

# Araldite® Casting System

<b>Araldite® GY 2600</b>	<b>Resin</b>		<b>100</b>	<b>pbw</b>
<b>Aradur® HY 5809</b>	<b>Hardener</b>		<b>24</b>	<b>pbw</b>

## Hot curing unfilled epoxy casting and impregnating system

### Application

Units operating in environments combining heat and corrosion.

Components with high sensitivity to ionisable chlorine.

### Processing methods

Casting; vacuum casting.

### Key Properties

Good thermal endurance.

Excellent electro-mechanical properties.

Excellent moisture and chemical resistance.

Chemically inert towards sensitive substrates.

## Product Data (Guideline Values)

### **Araldite GY 2600**

Unmodified Bisphenol-A epoxy resin

Viscosity at 25 °C	ISO 12058	mPa*s	12000 – 14000
Specific Gravity at 25 °C	ISO 1675	g/cm <sup>3</sup>	1.15 – 1.2
Appearance	Visual		Clear liquid
Flash point	ISO 1523	°C	245

### **Aradur HY 5809**

Formulated aromatic amine

Viscosity at 25 °C	ISO 12058	mPa*s	150 – 250
Specific Gravity at 25 °C	ISO 2811-3	g/cm <sup>3</sup>	0.98 – 1.04
Appearance	Visual		Clear, dark amber liquid
Flash point	ISO 1523	°C	92

## Processing Data (Guideline Values)

### Mix Ratio

		Parts by weight	Parts by volume
Araldite GY 2600	Resin	100	100
Aradur HY 5809	Hardener	24	28

### Gel Time, Viscosity and Curing

Mix Viscosity at 80 °C	GY 2600 / HY 5809	Rheomat	mPa*s	1000
Pot life at 80 °C	GY 2600 / HY 5809	Time to reach 5000 mPa*s	min	132
		Time to reach 10000 mPa*s	Min	140
		Time to reach 15000 mPa*s	min	144
Minimum Curing Cycle	4 hours at 80 °C + 16 hours at 120 °C			

## Processing and Storage (Guideline Values)

### Mixing

Measure (by weight or volume) the Araldite resin and the hardener. Add the hardener to the Araldite resin, making sure that the required amount of hardener is transferred to the resin. Stir thoroughly until mixing is complete.

Air entrainment during mixing results in pores in the cured resin. Mixing under vacuum or in a metering-mixing machine is the most effective way to prevent air entrainment. Alternatively the static resin – hardener mixture may be deaerated in a vacuum chamber – allowing at least 200 % ullage for the foam to expand.

### Curing

To determine whether cross-linking 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 customer's manufacturing process could lead to a different degree of cross-linking and thus a different glass transition temperature.

The curing reaction produces an exothermic temperature rise in the mixture dependent on:

- Temperature at commencement of mixing
- Thermal capacity of moulds and inserts
- Mass and shape of the castings

When casting thick sections special care is needed to avoid excessive exothermic temperature rise.

Short high-temperature curing schedules (without initial gelling at 80 °C) should not be used unless preliminary trials with castings manufactured to the specific design, and in the specified moulds, produce no unacceptable exothermic effects.

### Storage Conditions

Store the components in a dry place at 18-25 °C, in tightly sealed original containers. Under these conditions, the shelf life will correspond to the expiry date stated on the label. After this date, the product may be processed only after reanalysis. Partly emptied containers should be tightly closed immediately after use.

For information on waste disposal and hazardous products of decomposition in the event of a fire, refer to the Material Safety Data Sheets (MSDS) for these particular products.

