Ciba Specialty Chemicals

Performance Polymers
Electro & Electronic

Encapsulating

Ciba

®Araldite Casting Resin System

Araldite	**CY 220-1**	**100**	**- pbw**
Araldite	**CY 223**	**-**	**100 pbw**
Hardener	**HY 5052**	**30**	**35 pbw**

Casting systems for processing at room temperature or slightly higher temperature
Curing at high temperatures

Applications

Encapsulating or potting of low voltage and electronic components
Embedding or end sealing of components such as relais or plug and connector bars

Processing

Casting
Short gel and curing times
The viscosity of the casting resin system may be optimally adjusted to a particular application by mixing Araldite CY 220-1 and CY 223

Properties

Good dielectric properties
High resistance to moisture

Edition: **July 1998**
Replaces edition: July 1993

Product data

(Guideline values)

Araldite CY 220-1

Modified,medium viscosity solvent-free epoxy resin

Viscosity	at 25°C		mPa s	ca. 5000
Specific gravity	at 25°C		g/cm³	1.15
Flash point		DIN 51 758	°C	190-200
Epoxy content			Eq/kg	5.0

As supplied form	Pale yellow 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

Hardener CY 223

Modified, low viscosity solvent free epoxy resin

Viscosity	at 25°C		mPa s	ca. 500
Specific gravity	at 25°C		g/cm³	1.15
Flash point		DIN 51 758	°C	160
Epoxy content			Eq/kg	6.25

As supplied form	Clear, pale yellow liquid
Hazardous decomposition products	Carbon monoxide and dioxide if burned
Disposal	Regular procedures approved by national and/or local authorities

Hardene HY 5052

Formulated, low viscosity hardener based on cycloaliphatic polyamines

Viscosity	at 25°C		mPa s	ca. 50
Specific gravity	at 25°C		g/cm³	0.94
Flash point		DIN 51 758	°C	110

As supplied form	Clear, slightly yellowish 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

	System		1	2	3	4
Mix ratio	Araldite CY 220-1	parts by weight	100	80	50	—
	Araldite CY 223	parts by weight	—	20	50	100
	Hardener HY 5052	parts by weight	30	31	32	35

	System		1	2	3	4
Processing data (Guideline values)	Initial viscosity (Hoeppler)					
	at 25°C	mPa s	2740	2210	1320	590
	at 40°C	mPa s	670	370	260	130
	Time to double initial viscosity (Hoeppler)					
	at 25°C	min	55	43	40	50
	at 40°C	min	32	28	20	32
	Pot life to 1500 mPa s (Hoeppler)					
	at 25°C	min	100	118	135	170
	at 40°C	min	66	65	75	90
	Gel time (hot plate)					
	at 60°C	min	23	26	36	31
	at 80°C	min	15	13	14	13
	at 100°C	min	6.5	6.5	7	5.5
	Minimum curing time					
	at 100°C	h	1	1	1	1
	at 80°C	h	3	3	3	3-4

Properties

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

System					1	2	3	4
Colour of castings					yellowish→			
Shore D hardness (4 mm plate)	at	25°C	DIN 53 505		73	73	73	73
Glass transition temperature/ Tg midpoint (DSC,Mettler TA 4000)				°C	117	115	113	112
Tensile strength								
max. tensile stress	at	25°C	ISO/R 527	MPa	86	84	83	77
elongation at break	at	25°C	ISO/R 527	%	5.8	6.0	6.1	6.6
Elastic modulus from tensile test	at	25°C	ISO/R 527	MPa	3038	2961	2843	2657
Water absorption								
10 days at	at	23°C	ISO 62	%	0.45	0.50	0.63	0.73
30 min at	at	100°C	ISO 62		0.21	0.24	0.34	0.34
Electrolytic corrosion			DIN 53 489	grade	A-1	A-1	A-1	A-1
Tracking resistance			IEC 112		CTI>600-0.2→			
Electric strength								
20 s for 2 mm plate (50 Hz)	at	23°C	IEC 243	kV/cm	21	19	19	18

Properties

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 CIBA-GEIGY” (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.