



EPOTEC YD|535 / TH 7255 - 7

Ambient Cure Filament Winding and Pultrusion System

Description

EPOTEC YD 535 / TH 7255 - 7 is an epoxy laminating system which consist one resin and a choice of six hardeners to provide wide range of processing properties and to suit most of the laminate fabrication techniques with varying environmental conditions. EPOTEC TH 7257 hardener of this system can provide working time more than 5 hours at 25 °C with low exothermic reactions even when it is used in thick sections of large components. EPOTEC TH 7255 hardener has rapid curing character and can be used to produce small components that are demoldable in just a few hours at 25 °C.

The low initial viscosity of this system guarantees fast and complete impregnation of reinforcing fibers such as glass, carbon, and polyaramide and allows laminates to be produced by contact pressure, vacuum or pressure bag techniques, filament windings, and vacuum assisted resin injection.

The laminates cured at room temperature provides excellent handling strength, the optimum properties, however, will only be reached after post curing at temperature of more than 40 °C. Fully cured components prepared by this system are recommended to operate between – 60 to + 80 °C temperature.

Processing

This system can be processed between 15 to 50 °C depending upon the choice of hardener and suitable for use in wet lay up lamination, resin transfer molding (RTM), resin infusion, pultrusion, filament winding, vacuum and pressure bag techniques, and contact pressure moldings.

Application

This system is suitable for very large range of applications including wind energy rotor blades, ships and boats, gliders, motor gliders & planes, recreational and sporting goods, molds and tools, automotive, electrical, and other industrial and house hold components.

Typical properties of components

Property	Unit	Resin YD 535	Hardener		
			TH 7255	TH 7256	TH 7257
Appearance	-	Clear liquid	Clear liquid	Clear liquid	Clear liquid
Color	-	Max.2	Max.4	Max.4	Max.4
Specific gravity @ 25 °C	-	1.1-1.2	.98-1.04	0.93-099	0.93-099
Viscosity @ 25 °C	cPs	1,000-1,500	50-150	20-100	10-50

Typical properties in the processing state and during curing

Property	Unit	TH 7255	TH 7256	TH 7257
Hardener required for 100 gms of resin		34-36	34-36	34-36
Pot life @ 20 °C @ 25 °C	Min Min.	30-40 25-35	120-160 80-100	360-420 280-330
Gel time @25 °C	Min.	27-38	85-120	330-390
1 mm thick film gel time @20 - 25 °C @40 - 45 °C	Hrs Hrs	4-5 50min	6-7 1-2	10-12 3-4
Curing shrinkage	%	1.6	1.5	1.5
Glass transition temperature 25 °C/ 8 days 24hrs/25 °C+ 4hrs/80 °C	°C °C	65±5 85±5	55±2 80±5	50±2 80±5

Typical properties of cured system (Curing at 25°C/24hrs+60°C/15hrs)

Sr. No.	Property	Unit	Value
1.	Tensile stress	MPa	60
	Elongation	%	4 - 6
	Modulus	MPa	2,850
2.	Flexural stress	MPa	115
	Modulus	Mpa	3,000
3.	Compression strength	MPa	120
4.	Shore hardness 'D'	-	80
5.	Heat distortion temperature (HDT)	°C	75 - 85
6.	Water absorption		
	24Hrs/23 °C	Mgs	15 Max.
	7Days/23 °C	Mgs	40 Max.

Typical properties of cured glass fiber resin forced laminate

Sr. No.	Property	Unit	Value
1.	Tensile strength	Mpa	440
2.	Flexural strength	Mpa	480
3.	Compression strength	Mpa	380
4.	Inter laminar shear strength	Mpa	40
5.	Water absorption		
	24hrs/23 °C	%	0.15 Max.
	7days/23 °C	%	0.40 Max.

** Sheet of thick. 4 mm is prepared with E glass fabric and cured at 24hrs/23 °C + 15 hrs /60 °C

Storage and handling

EPOTEC resin YD 535 and hardeners TH 7255-7 can be stored up to 1 year in sealed original container. Storage condition below 15 °C may cause crystallization of the resin as well as hardener. Crystallization may be reversed completely by heating the material to 50 - 60 °C. It is advised to use resin and hardener only when they are clear and free from cloudiness. It is also advised to follow standard procedures for handling chemicals. Contact with skin and eye may cause irritation and prolong, repetitive contact with skin may cause dermatitis.

Disclaimer

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