

BLUESIL™ RTV 3040 ~ Multi Catalyst System

Prototyping

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Freeman Manufacturing & Supply Co.
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Description

BLUESIL™ RTV 3040 is a clear, high strength, addition cure silicone rubber compound. It is formulated to be used with multiple catalysts to cure overnight at room temperature or within hours at elevated temperature to give a variety of hardness. Its low viscosity makes the product easy to pour and quick to degas.

BLUESIL™ RTV 3040 is designed to serve the needs of the prototyper by reproducing intricate details and maintaining tight tolerances. In addition, **BLUESIL™ RTV 3040** has been formulated to provide improved urethane resin resistance.

BLUESIL™ RTV 3040 system is compliant to 21CFR177.2600 ~ Repeated food contact applications.

Applications

- Conventional production and prototype molds
- Finished rubber parts
- Stereolithography (SLA) molds

Typical Properties

TYPICAL PROPERTIES - AS SUPPLIED		TYPICAL CATALYZED PROPERTIES	
<u>Part A - Base Component</u>		Mixed at 24°C (75°F) and 50% R.H.	
• Color	Translucent	• Mix Ratio , A:B(Parts by weight)	10:1
• Consistency	Pourable	• Viscosity , cP. (mPa.s)	40,000
• Viscosity , cP. (mPa.s)	50,000		
<u>Part B – Catalyst Component</u>			
• Color	Translucent		

TYPICAL PROPERTIES OF CURED RUBBER, Cured 24 hours at 24°C (75°F) and 50% RH					
Property	Test Method	CATA 3020 HT	CATA 3038	CATA 3040	CATA 3045
• Color		Translucent			
• Specific Gravity		1.08			
• Work Life , hours ⁽¹⁾		0.75	1.0	1.0	1.0
• Pot Life , hours ⁽²⁾		1.5	2.0	2.0	2.0
• Hardness (Shore A)	ASTM D2240	22	36	38	45
• Tensile Strength , psi (N/mm ²)	ASTM D412	775 (5.3)	900 (6.2)	920 (6.3)	915 (6.2)
• Elongation (%)	ASTM D412	525	340	340	205
• Tear Resistance , ppi (N/mm)	ASTM D624, Die B	130 (23)	100 (17.5)	120 (21)	130 (23)
• Linear Shrinkage ⁽³⁾ (%) 24 Hours			< 0.1		
7 Days			< 0.1		
• Temperature Range °C (°F)			-54 to 204 (-65 to 400)		

NOTE: Cure may be accelerated by curing at 40-65°C (120-150°F) for 3-4 hours. HEAT CURING MAY INCREASE SHRINKAGE.

(1) Time required to double initial catalyzed viscosity.

(3) 8x8x0.25 in (20.3x20.3x0.64 cm) molded sheet, cured at room temperature

(2) Time at which material gels.

NOTE: Cure at elevated temperatures may cause modification of rubber properties and increase shrinkage.

Please note: The typical properties listed in this bulletin are not intended for use in preparing specifications for any particular application of BLUESIL™ silicone materials. Please contact our Technical Service Department for assistance in writing specifications.

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Instructions for use

1. Stir the base (Part A) well before use (except when machine dispensing).
2. Shake the catalyst container (Part B) well before use.
3. Weigh the desired amount of base into a clean mixing container. Tip the container and roll the base all the way around the side wall up to two inches from the top. This will prevent the catalyst from becoming absorbed into the container. It is recommended that the container be filled to not more than 1/3 the container depth to allow sufficient room for expansion during the deaeration procedure.
4. Weigh the proper amount of catalyst into the container. Mix the base and catalyst together by stirring with a stiff, flat ended metal spatula until a uniform color is obtained. Scrape the container walls and bottom well to insure a thorough mix.
5. Place the container into a vacuum chamber and evacuate the entrapped air from the mixture using a vacuum pump capable of achieving 29 inches of mercury vacuum. The mixture will rise, crest and then collapse in the container. Interruption (bumping) of the vacuum may be necessary to prevent overflowing the container. Keep the mixture under full vacuum for 2-3 minutes after the material has receded in the container.
6. Bleed air slowly into the vacuum chamber. When the chamber is at atmospheric equilibrium, remove the cover plate and take out the container.
7. Pour the deaired material slowly in a steady stream from one end of the mold box so that the material flows evenly over the pattern. This should minimize entrapment of air bubbles under the flowing material. A "print" coat may be poured first over the pattern which will also help reduce the possibility of entrapping air on the pattern and in the cured rubber. A mold release (petroleum jelly) may be applied on the pattern first to improve release.
8. Allow the rubber to cure for 16-24 hours at 75±5°F (24°C) before removing the cured rubber mold from the pattern. For best results, allow the mold to air cure an additional 24 hours before using it in production. Full cure is achieved in 3-7 days.

PROCESSING INFORMATION

CATALYZED PROCESSING PROPERTIES ARE AFFECTED BY TEMPERATURE AND HUMIDITY VARIATION

1. For best results, mix and cure the material at 75°F (24°C) and 50% relative humidity.
2. Higher temperature and humidity will decrease the work life and pot life of the material. The faster cure will also affect the flow properties. Refrigeration of the base prior to use in hot environments has shown to improve the handling properties of this material.
3. Lower temperatures and humidity will increase the work life and pot life of the material. The slower cure will increase the flow time. Cure temperatures below 68°F (20°C) are not recommended and have been found to cause a reduction in final cure hardness and properties.
4. It is important that the catalyst containers are tightly closed after use to prevent contamination.

Storage and shelf life

BLUESIL™ RTV 3040 when stored in its original unopened packaging, at a temperature of 24°C (75°F), may be stored for 18 months from the date of manufacture. Beyond this date, Bluestar Silicones no longer guarantees that the product meets the sales specifications

Safety

Please read the container labels for **BLUESIL™ RTV 3040** or consult the Material Safety Data Sheet (MSDS) before handling for safe use, physical and health hazard information. The MSDS is not included with the product packaging, but can be obtained by contacting Bluestar Silicones at 866-474-6342 or consult your Bluestar Silicones representative.

Packaging

BLUESIL™ RTV 3040 is available in 2 kg, 20 kg, and 200 kg containers.

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Warning to users

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