HUNTSMAN

®Araldite Casting Resin System

Araldite®	**CW**	**2250-1**		**100 pbw**
Aradur®	**HY**	**2251**		**13 pbw**
Araldite®	**CW**	**2250-1**	**yellow**	**100 pbw**
Aradur®	**HY**	**2251**	**blue**	**13 pbw**

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

Applications

Small transformers, filters, capacitors, coils, electronic circuits

Processing

Casting / Impregnating

Properties

Good dielectric properties up to 110°C
Good thermal shock resistance (- 40°C/ + 120°C)
Good thermal conductivity
Flammability: UL 94 approval
CW 2250-1 Yellow / HY 2251 Blue (V-0 for 4 mm thick layer)
CW 2250-1 / HY 2251 (V-0 for 6 mm thick layer)

Edition: **May 2004**
Replaces edition: September 2003

Product data

(Guideline values)

Modified, solvent free epoxy resin with inorganic filler

Araldite CW 2250-1 [1)]

Viscosity	at 25°C	mPa s	ca. 8000
Specific gravity	at 25°C	g/cm³	1.63
Filler content		%	57
As supplied form			Highly viscous, filled, beige 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

[1)] Araldite CW 2250-1 is also available in yellow with the designation
Araldite CW 2250-1 yellow

Modified hardener based on tetradiamine

Aradur HY 2251 [2)]

Viscosity (Hoeppler)	at 25°C	mPa s	ca. 100
Specific gravity	at 25°C	g/cm³	0.99
As supplied form			Clear liquid
Hazardous decomposition products			Carbon monoxide, carbon dioxide, nitric oxide and other toxic gases and vapours if burned
Disposal			Regular procedures approved by national and/or local authorities

[2)] Hardener HY 2251 is also available in blue with the designation
Hardener HY 2251 blue

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.

Because of the tendency to sedimentation of the filler, pre-filled components in principle require stirring before removal from the original containers. To avoid errors in dosage this step is especially important when removing only part of the contents.
Highly-filled components are heated to 40-60°C in the original container (e.g. overnight in an oven), to facilitate stirring and removal.
In preparing the casting mixture, the hardener component is thoroughly stirred into the preferably to 40-50°C preheated resin component. Brief degassing of the casting mix under a vacuum of 5 to 10 mbar improves homogeneity as well as the dielectric properties of the casting.

System 1

Mix ratio

	parts by weight	parts by volume
Araldite CW 2250-1	100	100
Aradur HY 2251	13	20

System 2

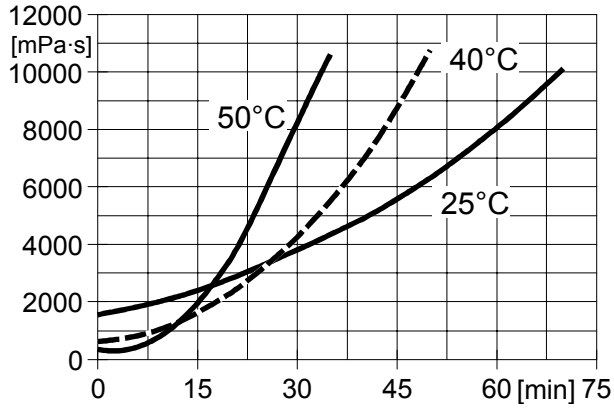
	parts by weight	parts by volume
Araldite CW 2250-1 yellow	100	100
Aradur HY 2251 blue	13	20

Systems 1+2

Processing data (Guideline values)

Initial viscosity (Brookfield RTV)	mPa s	at 25°C	1700
		at 40°C	800
		at 50°C	400
Geltime (Gelnorm)	min	at 25°C	135
		at 40°C	95
		at 60°C	42
Minimum curing time	h/°C		24/25
	or		24/25+2/60

Increase of viscosity at 25, 40 and 50 °C



Properties

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

Systems 1+2

Colour of castings				
System 1				beige
System 2				green
Specific gravity	at 25°C	ISO 1183	g/cm^3	1.57
Shore D hardness (4 mm plate)	at 25°C	DIN 53 505		88
Glass transition temperature (DST, Mettler TA 3000)		ISO 11357-2	°C	50
Flexural strength				
max. bending stress	at 25°C	ISO 178	MPa	77
surface strain (failure)	at 25°C	ISO 178	%	1.34
Tensile strength				
max. tensile stress	at 25°C	ISO 527	MPa	45
elongation at break	at 25°C	ISO 527	%	1.45
Flammability System 1		UL 94	grade	V-0 (6 mm)
Flammability System 2		UL 94	grade	V-0 (4 mm)
Water absorption				
1 day	at 23°C	ISO 62	%	0.15
30 min	at 100°C	ISO 62	%	0.47
Thermal conductivity	at 23°C	ISO 8894/1	W/mK	0.67
Dielectric constant ε_r (50 Hz)	at 25°C	IEC 60250		4.6
	at 50°C	IEC 60250		5.6
Dissipation factor tan δ (50 Hz)	at 25°C	IEC 60250	%	3.4
	at 50°C	IEC 60250	%	9.1
Volume resistivity ρ	at 25°C	IEC 60093	Ω·cm	$5 \cdot 10^{14}$
	at 50°C	IEC 60093	Ω·cm	$2 \cdot 10^{13}$
Electric strength				
20 s value for 2 mm plate (50 Hz)	at 23°C	IEC 60243-1	kV/mm	28
Thermal shock resistance	ESC method (Olyphant Insert) -40/120°C		passed	5 cycles

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
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.

Note

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