COLPOLY 7810 AI-E1

Unsaturated Polyester Resin

Description:

- Unsaturated polyester resin for GRP, based on isophthalic acid and neopentyl glycol dissolved in styrene.
- Colpoly 7810 AI-E1 is low viscous polyester resin with excellent glass wettability and with an incorporated accelerator system giving long gel time, long injection time, low peak exothermic and consequently very low linear shrinkage (max. 0.1%).

Application:

- General purpose applications hand lay-up and spray-up (boats, seats, containers, parts for car bodies, sporting equipment).
- Recommended laminate thickness applied wet-on-wet 2 - 8 mm.
- It is recommended that all laminates that been heat-cured, exposed to direct sunlight, or allowed to cure more than 48 hours at room temperature be sanded before the next laminate is applied.

Features and benefits:

- Good outstanding mechanical properties.
- High resistance to hydrolysis.
- Low water absorption.

Approval: Lloyd's Register of Shipping. Certificate No. MATS/4428/1 is valid until 1 April 2017; resin is in the phase Re-certification.

Physical characteristics of the liquid resin:

Property	Range	Method / According to standard
Appearance	Blue	
Acid value	10 - 16 mg KOH/g	MH1051 / ISO 2114
Density, 25 °C	1.10 - 1.13 kg/L	MH1028 / ISO 2811
Styrene content	34 - 38%	MH2034
Viscosity; 25 °C, #2/10 rpm	180 - 220 mPa·s	MH1009 / ISO 3219
Flash point	34 °C	DIN 51 755
Shelf life at 25 °C in darkness	4 months	

Curing characteristics at 23 °C:

Property	Range	Method / According to standard
Gel time	80 - 100 minutes	MH3021
Time from gel to peak	60 - 70 minutes	MH3023
Exothermic temperature (peak)	45 - 55 °C	glass tube, 1.5% MEKP-50

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Physical characteristics of cured nonreinforced base resin (post cured 24 h at 60 °C):

Property	Range	Method / According to standard
Density, 20 °C	1.16 - 1.20 kg/L	ISO 1183
Barcol hardness	40 - 45	EN 59
Tensile strength	75 - 80 MPa	ISO R 527
Elongation at break	2.5 - 3.5%	ISO R 527
Flexural strength	110 - 130 MPa	ISO 178
E - modulus in tension	3600 - 3800 MPa	ISO R 527
Impact resistance	12 - 16 kJ/m^2	ISO 179
Heat distortion temperature	80 - 85 °C	ISO 75 A
Water absorption after 7 days	0.15 - 0.20%	

Cure:

- It is recommended that gel time be checked in the customer's plant as age, temperature, humidity and catalyst will produce varied gel times.
- The catalyst level should not exceed 2.5% or fall below 1.0% for proper cure at 25 °C.
- The product should not be used when temperature condition is below 18 °C.

Handling and safety precautions:

- Colpoly 7810 AI-E1 is flammable liquid and should be kept away from naked flames.
- It is highly recommended that resin is stored at stable temperatures between 5 °C and 35 °C, preferably indoors, and away from direct sunlight.
- Shelf life is reduced at higher temperatures and properties like viscosity and gel time of the resin might change during storage.
- For further details, please see the relevant Safety Data Sheet.

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