PRODUCT BULLETIN

July 2020

STYPOL® 040-4215, 040-4219

Orthophthalic Laminating Resins

DESCRIPTION

STYPOL® 040-4215 and 040-4219 are orthophthalic laminating resins. STYPOL® 040-4215 and 040-4219 are pre-promoted, thixotropic, orthophthalic polyester resins containing styrene monomer. They are especially formulated for building reinforced plastic parts using hand lay-up or spray-up processes. Their low exotherm characteristics enable thick laminates to be made without excessive exotherm.

BENEFITS & FEATURES

- Low exotherm
- Fast glass fiber wet-out
- Minimal fiber transfer
- Early development of Barcol hardness

PROPERTIES – LIQUID

Property(1)	Unit	040-4215	040-4219
Viscosity(2)	cps	500	500
Thix Index	-	2.75 (Min.)	2.75 (Min.)
Gel Time(3)	minutes	15	19
Peak Exotherm	°C/°F	149/300	149/300
Weight per Gallon	lbs/gal	9.0	9.0

1) All properties at 25°C/77°F unless otherwise noted
2) Brookfield RVT Spindle #2 at 50 RPM
3) 1.25% United Initiators Norox® MEKP-900

PROPERTIES – PHYSICAL

Property(1)	Unit	Neat Resin Casting	Laminate(2)	Test Method
Tensile Strength	psi	6,000	12,000	ASTM D 638
Tensile Modulus	psi	650,000	1,300,000	ASTM D 638
Tensile Elongation	%	1.2	1.3	ASTM D 638
Flexure Strength	psi	12,000	23,000	ASTM D 790
Flexure Modulus	psi	600,000	1,000,000	ASTM D 790
Hardness, Barcol Model #934	HB	-	50	ASTM D 2583
Heat Distortion, 264 psi	°C/°F	67/153	-	ASTM D 648

1) Physical properties were determined using internal Polynt test methods that are similar to those listed above.
2) Laminate – two plies of 2 oz. chopped strand mat.

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APPLICATION

STYPOL® 040-4215 and 040-4219 are quality control tested using United Initiators Norox® MEKP-900 but can be cured with a variety of initiators. Levels can be varied to compensate for ambient temperature. Initiator level should not exceed 2.4% or fall below 0.9% for proper cure. Typical levels of United Initiators Norox® MEKP-925 and MCP-75 required to maintain gel times of STYPOL® 040-4215 between 18-22 minutes are provided in the table below. In some cases, Polycor® 970951 inhibitor solution may need to be added.

STYPOL® 040-4215 Recommended Initiator to Inhibitor Levels for 18 – 22 minute gel time (1)

Ambient Temperature (°F)	Norox® MEKP-925	Polycor® 970C951 (2)
60	2.25% results in 23-25 Min. gel time	0
70	1.5%	0
80	1.25%	0
90	1.5%	0.08%

Ambient Temperature (°F)	Norox® MCP-75	Polycor® 970C951 (2)
60	Not recommended for use at 60 °F	0
70	1.5%	0
80	1.25%	0
90	1.5%	0

1) 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, Polynt recommends that customers check the cure rate in their plant.
2) Polycor® 970C951 - 12% HQ solution

Refer to Polynt's Composites Applications Guide ("Cookbook") for equipment and application recommendations. Each user must determine the suitability of this product to his/her particular mode of operation and intended end-use application. A Polynt representative will be available to assist in the proper selection of all Polynt-Reichhold products available for commercial use.

SHELF LIFE & STORAGE

The shelf life of STYPOL® 040-4215 and 040-4219 is 120 days from the date of manufacture from Polynt. To maximize usage life and maintain optimum properties, resins and gel coats should be stored in the original closed container at temperatures below 23°C/73°F and away from ignition sources and sunlight. Keep containers sealed to prevent moisture pick-up and monomer loss.

SAFETY & WARRANTY

To receive a copy of our safety and warranty information, please email safetyandwarranty@polynt.com.