

BLUESILTM RTV 3433 A & B

Description **BLUESIL RTV 3433 A&B** is a two component, silicone elastomer which cures at room temperature by a polyaddition reaction (10:1 ratio).

Examples of applications Production of flexible moulds with excellent details reproduction and outstanding mechanical resistance.
Its particular formulation imparts the molds made thereof a longer duration.

- Advantages**
- Excellent details reproduction,
 - Long durability thanks to a smooth demolding,
 - Excellent mechanical resistance,
 - Low linear shrinkage,
 - Colorless,
 - No release of toxic substances during or after curing.

Characteristics

1. Characteristics of the non cured product

<i>Properties</i>	BLUESIL RTV 3433	
	A	B
Aspect	Viscous liquid	Viscous liquid
Viscosity (At 23°C, mPa.s, ISO 3219, approx.)	25.000	10.000
Colour	colorless	colorless
Specific gravity (g/cm ³ , approx.)	1.1	1.1

2. Polymerization

BLUESIL RTV 3433 A 100 parts

BLUESIL RTV 3433 B 10 parts

<i>Properties</i>	BLUESIL RTV 3433 A&B
Color	colorless
Pot life (At 23°C, minutes)	90
Demolding Time (At 23°C, hours)	6

Remark: Higher temperatures reduce pot life, lower temperatures prolong pot life. If curing is accelerated by heat the properties of **BLUESIL RTV 3433 A&B** are not modified. Dimensional changes do occur during curing or post-curing at high temperatures of which must be taken into account (see 4. Dimensional stability of the crosslinked product under "Processing").

BLUESIL™ RTV 3433 A&B**Characteristics (cont')****3. Characteristics of the crosslinked product**

Measured after curing 24 hours at 23°C

<i>Properties</i>	RTV 3433 A&B
Hardness (<i>Shore A, approx.</i>)	30
Tensile strength at break (<i>MPa, approx.</i>)	6
Elongation at break (<i>%, approx.</i>)	450
Tear strength (<i>KN/m, approx.</i>)	15
Specific gravity (<i>g/cm³, approx.</i>)	1.10
Linear shrinkage (<i>%, approx.</i>)	< 0.2

4. Use of the crosslinked product (silicone mold)

The obtained flexible silicone mold can be used with common reproduction materials to obtain copies of the molded original manufact. The number of the copies achievable per mold depends, beside on a correct usage of **BLUESIL RTV 3433 A&B** (see *Processing* part later), on:

- Physical structure of the manufact: sharp undercuts need particular care during demolding in order not to induce mechanical damage of the mold.
- Reproduction material: some aggressive resins or basic formulations, such as those containing cement, may chemically deteriorate the silicone mold, progressively from the surface to the bulk.

With this respect, users have to perform preliminary tests in order to check the compatibility between the silicone mold and the reproduction material in use and so assess the durability performance of the silicone mold. These preliminary tests must be performed every time a new reproduction material is to be used with the mold.

*Bluestar Silicones guarantees only the sales specifications of the product **BLUESIL RTV 3433 A&B**, but cannot guarantee its compatibility with reproduction materials.*

Processing

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

1. Mixing of the two components

Add 100 parts of **BLUESIL RTV 3433 A** to 10 parts of **BLUESIL RTV 3433 B**.

The two components may be intimately mixed either by hand or using a low-speed electric or pneumatic mixer to minimize the introduction of air into the mixture.

Processing (cont')**2. Degassing**

After mixing **BLUESIL RTV 3433 A&B**, it is strongly recommended to eliminate entrapped air. If the processing is done with the help of a machine and a static mixer, the two parts are degassed separately before mixing.

The **BLUESIL RTV 3433 A&B** is degassed under a vacuum of 30 to 50 mbar. Under vacuum, the product expands 3 to 4 times its initial volume and forms bubbles on its surface. These bubbles will disappear gradually and the mixture will sink back down to its initial volume within few minutes. Then the vacuum can be released.

***Remark:** release the vacuum several times improves the degassing. For easier degassing only fill a recipient to 1/3 of its height.*

Molds obtained without degassing the mixed A and B parts can contain voids (entrapped air bubbles) that lead to damages of the mold itself upon repeated usage with common reproduction materials. Following the degassing instructions above is therefore a method to increase mold duration.

3. Cross linking

The best curing conditions are at 23°C. The use of the product at higher temperatures will reduce the pot life and increase the setting rate. As opposed to this, lower temperatures will increase the pot life and decrease the setting time.

At 23°C, the cured silicone can be demoulded after the time indicated as "demolding time" (see § 2.Polymerization, pag.1). In order to achieve the best possible performance levels from the molds, it is preferable to wait for 24 hours before using them.

Room temperature curing assures the lowest possible shrinkage, if accelerated cure is desired, mild heat should be preferred. To minimize shrinkage cure the elastomer at maximum temperature of 60°C for 3-4 hours, higher temperatures will cause higher shrinkage.

Be aware that contact with certain materials can inhibit the curing of this RTV:

- Sulphur and its derivatives (e.g. sulphur containing clays; natural rubbers vulcanized with sulphur),
- Ammonia and amines (e.g. amine cured epoxies, epoxy curing agents),
- Chlorides,
- Polycondensation RTV catalysed with metal salts,
- PVC stabilizing agents,
- Silver salts.

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 cause of inhibition. The best way is to use only dedicated gear when processing polyaddition RTVs.

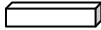
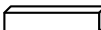
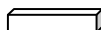
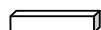
4. Dimensional stability of the crosslinked product

Once crosslinked, **BLUESIL RTV 3433** is a silicone elastomer which, as all materials and especially elastomers, undergoes thermally driven volume changes. That means that any increase / decrease of temperature of the cured mold causes respectively a volume increase / decrease of the mold itself.

The thermal expansion coefficient of the product is roughly $\alpha_V = 5 \cdot 10^{-4} \text{°C}^{-1}$ (volumetric) or $\alpha_L = 1,7 \cdot 10^{-4} \text{°C}^{-1}$ (linear). By considering these values, following examples can show the influence of temperature on the dimensions of a rectangular mold.

BLUESIL™ RTV 3433 A&B

Processing (cont')

Temperature of crosslinking	Mold dimensions at crosslinking temperature	Temperature of mold use	Mold dimensions at use temperature
23°C	 10 x 2 x 1 m V = 20 m ³	100°C	 10,13 x 2,03 x 1,01 m V = 20,77 m ³
50°C		0°C	 9,91 x 1,98 x 0,99 m V = 19,50 m ³
150°C		23°C	 9,78 x 1,96 x 0,98 m V = 18,73 m ³

It is therefore strongly recommended to take into account the temperature driven dimensional changes before planning the reproduction of geometries that need high dimensional accuracy.

Packaging

BLUESIL RTV 3433 A&B is delivered in 25 Kg pails.

Storage and shelf life

When stored in its original packaging at a temperature of between -5°C and +30°C, **BLUESIL RTV 3433 A&B** may be stored for up to 12 months from its date of manufacture.

Comply with the storage instructions and expiry date 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 sheet of **BLUESIL RTV 3433 A&B**.

Visit our website www.bluestarsilicones.com

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