

TECHNICAL DATA SHEET

PRODUCT: IN-2 EPOXY INFUSION RESIN

DESCRIPTION

High performance low viscosity epoxy resin formulated specifically for use in resin infusion composites production.

USES

As an infusion resin it is ultra-low viscosity ensuring that it is able to quickly infuse through a range of reinforcements. Its excellent mechanical strength makes it ideally suited for use with high performance reinforcements such as carbon fibre and aramids like Kevlar.

Our IN-2 Epoxy Infusion Resin cures at room temperature with full mechanical properties achieved after only a moderate temperature post cure (50-60°C).

IN-2 Epoxy Infusion Resin is available with a choice of hardeners to achieve different pot-life and demould times. Available hardeners can themselves be blended to achieve even more precise reactivity control.

PROPERTIES

Property	Units	Resin	Hardener	Combined
Material	-	Epoxy Resin	Formulated Amine	Epoxy
Appearance	-	Straw	Straw	Clear
Viscosity @25 °C	mPa.s.	500 - 600	25 - 50	225
Density	g/cm ³	1.14 – 1.16	0.94 – 0.97	1.105

POT LIFE & CURE

Hardener	Pot-Life @ 25°C	Gelation Time @ 25°C	Demould Time @ 25°C
AT30 SLOW*	80-100mins	8-11hrs	18-24hrs
AT30 FAST*	9-14mins	2-4hrs	6-8hrs

*Fast and slow hardeners can be blended to achieve pot-life and demould times anywhere between those stated above.

CURED PROPERTIES

Property	Method	Units	AT30 SLOW	AT30 FAST
Colour			Pale yellow	Pale yellow
Machinability			Excellent	Excellent
Density 25°C	ASTM D 792	g/ml	1.08 – 1.12	1.08 – 1.12
Hardness 25°C	ASTM D 2240	Shore D/15	84.5 – 88.5	86 – 90
Maximum Tg	ASTM D 3418	°C	92 – 98	75 – 81
Water absorption (24h RT)	ASTM D 570	%	0.12 – 0.20	0.22 – 0.27
Water absorption (2hr 100°C)	ASTM D 570	%	0.58 – 0.70	0.95 – 1.00
Flexural strength	ASTM D 790)	MN/m ²	112 – 124	95 – 109
Maximum strain	ASTM D 790)	%	5 – 7	4 – 6
Strain at break	ASTM D 790)	%	6 – 8	7 – 9
Flexural modulus	ASTM D 790)	MN/m ²	3.15 – 3.55	2.5 – 3.1
Tensile strength	ASTM D 638	MN/m ²	65.5 – 73.5	67.0 – 75.0
Elongation at break	ASTM D 638	%	6 – 8	5 – 7

MIXING RATIO

100 p.b.w. Epoxy Infusion Resin

30 p.b.w. Epoxy Infusion Resin Hardener

MIXING INSTRUCTIONS

Mix Resin and hardener thoroughly, according to the indicated mixing ratio, avoiding air entrapment and make certain that material at the bottom and sides of the container is well stirred into the centre.

PROCESSING

For large infusion projects, always choose a hardener speed that will allow sufficient time for the part to infuse without any gelling occurring. To avoid premature gelling caused by exotherm in the resin feed pot, mix the resin in smaller batches and transfer into the resin feed pot as the part infuses. When doing this, take great care to ensure that the resin feed pot never runs out of resin. If in danger of going so before a new batch of resin can be added, clamp off the resin feed line to prevent air from being drawn into the infusion.

POST CURING

Post curing at elevated temperature is always advisable for room temperature curing resins in order to stabilize the component and to achieve the best possible mechanical properties from the resin. An elevated temperature post-cure is *required* for parts that will be subjected to higher temperatures during operation. The rate of heating and the indicated post-curing time are for typical sized components. Users should evaluate the best conditions of curing or post-curing depending on the component size and shape. For larger parts decrease the thermal gradient and increase the post-curing time.

For best results, conduct the post cure in the mould without prior release (first ensure that the mould and release agent are compatible with the post cure temperature).

Guideline post cure:

24h at room temperature

6 h @ 40°C

6 h @ 50°C

12 h @ 60°C

STORAGE

The resin and hardener should be stored in original, unopened containers between 15 and 25°C. KEEP THE PACKING TIGHTLY SEALED WHEN NOT IN USE.

SHELF LIFE

If stored under the above conditions the resin and hardener will have a shelf life of 12 months, from the date of production.

Our technical advice, whether verbal, or in writing is given in good faith, but without warranty - this also applies where proprietary rights of third parties are involved. It does not release you from the obligation to test the products supplied by Easy Composites as to their suitability for the intended processes and uses.

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