HUNTSMAN

Enriching lives through innovation

Advanced Materials

Araldite® LY 1564* / Hardener XB 3473*

HOT CURING EPOXY SYSTEM

Araldite® LY 1564 is a low viscosity epoxy resin
Hardener XB 3473 is a formulated amine hardener

APPLICATIONS

- Industrial composites
- Structural composites

PROPERTIES

Laminating system

PROCESSING

- Filament Winding
- Resin Transfer Moulding (RTM)
- Pressure Moulding
- Pultrusion

PRODUCT DATA

Araldite® LY 1564		
Aspect (visual)	clear liquid	
Viscosity at 25 °C (ISO 12058-1)	1200 – 1400 **	[mPa s]
Density at 25 °C (ISO 1675)	1.10 - 1.20	[g/cm^3]
Epoxide index (ISO 3001)	5.80 – 6.05**	[Eq/kg]
Hardener XB 3473		
Aspect (visual)	clear yellow to brown liquid	
Viscosity at 25 °C (ISO 12058-1)	80 – 125 **	[mPa s]
Density at 25 °C (ISO 1675)	0.99 - 1.02	[g/cm^3]
Amine value (ISO 9702)	11.20 – 12.10 **	[Eq/kg]

** *Specified data are on a regular basis analysed. Data which is described in this document as 'typical' 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.*

STORAGE

Provided that Araldite® LY 1564 or XB 3473 are stored in a dry place in their original, properly closed containers at the storage temperatures mentioned in the MSDS they will have the shelf lives indicated on the labels. Partly emptied containers should be closed immediately after use.

* *In addition to the brand name product denomination may show different appendices , which allows us to differentiate between our production sites: e.g , BD = Germany, US = United States, IN = India, CI = China, etc.. These appendices are in use on packaging, transport and invoicing documents. Generally the same specifications apply for all versions. Please address any additional need for clarification to the appropriate Huntsman contact.*

TYPICAL SYSTEM DATA

PROCESSING DATA

MIX RATIO

Components	*Parts by weight*	*Parts by volume*
Araldite® LY 1564	100	100
Hardener XB 3473	26	30

We recommend that the components are weighed with an accurate balance to prevent mixing inaccuracies which can affect the properties of the matrix system. The components should be mixed thoroughly to ensure homogeneity. It is important that the side and the bottom of the vessel are incorporated into the mixing process.

When processing large quantities of mixture the pot life will decrease due to exothermic reaction. It is advisable to divide large mixes into several smaller containers.

INITIAL MIX VISCOSITY

(CONE/PLATE VISCOSIMETER)

	[°C]	*[mPa s]*
LY 1564 / XB 3473	at 25	1000 - 1200
	at 40	200 - 250

POT LIFE

(TECAM, 23°C, 65 % RH)

	[g]	*[h]*
LY 1564 / XB 3473	100	84 - 88

GEL TIME

(HOT PLATE)

	[°C]	*[min]*
LY 1564 / XB 3473	at 80	410 - 430
	at 120	80 - 90

The values shown are for small amounts of pure resin/hardener mix. In composite structures the gel time can differ significantly from the given values depending on the fibre content and the laminate thickness.

PROPERTIES OF THE CURED, NEAT FORMULATION

GLASS TRANSITION TEMPERATURE	*Cure:*	T_G	*LY 1564* *XB 3473*
(ISO 11357-2, DSC, 10 K/MIN)	3 h 110 °C	[°C]	70 - 80
	3 h 120 °C	[°C]	100 - 110
	3 h 130 °C	[°C]	110 - 120
	30 min 130 °C + 12 h 160 °C	[°C]	165 - 175
GLASS TRANSITION TEMPERATURE	*Cure:*	T_G	*LY 1564* *XB 3473*
(ISO 6721, DMA, 2 K/MIN)	30 min 130 °C + 12 h 160 °C	[°C]	165 - 175
FLEXURAL TEST	*Cure:*		
(ISO 178)	30 min 130 °C + 12 h 160 °C		
	Flexural strength	[MPa]	100 - 110
	Ultimate elongation	[%]	5,5 - 6,5
	Flexural modulus	[MPa]	2500 - 2700
FRACTURE PROPERTIES BEND NOTCH TEST	*Cure:*		
(ISO 13586)	30 min 130 °C + 12 h 160 °C		
	Fracture toughness K_{1C}	[MPa√m]	0,7 - 0,8
	Fracture energy G_{1C}	[J/m^2]	170 - 190

HANDLING PRECAUTIONS

Personal hygiene	
Safety precautions at workplace	
protective clothing	yes
gloves	essential
arm protectors	recommended when skin contact likely
goggles/safety glasses	yes
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
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 workplaces	Exhaust fans. Operatives should avoid inhaling vapours

FIRST AID

Contamination of the *eyes* by resin, hardener or 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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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

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