

# PALAPREG® P15-01

## CHEMICAL/PHYSICAL NATURE

Palapreg® P15-01 is an unsaturated polyester resin derived from isophthalic acid and standard glycols, dissolved in styrene. The resin has a medium viscosity and a high reactivity.

## MAJOR APPLICATIONS

Palapreg® P15-01 is intended for SMC and BMC production. It can readily be thickened with magnesium oxide and easily be colored, also together with LS additives. Molded parts show high toughness and crack resistance.

## PRODUCT SPECIFICATIONS UPON DELIVERY

Property	Range	Unit	TM
Viscosity, 23°C	900 - 1200	mPa.s	2013
Color, Gardner	0,0 - 2,5	-	2017
Solids content, IR	63 - 66	%	2033
Appearance	Clear - sl. hazy	-	2265
Water content	0,05 - 0,13	%	2350
Acid value, as such	15 - 19	mg KOH/g	2401
Gel time	120 - 150	seconds	2261
Peak time	165 - 205	seconds	2261
Peak temperature	255 - 285	°C	2261

## REMARKS

Reactivity determined with 1g TBPB added to 100 g resin

## PROPERTIES OF THE LIQUID RESIN (TYPICAL VALUES)

Property	Value	Unit	TM
Density, 23°C	1130	kg/m <sup>3</sup>	2160
Flash point	33	°C	2800
Stability, no init., dark, 25°C	3	Month	-

## PROPERTIES OF CAST UNFILLED RESIN

Property	Value	Unit	TM
Density, 23°C	1200	kg/m <sup>3</sup>	DIN 53479
Flexural strength	130	MPa	ISO 178
Flexural modulus	3.0	GPa	ISO 178
Tensile strength	90	MPa	ISO 527-2
Mod. of elasticity in tension	3.8	GPa	ISO 527-2
Elongation at break	4.6	%	ISO 527-2
Impact res. - unnotched sp.	27	kJ/m <sup>2</sup>	ISO 179
Heat deflection temp. (HDT)	98	°C	ISO 75-A
Glass transition temp. (T <sub>g</sub> )	123	°C	ISO 537

## PROPERTIES OF SMC-MOULDINGS (TYPICAL VALUES)

Property	Value	Unit	TM
Glass content	30	%	-
Density, 20°C	1700	kg/m <sup>3</sup>	DIN 53479
Flexural strength	210	MPa	ISO 178
Flexural modulus	13	GPa	ISO 178
Outer fiber strain	2.9	%	ISO 178
Tensile strength	110	MPa	ISO 527-2
Mod. of elasticity in tension	11.5	GPa	ISO 527-2
Elongation at break	2.0	%	ISO 527-2
Impact res. - unnotched sp.	100	kJ/m <sup>2</sup>	ISO 179
Moulding shrinkage	0.2	%	DIN 53464
Glass transition temp. (T <sub>g</sub> )	140	°C	ISO 537
Coefficient of linear thermal expansion (0-60°C)	18 · 10 <sup>-6</sup>	K <sup>-1</sup>	DIN 53752/A

## TYPICAL STARTING FORMULATION FOR SMC-PASTE

Component	Weight
Palapreg® P 15-01	100
TBPB	1.5
Styrene	5
Color paste	5
Polyethylene powder	10
Calcium carbonate	150
Zinc stearate	4
MgO-paste (35% MgO)	3

## PROCESSING

Palapreg® P15-01 is processed into standard- and together with Palapreg® H814-01 into LS-SMC and BMC. As a rule, the ratio of Palapreg® P 15-01 and polymer solution is 60:40 but it can be varied if necessary. The mold temperature must not exceed 140°C. Higher processing temperatures may cause problems in surface quality (blistering). Depending on the size of the molded part it is recommended to add 300 to 600 ppm p-benzoquinone 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.

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