TASK® 8

Heat Resistant Polyurethane Resin

www.smooth-on.com

PRODUCT OVERVIEW

TASK® 8 is a heat resistant polyurethane resin system made specifically for prototyping / casting applications which require thermal resistance of up to 263°F /129°C.

TASK® 8 offers the convenience of a 1A:1B mix ratio and has a very low viscosity, so it is easy to mix and pour. Plastic cures quickly to a Shore 80D and exhibits good physical and performance properties. Heat curing this material is necessary to attain optimal heat resistance. See "Heat Curing" section for curing schedule details.

TECHNICAL OVERVIEW

Mix Ratio: 1A:1B by volume or 120A:100B by weight	
Mixed Viscosity, cps: 100	(ASTM D-2393)
Specific Gravity, g/cc: 1.09	(ASTM D-1475)
Specific Volume, cu. in. /lb.: 25.4	(ASTM D-1475)
Pot Life: 2.5 minutes @ 73°F / 23°C	(ASTM D-2471)
Cure Time: 10-15 minutes @ 73°F / 23°C **	
Color: Off-White	
Shore D Hardness: 80	(ASTM D-2240)
Ultimate Tensile, psi: 5,840	(ASTM D-638)
Tensile Modulus, psi: 246,000	(ASTM D-638)
Elongation @ Break: 4%	(ASTM D-638)
Flexural Strength, psi: 8,280	(ASTM D-790)
Flexural Modulus, psi: 271,000	(ASTM D-790)
Compressive Strength, psi: 8,760	(ASTM D-695)
Heat Deflection Temperatures:	(ASTM D-648)
After 1 Week At 73°F/23°C - **194°F/90°C**	
After Heat Curing† - **263°F/129°C**	
Compressive Modulus, psi: 77,400	(ASTM D-695)
Shrinkage: 0.01in/in	(ASTM D-2566)

* All values measured after 7 days at 73°F/23°C

** Depending on mass

† See "Heat Curing" Section for details

Applications include making machine housings, thermo-forming and general prototyping / casting.

PROCESSING RECOMMENDATIONS

PREPARATION... Materials should be stored and used in a warm environment (73° F / 23° C). This product has 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.

Because no two applications are quite the same, a small test application to determine suitability for your project is recommended if performance of this material is in question.

Applying A Release Agent - A release agent is necessary to facilitate demolding when casting into or over most surfaces. Use a release agent made specifically for mold making (Universal® Mold Release or Ease Release® 200 available from Smooth-On or your Smooth-On distributor). A liberal coat of release agent should be applied onto all surfaces that will contact the plastic.

~IMPORTANT: To ensure thorough coverage, lightly brush the release agent with a soft brush over all surfaces. Follow with a light mist coating and let the release agent dry for 30 minutes.

Most silicone rubber molds usually do not require a release agent unless casting silicone into the mold. Applying a release agent, however, will prolong the life of the mold.

MEASURING & MIXING...

Shake or stir both Part A & Part B before dispensing. After dispensing equal amounts of Parts A and B into mixing container, mix thoroughly. Stir slowly and 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.

Remember, **TASK® 8 will set up quickly. Do not delay between mixing and pouring.**

IMPORTANT: Shelf life of product is 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 of unused liquid urethane products.

Safety First!

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. ***Keep Out of Reach Of Children.***

Be Careful. **Part A** (Yellow Label) contains methylene diphenyldiisocyante. Vapors, which can be significant if 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.

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.

POURING, CURING & PERFORMANCE...

Pouring - If casting **TASK® 8** into a rubber mold, pour mixture in a single spot at the lowest point of the mold. If encapsulating an object, do not pour the mixture directly over the object. Let the mixture seek its level. A uniform flow will help minimize entrapped air.

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Vacuum Degassing – mixed resin is low in viscosity and does 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 - Although not necessary for most applications, best results for eliminating air/bubbles are obtained using a pressure casting technique. After pouring the resin into a rubber mold (that has also been made using pressure), place mold into a safety-rated pressure chamber and subject the mixture to 60 PSI (4.2 kg/cm^2) until the material cures. After material cures, wait 30 minutes before releasing pressure and removing mold / casting from the pressure chamber.

Curing - For most applications, room temperature curing at 73°F (23°C) for 16 hours is adequate. Low mass or thin-walled castings will take longer to cure than castings with higher mass concentration. Castings will reach ultimate physical properties at room temperature in 7 days.

Post Curing Option – For maximum physical properties and higher heat resistance, TASK® 8 should be heat cured according to the following cure schedule:

Temperature	Duration
Room Temp. (72°F / 23°C)	1 hour
150°F / 65°C	2 hours
212°F / 100°C	2 hours
265°F / 130°C	2 hours

Demold - Demold time of the finished casting depends on mass and mold configuration. Make sure casting has reached handling strength before demolding. If casting has a flat back, it can be removed from mold and allowed to cure outside the mold on a flat, level surface to attain full working properties. Allow material to cure for 24 hours at room temperature before putting into service.

Performance - Cured castings of **TASK® 8** 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). Castings can be displayed outdoors after priming and painting.

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Call Us Anytime With Questions About Your Application.

Toll-free: **(800) 381-1733** Fax: **(610) 252-6200**

The new **www.smooth-on.com** is loaded with information about mold making, casting and more.