HUNTSMAN

Advanced Materials
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Araldite® Casting System

Araldite® MY 740	**Resin**	**100**	**pbw**
Aradur™ HY 840-1	**Hardener**	**50 - 100**	**pbw**

Liquid, cold - warm-curing, low-viscous impregnating and casting resin system with moderate reactivity and high flexibility after cure.

Application	Encapsulation of electronic devices (esp. PWB's)
Processing methods	Casting, with and without applying vacuum
Key Properties	Good mechanical and electrical properties High Toughness Suited for Class A (105 °C) - applications

Edition **Dec. 2004**
Replaces Edition

Product Data (Guideline Values)

Araldite® MY 740

Liquid, low viscous, Bisphenol A epoxy resin

Viscosity at 25°C	ISO 12058	mPa*s	10000 - 14500
Epoxy content	ISO 3001	equiv/kg	5.25 - 5.55
Density at 25°C	ISO 1675	g/cm³	1.15 - 1.20
Vapore Pressure	(Knudsen)	mbar	<0.00001
Flash point	ISO 1523	°C	200
As supplied form	Clear liquid.		

Aradur™ HY 840-1

Liquid, modified, polyamino-type curing agent

Viscosity at 25°C	ISO 2555	mPa*s	10000 – 15000
Viscosity at 75°C	ISO 2555	mPa*s	300 – 600
Density at 25°C	ISO 1675	g/cm³	0.96 - 1.0
Vapore Pressure	(Knudsen)	mbar	<0.01
Flash point	ISO 1523	°C	> 140
As supplied form	Liquid.		

Remarks and Storage Conditions

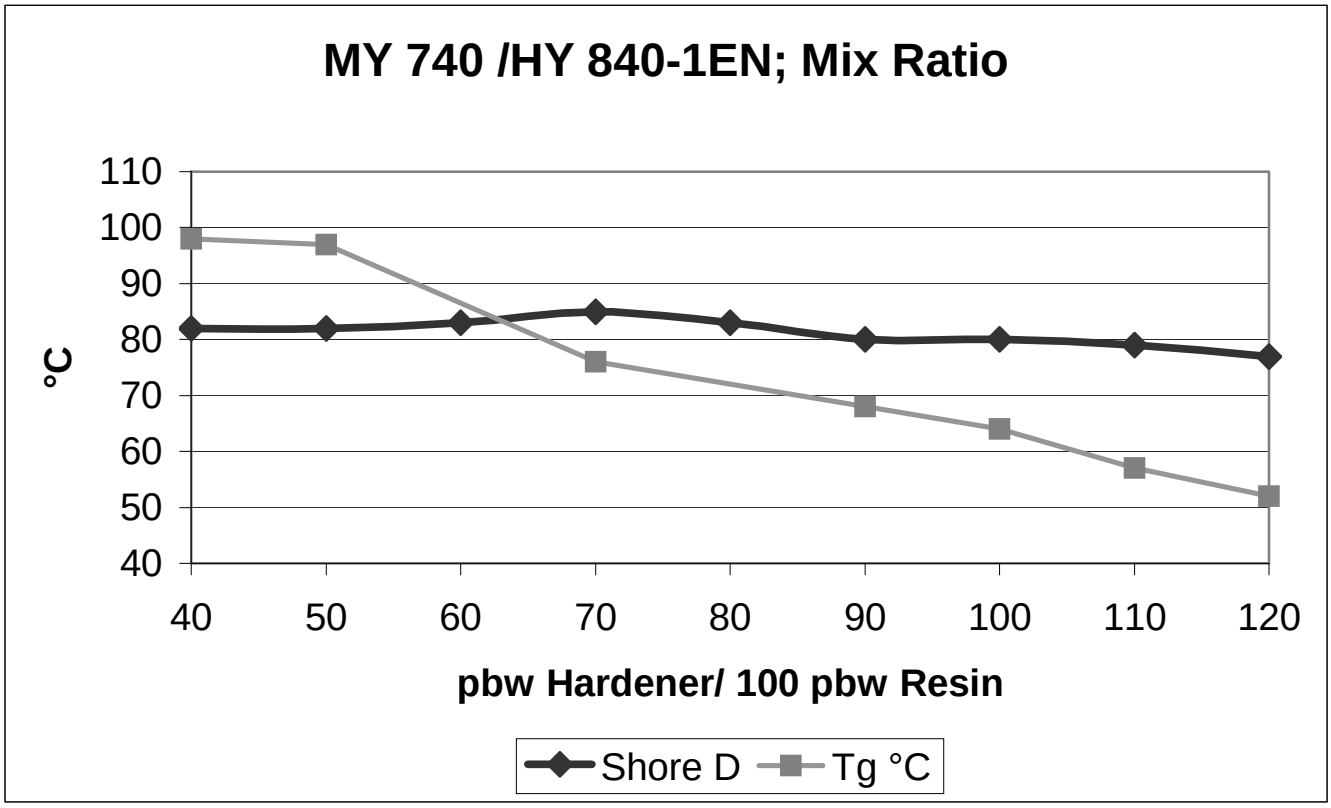
Store the components in tightly sealed and dry original containers (see labels on containers) . Under these conditions, the shelf life will correspond to the expiration date stated on the label. After this date, the product may be processed only following reanalysis. Partly emptied containers should be closed tightly immediately after use.
For information on waste disposal and hazardous products of decomposition in the event of fire, refer to the Material Safety Data Sheets (MSDS) for these particular products.

