

Advanced Materials**Resin XB 3515* / Aradur[®] 1571* / Accelerator 1573*****HOT MELT BASED PREPREG SYSTEM**

XB 3515 (Hot melt epoxy resin)
 Aradur[®] 1571 (Hardener paste)
 Accelerator 1573 (Accelerator paste)

APPLICATIONS	Industrial composites, Sport & Leisure		
PROPERTIES	High Tg prepreg system with a long shelf life		
PROCESSING	Prepregging		
KEY DATA	Resin XB 3515		
	Aspect (visual)	White solid	
	Viscosity at 90 °C (ISO 3219)	4000 - 7000	[mPa s]
	Flash point (ISO 2719)	> 200	[°C]
	Density at 25 °C (ISO 1675)	1.17 - 1.22	[g/cm ³]
	Storage temperature	2 - 40	[°C]
	(See expiry date on original container)		
	Aradur[®] 1571		
	Aspect (visual)	White viscous paste	
	Viscosity at 25 °C	28000 - 40000	[mPa s]
	Density at 25 °C (ISO 1675)	1.2	[g/cm ³]
	Storage temperature	< 8	[°C]
	Accelerator 1573		
	Aspect (visual)	White viscous paste	
	Viscosity at 25 °C	60000 - 90000	[mPa s]
	Density at 25 °C (ISO 1675)	1.08	[g/cm ³]
	Storage temperature	< 8	[°C]
STORAGE	<p>Provided that the products described above 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. 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	<i>Components, parts by weight</i>	System 1	System 2	System 3
	Resin XB 3515	100	100	100
	Aradur® 1571	22	22	22
	Accelerator 1573	2	3	5

Mix Aradur® 1571 with Accelerator 1573 to get homogeneous paste, this premix has a long shelf life at RT (min. 2 weeks)

The resin XB 3515 is heated at 90°C. Then the premix Aradur 1571®/Accelerator 1573 is blended into the resin XB 3515. Mix homogeneously just before the prepegging process.

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.

INITIAL MIX VISCOSITY			System 1	System 2	System 3
	at 65°C	[Pas]	30 – 40	30 - 40	30 - 40

GEL TIME (HOT PLATE)			System 1	System 2	System 3
	at 120°C	[min]	11 - 13	8 - 10	6 - 7
	at 130°C	[min]	6 - 7	4 - 5	3 - 4
	at 140°C	[min]	3 - 4	2 - 3	1 - 2

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.

PREPREG PRODUCTION	Impregnation bath temperature	70 - 75°C
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PREPREG SHELF LIFE	at 23 °C	System 1	System 2	System 3
		> 6 weeks	> 6 weeks	> 6 weeks

PROPERTIES OF THE CURED, NEAT FORMULATION

GLASS TRANSITION TEMPERATURE (T_G) (IEC 1006, DSC, 10 K/MIN)			System 1 T _G [°C]	System 2 T _G [°C]	System 3 T _G [°C]	
	4 h 100 °C		115 - 120	110 - 115	110 - 115	
	2 h 120 °C		130 - 140	125 - 130	120 - 130	
	1 h 120 °C + 2 h 140°C		140 - 145	140 - 150	130 - 140	
FLEXURAL TEST (ISO 178)		Cure cycle 1h 120°C + 2h 140°C	Tested at 23°C	System 1	System 2	System 3
	Flexural strength		[MPa]	130 - 140	110 - 130	130 - 140
	Ultimate elongation		[%]	6 - 8	5 - 7	6 - 8
	Flexural modulus		[MPa]	2800 - 2900	2700 - 2900	2750 - 2900
FRACTURE PROPERTIES BEND NOTCH TEST (ISO 13586)		Cure cycle 1h 120°C + 2h 140°C	Tested at 23°C	System 1	System 2	System 3
	Fracture toughness K _{1C}			1.20 - 1.30	1.10 - 1.20	1.10 - 1.20
	Fracture energy G _{1C}		[MPa√m] [J/m ²]	400 - 480	350 - 450	350 - 450

**HANDLING
PRECAUTIONS****Personal hygiene***Safety precautions at workplace*

protective clothing	yes
gloves	essential
arm protectors	recommended when skin contact likely
<u>goggles/safety glasses</u>	yes

Skin protection

before starting work	Apply barrier cream to exposed skin
<u>after washing</u>	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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