



## Technical Data Sheet

### **XIAMETER™ RBB-2004-50 Base**

50 Durometer, molding, general purpose, middle strength, uncatalyzed silicone rubber base

#### **Features & Benefits**

- 50 JIS-Type A hardness
- Good translucent
- Good demolding
- Serviceable over wide temperature range
- Pigmentable
- Formulated to meet FDA 21 CFR 177.2600 and BfR XV
- Suitable for both addition reaction and peroxide cure system

#### **Composition**

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

#### **Applications**

- Molding
- Extrusion
- Consumer goods
- Consumer electronics
- Sheets
- Mobile cases, covers
- Fishing lures
- Logos
- Sport gears
- Food contacts

## Typical Properties

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

| Test <sup>1</sup>  | Property                            | Unit              | Result                  |
|--------------------|-------------------------------------|-------------------|-------------------------|
| <b>As supplied</b> |                                     |                   |                         |
|                    | Appearance                          |                   | Milky white translucent |
| JIS K 6249         | Plasticity                          | mm/100            | 230                     |
| <b>As cured</b>    |                                     |                   |                         |
| JIS K 6249         | Density                             | g/cm <sup>3</sup> | 1.14                    |
| JIS K 6249         | Durometer Hardness, JIS type A      |                   | 52                      |
| JIS K 6249         | Tensile strength, JIS#3             | MPa               | 10.6                    |
| JIS K 6249         | Elongation, JIS#3                   | %                 | 770                     |
| JIS K 6249         | Modulus at 100% Elongation, JIS#3   | MPa               | 1.12                    |
| JIS K 6249         | Tear strength, crescent             | N/mm              | 25                      |
| JIS K 6249         | Tear strength, angle                | N/mm              | 26                      |
| JIS K 6249         | Linear shrinkage, disc <sup>2</sup> | %                 | 3.6                     |
| JIS K 6255         | Rebound, Lupke                      | %                 | 53                      |
| JIS K 6249         | Compression set, 180°C /22h         | %                 | 35                      |
| JIS K 6249         | Dielectric strength                 | kV/mm             | 29                      |
| JIS K 6249         | Volume resistance                   | TΩ·m              | 420                     |

1. JIS: Japanese Industrial Standard.
2. Linear shrinkage depends on the curing conditions such as type of curing agent, curing temperature and size of molded product.

Properties obtained using 0.6 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™ RBB-2004-50 Base: molded 10 minutes at 170°C (338°F) and post-cured 4 hours at 200°C (392°F).

## 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™ RBB-2004-50 Base 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. Post-cure condition would be 4 hours at 200°C (392°F) after molding in most cases. The addition reaction curing agents and other SILASTIC™ curing agents are also available for vulcanization.

### Compounding

XIAMETER™ RBB-2004-50 Base 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™ RBB-2004-50 Base can be pigmented to almost any color shade desired.

**Food Contact**

This product has been formulated to meet applicable food contact regulations and recommendations like FDA 21.CFR 177.2600 and BfR Recommendation XV.

Note: It remains the manufacturers' responsibility to test the final product.

For further details on the suitability of this product for food contact applications, please refer to the Food Regulatory Profile.

**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 360 days from the date of production.

**Packaging  
Information**

XIAMETER™ RBB-2004-50 Base 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™ RBB-2004-50 Base

| Test                                          | Unit   | Result |
|-----------------------------------------------|--------|--------|
| <b>Heat Aged, 72 Hours at 200°C (392°F)</b>   |        |        |
| Hardness Change                               | points | +3     |
| Tensile Change                                | %      | -11    |
| Elongation Change                             | %      | -14    |
| <b>Heat Aged, 72 Hours at 250°C (482°F)</b>   |        |        |
| Hardness Change                               | points | +42    |
| Tensile Change                                | %      | -23    |
| Elongation Change                             | %      | -97    |
| <b>IRM 901 Oil, 72 Hours at 150°C (302°F)</b> |        |        |
| Hardness Change                               | points | -3     |
| Tensile Change                                | %      | -23    |
| Elongation Change                             | %      | -23    |
| Volume Change                                 | %      | +7     |
| <b>IRM 903 Oil, 72 Hours at 150°C (302°F)</b> |        |        |
| Hardness Change                               | points | -24    |
| Tensile Change                                | %      | -52    |
| Elongation Change                             | %      | -49    |
| Volume Change                                 | %      | +59    |

