EN

Product Information

Elan-tech®

EC 130LV/W 340 100:30

EC 130LV/W 341 100:30

Epoxy system for composites with high thermal resistance

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Resin	Hardener	Mixing ratio by weight
EC 130LV	**W 340**	**100:30**
	W 341	**100:30**

Application: High performance composite parts of small and medium size. Filament winding. Manufacturing of structural parts for boats, model aircrafts, racing vehicles, sport components.

Processing: Manual impregnation at atmospheric pressure or under vacuum bag for wood, glass, carbon or kevlar fiber tissue. Room temperature curing. The hardeners can be blended in all proportions to adjust the reactivity of the system to the specific needs. Compared to traditional systems, this one also presents an high capability to post-cure also with a moderate heat transfer.
W 340 (medium-slow): Under vacuum impregnation.
W 341 (fast): Impregnation by contact and medium size components.

Description: Un-filled epoxy system with high modulus. The curing agent should be selected according to the application. The post-curing at moderate temperature is suggested to obtain the best performance for the system.

SYSTEM SPECIFICATIONS

Resin					
Viscosity at:	25°C	IO-10-50 (EN13702-2)	mPas	1.200	1.600
Hardener W 340					
Viscosity at:	25°C	IO-10-50 (EN13702-2)	mPas	45	55
Hardener W 341					
Viscosity at:	25°C	IO-10-50 (EN13702-2)	mPas	200	300

TYPICAL SYSTEM CHARACTERISTICS

Resin					
Resin Colour				Violet	
Density resin 25°C		IO-10-51 (ASTM D 1475)	g/ml	1,14	1,16
Hardeners				**W 340**	**W 341**
Hardener Colour				Pale/yellow	Pale/yellow
Density 25°C		IO-10-51 (ASTM D 1475)	g/ml	0,92 0,94	0,94 0,96
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 at:	25°C (1.500 mPas)	IO-10-50 (EN13702-2) (*)	min	54 66	-
	25°C (3.000 mPas)		min	95 117	-
Pot life	25°C (40mm;100ml)	IO-10-53 (*)	min	50 70	8 15
Exothermic peak	100ml	IO-10-53 (*)	°C	175 185	180 190
Initial mixture viscosity at:	25°C	IO-10-50 (EN13702-2)	mPas	500 800	600 900
Gelation time	25°C (15ml;6mm)	IO-10-73 (*)	h	3 4	1 2
Demoulding time	25°C (15ml;6mm)	(*)	h	15 20	10 15
Post-curing	60°C	(**)	h	(15)	(15)

EC 130LV

TYPICAL CURED SYSTEM PROPERTIES

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

				W 340		W 341	
Machinability				Excellent		Excellent	
Hardness 25°C		IO-10-58 (ASTM D 2240)	Shore D/15	86	88	86	88
Glass transition (Tg)		IO-10-69 (ASTM D 3418)	°C	90	95	88	93
Maximum Tg	8h 120°C	IO-10-69 (ASTM D 3418)	°C	130	135	120	125
Water absorption (24h RT)		IO-10-70 (ASTM D 570)	%	0,1	0,2	0,1	0,2
Water absorption (2h 100°C)		IO-10-70 (ASTM D 570)	%	0,7	0,8	0,8	0,9
Flexural strength		IO-10-66 (ASTM D 790)	MN/m²	115	120	113	118
Maximum strain		IO-10-66 (ASTM D 790)	%	5,8	6,3	5,8	6,3
Strain at break		IO-10-66 (ASTM D 790)	%	8,5	9,0	7,5	8,0
Flexural elastic modulus		IO-10-66 (ASTM D 790)	MN/m²	2.900	3.100	2.900	3.100
Tensile strength		IO-10-63 (ASTM D 638)	MN/m²	75	80	75	80
Elongation at break		IO-10-63 (ASTM D 638)	%	5,5	6,3	5,0	5,5
Compressive strength		IO-10-72 (ASTM D 695)	MN/m²	85	90	90	95

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/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.

EC 130LV

Instructions: Verify and when necessary, homogenize the components before use. Add the appropriate quantity of hardener to the resin, mix carefully. Avoid air trapping. For the surface preparation (mould or model) refer to the release agents data sheet.

Curing / Post-curing: Post curing is always advisable for RT curing systems in order to stabilize the component and to reach the best mechanical properties, although, this system is able to reach (already at room temperature) a thermal
resistance higher than those of traditional systems. If post-cured at a moderate temperature (60° C) it is possible to obtain a good thermal resistance. Curing and post-curing that should be carried out before using, the mould as a function of the required thermal resistance. Post cure the tool as stated in the table, increasing gradually 10°C/hour. 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.

