

Advanced Materials

Araldite® CW 2122-1

100 pbw

Aradur® HY 2901-2

105 pbw

Filled casting resin with good impregnating capability for processing and curing at high temperatures.

Application

Pressure sensitive components

Processing Methods

Casting / vacuum casting.

Key Properties

Excellent dielectric properties.
Good thermal shock resistance.
Good mechanical properties.
Good thermal ageing stability (class F)

Product Data (Guideline Values)

Araldite® CW 2122-1

Modified, solvent free epoxy resin with mineral filler.

Viscosity at 25 °C	ISO 3219	Pa*s	20 – 40*
Specific gravity at 25 °C	ISO 2811	g/cm ³	1.64 – 1.70*
Appearance	Visual		Red-brown liquid, viscous*

Aradur® HY 2901-2

Low viscous modified prefilled anhydride hardener

Viscosity at 25 °C	ISO 2555	mPa*s	4000 – 6000
Specific gravity at 20 °C	ISO 2811	g/cm ³	1.28 – 1.32*
Appearance	Visual		red liquid*

*Specified range

Processing Data (Guideline Values)

Mix Ratio

		Parts by weight	Parts by volume
Araldite® CW 2122-1	Resin	100	100
Aradur® HY 2901-2	Hardener	105	135

Gel Time, Viscosity and Curing

Initial viscosity 25 °C		ISO 3219	mPa*s	6140
Initial viscosity 60 °C		ISO 3219	mPa*s	850
Initial viscosity 70 °C		ISO 3219	mPa*s	660
Pot life				
(Time to reach 15000 mPa*s)	at 60 °C	Rheomat	min	260
(Time to reach 15000 mPa*s)	at 70 °C	Rheomat	min	135
Time to double initial viscosity	at 60 °C	Rheomat	min	79
	at 70 °C	Rheomat	min	47
Gel time	at 60 °C	ISO 9396	min	500
	at 80 °C	ISO 9396	min	125
	at 100 °C	ISO 9396	min	35
Minimum curing cycle		4 hours at 70 °C + 6 hours at 90 °C		

*Specified range

Processing and Storage (Guideline Values)

Preparation

Pre-filled liquids contain 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.

Mixing

To prepare the casting mix the resin component should be homogenized in holding tank A at 60-70°C under a vacuum of 1-5 mbar, the hardener component in holding tank B at 30-40°C and a vacuum of 1-5 mbar. A metering unit should be used to feed the resin and hardener components to an impeller mixer.

Curing

To determine whether cross-linking 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 gel 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.

Storage Conditions

Store the components in a dry place at RT, 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.

Mechanical and Physical Properties (Guideline Values)

Determined on standard test specimen at 23 °C. Cured for 4 h at 70 °C + 6 h at 90 °C

Color of casting			Red-brown
Density of cured casting	ISO 1183	g/cm ³	1.47
Glass transition temperature	ISO 11357	°C	15
Tensile modulus	ISO 527	MPa	8
Tensile strength	ISO 527	MPa	7
Elongation at break	ISO 527	%	48
Flexural modulus	ISO 178	MPa	44
Flexural strength	ISO 178	MPa	2.1
Surface strain	ISO 178	%	10
Thermal linear coefficient	ISO 11359-2		
Below Tg		ppm/K	70
Above Tg			160
Thermal conductivity	ISO 8894-1	W/mK	0.36
Thermal class	IEC 60085		F
Hardness	ISO 898	Shore A / D	94 / 45
Flammability	UL 94	File E96722	V-0 (1.6mm)
Water absorption	ISO 62/80		
1 day at 23 °C		% by wt.	0.23
30 min at 100 °C			0.34

*Specified range

Electrical Properties (Guideline Values)

Determined on standard test specimen at 23 °C. Cured for 1 h at 70 °C + 2 h at 80 °C + 2 h at 110 °C

Dielectric loss factor (tan δ , 50Hz, 25 °C)	IEC 60250	%	4.7
Dielectric constant (ϵ_r , 50Hz, 25 °C)	IEC 60250		4.5
Volume resistivity (ρ , 25 °C)	IEC 60093	Ω cm	$1.0 \cdot 10^{14}$
Tracking resistance CTI	IEC 60112	grade	> 600
Electrolytic corrosion	IEC 60426	grade	A - 1

Legal Notice

Huntsman Advanced Materials

(Switzerland) GmbH
Klybeckstrasse 200
4057 Basel
Switzerland

Tel: +41 (0)61 299 11 11

Fax: +41 (0)61 299 11 12

www.huntsman.com/advanced_materials

Email:
advanced_materials@huntsman.com



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