

Heavy Electrical

®Araldite Impregnating Resin System

**Araldite MY 750 100 pbw
Hardener HY 5922 55 pbw**

Liquid, impregnating resin system with low glass transition temperature for coils with excellent mechanical end-properties.

Large coils for magnets and/or rotating machines
Super-conductive magnets

Applications

Vacuum Impregnation

Processing methods

High thermal shock resistance

Properties

Edition: July 2000
Replaces Edition: June 1999

Product data

(guideline values)

Araldite MY 750	Liquid, unmodified, solvent-free Bisphenol A epoxy resin			
Viscosity	at 25°C	ISO 12058-1	mPa s	12000 - 16000
Epoxy content		ISO 3001	equiv/kg	5.20 - 5.40
Density	at 25°C	ISO 1675	g/cm ³	1.15 - 1.20
Flash point		DIN 51758	°C	> 200
Vapour pressure	at 20°C	(Knudsen)	Pa	< 1.10 ⁻²
	at 50°C	(Knudsen)	Pa	5.10 ⁻³

Hardener HY 5922	Liquid, aliphatic polyamine hardener			
Viscosity	at 20°C	ISO 9371	mPa s	< 10
Density	at 20°C	ISO 1675	g/cm ³	0.95 - 1.00
Flash point		DIN 51758	°C	160 - 170
Vapour pressure	at 20°C	(Knudsen)	Pa	< 0.1
	at 50°C	(Knudsen)	Pa	c. 1

Remark The hardener HY 5922 is a corrosive product.

Storage Store the components at 18-25°C, in tightly sealed and dry original containers. Under these conditions, the shelf life will correspond to the expiry date stated on the label. Product specific advise regarding storage can be found on product label. After this date, the product may be processed only following reanalysis. Partly emptied containers should be closed tightly immediately after use.
For information on waste disposal and hazardous products of decomposition in the event of fire, refer to the Material Safety Data Sheets (MSDS) for these particular products

Processing properties

(guideline values)

System:	Araldite MY 750'	100 pbw
	Hardener HY 5922	55 pbw

Processing Viscosity

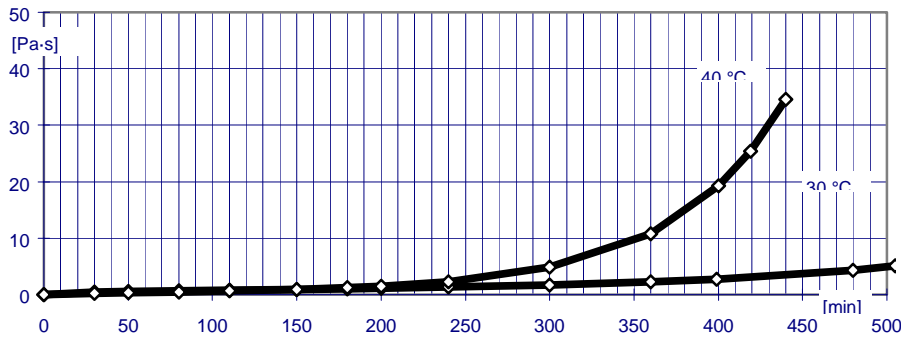


Fig.3.1: **Viscosity increase at 30 and 40°C in function of the time**
(measurements with Rheomat 115A, MS DIN 125, $D = 10 \text{ s}^{-1}$)

Viscosity increase at

30 °C	4h 30 min
40 °C	3h 25 min

(time until 1500 mPa s)

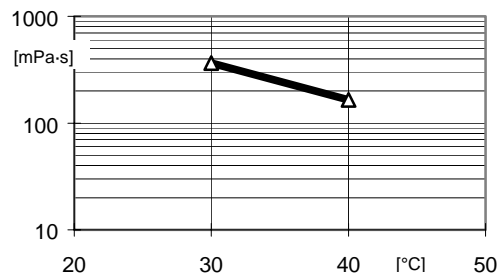


Fig.3.2: **Viscosity increase at 30 and 40°C in function of the time**
(measurements with Rheomat 115A, MS DIN 125, $D = 10 \text{ s}^{-1}$)

Fig.3.3: **Initial viscosity in function of temperature**
(measurements with Rheomat 115A, MS DIN 125, $D = 10 \text{ s}^{-1}$)

