

KINETIX R240 resin is a low viscosity resin specifically formulated for use with H341 hardener, and designed for custom high-flow wet-preg construction of reinforced laminates.

This system requires elevated temperatures to achieve full cure. The activation temperature of 50°C is recognised as the minimum cure temperature.

This system has a unique curing chemistry and wet-pregs formed with this system can be cured at relatively low temperature (around 50-60°C) without the risk of inadequate flow and poor interlayer fusion which is inherent in the use of dry and hot melt pre-pregs cured at these temperatures. Tooling can be relatively low cost as a result of the lower temperature requirement.

R240/H341 offers long pot life in the region of 24 hrs and open times in wet-preg are typically 48 hours @25°C.

KINETIX R240 is used for "state of the art" high performance construction, and excellent mechanical properties are produced in carbon fibre, Kevlar and glass laminates. It has high elastic modulus, very high extensibility and impact toughness, and is much less brittle than the resins used in general purpose, pre-made, high viscosity pre-pregs.

### MIX RATIO

9 parts hardener to 100 parts resin by weight  
10 parts hardener to 100 parts resin by volume

**Note: Care should be taken when dispensing and mixing. Do not attempt to control the cure time by altering the hardener ratio. Contact ATL composites for specific information.**

Cross-linking predominantly is by etherification of epoxy molecules rather than the conventional amine addition. Because the curing agent is catalytic in function, mix ratio is not as critical.

### UNCURED PROPERTIES

	R240	H341
<b>Physical State</b>	Clear pale yellow liquid	Deep blue liquid
<b>Viscosity mPas @ 25°C</b>	1600	150
<b>Specific Gravity g/ml @ 25°C</b>	1.15	0.98
<b>Hardener Flashpoint, Closed Cup</b>	n/a	120°C

### CURE CHARACTERISTICS

Pot Life -100g @ 25°C (in air)	~24hrs
Cure Conditions:	50°C & 2.5mm film
3 hours 20 minutes	Stringy but still flowing
3 hours 40 minutes	End of flow
3 hours 50 minutes	Gelled
Mixed Specific Gravity	1.14
Mix viscosity mPas @ 25°C	1100
Shore D Hardness	
16 hours @ 25°C	
+8 hours @ 40°C	83
+8 hours @ 60°C	83
+3 hours @ 100°C	84
HDT @ 40 hours	88-90 °C
Ultimate HDT (post cure 24 hrs @ 100°C)	100°C
<b>Typical Cure Schedules</b>	
50°C for 72 hrs gives HDT	91-93°C
60°C for 24 hrs gives HDT	91-93°C
65°C for 18 hrs gives HDT	91-93°C

Note: These are recommended as adequate minimum cure cycles. It should be noted that calorimetric scans demonstrate that further post curing will raise the HDT further.

## MONITORING OF CURE

A laminator wishing to monitor progress of cure has a number of on the spot options open to him. Small test aliquots of mixed resin can be placed in waxed lids during lamination. These should be subjected to the same cure conditions as the actual laminate, and later compared with standard samples which are known to be fully cured. The samples should be flat on the bottom and approximately 2 to 3 mm thick. Allowance should be made for the possible effect of foam core insulating the curing resin, and reducing the cure of the inner layer.

To meter the development of Heat Distortion Temperature (HDT) immerse the samples in a vessel of warming water and noting the temperature at which the resin becomes rubbery. Providing sample thickness is kept constant, this simple technique gives surprisingly reproducible results.

## CAUTION

When cured these resins, like all plastics, undergo a transition to a rubbery state when heated above their HDT.

Operators should be constantly aware that a partly cured resin will not have developed full HDT, and that components should not be heated above this temperature when they are not supported by vacuum and a mould. Be aware, for example, that heating will cause a considerable build up of pressure in gases in a low density core, and this will always tend to lift a laminate.

Care should also be taken to avoid heating unsupported laminates above the HDT of bonding resins and foam cores.

## CALCULATING RESIN/HARDENER FOR A FIBREGLASS LAMINATE

As a rough rule for the amount of resin/hardener required to achieve proper wetting out and consolidation of a laminate, use a 1:1 ratio of fibreglass weight per m<sup>2</sup> to resin/hardener weight, plus wastage

e.g. 1m<sup>2</sup> of 600grm biaxial E-fibreglass will require 600grms of mixed resin and hardener + a 10% wastage factor

PACK SIZES				
Order Code		Order Code		PACK
<b>Resin</b>		<b>Hardener</b>		
RD 240	18 kg	HD341	1.6 kg	19.6 kg
RF 240	192 kg	HF341	18 kg	210 kg

## STORAGE

KINETIX R240 resin and H341 hardener will keep for 2 years if kept in original containers at room temperature (15°C to 32°C), and out of direct sunlight. Containers should be tightly sealed to prevent moisture absorption.

## HEALTH & SAFETY

KINETIX R240 resin and H341 hardener have moderate sensitising potential, and should be kept out of the eyes and off the skin.

- Use with good ventilation and adequate safety equipment including impervious gloves and safety glasses.
- If skin contact occurs, remove contaminated clothing immediately, and wash the affected area thoroughly with water, avoiding the use of solvents except in the case of massive contamination.
- If eye contact occurs, immediately flush with running water for at least 15 (fifteen) minutes and seek medical advice.
- If swallowed:

**Resins** - DO NOT induce vomiting, and contact a doctor or the Poisons Information Centre.

**Hardeners** - DO NOT induce vomiting, give plenty of milk or water and contact a doctor or the Poisons Information Centre.