Processing (Guideline Values)

System Preparation for Casting

The casting mix is best prepared by heating the resin up to 40 – 50 °C before stirring in the hardener.
Avoid contamination with air.
Stirr carefully, the properly mixed system is a clear liquid.
Good degassing of the mix at 3- 5 mbar vacuum is needed to improve mixture's homogenity and enhance the dielectric properties of the castings.

A broad variation in mix ratio is possible with this system.
For best electrical results a mix ratio Araldite MY 740/HY 840-1 = 100/ (50 -70) pbw is recommended.
For best sealing and adhesion up to 100 / 100 pbw might be applied.



This casting resin system has low exothermic heat on cure. Volume of 250 g can be potted in typical parts (inlcuding PWB's), at room temperature. With bigger volumes or higher starting temperatures temperature might exceed 80 °C, cooling is recommended then.

To determine whether crosslinking has been carried to completion and the final properties are optimal, it is necessary to carry out relevant measurements on the actual object or to measure the glass transition temperature. Different gel and cure cycles in the manufacturing process could lead to a different crosslinking and glass transition temperature respectively.

Processing Data (Guideline Values)

System tested:
Araldite MY 740 / HY 840-1
Mix ratio: 100 / 50 pbw = 100 / 60 pbV

Initial viscosity (Rheostress RS 100;PP60 –1mm; 5/sec)

	25°C	mPa s	14.000
	40°C	mPa s	2.400

Pot life (Rheostress)

