

Rhodorsil[®] RTV-3040

Prototyping

Description

Rhodorsil[®] RTV-3040 is a two component, high strength, addition cure, room temperature or heat accelerated cure silicone rubber compound. Designed specifically for moldmaking, It is an ideal rubber for reproducing intricate detail, and maintaining close tolerances. This material has **IMPROVED POLYURETHANE RESISTANCE**. It is an excellent choice for pattern shop, model shop and stereolithography service bureau moldmaking or tooling 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	• Work Life , hours ⁽¹⁾	1
<u>Part B – Catalyst Component</u>		• Pot Life , hours ⁽²⁾	2
• Color	Translucent		

TYPICAL PROPERTIES OF CURED RUBBER, Cured 24 hours at 24°C (75°F) and 50% RH		
Property	Test Method	Value
• Color		Translucent
• Specific Gravity		1.08
• Hardness (Shore A)	ASTM D2240	38
• Tensile Strength , psi (N/mm ²)	ASTM D412	920 (6.3)
• Elongation (%)	ASTM D412	340
• Tear Resistance , ppi (N/mm)	ASTM D624, Die B	120 (21)
• 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.

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

Storage and shelf life

When stored in its original unopened packaging, at a temperature of 24°C (75°F), **Rhodorsil[®] RTV-3040** 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 consult the Safety Data Sheet. The curing agent for this material can generate a flammable gas upon contact with acidic, basic, or oxidizing materials. Precautions to avoid contact of this curing agent with these materials should be exercised. Keep product away from children. To obtain a material safety data sheet for this product contact Bluestar at 800-356-7560.

Rhodorsil[®] RTV-3040

Mixing Guidelines

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. Heat acceleration is not recommended with this product.
9. 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.
10. For bonding to wood or metals, use **RHODORSIL[®] V-04** primer. Follow recommendations on the **RHODORSIL[®] V-04** technical data sheet for best results.

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. Catalyst exposed to air for extended periods of time will hydrolyze (cure). An indication of hydrolysis is a film or crust formation on the surface of the catalyst. The use of hydrolyzed catalyst is not recommended and may cause incomplete cure.

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 EUROPE	 NORTH AMERICA	 LATIN AMERICA	 ASIA PACIFIC
<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	<i>Bluestar Silicones USA</i> CN 3000, 8 Cedar Brook Drive, Cranbury, NJ 08512-3000 Tel. (1) 609 860 3100 Fax (1) 609 860 8078	<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	<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

Warning to the users

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Rhodorsil[®] RTV-3038

Prototyping

Description

Rhodorsil[®] RTV-3038 is a two component, high strength, addition cure, room temperature or heat accelerated cure silicone rubber compound with a self bleed. Designed specifically for moldmaking, it is an ideal rubber for reproducing intricate detail, and maintaining close tolerances. This material has **IMPROVED POLYURETHANE RESISTANCE**. It is an excellent choice for pattern shop, model shop and stereolithography service bureau moldmaking or tooling applications.

Applications

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

Parts made with **Rhodorsil[®] RTV-3038** must be cleaned before painting, so that the paint will adhere properly.

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	• Work Life , hours ⁽¹⁾	1
<u>Part B – Catalyst Component</u>		• Pot Life , hours ⁽²⁾	2
• Color	Translucent		

TYPICAL PROPERTIES OF CURED RUBBER, Cured 24 hours at 24°C (75°F) and 50% RH		
Property	Test Method	Value
• Color		Translucent
• Specific Gravity		1.08
• Hardness (Shore A)	ASTM D2240	36
• Tensile Strength , psi (N/mm ²)	ASTM D412	900 (6.2)
• Elongation (%)	ASTM D412	340
• Tear Resistance , ppi (N/mm)	ASTM D624, Die B	100 (17.5)
• 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.

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

Storage and shelf life

When stored in its original unopened packaging, at a temperature of 24°C (75°F), **Rhodorsil[®] V-3038** 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.

Rhodorsil[®] RTV-3038

Safety

Please consult the Safety Data Sheet. The curing agent for this material can generate a flammable gas upon contact with acidic, basic, or oxidizing materials. Precautions to avoid contact of this curing agent with these materials should be exercised. Keep product away from children. To obtain a material safety data sheet for this product contact Bluestar at 800-356-7560.

Mixing Guidelines

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. Heat acceleration is not recommended with this product.
9. 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.
10. For bonding to wood or metals, use **RHODORSIL[®] V-04** primer. Follow recommendations on the **RHODORSIL[®] V-04** technical data sheet for best results.

PROCESSING INFORMATION

CATALYZED PROCESSING PROPERTIES ARE AFFECTED BY TEMPERATURE AND HUMIDITY VARIATION

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4. It is important that the catalyst containers are tightly closed after use. Catalyst exposed to air for extended periods of time will hydrolyze (cure). An indication of hydrolysis is a film or crust formation on the surface of the catalyst. The use of hydrolyzed catalyst is not recommended and may cause incomplete cure.

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