
® Araldite Casting Resin System

Araldite	CY 221	100 pbw
Aradur	HY 2967	35 pbw

Casting resin system with low initial viscosity for processing and curing at room temperature
High filler addition possibility.

Encapsulation of low voltage and electronic components
Sealing of junctions and branch points in telecommunication cables

Applications

Casting

Processing

Flexible castings with good thermal ageing resistance

Properties

Edition: July 2003
Replaces edition: February 2003

Product data

(Guideline values)

Modified, low viscous solvent free epoxy resin

Araldite CY 221	Viscosity	at 25°C	mPa s	ca. 450
	Specific gravity	at 25°C	g/cm ³	1.15
	Flash point		DIN 51 758 °C	190-200
	Epoxy content		Eq/kg	4.05
	As supplied form			Clear liquid
Hazardous decomposition products			Carbon monoxide, carbon dioxide and other toxic gases and vapour if burned	
Disposal			Regular procedures approved by national and/or local authorities	

Modified, aliphatic polyamine hardener

Aradur HY 2967	Viscosity	at 25°C	mPa s	ca. 3400
	Specific gravity	at 20°C	g/cm ³	0.99
	Flash point		DIN 51 758 °C	118
	As supplied form			Light brown liquid
	Hazardous decomposition products			Carbon monoxide, carbon dioxide and other toxic gases and vapours if burned
Disposal			Regular procedures approved by national and/or local authorities	

Araldite Colouring Pastes The colouring paste should normally be added to the resin component and mixed with it until a homogeneous colouration results. Prefilled, highly viscous resin components are best heated to 40-60°C to facilitate uniform dispersion of the colouring paste. Coloured resin or mixes of several colouring pastes and resins are stable for some considerable time if stored at room temperature.

Product data

(Guideline values)

Fillers

The addition of powdered inorganic fillers such as silica flour, microdol, chalk flour, Alumina, aluminium hydroxide etc., has been found to offer considerable advantages in many applications.

Specifically, the use of such fillers:

- enhance important mechanical and electrical properties
- reduce shrinkage and exothermic temperature rise during gelling and cure
- impart a lower coefficient of thermal expansion
- improve thermal conductivity
- impart a greater elasticity modulus whilst reducing elongation at break

Storage

Store the components in a dry place, in tightly sealed original containers.

Under these conditions, the shelf life will correspond to the expiry date stated on the label.

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.

Due to their tendency of sedimentation, filled components should be stored at a temperature between 15-20°C.

Processing

Aradur HY 2967, together with the very low viscosity Araldite CY 221 produces flexible castings.

