications under high clamping loads
- Non-sag nature yields accurate, uniform gasket beads of precise dimensions as defined by robot application parameters
- Fast cure at elevated temperatures, no post curing
- Does not require solvents, CFCs or other environmentally harmful materials for processing

### APPLICATIONS

- XIAMETER® RBL-9694-45M Kit is designed to be dispensed and cured directly on automotive and other industrial components to form integrated gaskets. Typical applications include gaskets for components which require high clamping forces, e.g. cam covers, water pumps, ABS modules and thermostat housings.

### TYPICAL PROPERTIES

Specification Writers: These values are not intended for use in preparing specifications. Please contact your local XIAMETER® sales representative prior to writing specifications on this product.

ASTM <sup>1</sup>	Test	Unit	Value	
	<b>As supplied</b>		<b>Part A</b>	<b>Part B</b>
	Consistency		Pumpable paste	
	Color		Black	White
CTM <sup>2</sup> 0364 G	Extrusion rate <sup>3</sup>	g/minute	77	98
D56	Flash point - closed cup	°C	>100	>100
	<b>As mixed 1:1 ratio</b>			
	Color			Black
D1298	Specific gravity			1.20
D5289-92	Cure time T90% (115°C)	s		34
	<b>As cured (5 minutes 150°C) - Physical Properties</b>			
D2240	Durometer hardness	Shore A		45
D412C	Tensile strength, Die C	MPa		7.25
D412C	Elongation at break	%		600
D412C	Modulus 100%	MPa		1.45
D624B	Tear strength, Die B	kN/m		45
	Compression set, - 25%			
D395B	Compression for 22 hours at 177°C	%		29
	Lap Shear Adhesion (10 minutes 150°C)			
D816	on Aluminum	MPa		1.64
	on PA 66 GF 30	MPa		1.35

<sup>1</sup>ASTM: American Society for Testing and Materials.

<sup>2</sup>CTM: Dow Corning Corporate Test Method

<sup>3</sup>Extrusion rate: 90 PSI, 1/8 INCH ORIFICE.

### DESCRIPTION

XIAMETER RBL-9694-45M Kit is a two component heat-cure silicone elastomer, designed to be easily mixed and dispensed via meter-mix equipment. It is cured directly

on automotive and other industrial components to form an integrated, high strength compression seal. It is resistant to many industrial fluids (e.g. engine oils, water/glycol mixtures) over a broad

temperature range with the exception of fuels and non-polar solvents.

## **THE CURED-IN-PLACE GASKET CONCEPT (CIPG)**

The 'Cured-in-Place-Gasket' concept made possible with XIAMETER RBL-9694-45M Kit provides a successful alternative to traditional gasketing methods using manually installed preformed rubber gaskets. This approach provides greater design flexibility as the robotically applied liquid silicone beads can easily follow complex surface geometries. Additionally, changes in part design can be rapidly accommodated by reprogramming the dispensing system. The extruding seals are applied and positioned with excellent reproducibility time after time, ensuring good sealing performance. Equally important, the sealing/curing process lends itself ideally to a continuous, fully automated operation thus providing meaningful savings on the costs associated with manual gasket installation.

## **HOW TO USE**

### **Substrate preparation**

XIAMETER RBL-9694-45M Kit adheres to many metallic and plastic substrates (normally without using primer). This feature ensures the cured gaskets will not be displaced during packaging or handling of the sealed component. Regardless of the substrate, the sealing surfaces should be clean and free of dirt, oils, and release agents to ensure good adhesion. In most instances washing with waterbased industrial detergents will remove these contaminants.

Some substrates however will require additional treatment to achieve good adhesion. This could mean plasma, corona, flame treatment or chemical priming. Contact Dow Corning for more information.

### **Processing**

XIAMETER RBL-9694-45M Kit is optimally mixed, dispensed and applied to the components to be sealed using a fully automated and integrated process.

### **Metering/Mixing**

The mixing step is successfully carried out with commercially available two-component meter-mix pumps designed to work on a 1:1 weight ratio. The A and B components are pumped from pails or drums using follower-plate mounted piston pumps, then fed into smaller, precise gear or piston pumps where the actual metering takes place. The precisely metered A and B components are then mixed by means of standard multi-element static mixers. The working time of the A/B mixture at room temperature is about 4-6 hours and this eliminates the danger of blocking the mixer with cured product during normal production stops.

For information on suitable metering and mixing equipment, contact a XIAMETER® brand technical representative.

### **Application**

For automated bead application the mixing head is attached to a robotic arm or alternatively the wrist applicator of an X-Y-Z table gantry.

Typically the meter-mix equipment and the robot or X-Y-Z table are fully integrated in a system which dispenses

precisely metered volumes of uncured elastomer in a pre-programmed path onto the component to be sealed. The desired bead dimensions are achieved by a combination of parameters involving the pump throughput rate, the dispensing head diameter and tip speed, and the distance from tip to component surface. The non-sag nature of XIAMETER RBL-9694-45M Kit ensures that the dispensed bead dimensions remain unchanged after the bead is cured. The gasket bead size is a function of the sealing gap and the flange width.

### **Curing**

Curing and adhesion of XIAMETER RBL-9694-45M Kit gasket beads are achieved by submitting the uncured elastomer to a temperature of 150°C for 6-8 minutes. In an automated process the components to be sealed will typically be mounted on a conveyor system and the bead applied by robot with a typical cycle time of 10 to 45 seconds per component (depending on size). The gasket beads are then cured by passing the sealed components through a heating tunnel. The required cure time of 6-8 minutes is obtained by appropriate dimensioning of the tunnel length for a given conveyor speed. A particularly efficient way to transfer heat to the elastomer for effective curing, and to minimize heat dissipation in the mass of the component, is the use of focused infrared heating elements.

## **TECHNICAL SERVICES**

For specific information and technical service relating to sealing technologies please contact a XIAMETER brand technical representative.

## **PRODUCT SAFETY INFORMATION**

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, ENVIRONMENTAL, AND HEALTH HAZARD INFORMATION. THE MATERIAL SAFETY DATA SHEET IS AVAILABLE ON THE XIAMETER WEB SITE AT WWW.XIAMETER.COM.

XIAMETER RBL-9694-45M Kit is nonhazardous and non-flammable according to classification guidelines as laid down in EU-Directive 88/379/EEC and its subsequent amendments. The part B of XIAMETER RBL-9694-45M Kit can evolve hydrogen when in contact with hydroxy containing materials such as water, alcohols and others. Ensure that containers are properly closed after use in order to avoid contamination of the components.

## **STORAGE**

Product should be stored at or below 35°C in original, unopened containers. The most up-to-date shelf life information can be found on the XIAMETER Web site in the Product Detail page under Sales Specification.

## **LIMITATIONS**

This product is neither tested nor represented as suitable for medical or pharmaceutical uses. Not intended for human injection. Not intended for food use.

## **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.

Your exclusive remedy for breach of such warranty is limited to refund of purchase price or replacement of any product shown to be other than as warranted.

**DOW CORNING SPECIFICALLY DISCLAIMS ANY OTHER EXPRESS OR IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY.**

**DOW CORNING DISCLAIMS LIABILITY FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.**