

Advanced Materials

Araldite® XB 2252	100	pbw
Aradur® XB 2253	13	pbw

Optimally filled casting system for processing and curing at room temperature or slightly higher temperatures.

Application Transformers, filters, capacitors, etc.

Processing Methods Casting / vacuum casting.

Key Properties

- Good thermal shock resistance.
- Good dielectric properties.
- Good mechanical properties.
- Excellent thermal endurance.
- Suitable for thermal class F applications.

Product Data (Guideline Values)

Araldite® XB 2252 (BK)

Modified, solvent free epoxy resin with inorganic filler.

Viscosity at 25 °C	ISO 3219	mPa*s	5000 – 10000*
Specific gravity at 23 °C	ISO 2811	g/cm ³	1.57 – 1.62*
Appearance	Visual		Black liquid*

Aradur® XB 2253 (NC)

Formulated, low viscosity amine hardener.

Viscosity at 25 °C	ISO 2555	mPa*s	80 – 140*
Specific gravity at 20 °C	ISO 2811	g/cm ³	0.97
Appearance	Visual		Clear, liquid*

*Specified range

Processing Data (Guideline Values)

Mix Ratio

		Parts by weight	Parts by volume
XB 2252	Resin	100	100
XB 2253	Hardener	13	20

Gel Time, Viscosity and Curing

Mix viscosity at 25 °C	XB 2252 /XB 2253	Rheomat	mPa*s	2300
Gel time at 25 °C	XB 2252 /XB 2253	Gelnorm	min	100
Gel time at 40 °C			Min	60
Gel time at 60 °C		ISO 9396	Min	30 – 42*
Pot life at 40 °C (Time to reach 15000 mPa*s)			min	37
Standard curing cycle		24 hours at RT + 6 hours at 60 °C		
Minimum curing cycle		24 hours at 25 °C		

*Specified range

Processing and Storage (Guideline Values)

Preparation

XB 2252 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 24h/RT + 6h/60°C.

Glass transition temperature	ISO 6721	°C		65
Shear modulus G' at RT	ISO 6721	MPa		2300
Temperature index TI	IEC 60216	°C		180
Thermal class	IEC 60085			F
Tensile modulus	ISO 527	MPa		5100
Tensile strength	ISO 527	MPa		41
Elongation at break	ISO 527	%		1.5
Flexural modulus	ISO 178	MPa		5000
Flexural strength	ISO 178	MPa		70
Thermal linear coefficient	ISO 11359-2			
Alpha 1		ppm/K		60
Alpha 2				100
Thermal conductivity	ISO 8894-1	W/mK		0.66
Hardness	DIN 53505	Shore D		86
Flammability	UL 94	GN, BK	E96722	V-0 (6 mm)
Water absorption	ISO 62/80			
1 day at 23°C		% by wt.		0.2
30 min at 100°C				0.4

Electrical Properties (Guideline Values)

Determined on standard test specimen at 23°C. Cured for 24h/RT + 6h/60°C.

Dielectric strength (2 mm specimen)	IEC 60243-1	kV/mm		29
Dielectric loss factor (tan δ , 50Hz, 25°C)	IEC 60250	%		4.4
Dielectric constant (ϵ_r , 50Hz, 25°C)	IEC 60250			4.7
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

Thermal Endurance Profile IEC 60216 (Guideline Values)