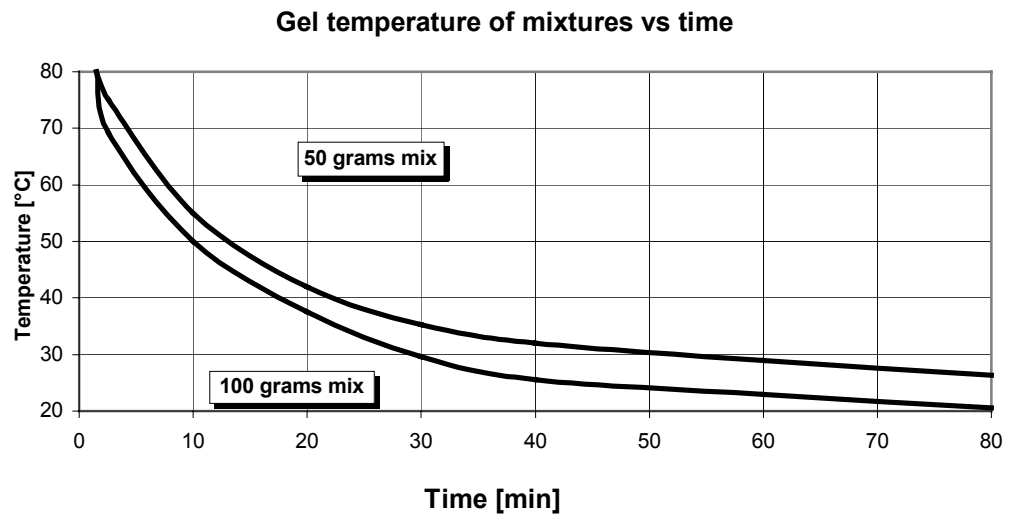
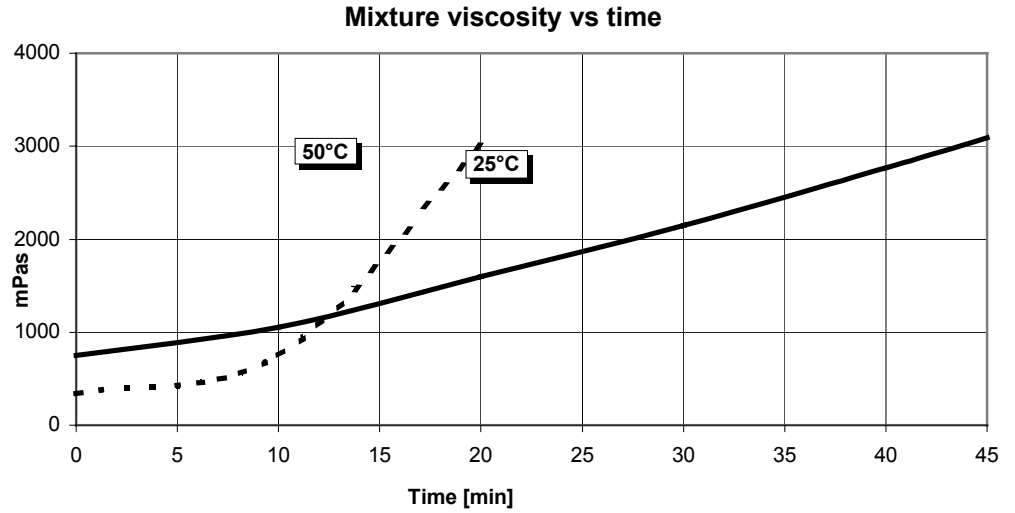
The casting mix is best prepared by heating the resin up to 40-50°C before stirring in the hardener. Casting should be stirred and then evacuated.

After the mixture has cooled down to room temperature, Aradur HY 2967 is added. Mix thoroughly and then evacuate the whole mixture once again.
Vapour pressure of the mixture at 60°C amounts <1.333 mbar.

	System		1	2
Mix ratio	Araldite CY 221	parts by weight	100	100
	Aradur HY 2967	parts by weight	35	35
	Microdol 20 µm	parts by weight	–	100

	System				
Processing data (Guideline values)	Initial viscosity	mPa s	at 25°C	ca. 750	ca. 2000
	Pot life to 3000 mPa s	min	at 25°C	42	–
			at 50°C	19	–
	Pot life to 15 000 mPa s	min	at 25°C	–	75
at 50°C			–	30	
Minimum curing time	h or	at 20°C	24-48	24-48	
		at 20°C/60°C	--	4+4	

Processing



Properties

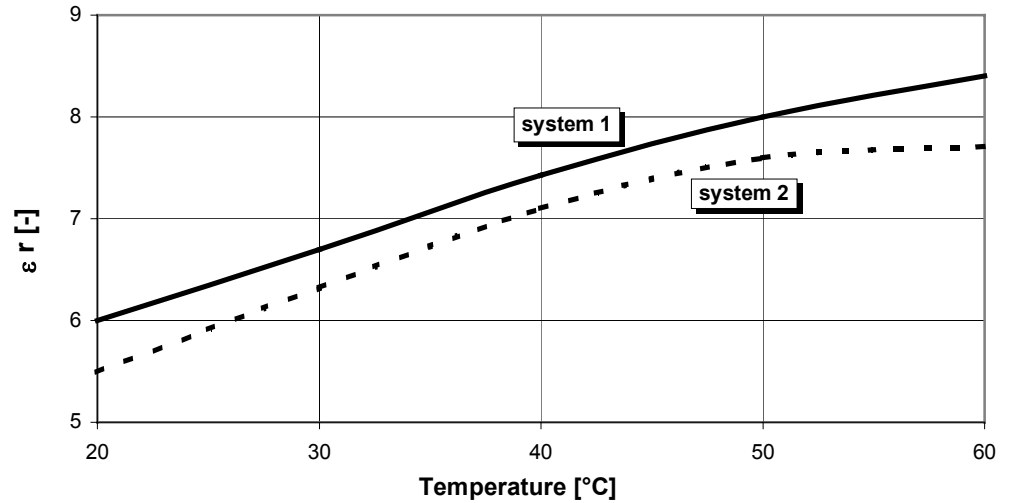
Guideline values determined on standard test specimens cured for 48 h/20°C

