



Ambient Cure Recyclable Epoxy Infusion System

YDL 5557 **100 parts by weight**
THR 9357 **30 parts by weight**

Description

Epotec YDL5557 / THR9357 is a two component recyclable epoxy laminating system consisting of epoxy resin Epotec YDL5557 and hardener Epotec THR9357 based on proprietary recyclamine® technology, which enables recycling & recovery of the reinforcement and matrix at the end of component's life.

The system has been designed to provide excellent combination of processing properties to suit different laminate fabrication techniques under varied environmental conditions. It is extra slow in reactivity and provides longer working time with low exothermic reactions even when it is used in thick sections of large components. The low initial processing viscosity of the system guarantees fast and complete impregnation of reinforcing fibers such as glass, carbon, and poly-aramide. Structural composites prepared by the system and cured at room temperature provide excellent handling strength, the optimum properties, however, will only be reached after post curing at temperature above 50°C.

Processing

This system can be processed between 15 to 50 °C and is suitable for use in wet layup lamination, resin transfer molding (RTM), resin infusion (RI), pultrusion, filament winding, vacuum /pressure bag techniques and contact pressure moldings.

Application

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

Typical property of components

Epotec YDL 5557

Property	Test Method	Unit	Specification
Appearance	Visual	-	Clear liquid
Color	ISO 4630	gardner	≤ 2
Viscosity @ 25 °C	ASTM D 2196/ ISO 2555	mPa.s	900 - 1,400
Density @ 25 °C	ISO 1675	gm/cc	1.10 - 1.20

Epotec THR 9357

Property	Test Method	Unit	Specification
Appearance	Visual	-	Colorless to slightly yellow liquid
Viscosity @ 25 °C	ASTM D 2196/ ISO 2555	mPa.s	5 - 20
Density @ 25 °C	ISO 1675	gm/cc	0.90 - 1.00

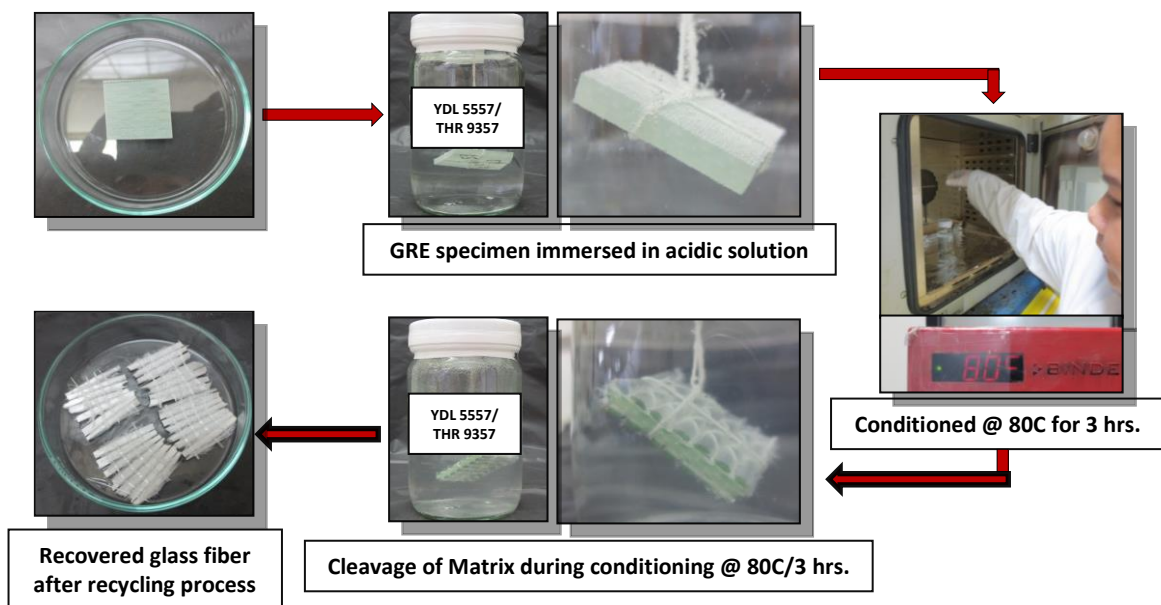
Processing properties

Property	Unit	Specification
Resin : Hardener (mixing ratio)	parts by weight	100 : 30 ± 2
Mix viscosity at 25 °C	mPa.s	180-250
Pot life @ 25 °C, 1000 gms. mix (time to reach 60°C)	minutes	400-600
Glass Transition Temperature (Tg) (Cure @ 80 °C / 8 hrs.)	°C	80 - 90

