POLYCOR® STYPOL®

STYPOL® 040-2989
ISOPHTHALIC LAMINATING RESIN

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DESCRIPTION:

STYPOL® 040-2989 is a pre-promoted, thixotropic, isophthalic polyester resin containing styrene monomer. **STYPOL® 040-2989** is especially formulated for use as skin or bulk laminating resin for fabrication of reinforced plastic molds and tools. It provides higher heat resistance than general purpose laminating resins for long lasting molds. Combining **STYPOL® 040-2989** with CCP's **Polycor® 945** or **965** series tooling gel coats yields a high quality tool that will deliver excellent parts, time and time again. **STYPOL® 040-2989** is also designed for use in hand lay-up or spray-up fabrication processes for corrosion resistant applications.

FEATURES AND BENEFITS:

- Outstanding chemical resistance
- High impact resistance
- Contains no wax or floating agents
- Good heat resistance

TYPICAL LIQUID PROPERTIES (at 77°F/25°C):

Liquid properties of **STYPOL® 040-2989** are shown below. These values may or may not be manufacturing control criteria; they are listed for a reference guide only. Particular batches will not conform exactly to the numbers listed because storage conditions, temperature changes, age, testing equipment (type and procedure) can each have a significant effect on the results. Products outside of these readings can perform acceptably. Final suitability of this product is in the end use performance.

Test	Stypol® 040-2989
Viscosity(2)	450 cps
Thixotropic Index	2.8 minimum
Gel Time(3)	17 minutes
Weight per Gallon	8.9 lbs

(1) For HAP and Monomer content information please refer to the MSDS
(2) Brookfield LV #2 at 60 rpm.
(3) 100 g mass, Syrgis® Norox® MEKP-900, 1.25%

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PHYSICAL PROPERTIES: The physical properties of **STYPOL® 040-2989** are shown below. Properties are shown for both neat resins casting and for a glass fiber reinforced laminates. These are typical values and are provided for reference only.

Note: The physical properties of thermoset resins evolve as the resin cures. The properties given below are for well cured castings and laminates. Resin and laminates at different stages of cure will have varying properties.

Test	Test Method (1)	Neat Resin Casting (2)	Laminate (3)
Tensile Strength	ASTM D638	8,900 psi (61.4 MPa)	15,500 psi (107 MPa)
Tensile Modulus		--	1,150,000 psi (7,930 MPa)
Tensile Elongation		--	1.85%
Flexural Strength	ASTM D790	17,800 psi (122 MPa)	22,800 psi
Flexural Modulus		540,000 psi (3720 MPa)	900,000 psi
Barcol Hardness, Model #934	ASTM D2583	48	50
Heat Distortion Point at 264 psi	ASTM D648	207ºF (97°C)	--
Specific Gravity	--	1.18	1.37
Water Absorption (24 hours at 77ºF)	ASTM D570	--	0.1%

(1) All tests run per internal CCP test methods. These methods are similar to the ASTM Method listed above.

APPLICATION:

STYPOL® 040-2989 should be mixed prior to use. Use mixing equipment with sufficient horsepower (relative to container size) to achieve thorough circulation from top to bottom and out to the sides of the container. The agitator must be properly sized for the container and must allow for uniform mixing regardless of the liquid level in the container. Mixing once a day for 10 minutes is typically sufficient. Air bubbling should not be used for mixing. It is not effective and only serves as a potential source of water or oil contamination. Do not over mix **STYPOL® 040-2989.** Over mixing can break down the resin viscosity increasing the tendency to sag.

The cure rate of polyester resins depends on a number of factors including the product's age, temperature, catalyst type, catalyst level and ambient humidity. When used in a laminating application the laminate cure rate also depends on reinforcement content and laminate thickness as well as other factors. For these reasons, we recommend that customer's check the cure rate in your plant.

STYPOL® 040-2989 is quality control tested using Syrgis® Norox®MEKP-900. Arkema Luperox® Delta X-9 and AkzoNobel Cadox® M-50a expected to yield similar performance. Other 9% oxygen MEKP catalysts can also be used, but gel and cure times may vary.

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The catalyst level should not exceed 2.4% or fall below 0.9% for proper cure. A catalyst level of 1.25% at 77°F is considered ideal; however, the catalyst level may be adjusted within the specified range to compensate for specific plant conditions. . This product should not be used when temperature conditions are below 60°F, as curing may be adversely affected.

CAUTION:

Do not add any material, other than the recommended methyl ethyl ketone peroxide, to this product without the advice of a representative of the Cook Composites and Polymers Co.

STORAGE LIMITATIONS:

STYPOL® 040-2989 has a shelf life of three months from date of shipment from CCP when stored at 73°F or below in a closed, factory-sealed, opaque container, and out of direct sunlight. The usage life is cut in half for every 20°F over 73°F.

DATA SHEETS/MSDS:

CCP data sheets and MSDS's are available in printable format at www.ccponline.com.

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