



# TASK<sup>®</sup> Series Plastics

## Performance Urethane Casting Resins

TASK<sup>®</sup> Plastics is a new generation of performance urethane casting resins that offer superior physical properties compared to our popular Smooth-Cast line of general purpose casting resins.

TASK<sup>®</sup> Plastics feature convenient mix ratios by volume (pbv) or weight (pbw), low viscosities, high tensile and flexural strength, as well as high flexural modulus. These plastics were formulated for a variety of industrial applications including pattern making, making prototype models and making high impact solid or rotational castings (TASK<sup>®</sup> 15). These resins are designed for casting in thicknesses **up to ½”** (1.27 cm).

TASK<sup>®</sup> Plastics are moderately priced and are available in trial kits, one-gallon, five-gallon, 55-gallon drum and tote units.

TASK <sup>®</sup> Technical Overview	TASK <sup>®</sup> 2	TASK <sup>®</sup> 3	TASK <sup>®</sup> 4	TASK <sup>®</sup> 5 [Fmr. C-1504]	TASK <sup>®</sup> 6 [Fmr. C-1506]	TASK <sup>®</sup> 8 ++	TASK <sup>®</sup> 9	TASK <sup>®</sup> 12 **	TASK <sup>®</sup> 15	TASK <sup>®</sup> 21
Color	White	White	Ivory	Tan	Tan	Off-White	Clear Amber	Opaque Amber	Opaque White	White
Mix Ratio By Volume By weight	1A:1B 120A:100B	1A:1B 120A:100B	--- 1A:1B	1A:1B 1A:1B	1A:1B 1A:1B	1A:1B 120A:100B	1A:1B 115A:100B	--- 100A:44B	--- 75A:100B	2A:1B 2A:1B
Mixed Viscosity, cps	150	150	250	600	800	100	300	2400	600	500
Specific Gravity, g/cc	1.12	1.12	1.16	1.13	1.07	1.0	1.14	1.08	1.12	1.07
Specific Volume, cu. in./lb.	24.7	24.7	24.0	24.5	26.0	27.7	24.3	26.0	24.7	25.8
Pot Life, minutes	7	20	20	3	7	2.5	7	20	6	6
Demold Time, min.	60	90	16 hrs.	15	75	10-15	60	16 hrs.	60	60
Hardness, Shore D ASTM D-2240	80	80	83	80	80	80	85	60	75	75
Tensile Strength, psi ASTM D-638	6650	6650	6500	3900	5200	7200	7800	2700	2720	5500
Elongation, % ASTM D-638	6	6	4	1.3	4.0	12	6	300	20	7.5
Modulus of Elasticity, ksi ASTM D-638	290	290	260	125	146	240	370	N/A	126	270
Compressive Strength, psi ASTM D-695	8300	8300	7400	4700	5500	9500	11,000	N/A	5450	7100
Compressive Modulus, ksi ASTM D-695	78	78	75	N/A	N/A	75	98	N/A	60	78.5
Flexural Strength, psi ASTM D-790	9500	9500	9000	N/A	N/A	9320	11,850	N/A	5620	7100
Flexural Modulus, ksi ASTM D-790	288	288	204	125	N/A	271	350	N/A	170	250
Deflection Temperature, °F/°C ASTM D-648, 264 psi	134/57	134/57	110/45	N/A	N/A	++	131/55	N/A	117/47	144/62
Shrinkage (in./in.) ASTM D-2566	.0012	.00065	.0035	.007	.0006	.01	.009	.001	.0042	.0058

++ See separate Technical Bulletin for TASK<sup>®</sup> 8

\*\* See separate Technical Bulletin for TASK<sup>®</sup> 12

**Preparation . . .** Store and use urethanes at room temperature (72°F / 22°C). These products have a limited shelf life and should be used as soon as possible. All liquid urethanes are **moisture sensitive** and will absorb atmospheric moisture. Mixing tools and containers should be clean and made of metal, glass or plastic. Mixing should be done in a well-ventilated area. Wear safety glasses, long sleeves and rubber gloves to minimize contamination risk.

