

Laminating resin
LG 285
Hardeners HG 285, HG 286, HG 287

1. Description

Laminating resin LG 285 is a resin featuring increased binding strength and reactivity, outstanding flexibility while a very high strength and temperature resistance are retained. The resin contains modificatory agent that greatly improves penetration of the laminating mixture into the fabric.

Hardener HG 285 is a low-viscosity amine hardener containing post-curing agent that enables lamination also at room temperature without consequent curing by heat. Gel-time (100 g) at 23°C is 50 minutes.

Hardener HG 286 is a low-viscosity cyclo-aliphatic hardener containing post-curing additives that enables lamination also without consequent curing by heat. Gel-time (100 g) at 23°C is 110 – 120 minutes.

Hardener HG 287 is a low-viscosity cyclo-aliphatic hardener for epoxy resin LG 285. At room temperature (23°C) it gets cured within 2 – 7 days. At faster cycle the products are recommended to be cured at temperature of minimum 35°C. Gel-time (100 g) at 23°C is approximately 160 – 180 minutes.

2. Use

Epoxy LG 285 is used for lamination at room temperature, but also increased temperature for preparing composite parts of higher temperature resistance and excellent mechanical properties. It has been designed for the production of high-pressure composite parts, such as gliders, models, boats and moulds.

After post-curing at 50 – 55°C the system is resistant to working temperatures of – 60°C up to + 60°C. After post-curing at 80 – 90°C the working temperature of the system moves over 80°C.

The system can be used for all common reinforcements, such as e.g. glass, carbon or aramid fibres, core materials etc.

The system is compatible with all common polyester gelcoats and sealers. Though, we still recommend to try out individual combinations ahead.

2.1 Working instructions

The system is recommended to be processed at temperatures of between 20 up to 30°C using common methods of composite production.

This system has been designed so that it gets cured sufficiently even at room temperature of 18 – 30°C, therefore it can also be processed at room temperature and used without a consequent post-curing at heat. The processing time depends on the used hardener.

If cured at room temperature (approx. 25°C) for 24 hours, can be achieved thermal resistance 55 – 65°C.

If cured at heat, a temperature resistance of up to 110°C can be achieved (see the chart of temperature resistance – page 2.)

Laminating resin LG 285 + Hardeners HG 285, HG 286, HG 287

Gel time: (building-up a layer of 1 mm at different temperature)

LG 285	HG 285	HG 286	HG 287
at 25°C	2 – 3 hours	3 – 5 hours	approx. 6 – 8 hours
at 50°C	1 hour	1,5 – 2 hours	approx. 3 - 5 hours

Temperature resistance:

LG 285	HG 285	HG 286	HG 287
at 23°C (2-7 days)	53°C	53°C	55°C
at 50°C (3 hours)	65°C	65°C	70°C
at 60°C (> 3 hours)	73°C	77°C	80°C
at 90°C (> 2 hours)	80°C	95°C	100°C
at 120°C (2 hours)	85°C	105°C	110°C

Mixing ratio, resin + hardener:

Parts by weight	100 : 40
Parts by volume	100 : 50

2.2 Technical parameters

Properties:

		LG 285
Density	g/cm ³ (25°C)	1,18 - 1,23
Viscosity	mPa.s (25°C)	600 – 1000
Epoxy equivalent	mol/kg	165 – 170
Epoxy index	-	0,59 - 0,65
Colour	Gardner	max 3

		HG 285	HG 286	HG 287
Density	g/cm ³ (25°C)	0,94	0,94	0,94
Viscosity	mPa.s (25°C)	50 - 100	80 - 120	50 - 100
Amine number	Mg KOH/g	480 - 550	450 - 500	450 - 500
Colour	Gardner	max 3*	max 3*	max 3*
Mixing viscosity	mPa.s (23°C)	600-800	600-800	600-800

* related to a non-coloured hardener

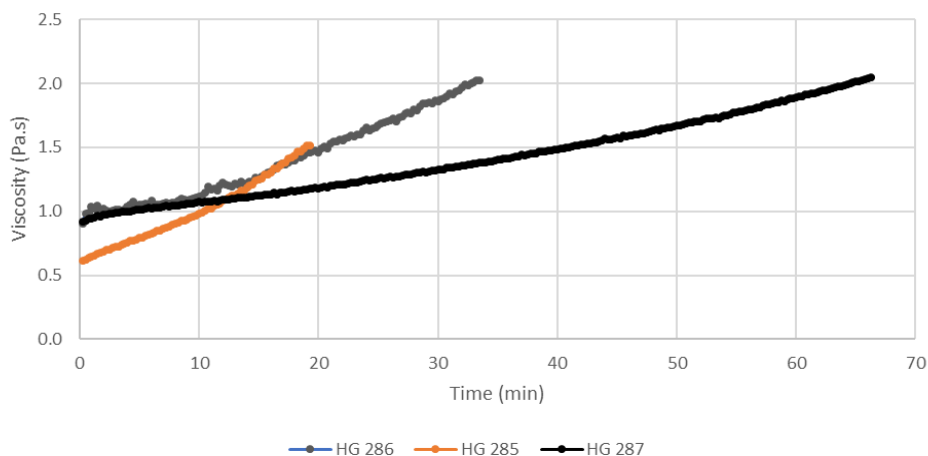
850-11

Details for processing:

	LG 285	HG 285	HG 286	HG 287
Average epoxy value	0,62	-	-	
Average amine equivalent	-	64	64	64
Storage	24 months (epoxy), 24 months (hardeners) in the original package			

Laminating resin LG 285 + Hardeners HG 285, HG 286, HG 287

Time-dependence of viscosity of system LG 285 + HG 285/286/287 at 23 ° C



Directory mechanical parameters of unreinforced resin:

Flexural strength	MPa	110 - 120
E-modulus bend	MPa	2700 - 3300
Tensile strength	MPa	75 - 85
Compressive strength	MPa	130 - 150
Elongation	%	5 – 6,5
Fatigue strength	KJ/m ²	38 - 48
Shore hardness D	-	85

3. Storage and package

Resins can be stored for a period at least 24 months and hardeners for period at least 24 months in carefully sealed drums. At temperatures below + 15°C resins and hardeners should get crystalized. Crystallization is visible as misting-up or modification of liquid contents into a solid. Before processing, the crystallization has to be eliminated. Slowly warm-up the hardener to approx. 50 – 60°C into a water bath or oven and by stirring or shaking you will get the contents into its initial appearance without any negative effect on its quality. Process only products of totally unified colour. Before warming-up slightly open the drum, so that the pressure inside gets stabilized. Be careful during the warming-up. Do not warm-up above open fire! During stirring use safety utilities (gloves, protective glasses, breathing device).

