Technical Data Sheet (TDS)

Version: V4.2 Revision Date: 2025-10-24

Tin Cured Silicone Rubber - High Hardness Series

RTV-3135 A/B, RTV-3140 A/B
RTV-3235 A/B, RTV-3240 A/B

1. DESCRIPTION

This series of condensation-cure (tin-catalyzed) silicone is a high-hardness material, engineered for applications requiring maximum rigidity and dimensional stability. It consists of Part A, a white or translucent viscous base, and Part B, a clear to yellowish tin-based catalyst. When mixed at a weight ratio of 100:2 to 100:4, the material cures at room temperature through reaction with atmospheric moisture. While offering excellent resistance to deformation, this series is more brittle and has lower tear strength compared to softer grades.

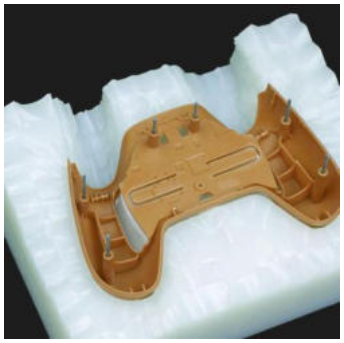
2. FEATURES

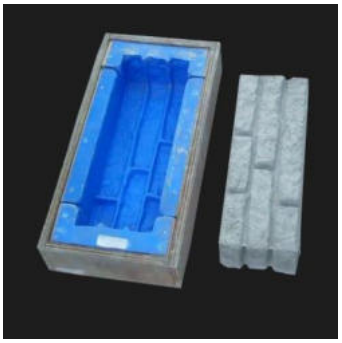
1. High hardness for mold rigidity.
2. Excellent release properties.
3. Excellent dimensional stability.
4. Low shrinkage (≤0.3%).
5. Heat resistance up to 200°C (392°F).

3. APPLICATIONS

This series of high-hardness tin-cured silicone offers exceptional rigidity and dimensional stability, making it the preferred choice for creating durable, non-deforming molds. It is widely used in rapid prototyping and for producing prototype molds for industrial parts in the automotive and electronics sectors.


Prototype Vacuum Casting


Thin Shell Prototyping


Cement Silicone Mold


Ceramic Silicone Mold

4. TECHNICAL DATA

Physical Property	RTV-3135 A/B	RTV-3235 A/B	RTV-3140 A/B	RTV-3240 A/B
Unvulcanized Physical Properties @ 25°C/77°F				
Physical State	Liquid / Fluid	Liquid / Fluid	Liquid / Fluid	Liquid / Fluid
Form	Viscous	Viscous	Viscous	Viscous
Odor	Slight Odor	Slight Odor	Slight Odor	Slight Odor
Part A (Base) Color	White	Translucent	White	Translucent
Part B (Catalyst) Color	Clear to Light Yellow	Clear to Light Yellow	Clear to Light Yellow	Clear to Light Yellow
Part A Viscosity, mPa·s	18,000	18,000	18,000	18,000
Part B Viscosity, mPa·s	250	250	250	250
Part A Specific Gravity, g/cm^3	1.15-1.18	1.12-1.15	1.15-1.18	1.12-1.15
Part B Specific Gravity, g/cm^3	1.00	1.00	1.00	1.00
Part A and Part B mixed @ 25°C/77°F				
Mix Ratio by Weight (A:B)	100:3	100:3	100:3	100:3
Working Time, Minutes	40	40	40	40
Curing Time, Hours	11	11	12	12
Typical Properties of Cured Rubber @ 24 Hrs 25°C/77°F				
Hardness, Shore A Durometer	35	35	38	37
Tear Strength, N/mm	23	24	21	22
Tensile Strength, Mpa	4.1	4.2	4.1	4.2
Elongation, %	350	360	310	330
Shrinkage, %	≤0.30	≤0.30	≤0.30	≤0.30
Heat Resistance,°C (°F)	200 (392)	200 (392)	200 (392)	200 (392)

5. PROCESSING STEPS

Step 1: Prepare the Master Pattern	Ensure the master pattern is clean, dry, and properly sealed if porous. Secure the pattern within the mold box.
Step 2: Apply Release Agent (If Necessary)	Spray or apply a thin, even coat of release agent if needed, especially for porous surfaces or complex shapes, to ensure easy demolding and maximize mold lifespan.

