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# TAP Mold-Making Urethane RTV System

This product offers the economy and durability of urethane and many of the convenience features of silicone.

## Description

TAP Urethane System consists of liquid Part A and Part B. After mixing, it cures at room temperature to a flexible, high strength, Shore-A 30 mold rubber (Example: Household silicone sealant is approximately Shore 30). This system features easy releasing for casting gypsum plasters and waxes without release agents. It is also excellent for casting cement, epoxy, polyester, and urethane with proper release agents. It is a safe product to use when directions are followed fully.

Part A is a clear liquid with medium viscosity of 5000 cps and specific gravity of 1.02 g/cc. Part B is a low viscosity blue/gray-amber translucent with a specific gravity of 1.00 g/cc. Part B **requires** stirring before use and may darken with age, but this does not affect mold properties.

### Physical Properties

<b>Mix Ratio</b>	One Part A to one Part B
<b>Hardness, Shore A</b>	30
<b>Pour Time</b>	30 minutes
<b>Color (mixed)</b>	Translucent blue/gray-amber
<b>Viscosity (mixed)</b>	2000 cps
<b>Cubic Inches Per Pound</b>	27.5
<b>Maximum Service Temp.</b>	230-240° F
<b>Shrinkage During Cure</b>	Nil
<b>Cure Time</b>	24-48 hours (77° F); ultimate properties: 7 days. Elevated temperature (up to 140°F) greatly accelerates cure. Avoid use below 60°F. Use of mold before cure may cause it to permanently stretch.
<b>Exotherm</b>	Minimal

## Mixing

Accurate **measuring** is essential. Inaccurate measuring causes changes in the physical properties of the cured material. Thorough **mixing** is also essential! Mix for 1-2 minutes using an up and down motion and make certain to scrape sides and bottom of container often. The most common causes of incomplete cure and mold failure is improper mixing.

## Releases

Most projects require releases for the pattern and the mold. Test for compatibility by using small samples of the actual materials planned for the intended project.

TAP offers a number of different releases. Pol-Ease 2300 is a blend of silicone oils and resins in a convenient aerosol spray. Spray it on the pattern or mold and use a soft dry brush to distribute excess and coat any missed spots. Excess Pol-Ease can cause pinhole bubbles in the mold, **however it flashes off quickly** and is ready for use 15 minutes after application. Its ease of use and high quality make it a perfect complement to the TAP RTV Urethane System.

TAP has other wax releases (spray and paste) which, when used according to directions, also work well and preserve minute detail. Test your project for compatibility.

## Mold Types

In simplest terms, almost all molds can be categorized either as pour-on or brush-on. TAP Urethane System can be used effectively for either type. Its low viscosity makes it especially suitable for bubble-free poured molds.

To make a brush-on glove type mold, thicken Urethane RTV with Cab-O-Sil. This method has the advantage of using a minimal amount of mold rubber to maximize economy. When making a brush-on mold, secure the model to a base and apply release both to the model and the base. Mix an appropriate quantity of RTV and pour or brush a thin layer over the model. This layer will accurately

pick up all the detail and texture of the model. Let it gel (about 1 hour). Mix another batch of RTV with an equal volume (approximately) of Cab-O-Sil to create a non-sagging paste. Stir thoroughly to break lumps and to disperse Cab-O-Sil throughout the mixture. (Adjust the RTV and Cab-O-Sil ratio to suit your needs.) Either brush on or apply the thickened RTV with a spatula. Apply a layer approximately 1/8" thick, being certain to fill any gaps and undercuts. This layer will bond to the first unthickened layer. Finally, create a flange by applying the thickened RTV to the base about 1" around the outside of the model. Use this flange to support the cured mold when pouring the casting material.

TAP Urethane RTV is extremely flexible, making it suitable for molds with significant undercuts. When making such a mold, use care not to trap bubbles, either in the mold or the cast part. Use of a vacuum chamber will remove all bubbles from the uncured RTV, however, it is not required.

Models with extremely deep undercuts often require multiple-part molds. TAP Urethane RTV is superior to other urethanes because it can be cut. Rather than spend extensive time making a multiple-piece mold, pour a single block mold with TAP Urethane RTV. When the mold is cured, use a sharp knife (snap-off knife works well) to cut through the mold just enough to allow it to be pulled off the model. Put the cut edges back together, and hold them together with rubber bands to create a virtually invisible seam.

### Casting Mediums

TAP Urethane RTV System is compatible with any of the casting materials stocked in our stores. It is also excellent for casting plaster, cement, and molten wax, none of which require a release agent. When casting plaster, coat the mold with 1% detergent (not soap) solution (e.g., Ivory Liquid) before pouring to reduce surface air bubbles in the plaster and aid release. After the first few castings, release becomes even easier.

Polyester resin does not require a release, but use of a release increases mold life and makes the cast part release easily. Epoxy and Quik-Cast both require a release agent, and TAP's Pol-Ease 2300 is ideal for them. Fillers can be used with polyester, epoxy, and Quik-Cast to produce incredible effects and dramatically reduce cost. Experiment with the possibilities!

With all casting materials, the cast part should be removed from the mold as soon as possible to prevent mold degradation from heat and chemical migration.

### Storage

Keep Part A and Part B cans sealed when not in use. TAP Urethane molds will last for years, if stored (without distortion) on a flat surface in a cool and dry location out of direct sunlight.

**For More Information** read TAP's [Product Bulletin 7a](#) and [Product Bulletin 7b](#). Another invaluable source is the [Molding & Casting Handbook](#) by Thurston James, available from TAP.

### Warning

Uncured Urethane RTV compounds may cause skin or respiratory irritation or sensitization if improperly handled. Avoid skin and eye contact with the uncured material. If skin contact occurs, remove with waterless hand cleaner or alcohol then use soap and water. In case of eye contact, flood with water and call a physician. Use only with adequate ventilation. Do not use product around food or where prolonged body contact may occur. Read MSDS and container labels before use.

### Warranty

TAP Urethane RTV System is manufactured and tested to our quality specifications. Determine its suitability for your application by testing before using. TAP has no control over working conditions or methods used and will not be liable for damages exceeding the value of product.