

Electrical Insulation Materials

ARALDITE Casting Resin System

ARALDITE[®] CW 177 CI
ARADUR[®] HY 226 CI



Epoxy based casting system for processing and curing at room temperature.

Transformers, filters, capacitors etc.

Applications

Casting / Vacuum casting
Manually or with automatic mixing and dosing equipment

Processing methods

Low shrinkage on curing
Good thermal conductivity
Non abrasive casting system
Good static and dynamic mechanical properties
Good temperature resistance with post cure
UL 94 approval

Properties

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Replaces Edition: August 2003

Product data (guideline values)

Modified, solvent-free epoxy resin with filler

ARALDITE CW 177 CI	Viscosity	at 25°C	mPa.s	ca. 25,000
	Specific gravity	at 25°C	g/cm ³	ca. 1.7
	Flash point		°C	ca. 135
	As supplied form	Coloured liquid (beige or black)		
	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		

Unfilled hardener

ARADUR HY 226 CI	Viscosity	at 25°C	mPa.s	ca. 750
	Specific gravity	at 25°C	g/cm ³	ca. 0.99
	Flash point		°C	>100
	As-supplied form	Clear, 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		

Remarks

ARALDITE CW 177 CI contains fillers which tend to settle over time. It is therefore recommended to carefully homogenize the complete contents of the container before use.

In the storage vessels of the production equipment, the pre filled products should be stirred up from time to time to avoid sedimentation and irregular metering.

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 and end properties (guideline values)

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. Prefilled ARALDITE component is heated to 40°C - 60°C in the original container to facilitate stirring and removal.

In preparing the casting mixture, the ARADUR hardener component is thoroughly stirred into the pre-mixed ARALDITE resin component. Brief degassing of the casting mix under a vacuum of 5 – 10 mbar improves homogeneity as well as the dielectric properties of the casting.

Mix Ratio and Processing data

Mix Ratio	pbw	100 : 13
	pbv	100 : 22
Viscosity at 25°C	mPa.s	ca.7000
Pot life 100gm	Min	ca. 70
Minimum Curing cycle		24-36h at 25°C or 8-12h at 50°C or 4-6h at 70°C

Determined on standard test specimen at 25°C. Cured for 10h at 50°C

Physical properties

Specific gravity	g/cm ³	1.58 - 1.63
Heat distortion temperature	°C	65 - 75
Tensile strength	Mpa	50 - 55
Compressive Strength	Mpa	110 - 120
Coefficient of thermal expansion	mm/mm°Cx10 ⁻⁶	50 - 60
Modulus of Elasticity	Mpa	10 -11x10 ³
Water absorption (specimen: 50×50×4 mm) ISO 62/80		
10 days at 20°C	% by wt.	0.25 - 0.30
Flammability UL 94	HB	4 mm

Determined on standard test specimen at 25°C. Cured for 7 days at 25°C

Electrical properties

Dielectric strength (@ 50HZ, 25°C)	kV/mm	17-19
Power factor (tan@50HZ)	25°C	0.011
	60°C	0.019
	90°C	0.070
Dielectric constant (ε _r , 50Hz, 25°C)		4.1
Volume resistivity (r, 50Hz, 25°C)	OHMS/cm	2.5x 10 ¹⁵

To determine whether crosslinking 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 gelling 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.

Remarks

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 breakers, 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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