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Advanced Materials

Araldite® CW 1446 BDF	**100**	**pbw**
Aradur® HY 2919-1	**24**	**pbw**

Casting system exhibiting good impregnation capability.

Application	Power diodes, rectifiers, power transistors, transformers, capacitors.
Processing Methods	Casting / vacuum casting.
Key Properties	Good dielectric properties. Good thermal shock resistance. Excellent impregnation. Flammability: UL 94 V-0 (6 mm).

Product Data (Guideline Values)

Araldite® CW 1446 BDF

Modified, solvent free epoxy resin with inorganic filler.

Viscosity at 50 °C	ISO 3219	mPa*s	15000 – 30000*
Specific Gravity at 25 °C	ISO 2811	g/cm³	1.75 – 1.83*
Appearance	Visual		Grey-brown, viscous liquid*

Aradur® HY 2919-1

Low viscosity, accelerated anhydride hardener.

Viscosity at 25 °C	ISO 2555	mPa*s	50 – 100*
Specific Gravity at 25 °C	ISO 2811	g/cm³	1.180 – 1.220*
Appearance	Visual		Yellow-brown ro red-brown clear liquid*

*Specified range

Processing Data (Guideline Values)

Mix Ratio

		Parts by weight	Parts by volume
CW 1446 BDF	Resin	100	100
HY 2919-1	Hardener	24	36

Gel Time, Viscosity and Curing

Mix viscosity at 40°C	CW 1446 BDF / HY 2919-1	Brookfield	mPa*s	1100
Mix viscosity at 60°C			mPa*s	300
Gel time at 120°C		ISO 9396	min	7.5 – 10*
Pot life at 40°C (Time to reach 15000 mPa*s)		Brookfield	min	525
Pot life at 60°C (Time to reach 15000 mPa*s)		Brookfield	min	220
Standard curing cycle		6 hours at 60°C + 6 hours at 100°C		
Minimum curing cycle		5.5 hours at 100°C		

*Specified range

Processing and Storage (Guideline Values)

Preparation

CW 1446 BDF 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.

Mixing

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.

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 according to the storage conditions stated on the label 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 6h/60 °C + 6h/100 °C.

Glass transition temperature	ISO 11357-2	°C		95
Temperature index TI	IEC 60216	°C		204
Thermal class	IEC 60085			H
Tensile strength	ISO 527	MPa		47
Elongation at break	ISO 527	%		1.5
Flexural modulus	ISO 178	MPa		7400
Flexural strength	ISO 178	MPa		100
Compressive strength	ISO 604	MPa		110
Impact strength	ISO 179	kJ/m^2		5.5
Thermal linear coefficient	ISO 11359-2			
Alpha 1 Alpha 2		ppm/K		48 134
Thermal conductivity	ISO 8894-1	W/mK		0.67
Hardness	DIN 53505	Shore D		92
Flammability	UL 94	NC	E96722	V-0 (6mm)
Water absorption	ISO 62/80			
1 day at 23 °C 30 min at 100 °C		% by wt.		0.06 0.14

Electrical Properties (Guideline Values)

Determined on standard test specimen at 23 °C. Cured 6h/60 °C + 6h/100 °C.

Dielectric strength (2 mm specimen)	IEC 60243-1	kV/mm	25
Dielectric loss factor (tan δ, 50Hz, 25 °C)	IEC 60250	%	1.5
Dielectric constant (ε_r, 50Hz, 25 °C)	IEC 60250		4
Volume resistivity (ρ, 25 °C)	IEC 60093	Ω cm	10^{15}
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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