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. The hardeners may crystallize at low temperatures. To restore the original conditions, heat the material at 40-50°C avoiding local overheating. Before use, the product must be rehomogenized and cooled down at room temperature.

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

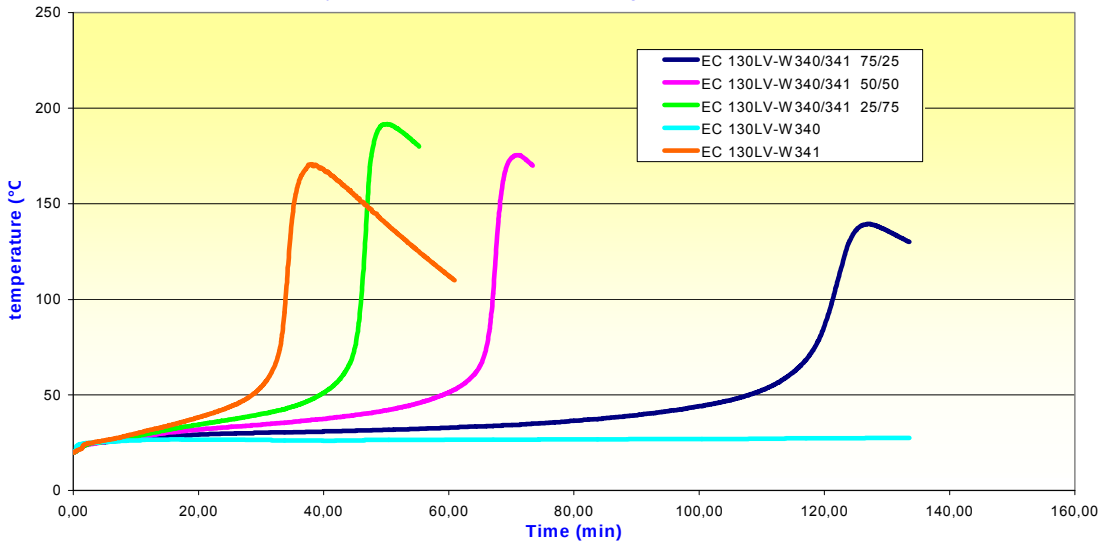
emission date:	June	1999
revision n° 05	March	2012

EC 130LV

Systems properties in wet state

Reactivity Profiles

(100ml system volume, resin/hardener mixing ratio 100:30 at 20° C in air)



	EC130LV / W341			EC130LV / (W340-W341 25:75)			EC130LV / (W340-W341 50:50)			EC130LV / (W340-W341 75:25)			EC130LV / W340		
	10°C	20°C	30°C	10°C	20°C	30°C	10°C	20°C	30°C	10°C	20°C	30°C	10°C	20°C	30°C
Time at 40°C (min)	140	22	8	n.d	30	13	n.d	46	15	n.d	92	22	n.d	n.d.	45
Exothermic Peak (°C)	47	170	210	30	192	198	19	175	195	16	139	199	13	37	190

N.B. All the data refer to 100ml volume, 40mm in air

Suggestions for the proper use of the systems with vacuum bag process

2 mm laminate thickness. Resins/Hardeners mixing ratio 100:30.

	EC130LV / W341			EC130LV / (W340-W341 25:75)			EC130LV / (W340-W341 50:50)			EC130LV / (W340-W341 75:25)			EC130LV / W340		
	10°C	20°C	30°C	10°C	20°C	30°C	10°C	20°C	30°C	10°C	20°C	30°C	10°C	20°C	30°C
Maximum time before vacuum application (h)	6	3	n.d	8	4	1,5	9	4	2	12	5	3	12	5	3
Gelification time (h)	8-11	4-5	n.d.	10-13	5-6	2,5-3,5	12-15	6-7	3 -4	16-19	7-9	4-4,5	18-21	8-10	4,5-6
Minimum time for vacuum release (h)	12	6	n.d	15	8	5	17	9	5	24	12	6	30	15	8
Demoulding (h)	15	8	n.d.	20	12	7	24	12	8	36	20	12	48	36	24

N.B. The reported values are derived from lab tests and from the application experience. They must be considered indicative because they are related to the specific size and shape of the components. Buyers and users should make their own assessments of our products under their own application conditions.

Glass Transition temperature (ASTM D3148)

	EC130LV / W341		EC130LV / (W340-W341 25:75)		EC130LV / (W340-W341 50:50)		EC130LV / (W340-W341 75:25)		EC130LV / W340	
Curing Cycle	Onset	Tg	Onset	Tg	Onset	Tg	Onset	Tg	Onset	Tg
8hrs at r.T. + 6hrs at 80°C (°C)	99	105	102	107	105	110	106	110	107	111