NEOTECH Composites
บริษัท นีโอเทค คอมโพสิท จำกัด

139 PHRAYASUREN 30, BANGCHAN, KLONGSAMWA, BANGKOK 10510 TEL.+662-517-4955-6 FAX. +662-517-4957
139 ซอยพระยาสุเรนทร์ 30 แขวงบางชัน เขตคลองสามวา กรุงเทพมหานคร 10510 โทร. 02-517-4955-6 แฟ็ กซ์. 02-517-4957

EPOTEC YD 535 LV / TH 7253 - 8

Ambient Cure EPOTEC Epoxy System

Description

EPOTEC YD 535 LV / TH 7253 - 8 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 7258 hardener of this system can provide working time more than 10 hours at 25 °C with low exothermic reactions even when it is used in thick sections of large components. EPOTEC TH 7253 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 535LV	Hardener					
			TH 7253	TH 7254	TH7255	TH7256	TH7257	TH7258
Appearance	-	Clear liquid	Clear liquid	Clear liquid	Clear liquid	Clear liquid	Clear liquid	Clear liquid
Color	-	Max.2	Max.4	Max.4	Max.4	Max.4	Max.4	Max.4
Specific gravity @ 25°C	-	1.1-1.2	0.98-1.04	0.98-1.04	0.98-1.04	0.93-0.99	0.93-0.99	0.93-0.99
Viscosity @ 25°C	cPs	1,000-1,500	150 - 300	150 - 300	50 - 150	20 - 100	10 - 50	10 - 50

Certified by

Germanischer Lloyd

Typical properties in the processing state and during curing

Property	Unit	TH 7253	TH 7254	TH 7255	TH 7256	TH 7257	TH 7258
Mixing ratio with YD 535LV	Pbw	34 - 36	34 - 36	34 - 36	34 - 36	34 - 36	34 - 36
Pot life of 100gms mix @ 20 °C @ 25 °C	 Minutes Minutes	 10-16 8-14	 16-25 14-20	 30-40 25-35	 120-160 80-100	 360-420 280-330	 >12 Hrs >10 Hrs
1MM thick film gel time @ 20-25 °C @ 40-45 °C	 Hrs Minutes	 1 - 2 30	 2 - 2 40	 4 - 5 50	 6 - 7 1 – 2hrs	 10 - 12 3 – 4hrs	 15 - 20 6-7hrs
Curing shrinkage	%	1.7	1.7	1.6	1.5	1.5	1.5
Glass transition temp. 25 °C/ 8 days 24 hrs/25 °C+ 4hrs/80 °C	 °C °C	 65 ± 5 85 ± 5	 65 ± 5 85 ± 5	 65 ± 5 85 ± 5	 55 ± 2 80 ± 5	 50 ± 2 80 ± 5	 50 ± 2 80 ± 5

Typical properties of cured system (Curing at 25°C/24hrs+70 °C/ 8hrs)

Sr. No.	Property	Test method	Unit	Typical value
1.	Tensile stress Elongation Modulus	ISO 527	MPa % GPa	60-70 4-7 2.8-3.4
2.	Flexural stress Modulus	ISO 178	MPa Mpa	115-130 3.0-3.6
3.	Compression strength	ISO 604	MPa	120-140
4.	Shore hardness 'D'	ISO 868	-	80-90
5.	Heat distortion temperature (HDT)	ISO 75	°C	75-85
6.	Water absorption 24hrs/23 °C 7Days/23 °C	ISO /R 62	 % %	 max. max.

Typical properties of cured glass fiber reinforced laminate

Sr. No.	Property	Test method	Unit	Typical value
1.	Tensile strength	ISO 527-4	MPa	440
2.	Flexural strength	ISO 14125	MPa	480
3.	Compression strength	ISO 604	MPa	380
4.	Inter laminar shear strength	ASTM D 2344	MPa	40
5.	Water absorption 24hrs/23 °C 7Days/23 °C	ISO / R 62	 % %	 0.15 max. 0.40 max.

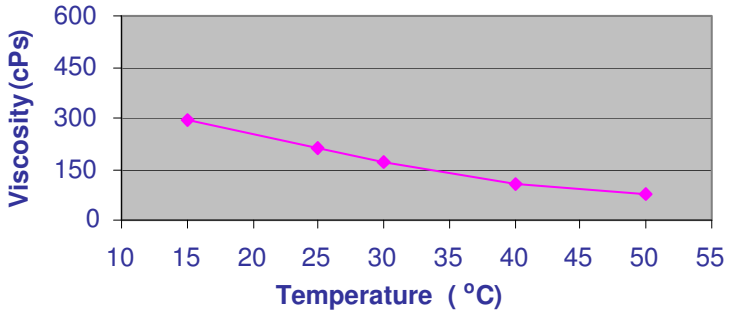
*4mm thick sheet with triaxial fabric of 1200gsm,cured at 23 °C/24hrs+80 °C/8 hrs.