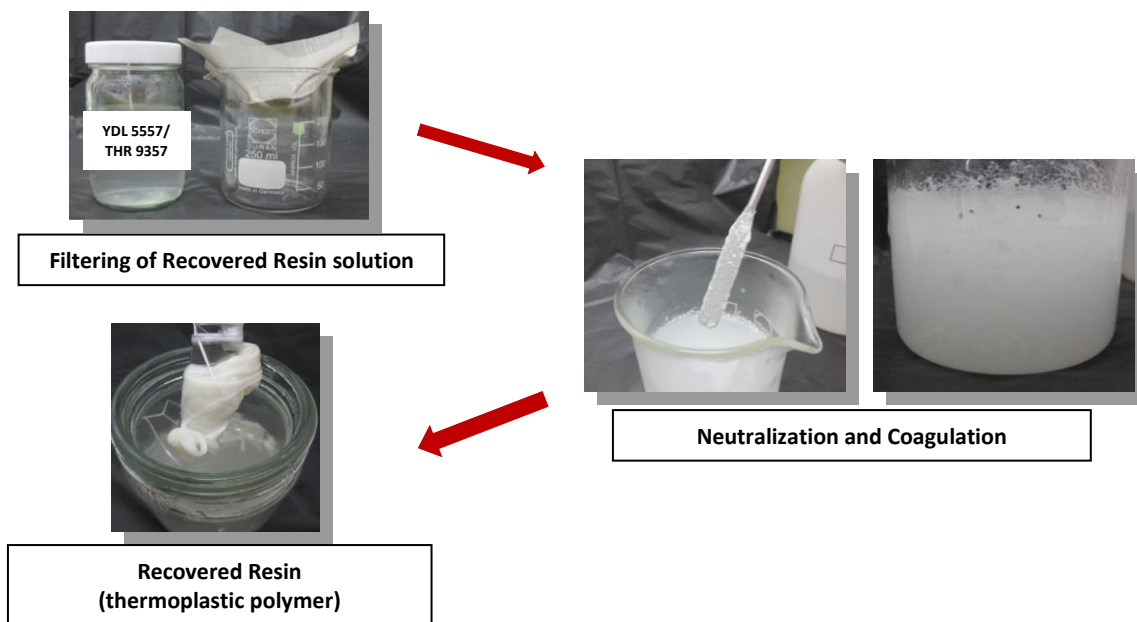
Typical Properties of Neat Cured System (80 °C/ 8hrs)

S.No.	Property	Test method	Unit	Specification
1.	Tensile strength	ISO 527	MPa	70-80
	Elongation at Tensile strength		%	4.0-6.0
	E-Modulus		GPa	2.8-3.2
	Ultimate Tensile strength		MPa	60-65
	Ultimate Tensile elongation		%	7.0-9.0
2.	Flexural strength	ISO 178	MPa	120-140
	Elongation at Flexural strength		%	5.0-6.0
	E-Modulus		GPa	3.0-3.4
	Ultimate Flexural strength		MPa	90-100
	Ultimate Flexural elongation		%	9.0-10.0

Recycling Process of Glass Reinforced Composite made from Recyclable Infusion System



Recovery of Matrix Resin as Thermoplastic Polymer



Storage and Handling

Epotec resin YDL 5557 and hardener THR 9357 can be stored up to 2 years in sealed original container. Please refer product MSDS for handling and safety information.

Crystallization check and Procedure to Reverse Crystallization

Storage condition below 15 °C may cause crystallization of the resin as well as hardener. Crystallization may be reversed completely by conditioning at temperatures 15-25°C (typical warehouse temperature) and/or by heating the material up-to 60°C.

It is recommended to visually inspect the delivered IBCs /totes for any haziness especially in winters during low temperature climate conditions. After conditioning to warehouse temperature IBCs/Totes can be rechecked for haziness/turbidity/clarity and for micro crystals by taking out sample of the material in a cleaned glass beaker from top/middle and bottom sections. In addition a clean plastic or steel pipe can be inserted and moved around to check for crystallization.

If content is still hazy or shows crystals, material should be warmed up to 60°C for 6-8 hours until liquid is clear with no residual crystal seeds. Allow material to cool down to at least 40°C and continue with the regular degassing process at 40°C once the content is clear and free of crystals.

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 warrant 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.

For Additional Information, Please Contact:
Aditya Birla Chemicals (Thailand) Ltd. (Epoxy Division)
Mahatun Plaza Bldg., 16th Floor 888/167 Ploenchit Road, Lumpini, Bangkok 10330 Thailand
Tel: (662) 2535031-3, Fax: (662) 2535030
Grasim Industries Ltd. (Chemical Division)
Plot No.1, GIDC, Vilayat Industrial Estate, Tehsil Vagra, Dist. Bharuch – 392140, Gujarat, India
Tel: +91-8154007544
Web Site: www.adityabirlachemicals.com, E-Mail: epoxymktg@adityabirla.com