

# SYNOLITE™ 5410-P-1

## CHEMICAL/PHYSICAL NATURE

Synolite™ 5410-P-1 is a low viscous, pre-accelerated, promoted, thixotropic, low reactive unsaturated polyester resin based on orthophthalic acid. Both an LSE (Low Styrene Emission) additive and color change system have been incorporated in the resin. Synolite™ 5410-P-1 resin does not contain monomeric amines.

## MAJOR APPLICATIONS

Synolite™ 5410-P-1 resin has been specially developed for Hand lay-up and Spray-up applications to produce a variety of constructional laminates.

## PRINCIPAL PROPERTIES

Synolite™ 5410-P-1 resin combines optimal processability with great mechanical properties. This resin shows good fiber wetting and impregnation properties and can be used with a broad range of glass mats.

Thick laminates can be made in one go due to low exothermic heat development combined with good through cure, even in thin laminates. An LSE system is incorporated in the resins for obtaining excellent low styrene emissions.

## PRODUCT SPECIFICATIONS UPON DELIVERY

Property	Range	Unit	TM
Appearance	Hazy	-	2265
Viscosity, Physica, 2 s-1, 23°C	950 - 1200	mPa.s	2313
Viscosity, Physica, 20 s-1, 23°C	330 - 450	mPa.s	2313
Viscosity, Physica, 250 s-1, 23°C	190 - 220	mPa.s	2313
Solid content, IR	53 - 57	%	2033
Gel time from 25 to 35°C	21 - 27	minutes	2625
Cure time from 25°C to peak	38 - 50	minutes	2625
Peak temperature	70 - 90	°C	2625

## REMARKS & CURING CONDITIONS

Viscosity measurement: TM 2313: spindle Z2, 23°C.  
Curing conditions at 25°C, TM 2625:  
2.0 g Butanox® M-50 in 100 g resin.

## PROPERTIES OF THE LIQUID RESIN (TYPICAL VALUES)

Property	Value	Unit	TM
Color on sight	blue	-	-
Density, 23°C	appr. 1100	kg/m <sup>3</sup>	2160
Flash point	appr. 33	°C	2800
Shelf life, no init., dark, 25°C	6	months	-

## PROPERTIES OF CAST UNFILLED RESIN (TYPICAL VALUES)

Property	Value	Unit	TM
Tensile strength	70	MPa	ISO 527-2
Tensile E-modulus	4.0	GPa	ISO 527-2
Elongation at break	2.1	%	ISO 527-2
Flexural strength	115	MPa	ISO 178
Heat Deflection Temp. (HDT)	63	°C	ISO 75-Ae
Impact res. - unnotched sp.	12	kJ/m <sup>2</sup>	ISO 179
Barcol hardness GYZJ 934-1	45	-	DIN EN 59
Density, 23°C	1150	kg/m <sup>3</sup>	DIN 53479
Volume shrinkage	7	%	-

## CURING CONDITIONS

Cured with 1% MEKP peroxide. Post cured 24 hrs. at RT followed by 24 hrs. at 70°C.

## PROCESSING

Synolite™ 5410-P-1 resin contains barrier forming agents to reduce emission of styrene. These agents may reduce the bonding strength of over laminates. Good strength can be obtained with over-laminating of the base laminate after delayed lay-up if the surface is not too resin rich. In other cases the surface may require sanding.

## GUIDELINES BEFORE USE

The resin should be conditioned at 15°C minimum before use to obtain a sufficient cure when MEKP is used as a curing system. Stir the resin mechanically before use. Do not use air bubbles to stir the resin.

## STORAGE GUIDELINES

The resin should be stored indoors in the original, unopened and undamaged packaging, in a dry place at temperatures between 5°C and 30°C. Shelf life is reduced at higher temperatures and the properties of the resin might change during storage. The shelf life of styrene containing unsaturated polyesters will be significantly reduced when exposed to light. Store in dark and in 100% light tight containers only.

## MATERIAL SAFETY

A Material Safety Data Sheet of this product is available on request.

## TEST METHODS

Test methods (TM) referred to in the table(s) are available on request.

Aliancys is a leading global company active in the sales of Quality Resins for composite applications. Together with its customers, Aliancys is pushing the limits of both composite part manufacturing and performance. Taking an integral approach to new product development, Aliancys is using its full expertise in resin chemistry, material science, and component manufacturing for shaping new applications in composites. So let's talk and increase our mutual business success, both today and tomorrow. More information on [www.aliancys.com](http://www.aliancys.com)

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