Certified by

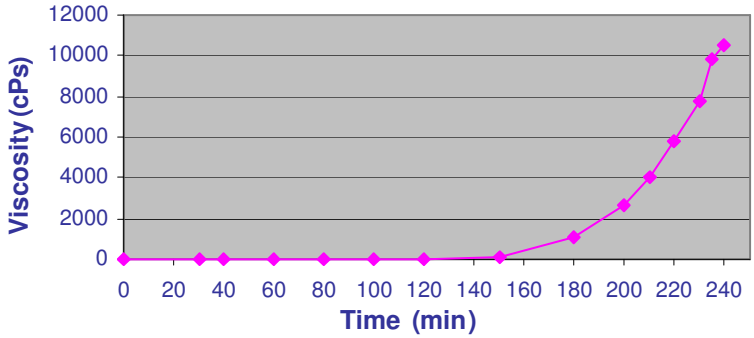
Germanischer Lloyd

Processing properties of EPOTEC YD 535LV/ TH 7257

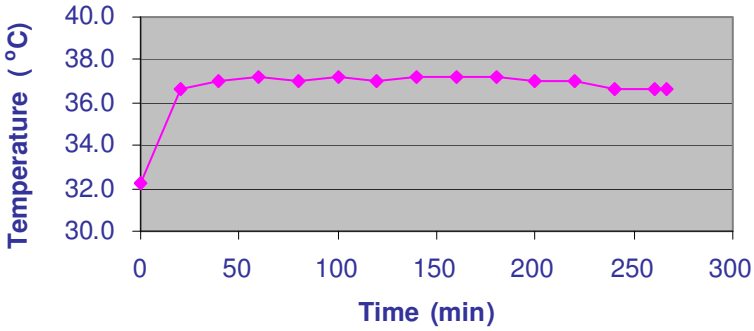
Mix viscosity YD 535LV/ TH 7257 with respect to temperature



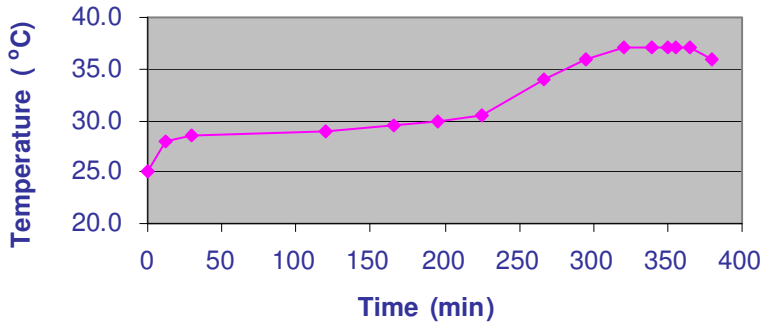
Rise in mix viscosity at 35 °C by Gelnorm RVN: Method DIN 16945



Exotherm temperature with respect to time at 35 °C by Gelnorm RVN: Method DIN 16945



Exotherm temperature with respect to time at 25°C for 100 gm mix: Method DIN 16945

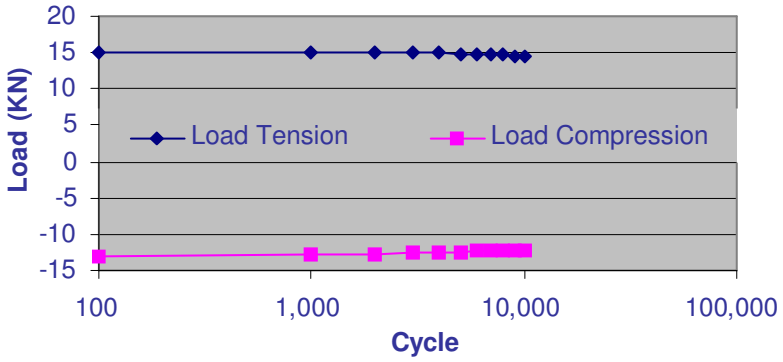


Certified by

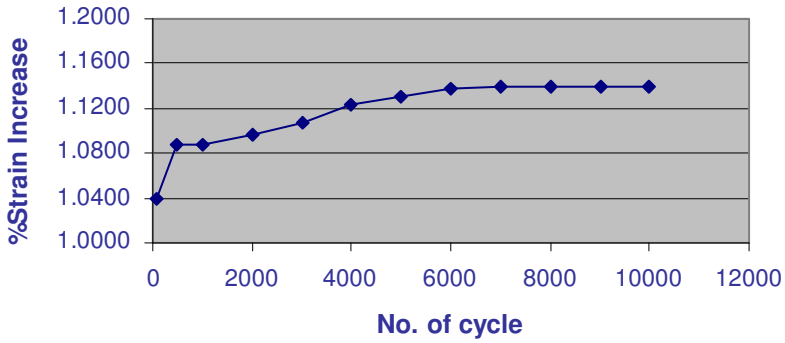
Germanischer Lloyd

Fartigue test data of laminated sheet prepared using EPOTEC YD 535 LV / TH 7257 as matrix and 4 layers of triaxial 'E' glass fabric of 1200 gsm

