

AMICON[®] 50300 SERIES

One Component, Epoxy Based, Glob Tops For Use On Polymeric Substrates

Key Feature	Benefit
One component	No mixing, less waste, consistent processing
Low viscosity	Easier dispensing
Fast cure	Lower cost of use
Low CTE	Low stress

Product Description :

The AMICON 50300 Series comprises four low viscosity epoxy based glob tops whose rheology has been engineered to meet a wide range of application requirements. Single component formulation ensures a long pot life and a very stable viscosity during use. The AMICON 50300 Series reaches its optimal properties in a short cure cycle.

Applications :

The AMICON 50300 Series is intended for the encapsulation of wire bonded bare dies on epoxy laminate and similar substrates (FR-4, FR-2, etc.). The more thixotropic materials (AMICON 50300-1 and AMICON 50300 HT) are suitable for use on ICs with high wire profiles and in situations where the spreading of the glob top during cure must be minimalized.

The less thixotropic materials (AMICON 50300 LT and AMICON 50300 LV) are more suitable for use with larger ICs and ICs with a high wire count.

Instructions For Use :

AMICON 50300 Series glob tops can be used on both manual and automatic dispensing equipment. The surface on which the glob top is to be dispensed should be clean, dry and free from all dust or contaminants. In some cases it may be advisable to preheat the substrate up to a maximum of 70°C in order to obtain the optimum flow under and around the wires.

Properties Of Material As Supplied :

Property	Test Method	Unit	Value			
			AMICON 50300 LT	AMICON 50300 LV	AMICON 50300-1	AMICON 50300 HT
Chemical Type			epoxy			
Appearance	Visual		black			
Density	ASTM-D-792	g/cm ³	1,71 - 1,75	1,68 - 1,72	1,73 - 1,77	1,71 - 1,75
Brookfield Viscosity	ASTM-D-2393					
	2,5 rpm # 6	Pa.s	45 - 65	75 - 95	90 - 110	120 - 140
	10 rpm # 6	Pa.s				55 - 75
	20 rpm # 6	Pa.s	20 - 30	25 - 35	35 - 45	
Filler Content	ASTM-D-1579	weight %	68 - 70	65 - 67	69 - 71	67 - 69
Solids Content	ASTM-D-4209	weight %	100			

Cure Schedule :

AMICON 50300 Series glob tops are designed for cure in conventional convection ovens. The properties of the cured material will depend upon the cure schedule used. The lowest values for coefficient of linear thermal expansion and highest values for T_g will be obtained when using the optimum cure schedule mentioned below.

Convection Oven	Temperature (°C)	Cure Time (h)
Optimum cure	150	2
Low stress cure	120	1
	+	+
	150	1

Properties Of Material After Application :

Property	Test Method	Unit	Value			
			AMICON 50300 LT	AMICON 50300 LV	AMICON 50300-1	AMICON 50300 HT
Hardness	ASTM-D-2240	Shore D	90 minimum			
Coefficient of Linear Thermal Expansion	ASTM-D-3386	10 ⁻⁶ K ⁻¹	25 maximum			
Cure Shrinkage	ASTM-D-2566	% %	0,5 maximum 0,2 maximum (*)			
Glass Transition Temperature	ASTM-D-3418	°C	140 minimum			
Extractable Ionic Content	TP-91					
	Cl ⁻	ppm	10 maximum			
	Na ⁺	ppm	10 maximum			
	K ⁺	ppm	10 maximum			
	NH ₄ ⁺	ppm	10 maximum			
Thermal Conductivity	ASTM-D-1674	W/m.K	0,60 - 0,65			
Dielectric Constant	ASTM-D-150 25°C/1kHz		3,2			
Dissipation Factor	ASTM-D-150 25°C/1kHz		0,009			
Volume Resistivity	ASTM-D-257 25°C	Ohm.cm	2,9 x 10 ¹⁴	3,3 x 10 ¹⁴	3,3 x 10 ¹⁴	3,3 x 10 ¹⁴
Water Absorption	ASTM-D-570 24 h	Weight %	0,4 maximum			

The property values mentioned above are typical for material cured according to the optimum schedule mentioned below. "TPs" are internal test procedures, typically derived from ASTM or other norms. Copies of these test procedures can be obtained upon request.

(*) with precure of 1 h at 120°C

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Storage And Handling :

AMICON 50300 Series glob tops are shipped in dry ice packaging. Upon receipt they should be transferred to storage below 0°C, a freezer operating at -18°C is recommended. The shelf life during which the behaviour and properties of the glob top can be considered to be effectively stable, is 4 months when stored between -40°C and 0°C. Packages removed from storage must first be allowed to return to ambient temperature before use. This normally takes 2 hours for a 40 g syringe, and 8 to 12 hours for a 500 g cartridge.

AMICON 50300 Series glob tops are manufactured to very narrow specifications and specially processed to avoid the inclusion of air in the material. For optimal processing, AMICON 50300 Series glob tops should be stored and used in the original packaging.

Storage Temperature (°C)	Shelf Life	Pot Life
-40 to 0	4 months	
18 to 25		7 days
40		5 days

Health & Safety :

It is recommended to consult the Emerson & Cuming product literature, including material safety data sheets, prior to using Emerson & Cuming products. These may be obtained from your local sales office.

Attention Specification Writers :

The technical information contained herein is consistent with the properties of the material and should not be used in the preparation of specifications, as it is intended for reference only. For assistance in preparing specifications, please contact your local Emerson & Cuming office for details. Please contact Emerson & Cuming Quality Assurance for test method details.

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