

# EpoxAcast™ 690 and 692 Deep Pour Clear Castable Epoxy Resins



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## PRODUCT OVERVIEW

**EpoxAcast™ 690 and 692 Deep Pour** are UV resistant clear casting epoxy resins suitable for a variety of industrial and art related projects requiring a rigid, clear finished casting. EpoxAcast™ 690 and 692 feature a very low viscosity for easy mixing and minimal bubble entrapment. Castings cure with negligible shrinkage and are very hard and strong. Resin can be colored with UVO™ or IGNITE™ colorants. Cast Magic™ and Glow Worm™ powders can also be added to create amazing casting effects. There are 2 ways to process these resins, using **standard casting** and **fan-cooled casting** techniques.

**Standard Casting** - Using a standard casting method, EpoxAcast™ 690 has a maximum casting thickness of 3/8 in. (0.95 cm.) while EpoxAcast™ 692 Deep Pour has a maximum casting thickness of 1 1/2" (3.81 cm.). **Material should be poured and cured at an ambient temperature of 70°F / 21°C.**

**Fan-Cooled Casting** - To use a fan-cooled casting method, inexpensive box fans are placed near the curing epoxy to circulate air across the surface of the casting. This assists in cooling the material, allowing for thicker castings. Using a fan-cooled pouring method, EpoxAcast™ 690 as a maximum casting thickness of 3/4 in. (1.9 cm.) while EpoxAcast™ 692 Deep Pour has a maximum casting thickness of 2" (5.08cm). Material should be poured at an ambient temperature of 70°F / 21°C.

**See Creating Epoxy Resin Tables Technical Bulletin for details.**

EpoxAcast™ 690 and EpoxAcast™ 692 Deep Pour		
Handling Properties	EpoxAcast™ 690	EpoxAcast™ 692 Deep Pour
Mix Ratio By Weight	100A : 30B	100A : 40B
Mixed Viscosity - CPS. (ASTM D2393)	280	370
Specific Gravity - Mixed; g./c.c. (ASTM D1475)	1.10	1.08
Spec. Volume - Mixed; cu. in./lb. (ASTM D792)	25	25.7
Pot Life - (ASTM D2471) <sup>T</sup>	5 Hours	12 Hours
Cure Time - Standard Casting Method	24 Hours	72 Hours
Cure Time - Fan Cooled Casting Method	36 Hours	7 Days
Color	Clear	Clear
Physical Properties		
Shore D Hardness (ASTM D2240)	80	80
Ultimate Tensile - P.S.I. (ASTM D638)	6,630	4,585
Tensile Modulus - P.S.I. (ASTM D638)	572,000	378,000
Tensile Elongation (ASTM D638)	1.8	3.1
Flexural Strength - P.S.I. (ASTM D790)	10,980	6,780
Flexural Modulus - P.S.I. (ASTM D790)	410,000	203,000
Compressive Strength - P.S.I. (ASTM D695)	9,610	5,777
Compressive Modulus - P.S.I. (ASTM D695)	91,300	82,000
Shrinkage - in./in. (ASTM D-2566)	0.002	0.007
Heat Deflection Temp. (ASTM D648) If cured at room 70°F / 21°C	115°F/46°C	100°F / 38°C
Index Of Refraction	1.565 nm	1.5372 nm
Values for EpoxAcast™ 690 measured after 7 days at 70°F / 21°C Values for EpoxAcast™ 692 measured after 21 days at 70°F / 21°C *Pot Life and Cure Time values are dependent on mass and mold configuration, as epoxies are mass-sensitive.		

## PROCESSING RECOMMENDATIONS

**Preparation** – Avoid breathing fumes - use in a well ventilated area at minimum. NIOSH approved respirator is recommended. Wear safety glasses, long sleeves and rubber gloves to minimize skin contact.

Materials should be stored and used in a room temperature environment (70°F/21°C). Elevated temperatures will reduce Pot Life. EpoxAcast™ 690 and 692 must be properly measured and thoroughly mixed to achieve full, high-strength, solid-cure properties. Mixing containers should have straight sides and a flat bottom. Mixing sticks should be flat and stiff with defined edges for scraping the sides and bottom of your mixing container.

**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** – For releasing epoxy from non-porous surfaces such as resin, metal, glass etc., use Ease Release™ 200 or 205 (available from Smooth-On) to prevent adhesion. **IMPORTANT:** To ensure thorough coverage, lightly brush the release agent with a soft brush over all surfaces of the mold or model. Follow with a light mist coating and let the release agent dry for 30 minutes.

**Temperature Is Important** - The recommended ambient temperature when using EpoxAcast™ 690 or 692 is **70°F / 21°C**. For large mass pours cooler temperature environments are recommended.

**Measuring / Dispensing** – Stir Part A thoroughly

before dispensing. You must use an accurate digital gram scale to weigh Parts A and B properly. Do not use an analog scale or attempt to measure components by volume.

## Safety First!

The safety data sheet (SDS) 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.

### **EpoxAcast™ 690 and 692 PART A:**

#### **WARNING: IRRITANT TO EYES, SKIN & MUCOUS MEMBRANES.**

EpoxAcast™ 690 and 692 Resin is irritating to the eyes and skin. Avoid prolonged or repeated skin contact to prevent possible sensitization. Avoid breathing vapors and use only with adequate ventilation. Wear personal protective equipment.