## Mechanical and Physical Properties (Guideline Values)

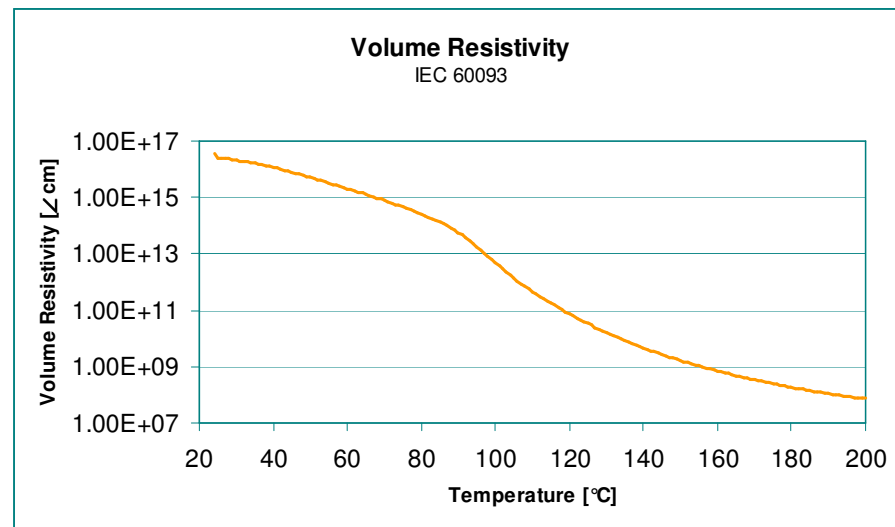
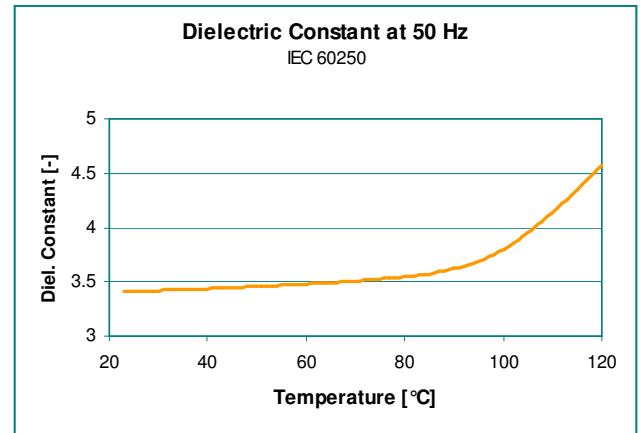
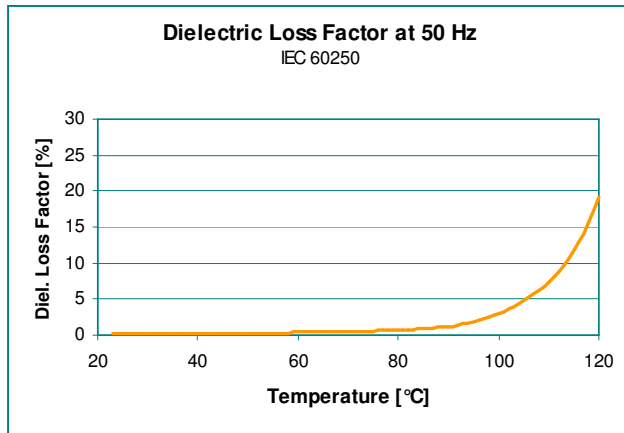
Determined on standard test specimen at 23°C. Cured for 4 hours at 80°C + 16 hours at 120°C

Glass transition temperature	ISO 11359	°C	111
Thermal linear coefficient, Alpha 1	ISO 11359	ppm/K	68
Flexural Strength	ISO 178	MPa	110
Elongation at break	ISO 178	%	3.2
Flexural Modulus	ISO 178	MPa	3400
Hardness	DIN 53505	Shore D	87
Thermal Conductivity	ISO 8894-1	W/mK	0.225
Water absorption	ISO 62		
1 day at 23°C		% by wt.	0.09
30 min at 100°C			0.19

## Electrical Properties (Guideline Values)

Determined on standard test specimen at 23°C. Cured for 4 hours at 80°C + 16 hours at 120°C.

Dielectric strength (3 mm specimen)	IEC 60243-1	kV/mm	> 29
Dielectric loss factor (tan $\delta$ , 50Hz, 25°C)	IEC 60250	%	0.2
Dielectric constant ( $\epsilon_r$ , 50Hz, 25°C)	IEC 60250		3.4
Volume resistivity ( $\rho$ , 25°C)	IEC 60093	$\Omega$ cm	$2.5 \times 10^{16}$



## 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".

### 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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