Properties obtained using 0.6 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™ RBB-2004-40 Base: molded 10 minutes at 170°C (338°F) and post-cured 4 hours at 200°C (392°F).

**Table 2:** Properties of XIAMETER™ RBB-2004-50 Base with Various Curing Agents

|                                                    |                   | SILASTIC™ RC-4<br>50P FD Rubber<br>Additive | SILASTIC™ RC-14 A<br>Rubber Additive | Addition reaction |
|----------------------------------------------------|-------------------|---------------------------------------------|--------------------------------------|-------------------|
| <b>Formulations</b>                                |                   |                                             |                                      |                   |
| XIAMETER™ RBB-2004-50 Base                         | parts             | 100                                         | 100                                  | 100               |
| SILASTIC™ RC-4 50P FD Rubber Additive <sup>1</sup> | parts             | 0.6                                         |                                      |                   |
| SILASTIC™ RC-14 A Rubber Additive <sup>2</sup>     | parts             |                                             | 1                                    |                   |
| SILASTIC™ RD-9 Rubber Additive <sup>3</sup>        | parts             |                                             |                                      | 0.45              |
| SILASTIC™ RD-27 Rubber Additive <sup>4</sup>       | parts             |                                             |                                      | 0.8               |
| SILASTIC™ RD-7 Rubber Additive <sup>5</sup>        | parts             |                                             |                                      | 1.04              |
| <b>Cure properties</b>                             |                   |                                             |                                      |                   |
| Test condition                                     | minutes at °C     | 10/170                                      | 10/120                               | 10/130            |
| T-10                                               | minutes           | 0.9                                         | 0.8                                  | 0.8               |
| T-90                                               | minutes           | 3.0                                         | 3.8                                  | 1.2               |
| <b>Curing conditions</b>                           |                   |                                             |                                      |                   |
| Press cure                                         | minutes at °C     | 10/170                                      | 10/120                               | 10/120            |
| Post cure                                          | hours at °C       | 4/200                                       | 4/200                                | 2/200             |
| <b>Properties after press cure</b>                 |                   |                                             |                                      |                   |
| Durometer hardness, JIS type A                     |                   | 45                                          | 47                                   | 45                |
| <b>Properties after post cure</b>                  |                   |                                             |                                      |                   |
| Density                                            | g/cm <sup>3</sup> | 1.14                                        | 1.14                                 | 1.14              |
| Durometer hardness, JIS type A                     |                   | 51                                          | 50                                   | 52                |
| Tensile strength, JIS#3                            | MPa               | 10.4                                        | 10.4                                 | 9.9               |
| Elongation, JIS#3                                  | %                 | 705                                         | 605                                  | 992               |
| Modulus at 100% elongation, JIS#3                  | MPa               | 1.22                                        | 1.40                                 | 1.57              |
| Tear strength, crescent                            | N/mm              | 26                                          | 27                                   | 37                |
| Tear strength, angle                               | N/mm              | 26                                          | 25                                   | 44                |

1. SILASTIC™ RC-4 50P FD Rubber Additive: 2,5-bis(tert-butylperoxy)-2,5-dimethyl hexane, 50% masterbatch
2. SILASTIC™ RC-14 A Rubber Additive: p-methylbenzoyl peroxide, 50% masterbatch
3. SILASTIC™ RD-9 Rubber Additive: inhibitor for addition reaction
4. SILASTIC™ RD-27 Rubber Additive: Pt catalyst for addition reaction
5. SILASTIC™ RD-7 Rubber Additive: crosslinker for addition reaction

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