



STYPOL®

ArmorCast™ CO

Onyx-Casting Resin

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Type

CCP's **ArmorCast™** CO onyx casting resin series is designed for casting applications where resin is combined with aluminum trihydrate and cast into shape. CO resins are designed for Cultured Onyx where they provide strength and thermal shock resistance. They can also be used for cultured marble when very low colors are required.

Usages

The **ArmorCast™** CO onyx casting resin series is particularly designed for those fabricators who need low color in their onyx applications

Distinguishing Characteristics

- Low color
- Creamy undertone when mixed with hydrated alumina in cultured onyx applications
- Available in a variety of viscosity ranges
- Excellent thermal shock resistance
- Resistant to warping and cracking

Cure Characteristics

Neat Gel Time ¹ (Min)	11	13	16	20	24	28	99 (Unpromoted)
Filled Gel Time ^{1,2,3} (Min)	17	21	24	30	36	42	NA ⁵
De-mold Time ⁴ (Min)	M (Medium Cure)		130 – 160 minutes				

¹1.25% DDM-9 @ 77°F.

²Resin/ATH (Solem *Onyx Elite*®) ratio of 35/65.

³Catalyze resin, mix in one minute. Then add filler and mix 2 minutes.

⁴After matrix gel, when used as recommended @ 75-78°F.

⁵Not available at this time.



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Viscosity Characteristics

Viscosity Grade	C	D	F	J	K	M	T
Recommended Use	Machine Pour; Flat Stock	Flat Stock; Vanities		Flat Stock; Vanities, Tubs			Tubs; Complex Designs
Actual Viscosity (Brookfield RVT #2, 77°F)	600	900	1200	1600	1900	2300	3200
Viscosity rpm	20	20	10	10	10	10	5

Cure

It is recommended that gel time be checked in the customer’s plant as age, temperature, humidity, and catalyst will produce varied gel times. It is best to run a filled gel time with the same resin/filler ratio used in production to gauge which gel time range is most applicable.

When using a standard strength MEKP catalyst, the catalyst level should not exceed 2.0% or fall below 0.6% for proper cure. Recommended range is 0.75% to 1.5% with 1.25% being ideal. These products are designed to be used with Luperox DDM-9 from ATOFINA.

This product should not be used at temperatures below 65°F, as curing will be adversely affected.

Physical Properties

Polyesters do not develop ultimate physicals, i.e., “cure,” immediately. Time and/or heat are needed. Heat may come from internal exotherm or external sources. The amount of catalyst will influence the cure. With time and/or heat, a “moderate cure” will develop into “ultimate physicals.”

When will the part reach ultimate cure? It depends upon time, temperature and satisfactory catalyzation. Too much or too little catalyst can result in permanent undercure, which cannot be overcome. Practically speaking, serviceable cure time will range from overnight to a week and occasionally longer due to circumstances. Sufficient external heat can reduce the cure time to less than a day. The following table represents typical physical properties for CS series resins:

Test	Casting, Unfilled
Tensile Strength	9,500 psi
Tensile Elongation	2.2%
Flexural Strength	14,100 psi
Flexural Modulus	0.375 x 10 ⁶ psi

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Caution

Do not add any material, other than the recommended fillers, pigments, and methyl ethyl ketone peroxide, to this product without the advice of a representative of CCP Composites US.

Storage

Uncatalyzed, standard cure polyester products have a usage life of 90 days from date of shipment when stored at 73°F or below in a closed, factory-sealed, opaque container, and out of direct sunlight.

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COMPOSITES SAFETY INFORMATION (October 2011)

All sales of products manufactured by CCP Composites US (CCP), and described herein, are made solely on condition that CCP's customers comply with applicable health and safety laws, regulations and orders relating to the handling of our products in the workplace. Before using, read the following information, and both the product label, and Material Safety Data Sheet pertaining to each product.

Most products contain styrene. Styrene can cause eye, skin and respiratory tract irritation. Avoid contact with eyes, skin and clothing. Impermeable gloves, safety eyewear and protective clothing should be worn during use to avoid skin and eye contact. Wash thoroughly after use.

Styrene is a solvent and may be harmful if inhaled. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Extended exposure to styrene at concentrations above the recommended exposure limits may cause central nervous system depression causing dizziness, headaches or nausea and, if overexposure is continued indefinitely, loss of consciousness, liver and kidney damage.

Do not ingest or breathe vapor, spray mists or dusts caused by applying, sanding, grinding and sawing products. Wear an appropriate NIOSH/MSHA approved and properly fitted respirator during application and use of these products until vapors, mists and dusts are exhausted, unless air monitoring demonstrates vapors, mists and dusts are below applicable exposure limits. Follow respirator manufacturer's directions for respirator use.

The International Agency for Research on Cancer (IARC) reclassified styrene as Group 2B, "possibly carcinogenic to humans." This revised classification was not based on new health data relating to either humans or animals, but on a change in the IARC classification system. The Styrene Information and Research Center does not agree with the reclassification and published the following statement: Recently published studies tracing 50,000 workers exposed to high occupational levels of styrene over a period of 45 years showed no association between styrene and cancer, no increase in cancer among styrene workers (as opposed to the average among all workers), and no increase in mortality related to styrene.

Styrene is classified by OSHA and the Department of Transportation as a flammable liquid. Flammable products should be kept away from heat, sparks, and flame. Lighting and other electrical systems in the work place should be vapor-proof and protected from breakage.

Vapors from styrene may cause flash fire. Styrene vapors are heavier than air and may concentrate in the lower levels of molds and the work area. General clean air dilution or local exhaust ventilation should be provided in volume and pattern to keep vapors well below the lower explosion limit and all air contaminants (vapor, mists and dusts) below the current permissible exposure limits in the mixing, application, curing and repair areas.

Some products may contain additional hazardous ingredients. To determine the hazardous ingredients present, their applicable exposure limits and other safety information, read the Material Safety Data Sheet for each product (identified by product number) before using. If unavailable, these can be obtained, free of charge, from your CCP representative or from: CCP Composites US, P.O. Box 419389, Kansas City, MO 64141-6389; 816-391-6053.

FIRST AID: In case of eye contact, flush immediately with plenty of water for at least 15 minutes and get medical attention; for skin, wash thoroughly with soap and water. If affected by inhalation of vapors or spray mist, remove to fresh air. If swallowed, get medical attention.

Those products have at least two components that must be mixed before use. Any mixture of components will have hazards of all components. Before opening the packages read all warning labels. Observe all precautions.

Keep containers closed when not in use. In case of spillage, absorb with inert material and dispose of in accordance with applicable regulations. Emptied containers may retain hazardous residue. Do not cut, puncture or weld on or near these containers. Follow container label warnings until containers are thoroughly cleaned or destroyed.

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