**IMPORTANT:** Shelf life of product is drastically reduced after opening. Remaining product should be used as soon as possible. Immediately replacing the lids on both containers after dispensing product will help prolong the shelf life of the unused product. **XTEND-IT® Dry Gas Blanket** (available from Smooth-On) will significantly prolong the shelf life (up to 4 times longer) of unused liquid urethane products.

**Release Agent . . .** Silicone rubber molds (Mold Max® Silicones) do not require a release agent. Applying a release agent, however, will prolong the life of the mold. A release agent is necessary to facilitate demolding when casting into urethane rubber molds. Use a release agent made specifically for mold making (Universal® Mold Release or Mann's Ease Release® 200 available from Smooth-On or your Smooth-On distributor) and follow directions carefully.

**Mixing . . . Shake or stir both Part A & Part B before using.** After dispensing required amounts of Parts A and B into mixing container, **mix thoroughly.** Stir deliberately making sure that you scrape the sides and bottom of the mixing container several times. Be careful not to splash low viscosity material out of the container.

**Vacuuming . . .** TASK® products are low in viscosity and do not require vacuum degassing. If you choose to vacuum the material, subject mixture to 29 h.i.g. mercury in a vacuum chamber until mixture rises, breaks and falls. Allow for 3 to 4 times volume expansion in mixing container. Be aware of pot life so that material does not set up in mixing container.

**Pressure Casting . . .** Best results are obtained using a **pressure casting technique.** After pouring the mixed resin into the mold, the entire mold is placed in a pressure chamber and subjected to 60 PSI (4.2 kg/cm<sup>2</sup>) air pressure for 15 minutes.

**Pouring . . . Warning:** Fumes, which may be visible as this product starts to "gel" and cure, will dissipate with adequate ventilation. Only use this product with room size ventilation and do not inhale/breathe fumes. Castings will be extremely hot immediately following cure and may burn the skin. Let cool to room temperature before handling. For best results, pour your mixture in a single spot at the lowest point of the mold and let the mixture seek its level. This will help minimize air entrapment. **Casting thickness should not exceed ½" (1.27 cm).**

**Curing . . .** TASK® products will demold in 60-90 minutes depending on product, mass and mold configuration. Castings will cure faster and achieve maximum physical properties and higher heat resistance if TASK® plastics are post cured. After casting has cured at room temperature for 60 minutes, subject casting to 150°F / 65°C for 4 hours. Let cool to room temperature.

**Performance . . .** Cured castings are rigid and durable. They resist moisture, moderate heat, solvents, dilute acids and can be machined, primed/painted or bonded to other surfaces (any release agent must be removed). If machining cured TASK® plastics, wear dust mask or other apparatus to prevent inhalation of residual particles. Castings can be displayed outdoors after priming and painting. Because no two applications are quite the same, a small test application to determine suitability is recommended if performance of this material is in question.

The material safety data sheet (MSDS) for this or any Smooth-On product should be read before using and is available on request. All Smooth-On products are safe to use if directions are read and followed carefully.

**Be careful.** Part A (Yellow Label) contains methylene diphenyl diisocyanate. Vapors, which can be significant if pre-polymer is heated or sprayed, may cause lung damage and sensitization. Use only with adequate ventilation. Contact with skin and eyes may cause severe irritation. Flush eyes with water for 15 minutes and get immediate medical attention. Remove from skin with soap and water. Part B (Blue Label) is irritating to the eyes and skin. Avoid prolonged or repeated skin contact. If contaminated, flush eyes with water for 15 minutes and get immediate medical attention. Remove from skin with soap and water. When mixing with Part A, follow precautions for handling isocyanates. If machining cured TASK™ Plastics, wear dust mask or other apparatus to prevent dust inhalation.

**Important** - The information contained in this bulletin is considered accurate. However, no warranty is expressed or implied regarding the accuracy of the data, the results to be obtained from the use thereof, or that any such use will not infringe a copyright or patent. User shall determine suitability of the product for the intended application and assume all associated risks and liability.

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