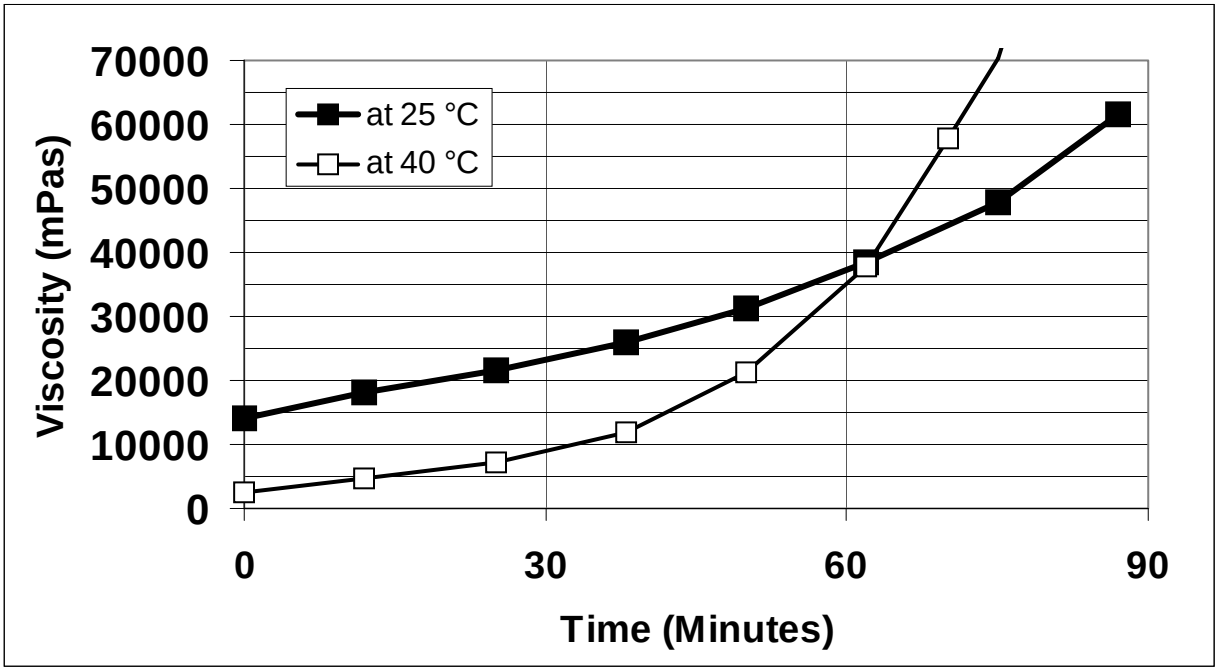
Up to 50000 mPa s	25°C	min	80
Up to 50000 mPa s	40°C	min	65

Gel time (Gelnorm)

	at 40°C	min	85
	at 60°C	min	27

Recommended cure time	h/°C	8/80
Recommended cure time, alternative	h/°C	24/ 23 + 8/80

Viscosity



Mechanical and Physical Properties (Guideline Values)

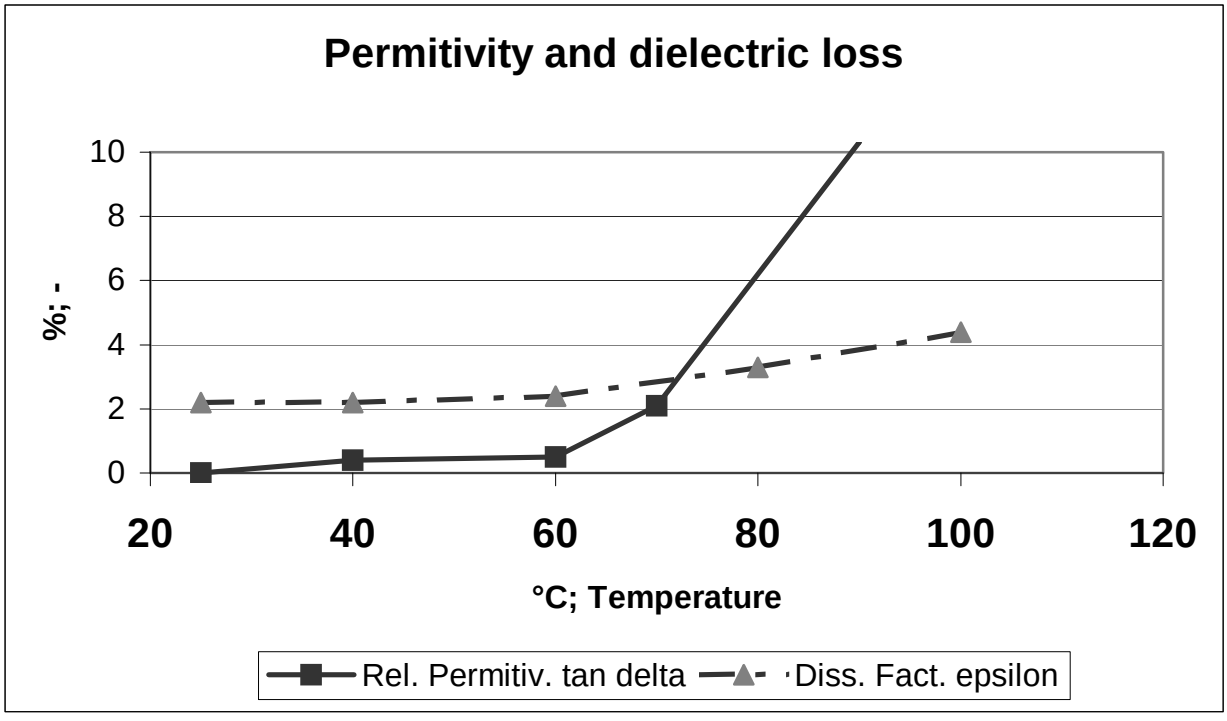
System tested: Araldite MY 740 / HY 840-1; Mix ratio: 100 / 50 pbw
Determined on standard test specimen at 23°C. Cured for 8h @ 80°C

