

Hapsil™



Non-Inhibiting, Tin Catalyzed
Silicone Rubber

Hapsil 360

Material Overview



Hapsil 360 is a high tear strength, tin-catalyzed RTV-2 silicone rubber, which was designed for casting Hapco's wide variety of rigid and flexible polyurethane resins. **Hapsil 360** is not sensitive to inhibition, meaning it will cure at room temperature over virtually any surface.

Hapsil 360 works well with clear and colorless casting resins that typically exhibit a sticky, uncured surface when cast against most silicones. It is easy to mix and de-air, and cures with minimal shrinkage. **Hapsil 360** can be used with or without a release agent and is ideal for any application where a strong flexible rubber is required.

Physical Properties	Test Method	Hapsil 360
Mix Ratio by Volume A:B by Weight A:B	Calculation	100 : 5.6 100 : 5
Gel Time 100 grams @ 25°C	ASTM D-2971	1-2 hrs.
Color (cured)	Visual	Light Pink
Hardness Shore	ASTM D-2240	30A ± 3
Viscosity mixed at 25°C cps	ASTM D-4878	3500 ± 50
Specific Gravity mixed at 25°C	ASTM D-4669	1.7
Shrinkage	ASTM D-2566	0.10%
Demold Time @ 70°F 1/8" thick	HAPCO TEST	1-3 hrs.
Weight per cubic inch (lbs)	Calculation	0.0614
Tensile Strength	ASTM D-638	450 ± 25 psi
Elongation	ASTM D-638	425 ± 25 %
Tear Strength	ASTM D-624	125 ± 25 ppi

NOTE: Hapsil 360 must be post cured overnight at 50°C or above to eliminate the possibility of inhibition.

HAPSIL SERIES

MATERIAL HANDLING, PROCESSING & SAFETY NOTES

POSTCURE:

Postcure Heat: 100-175°F (38-79°C) for a *minimum* of 6-8 hours.

Hapco always recommends a post cure when using silicone to cast urethane parts. A postcure is essential when casting Hapco's clear or colorless products such as the Ultraclear, Steralloy, or Hapflex 700/800 Series polymers. Properties such as service temperature and elongation increase with heat acceleration. The lower the temperature the longer the post-cure (8-24 hrs).

DEMOLD & CURE TIMES:

Demold and final cure time can be accelerated with the addition of postcure heat 100-175°F (38-79°C) .

To retain working life, heat the mold not the material for best results. Increasing the mold temperature to 80-100°F (26-38°C) will accelerate demold and cure times by up to 50%. For full cure polymers require at least 7-10 days.

Final cure for faster gel materials (3-6 minute gel) is 3-7 days. Please be aware that size and mass effect demold and cure times. The customer and geometry will ultimately determine demold time.

HARDNESS NOTE:

The hardness progresses more slowly in the longer working life systems. The hardness progression can be accelerated by using the faster version or by curing with mild heat. Hardness and cure progress will be retarded, slowed down, when the temperature falls below 70°F.

SURFACE PREPARATION TO PREVENT ADHESION:

To increase the life of the mold, choose one of Hapco's GREASE-IT release agents: GREASE-IT IV, GREASE-IT V, or GREASE-IT FDG when a Food & Drug grade release is required. For best results, apply in a few thin coats, drying between coats. Porous surfaces, i.e. wood, plaster, etc, must be sealed thoroughly before release is applied. Use multiple coats of a good sealant, such as: a high grade lacquer or urethane lacquer.

SURFACE PREPARATION FOR ADHESION:

Hapco does not recommend using silicones for adhesion purposes. If adhesion is desired, please contact a Hapco representative for a recommendation based on your application.

MIXING:

IMPORTANT: Mix, only when ready to use, by adding the curing agent to the resin portion and blending together thoroughly. Be sure to scrape and stir in all material sticking to the sides and bottom of the mixing container. Do not use paper containers or wooden mixing sticks. They may contain moisture. For best results, use plastic or coated containers, and metal or plastic sticks.

CASTING:

Pour in a thin unbroken stream into the lowest point in the cavity or mold. This will help break up some of the air entrapped during mixing. For best results, Hapco recommends vacuum degassing and/or pressure casting at 70-80 PSI.

AIR RELEASE:

Hapco recommends degassing the mixed product before casting to remove air from hand mixing. The vacuum must be capable of pulling 29" of mercury and the silicone must be in a container large enough to accommodate the rising air. These products can rise to over 4 times their initial volume.

HAPSIL SERIES
MATERIAL HANDLING & SAFETY NOTES (cont.)

SHRINKAGE:

Shrinkage or dimensional variation is largely influenced by 5 factors:

1. Mass (total volume and thickness)
2. The temperature of the material
3. Maximum temperature reached during the exotherm (reaction).
The faster the gel time, the higher the exotherm, the greater the shrinkage.
4. The temperature of the mold
5. The thermal properties of the mold material. (Insulator vs. Conductive)

Geometry, part thickness, and total volume vary in each design, therefore, the customer is responsible to test and determine the shrinkage factor to be used. The values in the brochures are for comparative reference only, using ASTM testing procedures.

CLEAN UP:

This product will not adhere to most surfaces. The best way to remove waste or spilled silicone is to let it cure and peel it off. If spilled on a porous surface or carpet, solvents such as Isopropyl alcohol or acetone can be used.

STORAGE:

Store both components in an area with a temperature range of 68-90°F (20-32°C). Store in a dry place off of cement floors and on shelving if possible. Containers should be kept tightly closed.

SHELF LIFE:

The shelf life on Hapco products begins from the date of invoice for that product shipment. Hapco's shelf life only pertains to containers that are unopened and in their original condition. Once the container is opened Hapco has no control or responsibility for the shelf life.

RESEALING:

Many polymers are moisture sensitive, reseal, using one of the following two (2) methods:
blanket with nitrogen or use a hair dryer for 30 seconds to cover with dry air.

PRECAUTIONS:

CAUTION: The MSDS should be read thoroughly before using this product.

Skin or eye contact with polymers should be avoided. The use of gloves and eye protection are strongly recommended. All polymers, as a general practice, should be used in well-ventilated areas. Spot ventilation is most effective. Contaminated clothing should be removed immediately and the skin washed with soap and water or waterless skin cleaner. Should accidental eye contact occur, wash thoroughly with water and consult a physician.

The information presented here is based on carefully conducted laboratory tests and is believed to be accurate. However, results cannot be guaranteed and it is suggested that customers confirm results under their conditions and in their applications before production use.

Important: Hapco Inc. makes no warranty, whether expressed or implied, including warranties of merchantability or of fitness for a particular purpose. Under no circumstances shall Hapco Inc. be liable for incidental, consequential, or other damages from alleged negligence, breach of warranty, strict liability, tort contract, or any other legal theory, arising out of the use of handling of this product. The sole remedy of purchaser and sole liability of Hapco Inc. shall be for the purchase price of the product which is the subject of the claim.