Moldmaking

December 2015

BLUESIL™ V-345

Addition Cure Silicone

Description

BLUESIL™ V-345 A/B is a 1:1 mix ratio, two component, room temperature or heat accelerated cure silicone rubber compound. It is designed with high strength properties, long library life, excellent detail reproduction, excellent release characteristics, and improved resistance to inhibition. **BLUESIL™ V-345** is an excellent choice for pattern shop, model shop, and Stereolithography service bureau mold making and tooling applications.

Applications

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

Typical Properties

TYPICAL PROPERTIES - AS SUPPLIED	
Part A - Base Component	
• ***Color***	Beige
• ***Consistency***	Pourable
• ***Viscosity***, cP. (mPa.s)	32,500
Part B – Curing Agent	
• ***Color***	Translucent
• ***Consistency***	Pourable
• ***Viscosity***, cP. (mPa.s)	30,000

TYPICAL CATALYZED PROPERTIES **MIXED** at 24°C (75°F) and 50% R.H.	
• ***Mix Ratio***, A:B (Parts by weight)	1:1
• ***Viscosity***, cP. (mPa.s)	25,000
• ***Pot Life***, minutes (1)	90
• ***Temperature Range***, °C (°F)	-54 to 204 (-65 to 400)
• ***Coefficient of Thermal Expansion***, in/in/°C	2.5×10^{-4}

TYPICAL PROPERTIES OF CURED RUBBER, cured 24 hours at 25°C (77°F)

Property	***Test Method***	**A / B**
• ***Mix Ratio***, A:B		1:1
• ***Color***		Beige
• ***Specific Gravity***		1.2
• ***Hardness*** (Shore A)	ASTM D2240	45
• ***Tensile Strength***, psi (N/mm^2)	ASTM D412	800 (5.6)
• ***Elongation*** (%)	ASTM D412	425
• ***Tear Resistance***, ppi (N/mm)	ASTM D624, Die B	150 (28)

NOTE: Cure time may be accelerated by oven curing at 49-65°C (120-150°F) for 2-3 hours. HEAT CURING WILL EFFECT PHYSICAL PROPERTIES

TYPICAL ELECTRICAL PROPERTIES

Property	***Test Method***	***Value***
• ***Dielectric Constant***, 1kHz	ASTM D150	3.4
• ***Dissipation Factor***, 1kHz	ASTM D150	0.007
• ***Dielectric Strength***, 75 mil V/mil	ASTM D149	550
• ***Volume Resistivity***, ohm-cm	ASTM D257	1×10^{15}

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 BLUESIL™ silicone materials. Please contact our Technical Service Department for assistance in writing specifications.

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Instructions for use

MIXING GUIDELINES FOR BLUESIL™ PLATINUM CURE MOLDMAKING SYSTEMS

1. Stir the base (Part A) well before use (except when machine dispensing).
2. Shake the curing agent 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 curing agent from being absorbed into the container. Do not fill the container more than 1/3 full to allow sufficient room for expansion during the deaeration procedure.
4. Weigh the proper amount of curing agent into the container.
5. Mix the base and curing agent together by stirring with a stiff, flat ended metal spatula until a uniform color is obtained. Scrape the container walls and bottom to assure a thorough mix. If mechanical mixer is used, do not exceed 150 rpm.
6. 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 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 a full vacuum for 5-10 minutes after the material has receded in the container.
7. Bleed air slowly into the vacuum chamber. When the chamber is at atmospheric equilibrium, remove the cover plate and take out the container.
8. 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 will minimize the entrapment of air bubbles under the flowing rubber. A "print" coat may be poured first over the pattern, which will also reduce the possibility of entrapping air in the cured rubber. A mold release (petroleum jelly) may be applied on the pattern first to improve release if desired.
9. CURING:
   A. ROOM TEMPERATURE CURING SYSTEMS: Allow the rubber to cure for 16-24 hours at 75°F (24°C) before removing the cured rubber from the pattern. For best results, allow the mold to air cure an additional 24 hours after the initial overnight cure before putting mold into production. Room temperature curing assures the lowest possible shrinkage. If cure acceleration is desired, mild heat may be employed. To minimize shrinkage, cure rubber at 100-130°F (38-54°C) for 4-6 hours. Higher temperatures may cause excessive shrinkage to occur.
   B. HEAT CURING SYSTEMS: BLUESTAR SILICONES heat-curing systems are primarily used for roll and transfer print pad applications where long work life and pot life are needed. FOLLOW THE SUGGESTED PRODUCT CURE SCHEDULE GUIDE LISTED ON FRONT OF SPECIFIC PRODUCT INFORMATION SHEET.
10. For bonding to wood or metals, use **BLUESIL™ V-04 primer**.

    Follow recommendations on the **BLUESIL™ V-04** primer technical data sheet for best results.

MIXED PROCESSING PROPERTIES WILL BE AFFECTED BY TEMPERATURE VARIATIONS

- A decrease in work life and pot life may be expected to occur at temperatures exceeding 75°F (24°C). Room temperature curing moldmaking rubbers are particularly sensitive to higher temperatures. Refrigeration of the base (Part A) prior to use in hot environments has shown to improve the handling properties of these materials.
- Lower temperatures will increase the work life and pot life of this material. Cure temperatures below 68°F (20°C) are not recommended, and have been found to cause a reduction in final cure hardness and physical properties.
- This system contains a platinum catalyst, which may be inhibited by materials found in some organic polymer systems, chlorinated solvents, and some substrates. Especially troublesome materials are: amine cured epoxies, sulfur cured organic rubber systems such as natural rubber, polysulfide rubber, latex rubber and adhesives, sulfur containing modeling clays, PVC coated surfaces, and tin catalyzed silicone RTV rubbers. A patch test to determine compatibility is recommended when doubt exists.

Storage and shelf life

BLUESIL™ V-345 when stored in its original unopened packaging, at a temperature of 24°C (75°F), may be stored for 24 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™ V-345** or consult the Safety Data Sheet (SDS) before handling for safe use, physical and health hazard information. The curing agent for this material can generate a flammable gas upon contact with acidic, basic, or oxidizing materials. The SDS 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™ V-345 is available in 20 kg, 200 kg, and 1000 kg containers.

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