



East Coast
Fibreglass Supplies

EC157 Epoxy Infusion Resin

Technical Data Sheet

Resin
EC 157

Hardener
W 152 HR
W 152 MR

Mixing ratio by weight
100:30
100:30

Application: High performance composite parts of small and medium size.

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

W 152 HR: High reactivity for small components.

W 152 MR: Medium reactivity.

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

SYSTEM SPECIFICATIONS

Resin

Viscosity at:	25°C	IO-10-50 (EN13702-2)	mPas	500	600
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Hardener W 152HR

Viscosity at:	25°C	IO-10-50 (EN13702-2)	mPas	30	60
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Hardener W152MR

Viscosity at:	25°C	IO-10-50 (EN13702-2)	mPas	20	40
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TYPICAL SYSTEM CHARACTERISTICS

Resin

Resin Colour				Colourless	
Density at:	25°C	IO-10-51 (ASTM D 1475)	g/ml	1,14	1,16

Hardeners

				W 152 HR	W 152 MR
Hardener Colour				Pale yellow	Pale yellow
Density at:	25°C	IO-10-51 (ASTM D 1475)	g/ml	0,94 0,98	0,93 0,97

Processing Data

Mixing ratio by weight		for 100 g resin	g	100:30	100:30
Mixing ratio by volume		for 100 ml resin	ml	100:37	100:37
Pot life	25°C (50mm;200ml)	IO-10-53 (*)	min	40 50	110 130
Exothermic peak	25°C (50mm;200ml)	IO-10-53 (*)	°C	180 200	170 190
Initial mixture viscosity at:	25°C	IO-10-50 (EN13702-2)	mPas	200 300	150 250
Gelation time	25°C (1mm)	D-10-88 (ASTM D5895-03)	h	6 8	10 12
Demoulding time	25°C (15ml;6mm)	(*)	h	10 12	24 32

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TYPICAL CURED SYSTEM PROPERTIES

Properties determined on specimens cured: 24 h TA + 15 h 60°C

				W 152 HR		W 152 MR	
Colour				Pale yellow		Pale yellow	
Machinability				Excellent		Excellent	
Density 25°C		IO-10-54 (ASTM D 792)	g/ml	1,08	1,12	1,08	1,12
Hardness 25°C		IO-10-58 (ASTM D 2240)	Shore D/15	85	89	84	88
Glass transition (Tg)	7gg TA/RT	IO-10-69 (ASTM D 3418)	°C	55	61	56	62
	24h TA+15h 50°C		°C	72	78	70	76
	24h TA+15h 60°C		°C	80	86	79	85
Maximum Tg	15h 90°C	IO-10-69 (ASTM D 3418)	°C	96	102	92	98
Water absorption (24h RT)		IO-10-70 (ASTM D 570)	%	0,15	0,20	0,10	0,20
Water absorption (2h 100°C)		IO-10-70 (ASTM D 570)	%	0,55	0,70	0,60	0,70
Max recommended operating temperature		(***)	°C	90		0	
Flexural strength		IO-10-66 (ASTM D 790)	MN/m ²	113	127	110	120
Maximum strain		IO-10-66 (ASTM D 790)	%	5,0	7,0	5,0	7,0
Strain at break		IO-10-66 (ASTM D 790)	%	6,0	8,0	6,0	8,0
Flexural elastic modulus		IO-10-66 (ASTM D 790)	MN/m ²	3.100	3.500	3.200	3.600
Tensile strength		IO-10-63 (ASTM D 638)	MN/m ²	64	72	67	75
Elongation at break		IO-10-63 (ASTM D 638)	%	6,0	8,0	6,0	8,0
Compressive strength		IO-10-72 (ASTM D 695)	MN/m ²	92	104	91	103

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/m2 = 10 kg/cm2 = 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.

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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. The rate of heating and the indicated post-curing time are referred to standard specimen size. 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 the case of thin layer applications and composites, post cure on the jig. As general guide to minimize the risk of thermal deformations we suggest to carry on the post-curing in the following way: - on mould: 24 h RT + 6 h 40°C + 6 h 50°C +12 h 60°C. - out of the mould but on the jig: 7 days RT + 6 h 40°C + 6 h 50°C + 12 h 60°C.

Storage: Epoxy resins 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 vessel immediately after each use.

Handling precautions: Refer to the safety data sheet and comply with regulations relating to industrial health and waste disposal.

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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.
