

Electrical Insulation Materials



Light Electrical

® Araldite Casting Resin System

Araldite CW 1312 GB 100 pbw
Hardener HY 1300 GB 9 pbw

Casting resin system with optimum filler content and designed to be processed and cured at room temperature

Voltage regulators
(ferrite core transformers, pressure-sensitive components)

Applications

Conventional casting

Processing

Resilient casting exhibiting good resistance to heat ageing
Good thermal shock resistance
UL 94, V-0 approval for 3.2 mm layer thickness

Properties

Edition: July 2003
Replaces edition: May 2001

Product data

(Guideline values)

Modified and solvent free epoxy resin containing an inorganic filler

Araldite CW 1312 GB	Viscosity	at 25°C	mPa s	ca.32 500
	Specific gravity	at 25°C	g/cm ³	1.86
	Filler content		%	72
	As supplied form		Filled high viscous liquid	
	Hazardous decomposition products		Carbon monoxide, carbon dioxide if burned	
	Disposal		Regular procedures approved by local authorities	

Formulated, medium viscous polyamine curing agent

Hardener HY 1300 GB	Viscosity	at 25°C	mPa s	ca 190
	Specific gravity	at 25°C	g/cm ³	1.0
	As supplied form		Brown liquid	
	Hazardous decomposition products		Carbon monoxide, carbon dioxide and nitric oxide when disposed off in fire	
	Disposal		Regular procedures approved by 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 1312 GB	parts by weight	100
	Hardener HY 1300 GB	parts by weight	9

Processing data (Guideline values)	Initial viscosity (Hoeppler)	mPa s	at 25°C	ca. 11 000
			at 40°C	ca. 3 700
	Pot life (Hoeppler, 15 000 mPa s)	min	at 25°C	17
			at 40°C	40
	Minimum curing times	h	at 25°C	48
			at 40°C	8
			at 60°C	4

Properties

Guideline values determined on standard test specimens cured for 24 h/25°C
+ 6 h/60°C

Colour of the of the castings				beige
Specific gravity	at 25°C		g/cm ³	1.75
Shore D hardness (4 mm plate)	at 25°C	DIN 53 505		57
Tg derived from torsion modulus		ISO 537	°C	30
Martens deflection temperature		DIN 53 458	°C	<25
Flexural strength				
max. bending stress $\sigma_{b \max.}$	at 25°C	ISO 178	MPa	5-7
surface strain failure	at 25°C	ISO 178	%	>15
Impact strength	at 25°C	ISO 179/1 D	kJ/m ²	10-16
Compressive strength				
max.compressive stress $\sigma_{d \max.}$	at 25°C	ISO 604	MPa	33-36
Tensile strength				
max. tensile stress $\sigma_{z \max.}$	at 25°C	ISO/R 527	MPa	4-5
elongation at failure	at 25°C	ISO/R 527	%	7-16
Elastic modulus in tension	at 25°C	DIN 53 457	MPa	70-80
Flammability	method	UL 94	grade	V-0 (3.2 mm)
Water absorption				
1 day	at 23°C	ISO 62	%	0.34
30 min	at 100°C	ISO 62	%	0.39
Coefficient of linear thermal expansion	at 23-82°C	VDE 0304	ppm/K	103-
Thermal conductivity	at 18°C	VDE 0304	W/mK	1.10
Dielectric constant ϵ_r	at 23°C	DIN 53 483		9
Dissipation factor $\tan \delta$	at 23°C	DIN 53 483	%	30
Volume resistivity ρ	at 23°C	DIN 53 482	Ωcm	$5 \cdot 10^{10}$
Electrolytic corrosion		DIN 53 489	grade	AN/1.2
Tracking resistance		DIN 53 480	grade	CTI>600
Electric strength				
20-sec value (2 mm plate 50 Hz)	at 23°C	IEC 243	kV/cm	135-155

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 Huntsman (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
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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