Gelation-/Cure Times

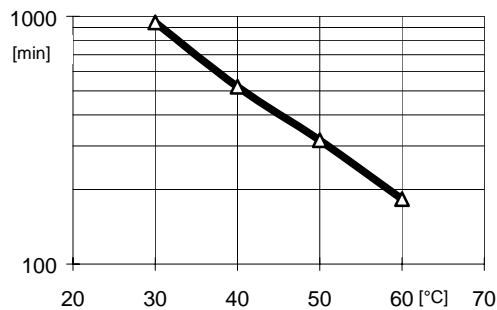


Fig.3.4: **Geltime in function of temperature**
(measured with Gelnorm Instrument, ISO 9396)

Mechanical and Physical properties

(guideline values)

System: Araldite MY 750' 100 pbw
Hardener HY 5922 55 pbw

Determined on standard test specimen at 23°C

Curing Cycle: 6h at 40°C + 3h at 80°C

Flexural strength	ISO 178	MPa	95 - 105
Surface strain	ISO 178	%	3.5 - 4.5
E modulus from flexural strength	ISO 178	MPa	2700 - 3100
Tensile strength	ISO R 527	MPa	55 - 65
Elongation at break	ISO R 527	%	6 - 9
E modulus from tensile strength	ISO R 527	MPa	2800 - 3200
Impact strength	ISO 179	kJ/m ²	60 - 70
Glass transition temperature (DSC)	IEC 1006	°C	40 - 45
Heat Distortion Temperature	ISO 75	°C	40 - 45
Bend Notch			
Critical Stress Intensity Factor K_{IC}	ISO/ DIN 1358	MPa.m ^{1/2}	4.2 - 4.4
Specific Energy at break G_{IC}	IEC 1006	°C	5100 - 5500
Water absorption (specimen: 50x50x4 mm)	ISO 62		
4 days at 23°C		%	0.35 - 0.45
10 days at 23°C		%	0.55 - 0.65
Storage under tropical conditions after 10 days at 40°C / 92% rel. humidity	CG 75	%	1.1 - 1.4

Electrical properties

(guideline values)

System: Araldite MY 750' 100 pbw
 Hardener HY 5922 55 pbw

Determined on standard test specimen at 23°C

Curing Cycle: 6h at 40°C + 3h at 80°C

Breakdown strength	IEC 60243-1	kV/mm	25 - 30
Loss factor	IEC 250/ DIN 53483		
tan $\delta > 1\%$		%	35 - 40
tan $\delta > 5\%$		%	40 - 45
Dielectric constant	IEC 250/ DIN 53483		
ϵ_r at 25°C			3.7
Volume resistivity	IEC 93/ DIN 53482		
at 25°C		ohm.cm	7.70E + 15

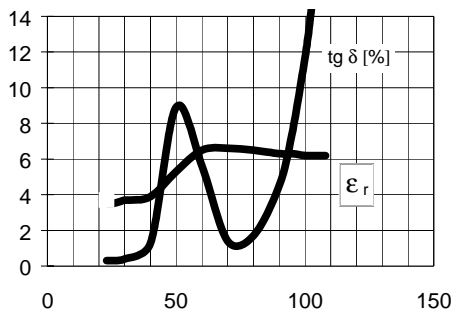


Fig.6.1: **Loss factor (tan δ) and dielectric constant (ϵ_r) in function of temperature**
 (measurement frequency: 50 Hz)
 (IEC 250/ DIN 53483)

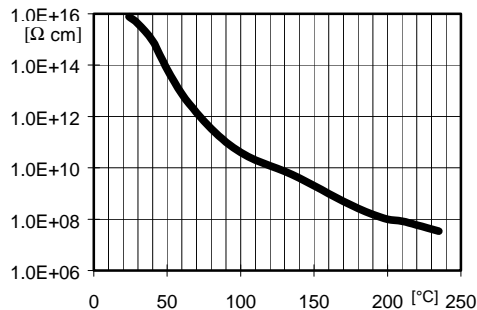


Fig.6.2: **Volume resistivity (ρ) in function of temperature**
 (measurement voltage: 1000 V)
 (IEC 93/ DIN 53482)

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 Ciba Specialty Chemicals " (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 breakers, 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.

Vantico Ltd.
Electronic Polymers
® Registered trademark



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 purpose. 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.