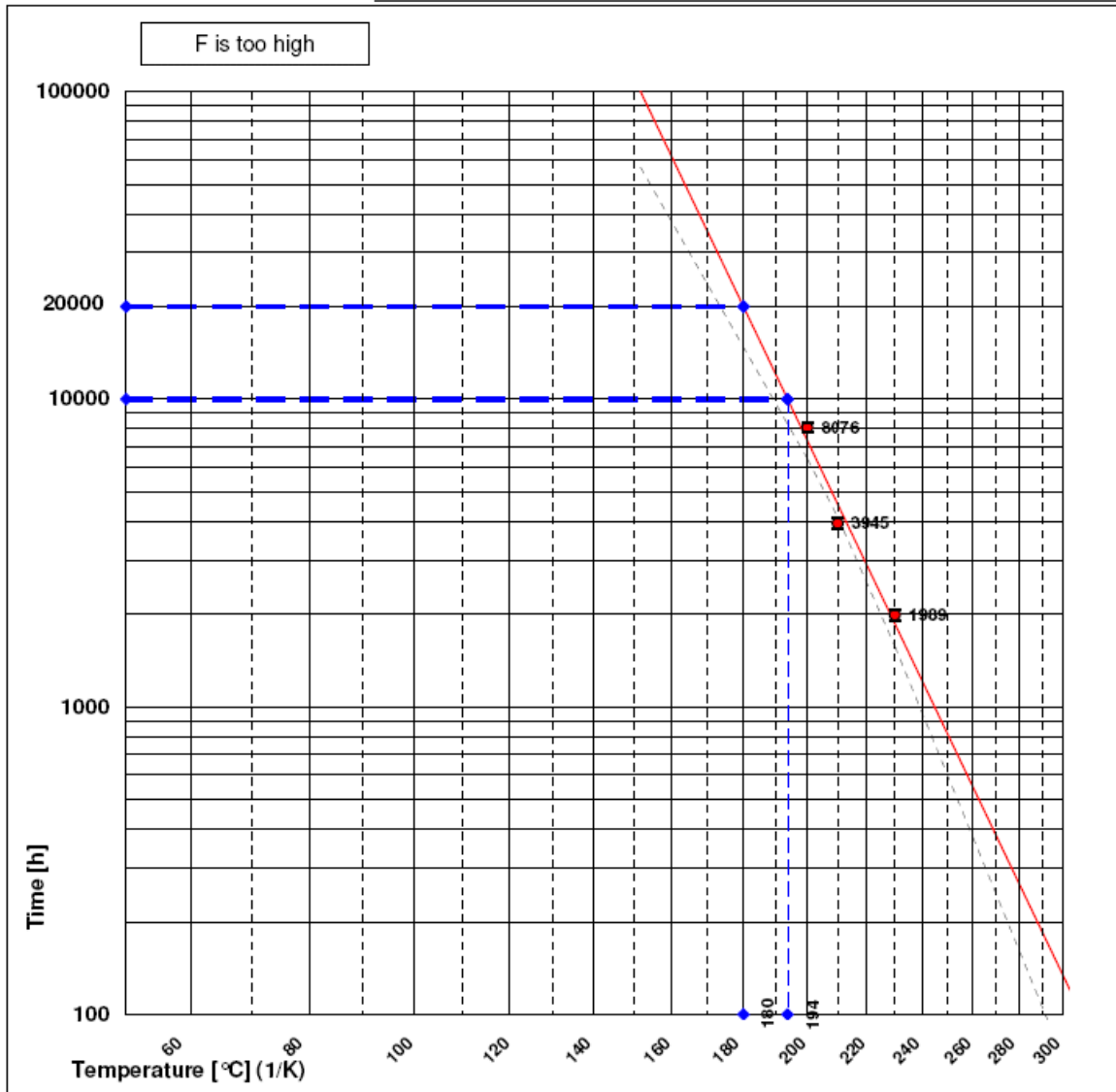
Thermal endurance profile
according IEC 60216

Enriching lives through innovation

Advanced Materials
Material Testing
K-401.P.28 CH 4057 Basel
Phone : +41 61/299 22 56

Date : 03.03.2010

Material :	Araldite XB2252/XB2253	
Investigated property :	Flexural strenght according to ISO 178	
Selected end point :	50% of initial value (74.45 MPa)	
TI (HIC)	180 (13)	
Statistical test variables :	CHI ² =	0.25
	F=	216.88
----- :	Lower 95% confidence curve	T C a : 174°C
Comments :		



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.