

SILBIONE®

RTV 4420 A&B and RTV 4420 QC A&B

Foot Care – Damping Elements Applications

Description **SILBIONE RTV 4420 A&B** and **SILBIONE RTV 4420 QC A&B** are a two component silicone elastomer that crosslink at room temperature by polyaddition reaction. The polymerisation can be accelerated by heat.

The silicone components are delivered as two component low viscous liquids, which once mixed and cured, transforms into a translucent, elastic and resistant material. Polymerisation occurs without formation of heat.

Examples of applications **SILBIONE RTV 4420 A&B** and **SILBIONE RTV 4420 QC A&B** are suitable for producing orthopaedic devices, e.g. damping elements.

Advantages **SILBIONE RTV 4420 A&B** and **SILBIONE RTV 4420 QC A&B** polymerise at room temperature (23 °C) even in the absence of air and moisture. The curing characteristics are independent of the thickness of the parts.

- Fast mixing and easy processing (1 : 1) due to the low viscosity.
- Excellent mechanical properties (especially good tear strength).

Characteristics

1. Characteristics of the non cured product

<i>Properties</i>	RTV 4420		RTV 4420 QC	
	A	B	A	B
Appearance	low viscous liquid		low viscous liquid	
Viscosity <i>(at 23 °C, mPa.s, ISO 3219, approx.)</i>	4 000	3 500	6 000	6 000
Colour	Translucent		Translucent	
Specific gravity <i>(g/cm³)</i>	1.08	1.10	1.08	1.10

2. Polymerization

SILBIONE RTV A 100 parts
SILBIONE RTV B 100 parts

<i>Properties</i>	RTV 4420 A&B	RTV 4420 QC A&B
Mix Viscosity <i>(at 23 °C, mPa.s, approx.)</i>	4 000	7 000
Working Time <i>(at 23 °C, 50% Relative Humidity, minutes)</i>	60	3
Demolding time <i>(at 23 °C, 50 % Relative Humidity, minutes)</i>	180	35

SILBIONE® RTV 4420 A&B and SILBIONE® RTV 4420 QC A&B**Characteristics (cont')****3. Cross linked product**

<i>Properties</i>	RTV 4420 A&B	RTV 4420 QC A&B
Hardness Shore A <i>(Shore A, after 96h)</i>	20	20
Elongation at break <i>(%)</i>	550	500
Tear strength <i>(kN/m)</i>	15	15
Tensil strength <i>(N/mm²)</i>	3.5	4

Remark: Curing the silicone at elevated temperature has no significant influence on the properties of **SILBIONE RTV 4420 A&B** and **SILBIONE RTV 4420 QC A&B**. Nevertheless it has to be mentioned, that heating can cause an alteration of the dimensions.

Processing

Remix each of the two components (part A and B) every time before using.

1. Mixing the components

SILBIONE RTV 4420 A&B and **SILBIONE RTV 4420 QC A&B** are mixed by weight in a fixed ratio given above.

The two components may be thoroughly mixed either by hand or using a low-speed electric or pneumatic mixer to minimise the introduction of air and to avoid any temperature increase.

Note: 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 (3 to 4 times of the initial volume).

3. Polymerization

The system, as indicated in the technical data, polymerises at 23 °C. The curing may be slowed down at lower temperature and contrary accelerated by applying heat.

Note: In general contact with certain materials can inhibit the crosslinking. See list below:

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

SILBIONE® RTV 4420 A&B and SILBIONE® RTV 4420 QC A&B**Processing (cont')**

If doubts exist it's recommendable to run a quick test with a small quantity of material in order to assess compatibility. Take duly note that cross contamination due to not well cleaned tools or devices is frequently the main causes of inhibition. The best way is to use only dedicated gear when processing polyaddition RTVs.

Packaging

SILBIONE RTV 4420 A&B and **SILBIONE RTV 4420 QC A&B** are available in the following packaging:

- 25 kg pails
- 200 kg drums

Storage and shelf life

When stored in their original unopened packaging, at a temperature of between – 5°C and + 30°C,

SILBIONE RTV 4420 A&B and **SILBIONE RTV 4420 QC A&B** may be stored for up to 6 months, from the date of manufacture clearly marked on the packaging.

Beyond this date, Bluestar Silicones no longer guarantees the conformity of the product with the sales specifications.

Part used drums should be resealed between each use.

Toxicity & biocompatibility

Extensive toxicology testing on SILBIONE® products has demonstrated their adequate biocompatibility and suitability for the recommended applications.

Our evaluations according to EN/ISO 10993 showed that SILBIONE® products are neither non skin irritating nor skin sensitizing materials. They satisfy regulatory requirements in several countries, in particular those of class I medical devices as in 93/42/CEE European Directive, or those of US Pharmacopeia class VI. Toxicological summaries, statements and specific regulatory status are available upon request from your BLUESTAR SILICONES contact.

Safety

Please consult the Safety Data Sheets of **SILBIONE RTV 4420 A&B** and **SILBIONE RTV 4420 QC A&B**.

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Visit our website www.bluestarsilicones.com

<p> EUROPE</p> <p><i>Bluestar Silicones France</i> 21 Avenue Georges Pompidou F69486 Lyon Cedex 03 FRANCE Tel. (33) 4 72 13 19 00 Fax (33) 4 72 13 19 88</p>	<p> NORTH AMERICA</p> <p><i>Bluestar Silicones USA</i> 2 Tower Center Boulevard Suite 1601 East Brunswick, NJ 08816-1100 United States Tel. (1) 732 227-2070 Fax. (1) 732 249-7000</p>	<p> LATIN AMERICA</p> <p><i>Bluestar Silicones Brazil Ltda.</i> Av. Maria Coelho Aguiar, 215 Bloco B - 2o.andar - Parte 1 CEP 05804-902-Sao Paulo/SP Brazil Tel. (55) 11 3741 8860 Fax (55) 11 3741 7718</p>	<p> ASIA PACIFIC</p> <p><i>Bluestar Silicones Hong Kong</i> Trading Co. Ltd. Unit C, 18/F Manulife Tower 169 Electric Road North Point-Hong Kong Tel. (852) 3106 8200 Fax (852) 2979 0241</p>
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