

PRODUCT CODE: C280020

ULTRATEC™ Lp TOOLING RESIN is a specially formulated, unsaturated polyester resin designed to produce long life, high quality moulds for the fabrication of FRP composite parts. This single component, pre-promoted, filled resin cures at room temperature with almost zero shrinkage eliminating fibre print through on the gelcoat surface.

ULTRATEC™ Lp TOOLING RESIN exhibits rapid cure and excellent handling properties allowing moulds to be produced within 2 days. The low shrinkage properties allow the exact dimensions of the plug to be retained with perfect surface reproduction.

FEATURES

- Pre-promoted, contains filler
- Colour change mechanism
- Excellent storage stability with no significant filler settlement
- Almost zero shrinkage on cure
- Rapid cure rate

from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specification items.

BENEFITS

- Supplied ready for use. No premixing of resin, promoter or fillers required
- Colour shift indicates state of cure
- Continual remixing not required
- Exact reproduction of master or plug surface. Class A surfaces achievable. Moulds produced show excellent dimensional stability
- Significant reduction in mould production time in comparison to conventional tooling resin systems

SUGGESTED USE

Product is intended for use in the production of high quality moulds for FRP part fabrication.

RECOMMENDED CATALYST

We recommend using 1.5% CUROX CATA 2000 for optimum results with this resin.

TYPICAL LIQUID RESIN PROPERTIES

PROPERTY	TYPICAL VALUE	TEST DETAILS
Appearance	Amber Opaque Liquid	Visual
Viscosity	900 - 1200 cP	Brookfield RVT #4/100 @ 25°C
C&P Viscosity	450 – 550 cP	@25°C
Geltime	30 - 40 minutes	Using 1.5% CUROX CATA 2000
Density	1.45 g/cm ³	@25°C
Flash Point	31°C	Setaflash
Shelf Life	3 Months	When correctly stored

Typical values: Based on materials tested in our laboratories, but varies

TYPICAL CAST UNFILLED RESIN PROPERTIES

PROPERTY	TYPICAL VALUE	TEST DETAILS
Tensile Strength	85 MPa	ISO R527
Tensile Elongation	2.0 %	ISO R527
Flexural Strength	156 MPa	ISO 178
Heat Distortion Temperature	80°C	ISO 75

Cast resin was prepared as laid down in BS 3532 using 1.5% CUROX CATA 2000. Cured at room temperature for sixteen hours then post cured for two hours at 80°C followed by two hours at 100°C.

APPLICATION GUIDELINES

Workshop Conditions:

In order to achieve the required degree of cure development with ULTRATEC™ Lp TOOLING RESIN a minimum workshop temperature of 18°C is required. The ideal working temperature range is 20 - 30° C.

If the working temperature is too low, optimum cure and low shrink properties will not be achieved.

Preparation:

The surface of the plug must be free from voids and defects with an appropriate release agent applied.

Tooling Gelcoat:

Ultratec™ VE Tooling Gelcoat is recommended for optimum tool life. (Product Codes: C460001, C460002, C460003 and C460004)

First Laminate Layer:

It is important that the first layer directly behind the gelcoat is fully consolidated to remove all entrapped air and produce a void free laminate.

The first layer construction should comprise 1 – 2 plies of 225 g/m² chopped strand mat in combination with the Vinyl Ester based SPV6014 ULTRATEC Lp™ 1000 HIGH THIX (Product Code: C650034) tie layer resin, catalysed with 1.5% Norox 925H.

The ULTRATEC™ Lp 1000 HIGH THIX tie layer must be fully cured before backing up with ULTRATEC™ Lp TOOLING RESIN.

ULTRATEC Lp™ TOOLING RESIN - Laminate Application

The ULTRATEC™ Lp TOOLING RESIN is a low viscosity, pre-filled resin with excellent glass fibre wetting properties. Before use, thoroughly mix the ULTRATEC™ Lp TOOLING RESIN to ensure that the product is homogeneous. The catalyst Curox CATA 2000 must be used to catalyse ULTRATEC™ Lp TOOLING RESIN. Catalyst levels between 1.5 and 1.75% are required for optimum cure development. Following cure of the vinyl ester layer, apply ULTRATEC™ Lp TOOLING RESIN laminates at a resin to glass ratio of 4:1.

The initial lay-up behind the vinyl ester should comprise 3 – 4 layers of 450g/m² chopped strand mat or 1300 – 1800 g/m² chopped glass rovings (chopper gun application). Following gelation, the laminate temperature will rise to approximately 50 - 60°C and the colour will change from a mid brown to a lighter white/brown colour. Once this exothermic temperature subsides further layers can be applied at 1800 – 2100 g/m² glass fibre content.

STORAGE AND HANDLING

To ensure maximum stability and maintain optimum resin handling properties, polyester resins should be stored in closed containers, away from heat sources and sunlight. The resin should be stored away from all sources of ignition. Stored resin quantities should be kept to a reasonable minimum and used on a first in/first out stock rotation basis. Prolonged storage, or unfavourable storing conditions, may cause separation, therefore agitation of the resin before use is recommended.

STANDARD PACKAGING

Mild steel drums (225kg)
Epon Lined Pails (20kg)

Always refer to the MSDS before use.