

EN Product Information

Elan-tech®

EC 138/W 340 100:30

EC 138/W 341 100:30

High thermoresistance epoxy system**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 138

Hardener
W 340
W 341

Mixing ratio by weight
100:30
100:30

Application: Thermoresistant molds for composite manufactured and molds for pre-pregs.

Processing: Manual impregnation by roll or hand-lay up applications with or without vacuum bag for glass, carbon or kevlar fibers. The post-curing by subministration of heat is necessary to achieve the thermal resistance indicated in the data sheet. During lamination it is advisable to realize thickness up to 5 mm. If the lamination must be interrupted, it is advisable to remove the last layer of the resin mechanically before starting the stratification again. 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 presents a high capability to post-cure also with a moderate heat transfer.

Description: Un-filled, thermoresistant epoxy system with high elastic modulus.

SYSTEM SPECIFICATIONS

Resin

Viscosity at:	25°C	IO-10-50 (EN13702-2)	mPas	3.600	4.600
---------------	------	----------------------	------	-------	-------

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				Pale/yellow	
Density resin 25°C		IO-10-51 (ASTM D 1475)	g/ml	1,15	1,17

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	25°C (40mm;100ml)	IO-10-53 (*)	min	75 85	14 18
Exothermic peak	25°C (40mm;100ml)	IO-10-53 (*)	°C	155 165	165 175
Initial mixture viscosity at:	25°C	IO-10-50 (EN13702-2)	mPas	500 1.500	1.000 2.000
Gelation time	25°C (15ml;6mm)	IO-10-73 (*)	h	3 5	1,5 2,5
Demoulding time	25°C (15ml;6mm)	(*)	h	18 24	12 18
Post-curing	60°C	(**)	h	15	15
Maximum recommended thickness			mm	5	2 - 5

EC 138

TYPICAL CURED SYSTEM PROPERTIES

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

			W 340		W 341		
Colour			Pale yellow		Pale yellow		
Machinability			Excellent		Excellent		
Density	IO-10-54 (ASTM D 792)	g/ml	1,07	1,14	1,08	1,15	
Hardness	IO-10-58 (ASTM D 2240)	Shore D/15	86	90	86	90	
Glass transition (Tg)	IO-10-69 (ASTM D 3418)	°C	92	96	90	94	
Maximum Tg	8 h 130°C 8 h 140°C	IO-10-69 (ASTM D 3418)	°C	-	-	133	138
				145	150	-	-
Water absorption (24h RT)	IO-10-70 (ASTM D 570)	%	0,08	0,10	0,08	0,10	
Water absorption (2h 100°C)	IO-10-70 (ASTM D 570)	%	0,50	0,70	0,50	0,70	
Flexural strength	IO-10-66 (ASTM D 790)	MN/m ²	120	125	130	135	
Maximum strain	IO-10-66 (ASTM D 790)	%	5,7	6,2	5,7	6,2	
Strain at break	IO-10-66 (ASTM D 790)	%	6,8	7,2	7,2	7,6	
Flexural elastic modulus	IO-10-66 (ASTM D 790)	MN/m ²	3.000	3.100	3.200	3.400	
Tensile strength	IO-10-63 (ASTM D 638)	MN/m ²	50	55	55	60	
Elongation at break	IO-10-63 (ASTM D 638)	%	2,5	3,0	2,6	3,1	
Compressive strength	IO-10-72 (ASTM D 695)	MN/m ²	95	100	100	105	

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 138

Instructions: Verify and when necessary, homogenize the components before use. Add the appropriate quantity of hardener to the resin, mix carefully. Avoid air trapping. Apply. 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 properties. It is necessary when the component works at a high temperature. Post cure the tool as stated in the table, increasing gradually 10°C/hour. Cool it down slowly. 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.

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:	September	1999
revision n° 03	April	2012

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.