System			1	2	
Tensile test at 23°C	ISO/R 527				
Tensile stress (max.)		MPa	4.5-7.5	7.0-8.5	
Tensile stress (break)		MPa	4.5-7.5	7.0-8.5	
Elongation (F max.)		%	50-70	40-50	
Elongation (break)		%	50-70	40-50	
at 0°C					
Tensile stress (max.)		MPa	35-45	40-50	
Tensile stress (break)		MPa	25-35	40-50	
Elongation (F max.)		%	5.0-5.5	1.5-2.0	
Elongation (break)		%	20-45	1.5-2.5	
at -20°C					
Tensile stress (max.)		MPa	70-80	45-65	
Tensile stress (break)		MPa	50-65	45-65	
Elongation (F max.)		%	5.0	0.4-0.8	
Elongation (break)		%	6-9	0.4-0.8	
Water absorption (test specimen 60 x 10 x 4 mm)					
1 h/100°C		%	1.3-1.5	0.7-0.9	
4 days at RT		%	1.3-1.5	0.7-0.9	
Shore hardness (4 mm plate)	DIN 53 505				
		A	81	90	
		C	51	70	
		D	24	47	
HT arc resistance	ASTM D 495	s	80-100	120-130	
Tracking resistance	IEC 60112	grade	CTI>600	CTI>600	
Electrolytic corrosion	DIN 53 489	grade	A-1	A-1.2	
Electric strength (23°C) 20 s value for 2 mm plate (50 Hz)	IEC 243	kV/mm	18	16	
Heat ageing Properties of standard specimens tested at room temperature (system 1)					
	Units	Initial value	After ageing at 100°C for		
			100 h	500 h	1000 h
Tensile strength	MPa	6	9	10	10
Elongation at break	%	60	67	72	78
Shore hardness	A	81	88	89	89
Shore hardness	C	51	57	57	57

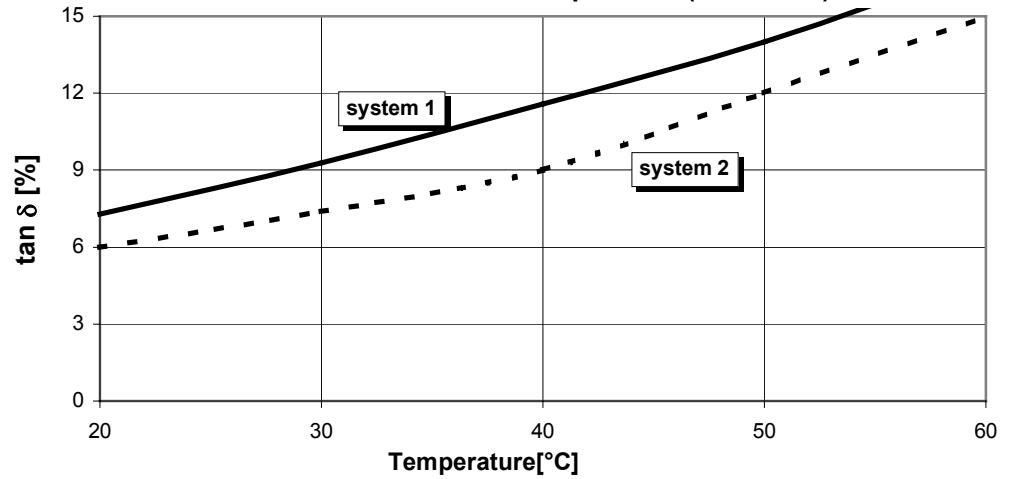
Values determined by testing standardized samples are not fully indicative of the performance of production castings. In their own interests, users are strongly advised to test preproduction models prior to initiating series production.

