

BLUESILTM

RTV 3440, 3445, 3450, 3450 QC A&B

Filler Enforced Elastomers for Moulding and Prototyping

Description

BLUESIL RTV 3440, 3445, 3450, 3450 QC A&B are two component silicone elastomers that crosslink at room temperature by polyaddition reaction. The polymerisation can be accelerated by heat.

The silicone materials are delivered as two viscous liquid components, which once mixed and cured, transform into an elastic and resistant elastomer. Polymerisation occurs without production of heat.

Examples of applications

Reproduction of various kinds of 3D objects in:

- Plaster
- Wax
- Polyester
- Low melting point metals

Advantages

- Highly accurate reproductions
- Dimensional stability
- Good mechanical properties combined with a high Shore A
- Chemical and thermal resistance
- Fast mixing and easy processing due to the low viscosity

Characteristics

1. Characteristics of the non cured product

| Properties | RTV 3440 | | RTV 3445 | | RTV 3450 | | RTV 3450 QC | |
|---|-------------------|------|----------|------|-----------------------|---------------------|-------------|---------------------|
| | A | B | A | B | A | B | A | QC B |
| Contains: | Pt | SiH | Pt | SiH | Pt | SiH | Pt | SiH |
| Appearance | A: viscous liquid | | | | B: low viscous liquid | | | |
| Colour | beige | blue | beige | blue | beige | black / translucent | beige | black / translucent |
| Density [g/cm ³] at 23 °C, approx. | 1.3 | 1.1 | 1.3 | 1.1 | 1.3 | 1.1 | 1.3 | 1.1 |
| Viscosity [mPa·s] at 23 °C, approx | 40000 | 500 | 40000 | 200 | 40000 | 200 | 45000 | 500 |

BLUESIL™ RTV 3440, 3445, 3450, 3450 QC A&B**Characteristics (cont')****2. Polymerisation**

| Properties | RTV 3440 A&B | RTV 3445 A&B | RTV 3450 A&B | RTV 3450 QC A&B |
|---|-----------------------------|-----------------------------|-----------------------------|--------------------------------|
| Mixing Ratio A : B <i>parts by weight</i> | 10 : 1 | 10 : 1 | 10 : 1 | 10 : 1 |
| Working Time <i>[min] at 23 °C, approx.</i> | 90 | 60 | 90 | 20 |
| Demoulding Time <i>h] at 23 °C, approx.[</i> | 24 | 24 | 16 | 4 |
| Mixing viscosity <i>[mPa·s] at 23 °C, approx.</i> | 15000 | 13000 | 15000 | 15000 |

3. Characteristics of the cured product

| | RTV 3440 A&B | RTV 3445 A&B | RTV 3450 A&B | RTV 3450 QC A&B |
|--|-------------------------|-------------------------|-------------------------|--------------------------------|
| Hardness Shore A <i>approx. DIN 53 505</i> | 40 | 45 | 50 | 50 |
| Tensile strength <i>[N/mm²] approx. DIN 53 504 specimen S3A</i> | 4 | 4 | 5 | 5 |
| Elongation <i>[%] approx. DIN 53 504 specimen S3A</i> | 300 | 300 | 300 | 300 |
| Tear strength <i>[N/mm] approx. DIN 53 515</i> | 9 | 10 | 8 | 8 |

Remarks:

Curing the silicone at elevated temperature has no influence on the final properties of **BLUESIL RTV 3440, 3445, 3450 and 3450 QC A&B**. Nevertheless, heating can alter the dimensions.

Processing**1. Mixing the two components**

BLUESIL RTV 3440, 3445, 3450, 3450 QC A&B are mixed by weight in the above indicated ratio. The mixing can be carried out either by hand or using a low-speed electric or pneumatic mixer to minimise the introduction of air and to avoid any temperature increase.

It is also possible to use a special mixing and dispensing machine for the two silicone components. Further information is available upon request.

2. Degassing

The mixture should be degassed preferably at 30 to 50 mbar to eliminate any entrapped air. If a dispensing machine is used, the two components are degassed separately prior to mixing.

The silicone mixture expands to 3 to 4 times of its initial volume and bubbles rise to the surface.

The bubbles progressively disappear and the mixture returns to its initial volume after 5 to 10 minutes. Wait a few minutes to complete the degassing and then flash the vacuum. The silicone is ready for pouring, either by gravity or under low pressure.

Note: Flashing the vacuum once or twice accelerates the degassing. It is recommended to use a container with a high diameter / height ratio.

BLUESIL™ RTV 3440, 3445, 3450, 3450 QC A&B

Processing (cont')

3. Polymerisation

BLUESIL RTV 3440, 3445, 3450, 3450 QC A&B polymerises at 23 °C. The curing may be slowed down at lower temperature and contrary accelerated by heat.

Contact with certain materials can inhibit the crosslinking. See list below:

- natural rubbers vulcanised with sulphur,
- RTV 2 silicone elastomers catalysed with metal salts, e.g. tin-compounds,
- PVC stabilised with tin salts and additives,
- epoxy resins catalysed with amines,
- some organic solvents, e.g. ketones, alcohols, ether etc.

In case of doubts, it is recommended to test the substrate by applying a small quantity of the mixed silicone on a restricted area.

Packaging

BLUESIL RTV 3440, 3450, 3450 QC A&B are delivered in pails of 25 kg for A component and 2,5 kg for B component.

BLUESIL RTV 3445 A&B is delivered in pails of 20 kg for A component and 2 kg for B component.

BLUESIL RTV 3450 is also delivered in drums of 200 Kg for A component and in pails of 20 Kg for B part.

Storage and shelf life

When stored in its original unopened packaging, at a temperature of between -10°C and +30°C, **BLUESIL RTV 3440, 3445, 3450, 3450 QC A&B** may be stored for up to 12 months from the date of manufacture clearly marked on the packaging.

Beyond this date, Bluestar Silicones no longer guarantees that the product meets the sales specifications.

Safety

Please consult the Safety Data Sheets of **BLUESIL RTV 3440, 3445, 3450** and **3450 QC A&B**.

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