

**Toughened Epoxy Resin**  
**Resin XU 3508\* / Hardeners XB 3403\* / XB 3486\* /**  
**Aradur™ 22962\* / Aradur™ 2954\* / Hardener XB 3473\***

Resin XU 3508 is a medium viscosity toughened epoxy resin.

<b>Applications</b>	Industrial composites		
<b>Properties</b>	Laminating Resin XU 3508 has a good toughness effect combined with a low viscosity		
<b>Processing</b>	<ul style="list-style-type: none"> <li>• Wet lay-up</li> <li>• Filament Winding</li> <li>• Pressure Moulding</li> <li>• Resin Transfer Moulding (RTM)</li> </ul>		
<b>Key data</b>	<b>Resin XU 3508</b>		
	Aspect (visual)	white liquid	
	Viscosity at 25 °C (ISO 12058-1)	11000 - 13000	[mPa s]
	Epoxy value	4.8 - 5.2	[ep/Kg]
	Density at 25 °C (ISO 1675)	1.15 - 1.20	[g/cm <sup>3</sup> ]
	Flash point (ISO 2719)	200	[°C]
	Storage temperature (see expiry date on original container)	2 - 40	[°C]
<b>Storage</b>	<p>Provided that Resin XU 3508 are stored in a dry place in his 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, 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**

<b>Mix ratio</b> [pbw]					
Resin XU 3508	100	100	100	100	100
Hardener XB 3403	30	-	-	-	-
Hardener XB 3486	-	30	-	-	-
Aradur 22962	-	-	22	-	-
Aradur 2954	-	-	-	30	-
Hardener XB 3473	-	-	-	-	23
<b>Gel time</b> [min] (hot plate)					
at 80 °C	30 - 36	-	-	-	-
at 100 °C	13 - 18	9 - 14	6 - 10	9 - 14	-
at 110 °C	-	-	-	-	-
at 120 °C	-	3 - 7	4 - 8	-	-
at 140 °C	-	-	-	2 - 4	23 - 30
at 160 °C	-	-	-	-	15 - 21
<b>Pot life</b> [min.] (Tecam, 100 ml)					
at 23 °C	600 - 720	380 - 480	100 - 150	320 - 380	1700 - 2000
<b>Initial mix viscosity</b> [mPas] (cone plate viscosimeter)					
at 25 °C	650 - 800	720 - 860	1800 - 2100	2600 - 3300	4400 - 5500

**Properties of the cured, neat formulation**

Resin XU 3508	Hardeners				
	XB 3403	XB 3486	Aradur 22962	Aradur 2954	XB 3473
<b>Glass transition temperature</b> (DSC, 10 K/min) <i>Cure:</i>	8h 60 °C	16h 50 °C	4h 80 °C	1h 80 °C + 8h 160 °C	1h 120 °C + 2h 200 °C
<i>T<sub>g</sub> [°C]</i>	63 - 68	68 - 74	102 - 112	150 - 158	160 - 168
<i>Cure</i>	4h 60 °C + 6h 80 °C	5h 100 °C	15 min 120 °C + 2h 150 °C	1h 80 °C + 8h 140 °C	2h 120 °C + 2h 140 °C + 2h 180 °C
<i>T<sub>g</sub> [°C]</i>	70 - 75	95 - 102	144 - 154	145 - 152	160 - 168
<i>Cure cycle</i>	4h 60 °C + 6h 80 °C	5h 100 °C	15 min 120 °C + 2h 150 °C	1h 80 °C + 8h 140 °C	2h 120 °C + 2h 140 °C + 2h 180 °C
<b>Flexural test</b> (ISO 178)					
Flexural strength [MPa]	100 - 125	110 - 125	120 - 135	125 - 135	110 - 125
Elongation at flexural strength [%]	4.5 - 5.5	5.8 - 6.8	7.0 - 8.5	6.8 - 7.8	5.8 - 6.8
Ultimate strength [MPa]	80 - 90	90 - 100	120 - 135	125 - 135	110 - 125
Ultimate elongation [%]	9.0 - 11.0	10.0 - 12.5	8.0 - 10.0	7.0 - 8.0	5.9 - 6.9
Flexural modulus [MPa]	2900 - 3100	2750 - 2950	2700 - 2900	2580 - 2780	2500 - 2700
<b>Fracture properties</b> <b>Bend notch test</b> (PM 258-0/90)					
Fracture toughness K <sub>1</sub> [MPa√m]	2.1 - 2.3	2.2 - 2.4	0.95 - 1.15	0.85 - 1.05	1.2 - 1.4
Fracture energy G <sub>1c</sub> [J/m <sup>2</sup> ]	1250 - 1400	1500 - 1700	340 - 380	250 - 290	420 - 480
<b>Water absorption</b> (ISO 62)					
10 days H <sub>2</sub> O 23 °C [%]	0.44 - 0.52	0.48 - 0.55	0.50 - 0.58	0.44 - 0.52	0.54 - 0.62

**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" (Publ. No. 24264/e).

**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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