

EN

## Product Information

### Elan-tech®

**EC 157/W 152.1 HR**                      **100:30**

**EC 157/W 152 XLR**                        **100:30**

2-components epoxy system for infusion

**ELANTAS Italia S.r.l.**

Strada Antolini n°1 loc. Lemignano  
43044 Collecchio (PR)

Italy

Tel +39 0521 304777

Fax +39 0521 804410

EEMEurope.ELANTAS@altana.com

info.elantas.italia@altana.com

www.elantas.com

Resin  
**EC 157**

Hardeners  
**W 152.1 HR**  
**W 152 XLR**

Mixing ratio by weight  
**100:30**  
**100:30**

**Application:** High performance composite parts of medium and large size.

**Processing:** Manual mixing. Mechanical mixing. Mechanical mixing with automatic mixing/dispensing machines. Impregnation by infusion or under vacuum infusion (SCRIMP) of glass, carbon, kevlar fabrics. Room temperature curing.

**Description:** Two components epoxy system. Low viscosity. Good thermal resistance. Curing at room temperature plus the post-curing at a moderate temperature (50-60°C) allows to obtain high performances.

W 152.1 HR: short pot life.

W 152 XLR: long pot life.

The system is RoHS compliant (European directive 2002/95/EC) and the new RoHS Directive 2011/65/EU (RoHS 2) entered into force on 21 July 2011 and requires Member States to transpose the provisions into their respective national laws by 2 January 2013.

### TYPICAL SYSTEM CHARACTERISTICS

#### Resin

Property	Resin	Hardener	Colourless
Resin Colour			Colourless
Viscosity resin 25°C	IO-10-50 (ISO3219)	mPas	500 600
Density resin 25°C	IO-10-51 (ASTM D 1475)	g/ml	1,13 1,17

#### Hardeners

Property	Resin	Hardener	W 152.1 HR	W 152 XLR
Hardener Colour			Pale/yellow	Various colours
Viscosity at: 25°C	IO-10-50 (ISO3219)	mPas	30 80	10 30
Density 25°C	IO-10-51 (ASTM D 1475)	g/ml	1,02 1,06	0,90 0,95

#### Processing Data

Mixing ratio by weight		for 100 g resin	g	100:30	100:30
Mixing ratio by volume		for 100 ml resin	ml	100:34	100:38
Pot life	25°C (50mm;200ml)	IO-10-53 (*)	min	10 14	135 165
Exothermic peak	25°C (50mm;200ml)	IO-10-53 (*)	°C	215 235	155 170
Initial mixture viscosity at:	25°C	IO-10-50 (ISO3219)	mPas	250 350	150 200
Gelation time	15°C tack start (1mm)	IO-10-88 (ASTM D5895-03)	h	5 6	14 18
	15°C tack end (1mm)		h	7 8	20 22
	25°C tack start (1mm)		h	2 3	10 11
	25°C tack end (1mm)		h	3 4	14 15
Suggested curing cycles		(**)		24 hrs at RT + 16 hrs at 50°C	24 hrs at RT + 16 hrs at 50°C

## EC 157

## TYPICAL CURED SYSTEM PROPERTIES

Properties determined on specimens cured: 24 hrs at RT + 16 hrs at 50°C

			W 152.1 HR		W 152 XLR	
Colour			Pale yellow		Various colours	
Machinability			Excellent		Excellent	
Density 25°C		IO-10-54 (ASTM D 792)	g/ml	1,12 1,16	1,12 1,16	
Hardness 25°C		IO-10-58 (ASTM D 2240)	Shore D/15	84 88	84 88	
Glass transition (Tg)	24h TA +16h 50°C	IO-10-69 (ASTM D 3418)	°C	66 72	64 70	
	24h TA +15h 80°C		°C	82 88	82 88	
Maximum Tg	15h 90°C	IO-10-69 (ASTM D 3418)	°C	82 88	82 88	
Water absorption (24h RT)		IO-10-70 (ASTM D 570)	%	0,20 0,30	0,10 0,20	
Water absorption (2h 100°C)		IO-10-70 (ASTM D 570)	%	0,90 1,00	0,60 0,70	
Flexural strength		IO-10-66 (ASTM D 790)	MN/m <sup>2</sup>	107 120	102 116	
Maximum strain		IO-10-66 (ASTM D 790)	%	5,0 7,0	4,5 7,0	
Strain at break		IO-10-66 (ASTM D 790)	%	7 12	10 14	
Flexural elastic modulus		IO-10-66 (ASTM D 790)	MN/m <sup>2</sup>	2.800 3.200	2.900 3.300	
Tensile strength		IO-10-63 (ASTM D 638)	MN/m <sup>2</sup>	74 80	68 76	
Elongation at break		IO-10-63 (ASTM D 638)	%	6,5 9,5	5,5 8,5	
Compressive strength		IO-10-72 (ASTM D 695)	MN/m <sup>2</sup>	94 100	78 86	

IO-00-00 = Elantas Italia's test method. The correspondent international method is indicated whenever possible.

nd = not determined na = not applicable RT = TA = laboratory room temperature (23±2°C)

Conversion units: 1 mPas = 1 cPs 1MN/m<sup>2</sup> = 10 kg/cm<sup>2</sup> = 1 MPa

(\*) for larger quantities pot life is shorter and exothermic peak increases

(\*\*) the brackets mean optionality

(\*\*\*) The maximum operating temperature is given on the basis of laboratory information available being it function of the curing conditions used and of the type of coupled materials. For further possible information see post-curing paragraph.

**EC 157**

- Instructions:** Before use verify if components are perfectly transparent. Add the appropriate quantity of hardener to the resin, mix carefully. Avoid air trapping. If the mixing is carried on with dosing/mixing equipment deaeration of the mixture is not necessary. On the contrary evaluate if it is necessary as function of vacuum applied during infusion.
- Curing/Post-curing:** Post curing is always advisable for RT curing systems in order to stabilize the component and to reach the best properties. It is necessary when the component works at a high temperature. Users should evaluate the best conditions of curing or post-curing depending on the component size and shape. For big size components decrease the thermal gradient and increase the post-curing time. In case of thin layer applications and composites, post cure on the jig.
- Storage:** Epoxy resin and their hardeners can be stored for two years in the original sealed containers stored in a cool, dry place. The hardeners are moisture sensitive therefore it is good practice to close the container immediately after each use.
- Handling precautions:** Refer to the safety data sheet and comply with regulations relating to industrial health and waste disposal.

emission date: March 2015  
revision n° 00

The information given in this publication is based on the present state of our technical knowledge but buyers and users should make their own assessments of our products under their own application conditions.