



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

**EPOTEC YDL 549 / TH 7664**

**Hot Curing EPOTEC Filament Winding and Pultrusion Resin System**

**YDL 549 100 Pbw**

**TH 7664 90 Pbw**

**Description**

EPOTEC YDL 549 is a modified low viscosity, general-purpose Bisphenol-A based epoxy resin.

EPOTEC TH 7664 is liquid anhydride hardener mixed with promoter.

EPOTEC YDL 549 with hardener TH 7664 exhibits a very low mix viscosity and long pot life at ambient temperature. The system shows excellent fiber impregnation properties and easy to process. High productivity due to high speed of processing can be achieved at cure temperature above 160°C for an economical production such as impregnation and filament winding processes. Once system is fully cured, it exhibits excellent surface quality and combination of mechanical, electrical and thermal properties. The components manufactured by this system can be operated continuously at 150°C.

**Applications**

This system is designed for pultrusion, filament winding, and resin transfer molding (RTM)

**EPOTEC YDL 549**

Property	Test method	Unit	Specification
Appearance	Visual	-	Clear liquid
Viscosity @ 25 °C	JIS K 7233	cPs	2,500 - 4,500
Specific gravity @ 25 °C	TEC-AS-P-004	-	1.14 - 1.17
EEW	DIN 16945/4.15B (89) TEC-AS-C-002	g/eq	176 - 186
Color	ASTM D-1544 (89)	Gardener	1 Max.

**EPOTEC TH 7664**

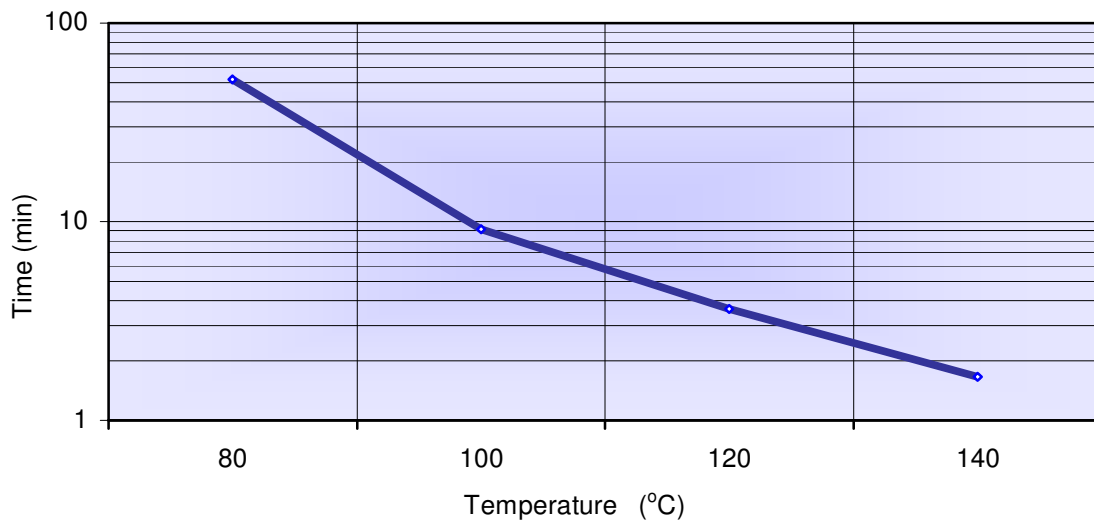
Property	Test method	Unit	Specification
Appearance	Visual	-	Clear
Specific gravity @ 25 °C	TEC-AS-P-004	-	1.10 - 1.20
Viscosity @ 25 °C	JIS K 7233	cPs	100 - 300

**Typical processing properties of system**

Property	Unit	Value
Mixing Ratio ( resin : hardener)	Parts by weight	100 : 90
Mix viscosity @ 25 °C	Cps	400 - 800
Shelf life of mix @ 25 °C (viscosity 4,000 cPs)	Hours	12
Gel time @100 °C @120 °C @140 °C	Minutes	9 - 12 4 - 6 1.5 - 2
Curing temperature @100 °C and @160 °C	Hrs.	1 4 - 8
Density after cure	g/cc	1.15 - 1.2

**Typical properties of cured system**

Property	Test method	Unit	Specification
Tensile strength	ISO 527	MPa	80 - 95
Tensile elongation at beak	ISO 527	%	4 - 6
Tensile modulus	ISO 527	GPa	3 - 4
Flexural strength	ISO 178	MPa	140 - 170
Flexural elongation	ISO 178	%	6 - 8
Flexural modulus	ISO 178	GPa	3 - 4
Compressive strength	ISO 604	MPa	110 - 130
Heat distortion temperature (HDT)	ISO 75-1	°C	110 - 120
Glass transition temperature ( DSC)	ISO 11375-2	°C	115 - 125
Dielectric constant at 50 HZ	IEC 60250	-	3 - 4
Dissipation factor 23 °C at 50 HZ	IEC 60250	%	2 - 3
Volume resistivity	IEC 60093	Ohms-cm	10 <sup>16</sup>
Surface resistance	IEC 60093	Ohms	10 <sup>13</sup>
Tracking resistance (CTI)	IEC 112	V	> 600
Dielectric break down perpendicular (2 mm thick sheet)	IEC 60243-1	KV / mm	16 - 18
Water absorption	ISO 62	%	0.2 - 0.3



