

Encapsulating Systems

® Araldite Casting Resin System

Araldite CW 1304 GB 100 pbw
Hardener HY 1300 GB 12.5 pbw

Optimally filled casting system for processing and curing at room temperature or slightly higher temperatures

Encapsulating for metal and ceramic inserts
Units operating at high temperatures with intermittent exposure to low temperatures.

Applications

Casting

Processing

Low expansion coefficient
Good long term thermal resistance
Flammability: UL 94 approval
(V-0 for 3.2 mm thick layer)

Properties

Edition: July 2000
Replaces edition: June 1998

Product data

(Guideline values)

Modified, solvent free epoxy resin with inorganic filler

Araldite CW 1304 GB	Viscosity	at 25°C	mPa s	ca. 210000
	Specific gravity	at 25°C	g/cm ³	1.87
	Flash point		DIN 51 758 °C	>200
	Filler content		%	66
As supplied form	Filled, high viscous liquid, off white.			
Hazardous decomposition products	Carbon monoxide, carbon dioxide and other toxic gases and vapours if burned			
Disposal	Regular procedures approved by national and/or local authorities			

Formulated, medium viscosity polyamine hardener

Hardener HY 1300 GB	Viscosity	at 25°C	mPa s	ca. 190
	Specific gravity	at 25°C	g/cm ³	1.0
	Flash point		DIN 51 758 °C	>150
As supplied form	Brown liquid			
Hazardous decomposition products	Carbon monoxide, carbon dioxide and other toxic gases and vapours if burned			
Disposal	Regular procedures approved by national and/or local authorities			

Storage

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.

Processing

The filled resin component should be stirred and homogenized in the original container before use.

The casting mix is best prepared by heating the resin up to 40-50°C before stirring in the hardener. Brief degassing of the mix under 5-10 mbar vacuum improves the mixture homogeneity and enhances the dielectric properties of the castings.

Mix ratio

Araldite	CW 1304GB	100 parts by weight
Hardener	HY 1300 GB	12.5 parts by weight

Processing data (Guideline values)

Initial viscosity (Hoeppler)	mPa s	at 25°C	ca. 17 500
		at 40°C	ca. 5 750
Pot life to 15 000 mPa s (Hoeppler)	min	at 25°C	ca. 34
		at 40°C	ca. 28
Minimum curing times	h	at 25°C	24
		at 40°C	8
		at 60°C	2

Properties

Guideline values determined on standard test specimens cured for 24 h/25°C+1 h/100°C

Colour of castings				beige
Specific gravity	at 25°C	DIN 55 990	g/cm ³	1.75
Shore D hardness (4 mm plate)	at 25°C	DIN 53 505		85
Glass transition temperature derived from torsion modulus		ISO 537	°C	76
Martens deflection temperature		DIN 53 458	°C	80
Flexural strength				
max. bending stress	at 25°C	ISO 178	MPa	105
surface strain(failure)	at 25°C	ISO 178	%	1.0
Compressive strength				
max. compressive stress	at 25°C	ISO 604	MPa	103
Tensile strength				
max. tensile stress	at 25°C	ISO/R 527	MPa	30
elongation at break	at 25°C	ISO/R 527	%	0.5
Elastic tensile modulus	at 25°C	DIN 53 457	MPa	8450
Flammability		UL 94	grade	HB
Water absorption				
1 day	at 23°C	ISO 62	%	0.04
30 min	at 100°C	ISO 62	%	0.22
Coefficient of linear thermal expansion				
	at 24-46°C	DIN 53 752	ppm/K	48·
	at 46-56°C			80·
Thermal conductivity	at 18°C	DIN 52 612	W/mK	0.53
Dielectric constant ϵ_r	at 23°C	DIN 53 483		5.0
Dissipation factor tan δ	at 23°C	DIN 53 483	%	9.3
	at 50°C			17.9
Volume resistivity ρ	at 23°C	DIN 53 482	$\Omega \cdot \text{cm}$	$5 \cdot 10^{14}$
Electric strength				
20 sec value (2 mm plates, 50 Hz)	at 23°C	IEC 243	kV/mm	15

Notes

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	no
Skin protection	
before starting work	Apply barrier cream to exposed skin
after washing	Apply barrier or nourishing cream
Cleansing 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 vapours.

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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