



## Technical data

# Epoxy resin L 20

Laminating resin for aircraft construction

## Description

- Low viscosity, free of solvents and fillers
- Highest static and dynamic strength



## Application

Applications include the fields of satellite design, aerospace, automobile manufacture and shipbuilding, and the extremely exacting field of high-performance sports equipment as well as model construction. One particular field is the production of gliders.

## Processing

The resin is suitable for all processing methods, e.g. hand lay-up operations, winding, and press moulding (also in vacuum). Metal, wood, plastics, ceramics, etc., can be joined with high-strength bonds without the application of contact pressure. Curing takes place virtually free of shrinkage.

Epoxy resin L 20	Unit	Value
Delivered state	-	liquid
Colour	-	yellowish
Density	g/cm <sup>3</sup> /20 °C	1,15
Viscosity	mPa*s/25 °C	900
Epoxy value	100/equivalent	0,56
Epoxy equivalent	g/equivalent	179
Chlorine content hydrolysable	ppm	< 0,3
Vapour pressure	mbar/ 25 °C	< 10 <sup>4</sup>
Flash point (DIN 51584)	°C	>120
Storage (sealed, at 15 °C)	months	12

# Hardener EPH 161

## Description

- Hardener for epoxy resin L 20
- Processing time 90 minutes
- Curing temperatures starting from 18 °C

## Application

The combination of L 20 and hardener EPH 161 yields a low-viscosity laminating resin that exhibits superior impregnating and wetting properties with respect to glass, aramid, and carbon fibres.

Before they can obtain the specified mechanical properties, the laminates must be annealed for about fifteen hours at 60 °C after their initial cold-curing period.



General specifications of hardeners for epoxy resin L 20	Unit	Hardener EPH 161
Processing time for 100 g mixture	minutes /20 °C	90
Mixing ratio on 100 parts by weight of epoxy resin L 20	weight (g)	25
Density	g/cm <sup>3</sup> /20 °C	1,0
Storage (sealed, at 15 °C)	months	12

Specifications of unreinforced, cured resin L 20 (curing 6 days at RT)	Unit	Hardener EPH 161
Flexural strength	MPa	130
Compressive strength	MPa	125
Impact strength	kJ/m <sup>2</sup>	40
Flexural modulus	MPa	3600

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**Supplementary specifications on L 20 + hardener EPH 161**

Epoxy resin L20 + EPH 161, unreinforced	Unit	Value
Density	g/m <sup>3</sup>	1,158
Tensile strength	MPa	70,2
Elongation at break	%	9,5
Tensile modulus	MPa	3400
Shear modulus at 54 °C	MPa	1019
Bend fatigue strength	load cycles	1.500.000

Specifications of reinforced, cured resin L 20 (GRP)	Unit	Hardener EPH 161
Flexural strength	MPa	488
Tensile strength	MPa	-
Compressive strength	MPa	360
Impact strength	kJ/m <sup>2</sup>	205
Flexural modulus	MPa	23500
Interlaminar shear strength at RT	MPa	36

The values were obtained on 4 mm panels (16-ply Interglas 91745/style 181, 286 g/m<sup>2</sup>, atlas weave). Curing 7 days at room temperature. \* Curing 24 hours at RT + 15 hr at 60 °C.

Specifications of reinforced, cured resin L 20 (CRP)	Unit	Hardener EPH 161
Flexural strength	MPa	730
Compressive strength	MPa	444
Flexural modulus	MPa	46000
Interlaminar shear strength at RT	MPa	54

The values were obtained on test specimens of 8-ply carbon fabric, 200 g/cm<sup>2</sup>. \* Curing 24 hr at RT + 15 hr at 60 °C.