

DESCRIPTION

EPOLAM 8079R is a cycloaliphatic epoxy Resin
EPOLAM 8045H is an acid anhydride based Hardener
EPOLAM 8090C is an Accelerator

MAIN FEATURES

- Tg up to **205 °C**
- Extremely long pot life
- Adjustable reactivity by varying the catalyst ratio
- Excellent chemical resistance

PROCESSING

- Filament Winding
- Pultrusion
- Pressure Moulding

PHYSICAL PROPERTIES					
Composition	Method	EP 8079R RESIN	EP 8045H HARDENER	EP 8090C ACCELERATOR	MIX
Mix ratio by weight		100	115	0.5 – 2	
Mix ratio by volume at 25 °C		100	110	-	
Aspect		liquid	liquid	liquid	liquid
Colour		clear yellow	clear liquid	colourless to amber	Amber
Viscosity at 25 °C (mPa.s)	BROOKFIELD LVT	400	80	≤ 50	200
Specific gravity at 25 °C (g/cm ³)	ISO 1675: 1985	1.17	1.22	1.00	1.20
Pot life 100 ml at 23/40 °C (h) (1)	Gel Timer TECAM			1.0 phr 2.0 phr	≥48/- ≥48/1.3

(1): phr = Per Hundred of Resin

PROCESSING CONDITIONS

We recommend the components to be weighted 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. Attention must be paid on incorporating materials from the sides and the bottom of the vessel 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.

To simplify the mixing process, the resin can be preheated to about 30 to 50 °C before adding the cold hardener. Hardener and accelerator can be premixed, thus allowing the use of two component mixing/metering equipment. The mix of hardener and accelerator has a shelf life of several days.

The processing of the system at elevated temperatures of 30 to 40 °C shows the best results. The gelation temperature should not be higher than absolutely necessary. A high gelation temperature induces high shrinkage and generates internal stresses

GEL TIME (ISO 8130-6: 1992 - Hot plate) (2)

Accelerator EPOLAM 8090 (phr)	Temperature (°C)	1.0	2.0
Gel time (min)	90	120	70
	100	60	25
	120	16	9
	140	7	3

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

TYPICAL CURES CYCLES

- 1 - 2 hrs at 100°C + 6 hrs at 160°C
- or 1 - 2 hrs at 100°C + 4 hrs at 180°C

The optimal curing cycle has to be determined case by case depending on the processing and economic requirements.

MECHANICAL PROPERTIES at 23°C (3)

Gelation Post cure			2 hrs 120°C 6 hrs 160°C	1 hrs 100°C 6 hrs 180°C
Tensile modulus	ISO 527-2: 1993	MPa	3,000	2,950
Tensile strength	ISO 527-2: 1993	MPa	55	52
Elongation at break	ISO 527-2: 1993	%	1.25	2.15
Flexural strength	ISO 178: 2001	MPa	92	122
Flexural modulus	ISO 178: 2001	MPa	3,000	3,050

(3) : Average values obtained on standard specimens on a formulation comprising 2 phr Accelerator EPOLAM 8090 / Gelation 2 hrs at 120°C + post cure 6 hrs at 160°C

THERMAL PROPERTIES (3)

Glass transition temperature (T _g)			
- 1 hrs 100°C + 4 hrs 160°C	ISO 11357-2: 1999	°C	185 – 189
- 1 hrs 100°C + 8 hrs 160°C			186 – 192
- 1 hrs 100°C + 2 hrs 180°C			194 – 200
- 1 hrs 100°C + 6 hrs 180°C			197 – 204
- 1 hrs 120°C + 4 hrs 160°C			188 – 190
- 1 hrs 120°C + 8 hrs 160°C			188 – 193
- 1 hrs 120°C + 2 hrs 180°C			194 – 202
- 1 hrs 120°C + 6 hrs 180°C			198 – 205

DISTILLED WATER ABSORPTION (ISO 62: 2008 – Immersion) (3)

Water absorption (immersion) at 23°C (3)		
4 day at 23°C		0.57
10 days at 23°C	%	1.00
30 min at 100°C		0.25
60 min at 100°C		0.40

HANDLING PRECAUTIONS

Conventional 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 resin EPOLAM 8079R and accelerator EPOLAM 8090C is 24 months and 12 months for hardener EPOLAM 8045H in a dry place and in their original unopened containers at a temperature between 5 and 40 °C. See expiration date on original container.

Because EPOLAM 8045H hardener is sensitive to moisture, containers should be stored in a dry and ventilated area. Partly emptied containers should be closed immediately after use.

GUARANTEE

The information contained in this technical data sheet results from tests conducted in AXSON Laboratories under specific conditions. It is the responsibility of the users to determine the suitability of AXSON products, under their own conditions before starting with an application. AXSON guarantees the conformity of its products with their specifications but cannot guarantee the compatibility of a product with any particular application. AXSON disclaims 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.