

Advanced Materials

Araldite® CW 5730 N	100	pbw
Aradur® HY 5731	28	pbw

Class F casting resin system with excellent winding impregnation characteristics for processing and curing at high temperatures.

Application Transformers, filters, capacitors, etc.

Processing Methods Casting / vacuum casting.

Key Properties

- Excellent thermal endurance.
- Suitable for thermal class F applications.
- Good thermal shock resistance.
- Good dielectric properties.
- Flammability: UL 94 V-0 (6 mm).

Product Data (Guideline Values)

Araldite® CW 5730 N

Modified, solvent free epoxy resin with inorganic filler.

Viscosity at 25 °C	ISO 2555	Pa*s	65 – 120*
Specific gravity at 25 °C	ISO 2811	g/cm ³	1.84
Appearance	Visual		Black paste*

Aradur® HY 5731

Low viscosity anhydride hardener containing a cure accelerator.

Viscosity at 25 °C	ISO 2555	mPa*s	500 – 900*
Specific gravity at 25 °C	ISO 2811	g/cm ³	1.0
Appearance	Visual		Brown liquid*

*Specified range

Processing Data (Guideline Values)

Mix Ratio

		Parts by weight	Parts by volume
CW 5730 N	Resin	100	100
HY 5731	Hardener	28	52

Gel Time, Viscosity and Curing

Mix viscosity at 25 °C	CW 5730 N / HY 5731	Rheostress	mPa*s	7000
Mix viscosity at 40 °C			mPa*s	2000
Mix viscosity at 60 °C			mPa*s	650
Mix viscosity at 80 °C			mPa*s	360
Gel time at 80 °C		Gelnorm	min	145
Gel time at 100 °C			min	36
Gel time at 120 °C		ISO 9396	min	10 – 14*
Pot life at 60 °C (Time to reach 15000 mPa*s)		Rheostress	min	380
Pot life at 80 °C (Time to reach 15000 mPa*s)			min	115
Standard curing cycle				3 hours 80 °C + 6 hours at 100 °C

*Specified range

Processing and Storage (Guideline Values)

Preparation

CW 5730 N contains fillers, which tend to settle over time. It is therefore recommended to carefully homogenize the complete contents of the container before use. This measure is particularly important before a partial use, in order to avoid false dosages.

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 up and homogenize the resin in vessel A at 70 to 90°C and the hardener in vessel B at 30 to 40°C. The optimal mixing temperature for casting lies between 50-70°C

A brief degassing of both components under a vacuum of 1-5 mbar 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 3h/80 + 6h/100°C.

Specific gravity	ISO 1183	g/cm ³		1.59
Glass transition temperature	ISO 11357-2	°C		25
Modulus in torsion G' at RT	ISO 6721	MPa		200
Temperature index	IEC 60216	°C		tbd
Thermal class	IEC 60085			F
Tensile modulus	ISO 527	MPa		50
Tensile strength	ISO 527	MPa		5.6
Elongation at break	ISO 527	%		45
Flexural modulus	ISO 178	MPa		130
Flexural strength	ISO 178	MPa		6
Thermal linear coefficient	ISO 11359-2			
Alpha 1		ppm/K		40
Alpha 2				100
Thermal conductivity	ISO 8894-1	W/mK		0.61
Hardness	ISO 868	Shore D		60 – 75*
Flammability	UL 94	BK	E96722	V-0 (6mm)
Glow-wire test (850 °C)	IEC 60695-2-11		VDE 0471	passed
Water absorption	ISO 62/80			
10 days at 23 °C		% by wt.		0.43
30 min at 100 °C				0.27

*Specified range

Electrical Properties (Guideline Values)

Determined on standard test specimen at 23°C. Cured for 3h/80 + 6h/100°C.

Dielectric strength (2 mm specimen)	IEC 60243-1	kV/mm		28
Dielectric loss factor (tan δ, 50Hz, 25°C)	IEC 60250	%		5.0
Dielectric constant (ε _r , 50Hz, 25°C)	IEC 60250			4.9
Volume resistivity (ρ, 25°C)	IEC 60093	Ω cm		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



Huntsman Advanced Materials warrants only that its products meet the specifications agreed with the user. Specified data are analysed on a regular basis. Data which is described in this document as 'typical' or 'guideline' is not analysed on a regular basis and is given for information purposes only. Data values are not guaranteed or warranted unless if specifically mentioned.

The manufacture of materials is the subject of granted patents and patent applications; freedom to operate patented processes is not implied by this publication. While all the information and recommendations in this publication are, to the best of Huntsman Advanced Material's knowledge, information and belief, accurate at the date of publication, nothing herein is to be construed as a warranty, whether express or implied, including but without limitation, as to merchantability or fitness for a particular purpose. In all cases, it is the responsibility of the user to determine the applicability of such information and recommendations and the suitability of any product for its own particular purpose.

The behaviour of the products referred to in this publication in manufacturing processes and their suitability in any given end-use environment are dependent upon various conditions such as chemical compatibility, temperature, and other variables, which are not known to Huntsman Advanced Materials. It is the responsibility of the user to evaluate the manufacturing circumstances and the final product under actual end-use requirements and to adequately advise and warn purchasers and users thereof.

Products may be toxic and require special precautions in handling. The user should obtain Safety Data Sheets from Huntsman Advanced Materials containing detailed information on toxicity, together with proper shipping, handling and storage procedures, and should comply with all applicable safety and environmental standards.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent on manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.

Except where explicitly agreed otherwise, the sale of products referred to in this publication is subject to the general terms and conditions of sale of Huntsman Advanced Materials LLC or of its affiliated companies including without limitation, Huntsman Advanced Materials (Europe) BVBA, Huntsman Advanced Materials Americas Inc., Huntsman Advanced Materials (UAE) FZE, Huntsman Advanced Materials (Guangdong) Company Limited, and Huntsman Advanced Materials (Hong Kong) Ltd.

Huntsman Advanced Materials is an international business unit of Huntsman Corporation. Huntsman Advanced Materials trades through Huntsman affiliated companies in different countries including but not limited to Huntsman Advanced Materials LLC in the USA and Huntsman Advanced Materials (Europe) BVBA in Europe.

All trademarks mentioned are either property of or licensed to Huntsman Corporation or an affiliate thereof in one or more, but not all, countries.

Copyright © 2012 Huntsman Corporation or an affiliate thereof. All rights reserved.