



Aditya Birla Chemicals (Thailand) Ltd. (Epoxy Division)

EPOTEC YDC 6003 / TH 7662

Liquid Hot Curing EPOTEC Casting Resin System

YDC 6003	100	Pbw
TH 7662	80	Pbw
Silica (300 mesh)	270	Pbw

Description

EPOTEC YDC 6003 is liquid, unmodified, low molecular weight DGEBA resin designed for electrical applications. EPOTEC TH 7662 is a liquid anhydride hardener. When appropriate quantity of hardener, and filler are mixed with resin and casted under vacuum, very good mechanical and electrical properties with excellent crack resistance properties can be achieved. Casting done by this system are suitable to use continuously at 155 °C.

Processing

Recommended for automatic pressure gelation (APG), pressure gelation (PG), and vacuum castings.

Application

Electrical insulation for medium and high voltage applications such as switchgear components, instrument, and dry type transformers.

Typical Properties**EPOTEC YDC 6003**

Property	Test Method	Unit	Specification
Epoxy Equivalent Weight (EEW)	DIN 16945/4.15B (89)	g/eq	184 - 194
Viscosity* @ 25 °C	JIS K 7233 (89)	cPs	9,000 - 15,000
Color	ASTM D-1544 (89) TEC-AS-P-006	Gardner	Max. 0.5
Specific gravity	TEC-AS-P004	-	1.15 - 1.20

*Brookfield viscosity

EPOTEC TH 7662

Property	Test Method	Unit	Specification
Appearance	ASTM D 4269	-	Clear liquid
Viscosity* @ 25 °C	JIS K 7233 (89)	cPs	1,500 - 3,500
Specific gravity @ 25 °C	TEC-AS-P-004	-	1.2

Casting Mix Preparation Method

The resin and hardener are preheated at 60 °C and then mix both components separately under vacuum with silica filler which has also been heated to 60 °C and thoroughly dried (drying of silica can be done at 150 - 200 °C for 24 hours in oven).

This premixed resin and hardeners can be held for longer period of time at room temperature and blended as and when required at 60 - 80 °C in mixer under vacuum. Premix should be thoroughly stirred to get homogenous mass before pouring into preheated mold.

Alternatively, resin, hardener and silica can be mixed together in main mixer at 60 °C under vacuum and allow to cool at room temperature immediately after homogeneous mixing. The mix prepared by this method can be stored for 2 days at 25 °C.

Processing Properties of System

Property	Unit	Specification
Initial viscosity of mix	cPs / °C	200,000 / 25 50,000 / 40 10,000 / 60 1500 / 80
Gel time	Min / °C	270 / 80 15 / 120 5 / 140
Mould temperature APG processes Conventional vacuum casting	°C °C	120 - 180 80 - 100
Demolding time (depending upon mold temperature and casting volume) APG processes Conventional vacuum casting Vacuum	Minute Hr mbar	10 - 15 1 - 5 0.5 - 1
Minimum post cure	Hr / °C	10 hr / 130 6 hr / 140

PROPERTIES OF CASTING

Property	Test Method	Unit	Specification
Tensile strength	ISO 527	MPa	75 - 85
Flexural strength	ISO 178	MPa	110 - 120
Impact strength	ISO / R 179	KJ/M ²	11 - 13
Elastic modulus of tension	ISO 527	MPa	9,000 - 11,000
Deflection temperature (HDT)	ISO/R 75	°C	90 - 105
Coefficient of linear thermal expansion	DIN 53752	°K ⁻¹	32 - 34 x 10 ⁻⁶
Thermal conductivity	ISO 8894-2	W / m.k	1.0
Water absorption (60 x 10 x 4 mm) 23 °C / 10 days	ISO / R 62	%	0.1 - 0.2
Dissipation factor 23 °C at 50 hz	IEC 60250	%	2.5
Comparative tracking index	IEC 60112	Volts	> 600
Electrical strength Perpendicular (2 mm thick sheet)	IEC 60243-1	KV / mm	16 - 20
Arc resistance	ASTM D 495	Seconds	182 - 186

Storage and Handling

EPOTEC YDC 6003, TH 7662 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 it is 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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