



TECHNICAL DATA SHEET

POLESTER 815

Iso-phthalic Acid / Neopentyl Glycol Type
Non-accelerated Unsaturated Polyester Resin

SPECIAL PROPERTIES AND USE

Iso-phthalic acid / Neopentyl glycol type with high resistance to chemicals of medium reactivity, medium viscous unsaturated polyester resin dissolved in styrene.

GENERAL PROPERTIES

Polestar 815 can be diluted with a proper ratio of styrene to suit for the applications, however, dilution more than 15% with styrene should be avoided since it might cause adverse effects of the mechanical properties.

Polestar 815 can be cured at elevated temperature or at room temperature according to all usual methods.

APPLICATIONS

Cured **Polestar 815** is characterized by an excellent chemical resistance with high strength, and good dimensional stability at elevated temperature. The properties are required as a material particularly for producing containers, industrial moldings, surface linings, pipes, and concrete frame-work etc.

Polestar 815 is designed for the application of:-

- Hand lay-up Filament winding
- Vacuum process Spray molding
- Centrifugal casting

PACKING AND STORAGE

Steel drum, net weights 230 kg.

SPECIFICATION

Appearance	Clear, light yellowish liquid
Color (APHA)	80 max
Acid Value (as mg. KOH/1g. Resin)	12 max
Viscosity (Gardner, 25° C)	V - X
Non-volatile (%)	58 - 60
Gel time (Min) (1.0% Co-1,2% MEKPO-50, 25° C)	5 - 10
Density (g/cm ³) (at 25° C)	1.06
Shrinkage after cure (% b.v.)	ca.7.5
Flash Point (° C) (DIN 53213)	34

STORAGE STABILITY

Polestar 815 must be kept away from sources of ignition and heat and not in direct sunlight. It is recommended the storage temperature should not exceed 25° C.

At 25° C (no access of air and light) storage stability is more than 6 months.



Physical Data of Cured Polester 815

Property	Value	Unit	Test Method
Barcol hardness	87	-	-
Compressive strength	1,150	kp/cm ²	DIN 53454
Densit at 25° C	1.14	g/cm ³	DIN 53479
Elongation	3.0	%	DIN 53455
E-modulus	35,000	kp/cm ²	DIN 53457
Flexural strength	1.250	kp/cm ²	DIN 53452
Impact strength	10.0	kpcm/cm ²	DIN 53453
Impact strength with notch	1.0	kpcm/cm ²	DIN 53453
Refractive index, n _D ²⁵	1.546	-	DIN 53491
Tensile strength	600	kp/cm ²	DIN 53455
Water absorption, 7 days (specimen 50x50x4 mm)	0.3	%	DIN 53495

Thermal Properties of Cured Polester 815

Property	Value	Unit	Test Method
Coefficient of linear expansion, (20—75 0C)	60.10 ⁻⁶	°C ⁻¹	-
Heat distortion temperature	100	°C	ASTM D 648-45 T
Martens temperature	71	°C	DIN 53458
Specific heat	0.35	kcal/kg °C	-
Thermal conductivity	0.15	kcal/m h °C	DIN 52612



Electrical Properties of Cured Polester 815

Property	Value	Unit	Test Method
Dielectric constant ϵ_8 at 800 Hz	3.3	-	DIN 16946
Dielectric strength E_d at 50 Hz	35.8	kV / mm	DIN 16946
Loss factor $\tan \delta$ at 800 Hz	$1.5 \cdot 10^{-2}$	-	DIN 16946
Surface insulation resistance R_{ST} (sheet thickness 10 mm)	$3 \cdot 10^{13}$	Ohm	DIN 53482
Surface resistance R_O	$> 10^{12}$	Ohm	DIN 53482
Track resistance	KA 3 C HB 600	-	DIN 16946

Mechanical and Thermal Properties of Polestar 815 Glass-fibre Laminated

Property	Laminated with			Unit	Test Method
	30%	50%	65%		
	Chopped strand mat		Woven roving		
Compressive strength	2,350	2,800	2,100	k/cm ²	DIN 53454
Elongation	2.1	2.0	1.8	%	DIN 53455
E-modulus	80,000	95,000	250,000	kp/cm ²	DIN 53457
Flexural strength	2,500	2,700	6,500	kp/cm ²	DIN 53452
Impact strength	58	87	170	kpcm/cm ²	DIN 53453
Impact strength with notch	48	82	149	kpcm/cm ²	DIN 53453
Martens temperature	107	145	> 200	°C	DIN 53458
Tensile strength	1,200	1,800	3,200	kp/cm ²	DIN 53455