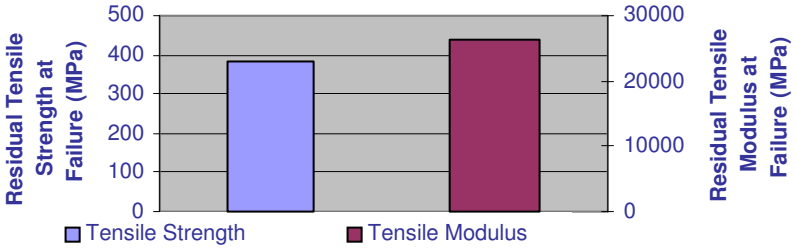
Fatigue behavior in tension compression mode (R= -1) at constant strain; 0.9%



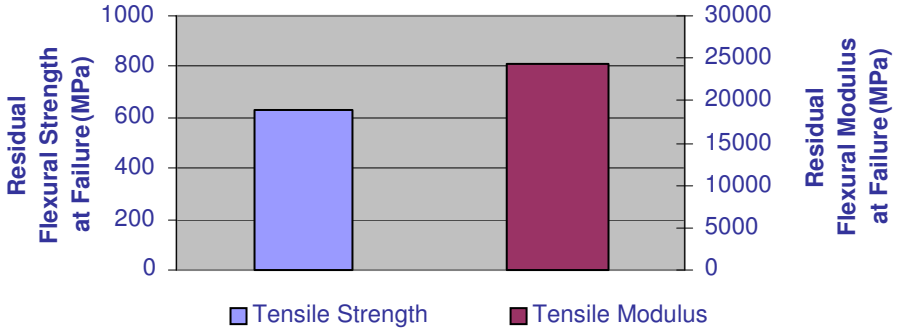
Fatigue behavior in tension mode at constant stress; 200 MPa



Residual tensile strength and modulus after 10,000 cycles at constant stress; 200 MPa



Residual flexural strength after 10,000 cycles at constant stress; 200 MPa

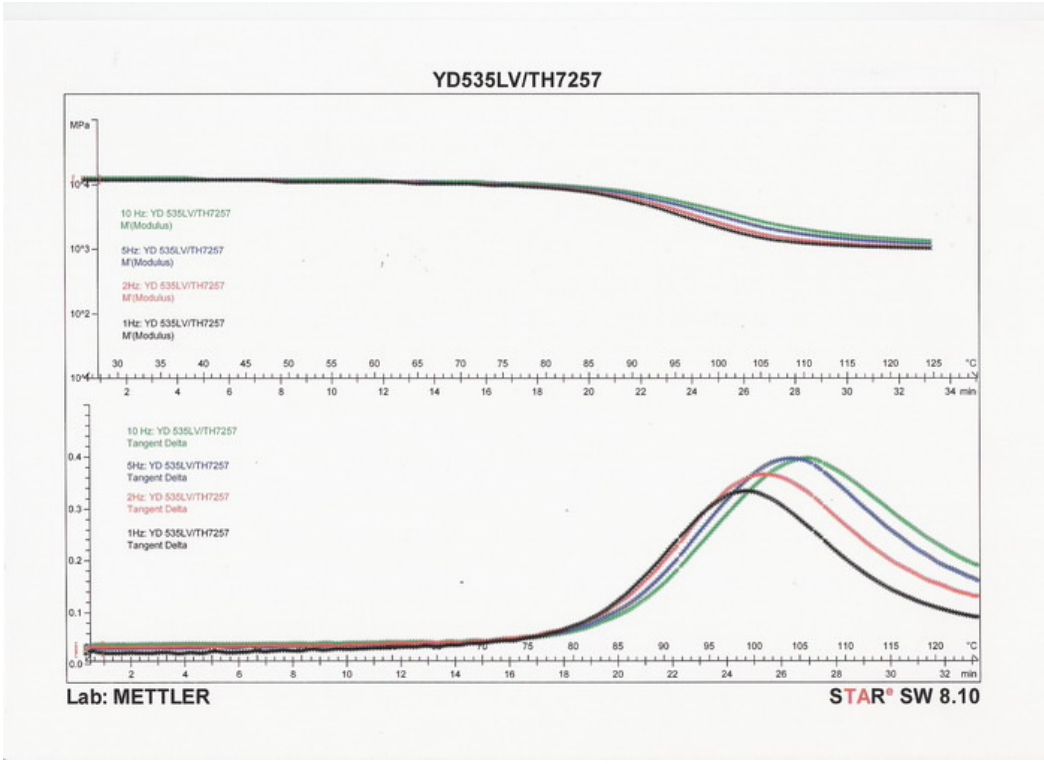


Certified by

Germanischer Lloyd

DMA test data of EPOTEC YD 535LV / TH 7257

Storage and loss modulus with respect to time and temperature in shear - mode



Storage and handling

EPOTEC resin YD 535 LV and hardeners TH 7253 - 8 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. For detail on safety and handling, please refer MSDS.