

PROPERTIES

Amine-cured laminating epoxy system with low viscosity at RT, showing excellent flexibility and high reactivity.

PROCESSING

- Resin Transfert Moulding (RTM, VARTM)
- Filament Winding
- Pressure Moulding
- Pultrusion
- Wet lay-up

PHYSICAL PROPERTIES				
Composition		RESIN	HARDENER	MIX
Mix ratio by weight		100	25	
Mix ratio by volume at 25 °C		100	32	
Aspect		liquid	liquid	Liquid
Colour		amber	colourless	Amber
Viscosity (mPa.s)				
- 20 °C		2,500	-	-
- 25 °C	ISO 3219: 1993	1,500	15	550
- 30 °C	CONE/PLATE	900	-	400
- 40 °C	VISCOSIMETER	400	-	225
- 50 °C		200	-	100
- 60 °C		110	-	-
Specific gravity at 25 °C (g/cm ³)	ISO 1675: 1985	1.16	0.90	1.10
Pot life on 100 ml at 23 °C (min)	Gel Timer TECAM			110 – 150
Gel time at (min) (1)				
- 80 °C	ISO 8130-6: 1992			20 – 30
- 100 °C	(Hot plate)			8 – 12
- 120 °C				3 – 6
- 140 °C				1 – 3

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

PROCESSING CONDITIONS

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

TYPICAL CURES CYCLES

- 15 min 120°C + 2 hrs 150°C
- 1 hrs 80°C + 2 hrs 150°C

The optimum cure cycle has to be determined case by case depending on the processing and the economic requirements

MECHANICAL PROPERTIES at 23 °C (2)			
Tensile modulus	ISO 527-2: 1993	MPa	2,800 – 3,300
Tensile strength	ISO 527-2: 1993	MPa	75 – 80
Elongation at break	ISO 527-2: 1993	%	4 – 6
Flexural modulus	ISO 178: 2001	MPa	2,700 – 2,900
Flexural strength	ISO 178: 2001	MPa	125 – 135

(2) : Average values obtained on standard specimens / Hardening 15 min 120 °C + 2 hrs 150 °C

THERMAL AND SPECIFIC PROPERTIES			
Glass transition temperature (Tg)	ISO 11357-2: 1999	°C	100 – 110 108 – 115 120 – 128 125 – 135 128 – 138 130 – 140
- 4 hrs 80 °C			
- 30 min 120 °C			
- 4 hrs 120 °C			
- 2hrs 140 °C			
- 1 hr 80 °C + 2 hrs 140 °C			
- 15 min. 120 °C + 2 hrs 150 °C			
Water absorption (immersion) at 23 °C (2)	ISO 62: 2008	%	0.30 0.50
- 4 day			
- 10 days			

HANDLING PRECAUTIONS

Normal health and safety precautions should be observed when handling these products :

- Ensure good ventilation
- Wear gloves, safety glasses and waterproof clothes.

For further information, please consult the product safety data sheet.

STORAGE CONDITIONS

Shelf life of both parts is 24 months in a dry place and in their original unopened containers at a temperature between 5 and 40 °C. See expiry date on original container. Partly emptied containers should be closed immediately after use.

Crystallization of resin part:

Crystallization of epoxy resins is typically an inconvenience and not a problem. The risk of crystallization increases when stored at low temperature:

- Temperature > 12 °C: Very weak risk (green zone)
- Temperature >5 – <12 °C: High risk (Orange zone)
- Temperature < 5 °C : Extremely high risk (Red zone)

Crystallization is a phenomenon that occurs in a very random way and is therefore hard to predict. It is also to remember that as soon as there is a resin crystal present in the mixture, the crystallization reaction will start. Crystallization is a function of the storage temperature, and so decreasing this temperature will increase the RESIN tendency to crystallise.

Procedure of decrystallization of the resin and the hardener:

1. Put opened pot into the oven at a temperature between 50 to 60 °C
2. Check the product and if possible mix the already liquid material. Put the pot again in the oven at same temperature
3. Repeat step 2 until the product has returned completely to a liquid phase. It is very important to decrystallise the product completely. If all the crystals haven't dissolved, the tendency to recrystallise is extremely high once the product cools down
4. Allow product to return at room temperature before mixing the resin and hardener system together as the higher temperature will decrease the shelf life

GUARANTEE

The information contained in this technical data sheet result from research and tests conducted in our Laboratories under precise conditions. It is the responsibility of the user to determine the suitability of AXSON products, under their own conditions before commencing with the proposed application. AXSON guarantee the conformity of their products with their specifications but cannot guarantee the compatibility of a product with any particular application. AXSON disclaim all responsibility for damage from any incident which results from the use of these products. The responsibility of AXSON is strictly limited to reimbursement or replacement of products which do not comply with the published specifications.