EN

Product Information

Elan-tron®
MC 4539/W 4539 100:8
(Epoxylite ® EIP 4539 RESIN/Epoxylite ® EIP 4539 HARDENER)

2-component epoxy potting compound

ELANTAS Beck GmbH
Grossmannstr. 105
20539 Hamburg
Germany
Tel +49 40 78946 0
Fax +49 40 78946 276
info.elantas.beck@altana.com
www.elantas.com

ELANTAS Camattini S.p.A.
Strada Antolini n°1 loc. Lemignano
43044 Collecchio (PR)
Italy
Tel +39 0521 304711
Fax +39 0521 804410
info.elantas.camattini@altana.com
www.elantas.com

ELANTAS Deatech S.r.l.
Via San Martino 6
15028 Quattordio (AL)
Italy
Tel +39 0131 773870
Fax +39 0131 773875
info.elantas.deatech@altana.com
www.elantas.com

ELANTAS UK Ltd
Keate House
1 Scholar Green Road
Cobra Court
Manchester M32 0TR
United Kingdom
Tel +44 (0)161 864 1689
Fax +44 (0)161 864 6090
info.elantas.uk@altana.com
www.elantas.com

ELANTAS Electrical Insulation

Resin	Hardener	Mixing ratio by weight
MC 4539	**W 4539**	**100:8**

Application: Encapsulation, sealing and impregnation of electrical and electronic components.

Processing: Manual and/or automatic casting. Under vacuum casting with automatic mixing/dispensing devices. The system can be processed at room temperature or with the resin component pre-heated to 40-50°C. Best results are achieved when the material is processed under vacuum.

Description: Two component self-extinguishing, filled, epoxy system.Thermal class H (180°C). Good electrical and mechanical properties. High thermal conductivity. The system is UL 94 V-0 and listed (File E143115 and E116643). The system is RoHS conform (European directive 2002/95/EC).

SYSTEM SPECIFICATIONS

Resin					
Viscosity at:	50°C	IO-10-50 (EN13702-2)	mPas	15.000	25.000
Density at:	25°C	IO-10-51 (ASTM D 1475)	g/ml	1,79	1,83
Hardener					
FTIR spectrum (correlation factor)		IO-10-75		0,990	1,000
Gelation time	50°C	IO-10-52b (UNI 8701)	min	30	40

TYPICAL SYSTEM CHARACTERISTICS

Processing Data					
Mixing ratio by weight		for 100 g resin	g	100:8	
Mixing ratio by volume		for 100 ml resin	ml	100:15	
Resin Colour				Black	
Hardener Colour				Neutral	
Viscosity at: 25°C Resin		IO-10-50 (EN13702-2)	mPas	40.000	50.000
40°C			mPas	20.000	30.000
60°C			mPas	3.000	6.000
Viscosity at: 25°C Hardener		IO-10-50 (EN13702-2)	mPas	10	20
Density at: 25°C Hardener		IO-10-51 (ASTM D 1475)	g/ml	0,96	1,00
Pot life (doubled initial viscosity)	40°C	IO-10-50 (EN13702-2) (*)	min	20	30
	60°C		min	10	15
Initial mixture viscosity at:	25°C	IO-10-50 (EN13702-2)	mPas	4.000	6.000
	40°C		mPas	1.800	2.800
	60°C		mPas	1.000	1.600
Gelation time	25°C (15ml;6mm)	IO-10-73 (*)	h	3	4
Demoulding time	25°C (15ml;6mm)	(*)	h	10	12
Suggested curing cycles		(**)	24 hours 25°C or 6 hours at 50°C		

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TYPICAL CURED SYSTEM PROPERTIES

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

Surface				Bright	
Density 25°C		IO-10-54 (ASTM D 792)	g/ml	1,70	1,74
Hardness 25°C		IO-10-58 (ASTM D 2240)	Shore D/15	82	86
Glass transition (Tg)		IO-10-69 (ASTM D 3418)	°C	50	60
Linear thermal expansion (Tg -10°C)		IO-10-71 (ASTM E 831)	10^-6/°C	30	40
Linear thermal expansion (Tg +10°C)		IO-10-71 (ASTM E 831)	10^-6/°C	110	130
Flammability		IO-10-68 (UL 94 V-0)	mm	3,4	
Thermal conductivity		IO-10-87 (ASTM C518)	W/(m°K)	0,85	0,95
Dielectric constant at:	25°C	IO-10-59 (ASTM D 150)		3,5	4,5
Loss factor at:	25°C	IO-10-59 (ASTM D 150)	x 10^-3	50	60
Volume resistivity at:	25°C	IO-10-60 (ASTM D 257)	Ohm x cm	1 x 10^15	8 x 10^15
Dielectric strength	25°C	IO-10-61 (ASTM D 149)	kV/mm	20	22
Tracking index		IEC 60112	CTI	> 600	
Flexural strength		IO-10-66 (ASTM D 790)	MN/m²	38	48
Strain at break		IO-10-66 (ASTM D 790)	%	0,7	1,3
Flexural elastic modulus		IO-10-66 (ASTM D 790)	MN/m²	5.000	6.000
Tensile strength		IO-10-63 (ASTM D 638)	MN/m²	22	32
Elongation at break		IO-10-63 (ASTM D 638)	%	1,2	1,8

IO-00-00 = Elantas Camattini'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 recommended operating temperature is given on the basis of available laboratory information. Users should make their own assessments to verify the real component thermal class which is the result of the applied construction technology and used protective materials.

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Instructions: It is advisable to pre-heat the resin at 50°C to make easier the application of the product. In pre-filled products it is good practice to check and carefully rehomogenize the material if some settling is present. Add the appropriate quantity of hardener to the resin, mix carefully. Avoid air trapping.

Curing Post-curing: For a room temperature curing system post-curing allows fast stabilization of the material and obtainment of the best electrical and mechanical properties. During the curing process it is advisable to avoid thermal variations higher than 10°C/hour.

Storage: Epoxy resins and their hardeners can be stored for one year in the original sealed containers stored in a cool, dry place. After that period or if the material has been stored in anomalous conditions, pre-filled resins can be settled down and their use is possible, only if they are accurately re-homogenized with the help, if necessary, of a mechanical mixer. 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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