**First Aid:** In case of eye contact, flush thoroughly with water for 15 minutes and get immediate medical attention. In case of skin contact, wipe clean with white vinegar and wash thoroughly with soap and water. If irritation persists, get medical attention. If swallowed, do not induce vomiting. Drink 1 - 2 glasses of water and get immediate medical attention. If vapors are inhaled or if breathing becomes difficult, remove person to fresh air. If symptoms persist, get medical attention.

**Keep Out Of Reach Of Children.**

### **EpoxAcast™ 690 and 692 PART B:**

#### **WARNING: IRRITANT TO EYES, SKIN & MUCOUS MEMBRANES.**

EpoxAcast™ 690 and 692 Hardener is corrosive, causing severe skin and eye burns. Avoid prolonged or repeated skin contact to prevent possible sensitization. Use only with adequate ventilation. If contaminated flush eyes with water for 15 minutes and seek medical attention. Remove from skin with waterless hand cleaner then soap and water. Refer to SDS. **First Aid:** In case of eye contact, flush thoroughly with water for 15 minutes and get immediate medical attention. **Keep Out Of Reach Of Children.**

**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 upon a patent. User shall determine the suitability of the product for the intended application and assume all risk and liability whatsoever in connection therewith.

**Mixing** – Be sure mixing utensils are clean and free of any potential contaminants such as dirt, dust or grease. Mixing should be done in a well ventilated area. Wear safety glasses, long sleeves and rubber gloves to minimize contamination risk.

Combine EpoxAcast™ 690 or 692 Part A Resin with the appropriate amount of Part B hardener. Mix thoroughly for 3 minutes making sure that you scrape the bottom and sides of the container several times. Then, pour entire quantity into a new, clean mixing container and do it all over again. When drill mixing, use a turbine mixer to mix material, then follow with hand mixing as directed above to ensure thorough mixing (Double Mix-and-Pour Technique).

**IMPORTANT: Do not delay between mixing and pouring. Materials may cure in container with a high exotherm potential. Do not vacuum EpoxAcast™ 690 or 692.**

**Recommended Batch Size** - It is recommended to mix a maximum batch size of 20.8 lbs. (9.43 kg.) of EpoxAcast™ 690 or 112 lbs. (50.80 kg.) of EpoxAcast™ 692 per pour. Increasing batch size may cause high exotherm. Do not delay between mixing and pouring.

**Adding Color** - EpoxAcast™ 690 or 692 can be colored with UVO™ or IGNITE™ colorants, Glow Worm glow powders or Cast Magic™ Effects Fillers. Pre-mix color or filler with Part A thoroughly and then add Part B. It is recommended to run a small scale color test in advance to ensure that the casting effect is appropriate for your project.

**Pouring** - Ensure working area is clean, dry, and free of dust and insects. When pouring EpoxAcast™ 690 or 692 in layers, allow previous layer to fully cure before pouring subsequent layers.

**Creating Epoxy Resin Tables** - As EpoxAcast™ 690 or 692 can be poured in thick layers, they are an excellent choice for "river table" type applications. See **Creating Epoxy Resin Tables Technical Bulletin** for processing details.

**Cure Time** - When using a **standard casting method** poured at an ambient temperature of 70°F / 21°C, the cure time of EpoxAcast™ 690 is 24 hours in a thickness of 3/8 in. (0.95 cm.). When using a **standard casting method** poured at an ambient temperature of 70°F / 21°C, the cure time of EpoxAcast™ 692 is 72 hours in a thickness of 1 1/2" (3.81 cm.) Castings that are 1/4 in. / 0.64 cm. thickness or less will cure more slowly. Cured material will be hard and unable to be penetrated with a finger nail. When using the **fan-cooled casting method**, cure times will be considerably longer. Pot Life and Cure Time values are dependent on mass and mold configuration, as epoxies are mass-sensitive.

After curing, epoxy can be sanded. If machining or sanding, wear NIOSH approved mask to prevent inhalation of particles.

**Performance** - Cured epoxy is hard and durable. It resists moisture, moderate heat, solvents, dilute acids and can be machined or bonded to other surfaces (any release agent must be removed). If machining castings, wear dust mask or other apparatus to prevent inhalation of residual particles.

**Do not rest hot beverage cups or other containers reaching temperatures above 120°F/49°C on cured EpoxAcast™ 690 or 692, this will cause damage to epoxy surface.**

Cured epoxy can be displayed outdoors after painting with an aliphatic urethane clear coat (such as Axalta Imron 3.5 Plus High Gloss Polyurethane Topcoat available at [www.axalta.com](http://www.axalta.com)). Unpainted epoxy will yellow after being exposed to UV light or excessive heat above 100°F/38°C. For longer outdoor UV resistance of an unpainted clear part, Smooth-On's Crystal Clear™ Urethane Resin may be an option for your application

**Removing Epoxy – Uncured / Non-curing epoxy** - Scrape as much material as possible from the surface using a scraper. Clean the residue with E-POX-EE KLEENER™ available from Smooth-On, acetone or denatured alcohol. Follow safety warnings pertaining to solvents and provide adequate ventilation.



**Call Us Anytime With Questions About Your Application**

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The new [www.smooth-on.com](http://www.smooth-on.com) is loaded with information about mold making, casting and more. 082622-JR