Properties

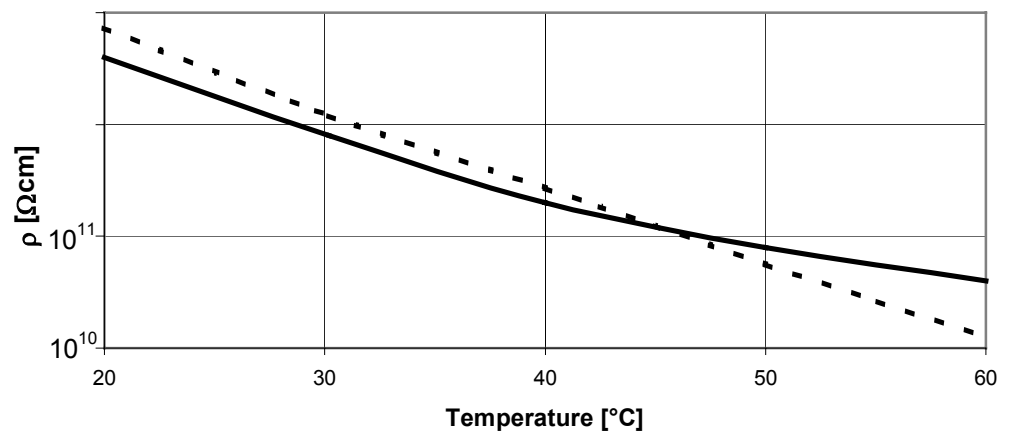
Dielectric constant ϵ_r vs temperature (DIN 53483)



Loss factor $\tan \delta$ at 50 Hz vs temperature (DIN 53483)



Specific volume resistivity ρ vs temperature (DIN 53482)



Industrial hygiene

Mandatory and recommended industrial hygiene procedures should be followed whenever our products are being handled and processed. For additional information please consult the corresponding Safety Data Sheets and the brochure "Hygienic precautions for handling plastics products of Huntsman (Publ. No. 24264/e).

Handling precautions

Safety precautions at workplace:	
protective clothing	yes
gloves	essential
arm protectors	recommended when skin contact likely
goggles/safety glasses	yes
respirator/dust mask	recommended
Skin protection	
before starting work	Apply barrier cream to exposed skin
after washing	Apply barrier or nourishing cream
Cleansing of contaminated skin	Dab off with absorbent paper, wash with warm water and alkali-free soap, then dry with disposable towels. Do not use solvents
Clean shop requirements	Cover workbenches, etc. with light coloured paper. Use disposable beakers, etc.
Disposal of spillage	Soak up with sawdust or cotton waste and deposit in plastic-lined bin
Ventilation:	
of workshop	Renew air 3 to 5 times an hour
of workplace	Exhaust fans. Operatives should avoid inhaling vapours.

First Aid

Contamination of the **eyes** by resin, hardener or casting mix should be treated immediately by flushing with clean, running water for 10 to 15 minutes. A doctor should then be consulted.

Material smeared or splashed on the **skin** should be dabbed off, and the contaminated area then washed and treated with a cleansing cream (see above). A doctor should be consulted in the event of severe irritation or burns. Contaminated clothing should be changed immediately.

Anyone taken ill after **inhaling** vapours should be moved out of doors immediately. In all cases of doubt call for medical assistance.

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All recommendations for use of our products, whether given by us in writing, verbally, or to be implied from results of tests carried out by us are based on the current state of our knowledge. Notwithstanding any such recommendations the Buyer shall remain responsible for satisfying himself that the products as supplied by us are suitable for his intended process or propose. Since we cannot control the application, use or processing of the products, we cannot accept responsibility therefore. The Buyer shall ensure that the intended use of the products will not infringe any third party's intellectual property rights. We warrant that our products are free from defects in accordance with and subject to our general conditions of supply.