

PALAPREG® P14-01

CHEMICAL/PHYSICAL NATURE

Palapreg® P14-01 is an unsaturated polyester resin derived from standard glycols, dissolved in styrene. The resin has a high reactivity and a high viscosity.

MAJOR APPLICATIONS

Palapreg® P14-01 is used in combination with e.g. Palapreg® H814-01 for the production of low shrink SMC and BMC. The resin can be readily thickened with magnesium oxide and provides improved pigment ability together with Palapreg® H 814-01. The moldings have a very good gloss.

PRODUCT SPECIFICATIONS UPON DELIVERY

Property	Range	Unit	TM
Viscosity, 23°C	2800 - 3200	mPa.s	2013
Color, APHA	0 - 100	-	2017
Solids content	IR 66.5 - 69.0	%	2033
Appearance	clear		2265
Water content	0.08 - 0.14	%	2350
Acid value, as such	19 - 23	mg KOH/g	2401
Gel time	45 - 75	seconds	2261
Peak time	90 - 120	seconds	2261
Peak temperature	260 - 290	°C	2261
Viscosity after 120 min	150000 - 250000	mPa.s (80°)	2914-B

REMARKS

Viscosity: Z3/100/23°C

Reactivity determined with 1 g TBPB added to 100 g resin

Typical Values Refractive Index

(23°C - TM 2150) = 1.5140 - 1.5175

PROPERTIES OF THE LIQUID RESIN (TYPICAL VALUES)

Property	Value	Unit	TM
Density, 23°C	appr. 1130	kg/m ³	-
Stability, no init., dark, 25°C	3	Mon	-
Flash point	appr. 33	°C	2800

PROPERTIES OF CAST UNFILLED RESIN (TYPICAL VALUES)

Property	Value	Unit	TM
Density, 20°C	1200	kg/m ³	DIN 53479
Flexural strength	110	MPa	ISO 178
Flexural modulus	3.0	GPa	ISO 178
Tensile strength	55	MPa	ISO 527-2
Mod. of elasticity in tension	3.7	GPa	ISO 527-2
Elongation at break	1.3	%	ISO 527-2
Impact res. - unnotched sp.	20	kJ/m ²	ISO 179
Heat deflection temp. (HDT)	116	°C	ISO 75-A
Glass transition temp. (T _g)	150	°C	ISO 537

PROPERTIES OF SMC-MOLDINGS (TYPICAL VALUES)

Property	Value	Unit	TM
Glass content	30	%	-
Density, 20°C	1700	kg/m ³	DIN 53479
Flexural strength	200	MPa	ISO 178
Flexural modulus	14.5	GPa	ISO 178
Impact res. - unnotched sp.	110	kJ/m ²	ISO 179
Moulding shrinkage	0.1	%	DIN 53445
Glass transition temp. (T _g)	190	°C	ISO 537
Coefficient of linear thermal expansion (0-60°C)	$23 \cdot 10^{-6}$	K ⁻¹	DIN 53752/A

TYPICAL STARTING FORMULATION FOR SMC-PASTE

Component	Weight
Palapreg® P 14-01	60
Palapreg® H 814-01	40
TBPB	1.5
Styrene	5
Calcium carbonate	150
Zinc stearate	4
MgO-paste (35% MgO)	4

PROCESSING

Palapreg[®] P 14-01 is processed together with Palapreg[®] H 814-01 into LS-SMC and BMC. As a rule, the ratio of Palapreg[®] P 14-01 and polymer solution is 60:40 but it can be varied if necessary. Depending on the size of the molded part it is recommended to add 300 to 600 ppm p-benzo-quinone to the system (calculated on UP-resin plus thermoplastic solution)

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 and the properties might change during storage. 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

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