



## Technical Data Sheet

### XIAMETER™ SH 745 U Silicone Rubber

50 Durometer, molding, oil resistance, uncatalyzed silicone rubber

#### Features & Benefits

- 50 JIS-Type A hardness
- Good oil resistance
- Good heat resistance
- No post cure
- Serviceable over wide temperature range
- Pigmentable

#### Composition

- Silicone rubber (HCR)
- Uncatalyzed stock (U-stock)

#### Applications

- Molding
- O-rings
- Gaskets for automotive
- Industrial rollers
- Oil resistance

#### Typical Properties

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

| Test               | Property                       | Unit              | Result     |
|--------------------|--------------------------------|-------------------|------------|
| <b>As supplied</b> |                                |                   |            |
|                    | Appearance                     |                   | Grey white |
| JIS K 6249         | Plasticity                     | mm/100            | 250        |
| <b>As cured</b>    |                                |                   |            |
| JIS K 6249         | Density                        | g/cm <sup>3</sup> | 1.33       |
| JIS K 6249         | Durometer hardness, JIS type A |                   | 52         |
| JIS K 6249         | Tensile strength, JIS#3        | MPa               | 6.7        |
| JIS K 6249         | Elongation, JIS#3              | %                 | 350        |

1. JIS: Japanese Industrial Standard.

Properties obtained using 0.5 part of SILASTIC™ RC-4 50P FD Rubber Additive (2,5-bis(tert-butylperoxy)-2,5-dimethyl hexane, 50% masterbatch) per 100 parts of XIAMETER™ SH 745 U Silicone Rubber: molded 10 minutes at 170°C (338°F) without post-cured.

## Typical Properties (Cont.)

| Test       | Property                            | Unit  | Result |
|------------|-------------------------------------|-------|--------|
| JIS K 6249 | Modulus at 100% elongation, JIS#3   | MPa   | 1.93   |
| JIS K 6249 | Tear strength, crescent             | N/mm  | 7      |
| JIS K 6249 | Tear strength, angle                | N/mm  | 25     |
| JIS K 6249 | Linear shrinkage, disc <sup>2</sup> | %     | 2.6    |
| JIS K 6255 | Rebound, Lupke                      | %     | 74     |
| JIS K 6249 | Compression set, 180°C /22h         | %     | 11     |
| JIS K 6249 | Dielectric strength                 | kV/mm | 28     |
| JIS K 6249 | Volume resistance                   | TΩ·m  | 17     |

2. Linear shrinkage depends on the curing conditions such as type of curing agent, curing temperature and size of molded product.

## How to Use

### Milling

For adding vulcanizing agents, additives, and / or pigments or blending, milling with a two-roll mill is the most suitable process. Milling time should be carefully decided to secure uniformity of materials.

### Vulcanization

XIAMETER™ SH 745 U Silicone Rubber requires the addition of a vulcanizing agent. SILASTIC™ RC-4 50P FD Rubber Additive is recommended for molding. Standard cure temperature is 170°C (338°F), and its cure time depends on the thickness of final products. Normal post-cure condition would be 4 hours at 200°C (392°F) after molding but XIAMETER™ SH 745 U Silicone Rubber can discard post-cure process if properties are acceptable.

### Compounding

XIAMETER™ SH 745 U Silicone Rubber can be blended with other bases to modify the durometer of the compound. The physical properties of this product can be modified using a range of SILASTIC™ or XIAMETER™ additives. Further, XIAMETER™ SH 745 U Silicone Rubber can be pigmented to almost any color shade desired.

## Handling Precautions

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT. BEFORE HANDLING, READ PRODUCT AND SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE SAFETY DATA SHEET IS AVAILABLE ON THE DOW WEBSITE AT DOW.COM, OR FROM YOUR DOW SALES APPLICATION ENGINEER, OR DISTRIBUTOR, OR BY CALLING DOW CUSTOMER SERVICE.

## Usable Life and Storage

Product should be stored at or below 32°C(90°F) in original, unopened containers, this product has usable life of 240 days from the date of production.

## Packaging Information

XIAMETER™ SH 745 U Silicone Rubber is available in 20 kg (44 lb) boxes.

**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, [dow.com](http://dow.com) or consult your local Dow representative.

**Disposal Considerations**

Dispose in accordance with all local, state (provincial) and federal regulations. Empty containers may contain hazardous residues. This material and its container must be disposed in a safe and legal manner.

It is the user's responsibility to verify that treatment and disposal procedures comply with local, state (provincial) and federal regulations. Contact your Dow Technical Representative for more information.