**Fig.1 : Gelltime measured in function of temperature**[Gelnorm Instrument]

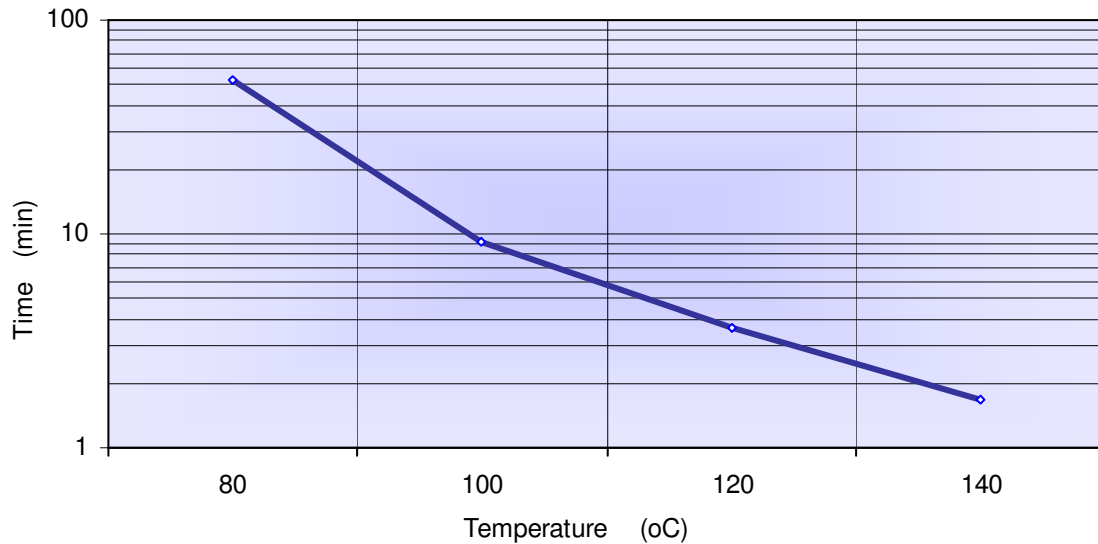


Fig.2 : Initial Viscosity vs Time (Brookfield)

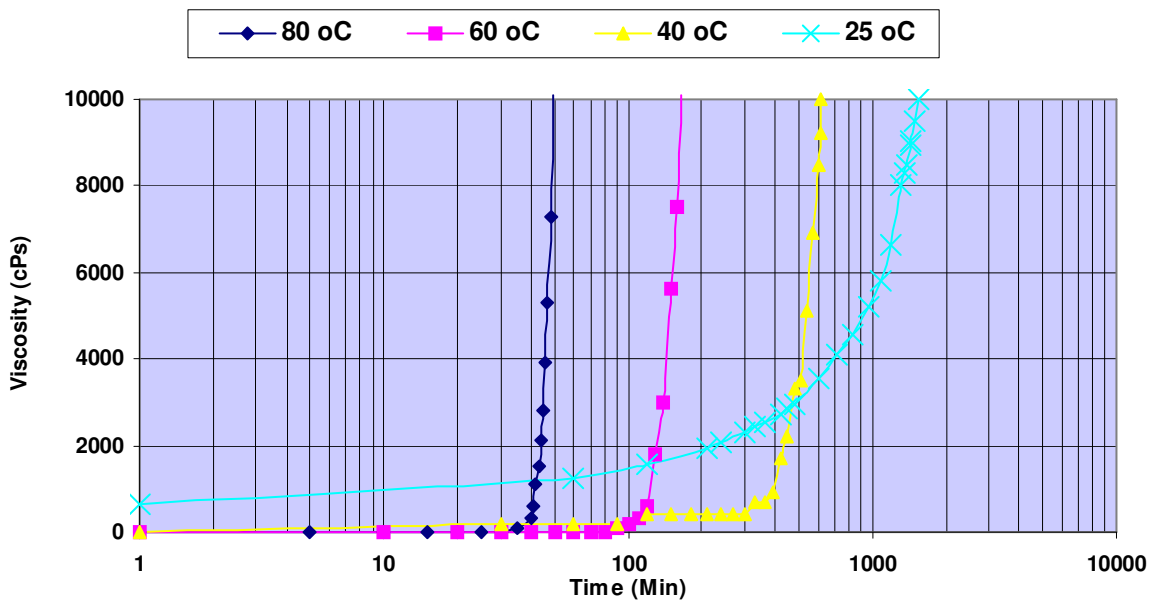


Fig.3 : Rise in Viscosity vs. Time [Gelnorm Instrument]

**Storage and handling**

EPOTEC YDL 549 and TH 7664 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 only when it is clear and free from cloudiness.

Hardener TH 7664 is sensitive to moisture thus partly emptied containers should be closed immediately after use.

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**

All recommendations for use of our products whether given by us in writing, verbally or to be implied from the results of tests carried out by us are based on the current state of our knowledge. Although, the information contained in this sheet is accurate, no liability can be accepted in respect of such information. We warranty only that our product will meet the designated specifications and make no other warranty either express or implied, including any warranty of merchantability or fitness for a particular purpose as the conditions of application are beyond our control.

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