HUNTSMAN

Enriching lives through innovation

Advanced Materials

Araldite® DBF	**100**	**pbw**
Aradur® HY 2967	**35**	**pbw**

Low viscosity, unfilled epoxy casting resin system, curing at room temperature. High filler addition possibility.

Application	Encapsulating or potting of low voltage and electronic components.
Processing Methods	Casting; vacuum casting.
Key Properties	Good heat resistance. Good resistance to atmospheric and chemical degradation.

Product Data (Guideline Values)

Araldit DBF

Modified, low viscous solvent free epoxy resin.

Viscosity at 25°C	ISO 12058	mPa*s	1350 - 2000*
Specific gravity at 25°C	ISO 1675	g/cm³	1.1 – 1.2
Appearance	Visual		Clear liquid*
Epoxy index	ISO 3001	Eq/kg	4.15 – 4.35*

Aradur HY 2967

Formulated, low viscosity polyamine hardener.

Viscosity at 25°C	ISO 12058	mPa*s	2900 – 3700*
Specific gravity at 25°C	ISO 1675	g/cm³	0.99
Appearance	Visual		Clear liquid*

*Specified range

Processing Data (Guideline Values)

Mix Ratio

		Parts by weight	Parts by volume
Araldit DBF	Resin	100	100
HY 2967	Hardener	35	40

Gel Time, Viscosity and Curing

Mix viscosity at 25 °C	Araldit DBF / HY 2967	Rheomat	mPa*s	2400
Mix viscosity at 40 °C		Rheomat		600
Pot life at 25 °C		Time to reach 15000 mPa*s	min	50
Pot life at 40 °C		Time to reach 15000 mPa*s	min	30
Gel time at 25 °C	Araldit DBF / HY 2967	Gelnorm	min	60
Gel time at 40 °C		Gelnorm	min	30
Gel time at 60 °C		Gelnorm	min	10
Minimum curing cycle		24 - 48 hours at RT or 4 hours at 40 °C or 2 hours at 60 °C		

Processing and Storage (Guideline Values)

Mixing

Measure (by weight or volume) the Araldite resin and the hardener. Add the hardener to the Araldite resin; making sure that the required amount of hardener is transferred to the resin. Stir thoroughly until mixing is complete.
Air entrainment during mixing results in pores in the cured resin. Mixing under vacuum or in a metering-mixing machine is the most effective way to prevent air entrainment. Alternatively the static resin – hardener mixture may be deaerated in a vacuum chamber – allowing at least 200 % ullage for the foam to expand.

Curing

The chemical reaction initiated by mixing resin and hardener results in the generation of exothermic heat. The peak temperatures attained are determined by the starting temperature and the size and shape of the casting. Unfilled resin systems are suitable only for manufacturing castings weighing up to about 500 grams. Mineral filler should be added to dissipate heat and damp the exothermic reaction when producing large castings.

There is very little exothermic reaction when producing very small castings or thin layers as the heat generated is rapidly dissipated. Cure is consequently delayed and the surfaces of castings may remain tacky. In such cases an infrared heater or oven at 40 °C – 60 °C should be used to effect full cure.

When casting thick sections special care is needed to avoid excessive exothermic temperature rise.
Short high-temperature curing schedules should not be used unless preliminary trials with castings manufactured to the specific design, and in the specified moulds, produce no unacceptable exothermic effects.

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 room temperature, 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℃. Cured for 24 hours at RT + 6 hours at 60℃.

Glass transition temperature	ISO 6721	℃	54
Thermal class	IEC 60085		B
Storage Modulus G'	ISO 6721	MPa	1100
Tensile modulus	ISO 527	MPa	2500
Tensile strength	ISO 527	MPa	50
Elongation at break	ISO 527	%	10
Hardness	DIN 53505	Shore D	80
Water absorption	ISO 62/80		
at 23℃ / 10 days		% by wt.	0.3
at 100℃ / 30 min			0.2

Electrical Properties (Guideline Values)

Determined on standard test specimen at 23℃. Cured for 24 hours at RT + 6 hours at 60℃.

Dielectric strength (2 mm specimen)	IEC 60243-1	kV/mm	17
Dielectric loss factor (tan δ, 50Hz, 25℃)	IEC 60250	%	1.6
Dielectric constant (εr, 50Hz, 25℃)	IEC 60250		4.1
Volume resistivity (ρ, 25℃)	IEC 60093	Ω cm	10^{15}
Comperative tracking index CTI	IEC 60112		> 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. Typical properties, where stated, are to be considered as representative of current production and should not be treated as specifications.

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., 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.

Aradur and Araldite are registered trademarks of Huntsman Corporation or an affiliate thereof.