**Product Stewardship**

Dow has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products - from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

**Customer Notice**

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

**Table 1:** Heat and Fluid Resistance of XIAMETER™ SH 745 U Silicone Rubber

| Test                                        | Unit   | Result |
|---------------------------------------------|--------|--------|
| <b>Heat Aged, 72 Hours at 200°C (392°F)</b> |        |        |
| Hardness Change                             | points | 0      |
| Tensile Change                              | %      | +17    |
| Elongation Change                           | %      | -13    |
| <b>Heat Aged, 72 Hours at 250°C (482°F)</b> |        |        |
| Hardness Change                             | points | -8     |
| Tensile Change                              | %      | -17    |
| Elongation Change                           | %      | -28    |

Properties obtained using 0.5 part of SILASTIC™ RC-4 50P FD Rubber Additive (2,5-bis(tert-butylperoxy)-2,5-dimethyl hexane, 50% masterbatch) per 100 parts of XIAMETER™ SH 745 U Silicone Rubber: molded 10 minutes at 170°C (338°F) without post-cured.

**Table 1:** Heat and Fluid Resistance of XIAMETER™ SH 745 U Silicone Rubber

| Test                                          | Unit   | Result |
|-----------------------------------------------|--------|--------|
| <b>IRM 901 Oil, 72 Hours at 150°C (302°F)</b> |        |        |
| Hardness Change                               | points | -5     |
| Tensile Change                                | %      | +3     |
| Elongation Change                             | %      | -20    |
| Volume Change                                 | %      | +6     |
| <b>IRM 903 Oil, 72 Hours at 150°C (302°F)</b> |        |        |
| Hardness Change                               | points | -16    |
| Tensile Change                                | %      | -31    |
| Elongation Change                             | %      | -31    |
| Volume Change                                 | %      | +43    |

**Table 2:** Properties of XIAMETER™ SH 745 U Silicone Rubber with / without post-cured

|                                             |                   | No post cure | Post-cured |
|---------------------------------------------|-------------------|--------------|------------|
| <b>Curing conditions</b>                    |                   |              |            |
| Press cure                                  | minutes at °C     | 10/170       | 10/170     |
| Post cure                                   | hours at °C       | None         | 4/200      |
| <b>Cured properties</b>                     |                   |              |            |
| Density                                     | g/cm <sup>3</sup> | 1.33         | 1.33       |
| Durometer hardness, JIS type A              |                   | 52           | 51         |
| Tensile strength, JIS#3                     | MPa               | 6.7          | 7.2        |
| Elongation, JIS#3                           | %                 | 350          | 262        |
| Modulus at 100% elongation, JIS#3           | MPa               | 1.93         | 1.96       |
| Tear strength, crescent                     | N/mm              | 7            | 7          |
| Tear strength, angle                        | N/mm              | 25           | 26         |
| Linear shrinkage, disc <sup>1</sup>         | %                 | 2.6          | 2.9        |
| Rebound, Lupke                              | %                 | 74           | 72         |
| Compression set, 180°C /22h                 | %                 | 11           | 6          |
| <b>Heat aged, 72 hours at 250°C (482°F)</b> |                   |              |            |
| Hardness change                             | points            | -8           | -6         |
| Tensile change                              | %                 | -17          | -27        |
| Elongation change                           | %                 | -28          | -8         |

1. Linear shrinkage depends on the curing conditions such as type of curing agent, curing temperature and size of molded product.

Properties obtained using 0.5 part of SILASTIC™ RC-4 50P FD Rubber Additive (2,5-bis(tert-butylperoxy)-2,5-dimethyl hexane, 50% masterbatch) per 100 parts of XIAMETER™ SH 745 U Silicone Rubber

**Table 2:** Properties of XIAMETER™ SH 745 U Silicone Rubber with / without post-cured (Cont.)

|                                               |        | No post cure | Post-cured |
|-----------------------------------------------|--------|--------------|------------|
| <b>Heat aged, 24 hours at 300°C (572°F)</b>   |        |              |            |
| Hardness change                               | points | -3           | +1         |
| Tensile change                                | %      | -42          | -51        |
| Elongation change                             | %      | -66          | -60        |
| <b>IRM 903 oil, 72 hours at 150°C (302°F)</b> |        |              |            |
| Hardness change                               | points | -16          | -14        |
| Tensile change                                | %      | -31          | -42        |
| Elongation change                             | %      | -31          | -24        |
| Volume change                                 | %      | +43          | +42        |

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