Step 3: Measure & Mix Components	Accurately weigh Part A (base) and Part B (catalyst) according to the recommended ratio (typically 100:2 to 100:4 by weight). Combine them in a clean mixing container. Mix thoroughly, scraping the sides and bottom of the container, until the catalyst is completely dispersed in the base material. If using white silicone (RTV-31xx series), thoroughly stir Part A before use, as fillers may settle.
Step 4: Vacuum Degassing (Recommended)	To eliminate trapped air bubbles and ensure the highest level of detail reproduction, vacuum degassing the mixed silicone is strongly recommended. Place the container in a vacuum chamber large enough to accommodate a 3-5 times volume expansion. Apply vacuum until the silicone rises, breaks, and collapses. Continue applying the vacuum for another 1-2 minutes.
Step 5: Pouring the Silicone	(For block molds) Slowly pour the degassed silicone in a thin stream into the lowest point of the mold box, allowing the silicone to flow up and around the master pattern naturally. This will help reduce any air bubbles trapped during mixing. Ensure that the silicone covers the highest point of the pattern by at least 0.5 cm (approximately 0.2 inch) to prevent thin spots.
Step 6: Brushing the Silicone (Alternative)	(For blanket/skin molds) During the mixing stage (Step 3), add a thixotropic agent according to its instructions to achieve a brushable consistency. Apply an initial surface coat, focusing on covering all details; allow it to become tacky. Apply subsequent layers, embedding reinforcing material (like gauze) between layers for added strength. Build up to the desired thickness (typically 3-5 mm).
Step 7: Cure & Demold	Tin-cured silicone typically cures fully within 12 hours at room temperature. Cure time is affected by temperature, humidity, and the catalyst ratio. In winter, the curing time may be nearly twice as long as in summer.

6. PROCESSING NOTES

(1) For consistent results, always use Part A and Part B from the same batch. Mixing components from different batches requires user testing to confirm compatibility.

(2) Using excess catalyst (A:B > 100:5) to speed up curing can reduce mold lifespan, causing premature brittleness.

(3) Tin-cured silicone molds undergo gradual shrinkage over time. The rate of shrinkage can be affected by the casting material and mold design.

7. SAFETY PRECAUTIONS

(1) **Ventilation & PPE:** Use in a well-ventilated area. During curing, tin-cured silicones release by-products (e.g., alcohol, acetic acid). If ventilation is insufficient, respiratory protection is recommended. Always wear safety glasses and liquid-tight gloves (e.g., nitrile or butyl) to prevent skin and eye contact.

(2) **Use Limitation:** For industrial use only. Due to catalyst instability and potential leaching over time, this product is unsuitable for food molding, dental applications, or any use involving prolonged direct skin contact.

(3) **General Safety:** The product is stable under normal conditions. Keep out of reach of children.

First Aid Measures:

- **Skin Contact:** Wash thoroughly with soap and water. Seek medical attention if irritation persists.
- **Eye Contact:** Flush eyes with plenty of water for at least 15 minutes. Seek medical attention if irritation continues.
- **Inhalation:** Move to fresh air. Seek medical attention if symptoms such as dizziness or irritation occur.
- **Ingestion:** Do not induce vomiting. Rinse mouth thoroughly with water and seek immediate medical attention.

8. STORAGE & SHELF LIFE

(1) **Recommended Storage:** Store in a cool, dry, well-ventilated place at room temperature (15–25 °C / 60–77 °F). Keep away from heat, direct sunlight, and incompatible materials such as strong acids and bases.

(2) **Shelf Life:** This product has a shelf life of 12 months from the date of manufacture when stored properly. Storing at higher temperatures may reduce its usable shelf life.

(3) **Opened Containers:** After opening, containers must be tightly resealed immediately to prevent leakage and protect the catalyst from hydrolysis.

(4) **Beyond Shelf Life:** If stored beyond the specified shelf life, the product may still be usable. However, the user is responsible for testing and confirming its performance for the intended application before use.

9. PACKAGE

Our condensation-cured silicone is supplied with Part A (Base) and Part B (Catalyst) packaged separately. We offer the following standard sizes:

Total Kit Size	Part A	Part B
1 kg	1 kg	40 g
5 kg	5 kg	200 g
25 kg	25 kg	1 kg
200 kg	200 kg	8 kg

Note: Part B catalyst is supplied free of charge based on a 100A:4B.