Flexural strength at 23°C	ISO 178	MPa	105 – 110
Surface strain at 23°C	ISO 178	%	8.5 - 9.0
Elastic Modulus	ISO 178	MPa	2.470 – 2.540
Shore D			80 - 85
Glass transition temperature (DSC)	ISO 11357-2	°C	90 - compare p. 3
Decomposition temperature (heating rate: 10K/min)	DTA	°C	$\geq$ 300

Electrical Properties (Guideline Values)

Determined on standard test specimen at 23°C. Cured for 8h @ 80°C

Breakdown strength			
3 mm plates	IEC 60243-1	kV/mm	20 – 24
Dielectric loss factor (tan δ, 50Hz)	IEC 60250	%	
23°C			0,4
40 °C			0,5
60 °C			2,1
80 °C			10,3
Dielectric constant (εr, 50Hz)	IEC 60250		
25°C			2,2
40°C			2,2
60°C			2,4
80°C			3,3



Industrial hygiene

Mandatory and recommended industrial hygiene procedures should be followed whenever our products are being handled and processed. For additional information please consult the corresponding Safety Data Sheets and the brochure "Hygienic precautions for handling plastics products of Vantico" (Publ. No. 24264/e).

Handling Precautions

Safety precautions at workplace:	
protective clothing	Yes.
gloves	Essential.
arm protectors	Recommended when skin contact likely.
goggles/safety glasses	Yes.
respirator/dust mask	Recommended.
Skin protection:	
before starting work	Apply barrier cream to exposed skin.
after washing	Apply barrier or nourishing cream.
Cleaning of contaminated skin	Dab off with absorbent paper, wash with warm water and alkali-free soap, then dry with disposable towels. Do not use solvents.
Clean shop requirements	Cover workbenches, etc. with light coloured paper. Use disposable beakers, etc.
Disposal of spillage	Soak up with sawdust or cotton waste and deposit in plastic-lined bin.
Ventilation:	
of workshop	Renew air 3 to 5 times an hour.
of workplace	Exhaust fans. Operatives should avoid inhaling vapors.

First Aid

Contamination of the **eyes** by resin, hardener or casting mix should be treated immediately by flushing with clean, running water for 10 to 15 minutes. A doctor should then be consulted.
Material smeared or splashed on the **skin** should be dabbed off, and the contaminated area then washed and treated with a cleansing cream (see above). A doctor should be consulted in the event of severe irritation or burns. Contaminated clothing should be changed immediately.
Anyone taken ill after **inhaling** vapours should be moved out of doors immediately. In all cases of doubt call for medical assistance.

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APPROVED TO ISO 9000 ff