

Cold-curing epoxy system based on Araldite® LY 3297* / Aradur® 3298* / Aradur® 3299*

Araldite LY 3297 (epoxy resin)
Aradur 3298 (low reactivity formulated amine hardener)
Aradur 3299 (high reactivity formulated amine hardener)

Applications	Industrial composites		
Properties	Laminating system with low viscosity and high flexibility. The reactivity may easily be adjusted to demands through the combination of both hardeners.		
Processing	<ul style="list-style-type: none"> • Wet lay-up • Resin Transfer Moulding (RTM) • Pressure moulding 		
Key data	Araldite LY 3297		
	Aspect (visual)	clear liquid	
	Viscosity at 25 °C (ISO 12058-1B)	4000 - 5000	[mPa s]
	Density at 25 °C (ISO 1675)	1.0 - 1.1	[g/cm ³]
	Flash point (ISO 2719)	> 100	[°C]
	Storage temperature (see expiry date on original container)	2 - 40	[°C]
	Aradur 3298		
	Aspect (visual)	clear colourless liquid	
	Viscosity at 25 °C (ISO 12058-1B)	30 - 60	[mPa s]
	Density at 25 °C (ISO 1675)	0.90 - 1.00	[g/cm ³]
	Flash point (ISO 2719)	> 100	[°C]
	Storage temperature (see expiry date on original container)	2 - 40	[°C]
	Aradur 3299		
	Aspect (visual)	clear colourless liquid	
	Viscosity at 25 °C (ISO 12058-1B)	40 - 70	[mPa s]
Density at 25 °C (ISO 1675)	0,90 - 1,0	[g/cm ³]	
Flash point (ISO 2719)	> 100	[°C]	
Storage temperature	2 - 40	[°C]	
Storage	<p>Provided that Araldite LY 3297 and Aradur 3298 or Aradur 3299 are stored in a dry place in their original, properly closed containers at the above mentioned storage temperatures they will have the shelf lives indicated on the labels.</p> <p>Partly emptied containers should be closed immediately after use.</p>		

* 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.

Processing data

Mix ratio	Components	Parts by weight	Parts by volume
	Araldite LY 3297		
Aradur 3298		100	44
Araldite LY 3297		40	100
Aradur 3299		100	44
		40	

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		[°C]	[mPa s]
(Hoeppler, ISO 12058-1B)	Araldite LY 3297 / Aradur 3298	at 25	320 - 380
	Araldite LY 3297 / Aradur 3299	at 25	350 - 400

Pot life		[g]	[min]
(Tecam, 23 °C, 65 % RH)	Araldite LY 3297 / Aradur 3298	100	120 - 135
	Araldite LY 3297 / Aradur 3299	100	40 - 50

Gel time		[°C]	[min]
(Hot plate)	Araldite LY 3297 / Aradur 3298	at 40	120 - 150
		at 60	48 - 60
		at 80	18 - 26
		at 100	7 - 12
	Araldite LY 3297 / Aradur 3299	at 40	65 - 80
		at 60	25 - 35
		at 80	10 - 16
		at 100	3 - 7

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.

Gelation at 23 °C			[min]
(in thin layers 0.4 - 0.7 mm)	Araldite LY 3297 / Aradur 3298	Start	320 - 360
		End	550 - 600
	Araldite LY 3297 / Aradur 3299	Start	150 - 190
		End	200 - 240

Properties of the cured, neat formulation

Glass transition temperature	<i>Cure:</i>	T_G	<i>Araldite LY 3297 Aradur 3298</i>	<i>Araldite LY 3297 Aradur 3299</i>
(IEC 1006, DSC, 10 K/min)	3 days 23 °C	[°C]	45 - 50	48 - 53
	7 days 23 °C	[°C]	54 - 59	54 - 59
	1 day 23°C + 10 h 40 °C	[°C]	58 - 63	60 - 66
	1 day 23°C + 10 h 50 °C	[°C]	67 - 73	70 - 76
	1 day 23°C + 10 h 60 °C	[°C]	75 - 81	78 - 84
	1 day 23°C + 8 h 80 °C	[°C]	92 - 98	94 - 100
	1 day 23°C + 4 h 90 °C	[°C]	92 - 98	99 - 105
	1 day 23°C + 4 h 100 °C	[°C]	92 - 98	98 - 104
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Torsional test		T_G	<i>Cure:</i>	<i>Cure:</i>
(ISO 6721, DMA, 2 K/min)	<i>Araldite LY 3297 / Aradur 3298</i>	[°C]	<i>7 d 23 °C</i> 52 - 57	<i>4h 100 °C</i> 95 - 100
	<i>Araldite LY 3297 / Aradur 3299</i>	[°C]	53 - 58	95 - 100
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Flexural test	<i>Cure: 8 h 80 °C</i>		<i>Araldite LY 3297 Aradur 3298</i>	<i>Araldite LY 3297 Aradur 3299</i>
(ISO 178)	Flexural strength	[MPa]	125 - 130	123 - 128
	Ultimate strength	[MPa]	123 - 128	105 - 115
	Ultimate elongation	[%]	7.0 - 8.2	9.0 - 12.0
	Flexural modulus	[MPa]	2800 - 3000	2800 - 3000
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Fracture properties Bend notch test	<i>Cure: 8 h 80 °C</i>		<i>Araldite LY 3297 Aradur 3298</i>	<i>Araldite LY 3297 Aradur 3299</i>
(PM 258-0/90)	Fracture toughness K_{1C}	[MPa√m]	0.85 - 0.95	0.80 - 0.90
	Fracture energy G_{1C}	[J/m ²]	215 - 245	195 - 225

Handling precautions Mandatory and recommended industrial hygiene procedures should be followed whenever our products are being handled and processed. For additional information please consult the corresponding product safety data sheets and the brochure "Hygienic precautions for handling plastics products".

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.

Note

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