

**HYDREX 100 (33350)**

**100% Vinyl Ester Resin**

**DESCRIPTION**

Hydrex 100 33350 is a series of pre-promoted, thixotropic, vinyl ester resins suitable for fabricating small to large FRP structures with high production rates at room temperature. Hydrex 100 33350 resins are formulated for curing at room temperature with Superox<sup>®</sup> 46747 methyl ethyl ketone peroxide. They are suitable for either hand-lay-up or spray-up.

| <b>FEATURES</b>   | <b>BENEFITS</b>  |
|---|--|
| <ul style="list-style-type: none"> <li>• Versatile</li> </ul>   | <ul style="list-style-type: none"> <li>• Premium resin for tooling applications</li> <li>• Versions available for marine skincoat, bulk build and acrylic bonding</li> <li>• Lower exotherm versions for thicker laminates</li> <li>• Quick cure versions available</li> </ul> |
| <ul style="list-style-type: none"> <li>• Low water absorption rate</li> </ul>                                   | <ul style="list-style-type: none"> <li>• Superior blister resistance</li> </ul>  |
| <ul style="list-style-type: none"> <li>• High strength and toughness</li> </ul>                                 | <ul style="list-style-type: none"> <li>• Excellent resistance to impact, thermal, and demolding cracks</li> </ul>  |
| <ul style="list-style-type: none"> <li>• Tack free surface</li> </ul>   | <ul style="list-style-type: none"> <li>• Faster lamination and build-up of layers</li> </ul>   |
| <ul style="list-style-type: none"> <li>• Improved profile</li> </ul>  | <ul style="list-style-type: none"> <li>• Minimized print-through for smooth surfaces</li> </ul>  |
| <ul style="list-style-type: none"> <li>• Wets out reinforcements rapidly</li> </ul>                             | <ul style="list-style-type: none"> <li>• Minimized voids and resin-starved areas</li> <li>• Easy maintenance of resin-to-glass ratio</li> </ul>  |
| <ul style="list-style-type: none"> <li>• High heat distortion temperature</li> </ul>                            | <ul style="list-style-type: none"> <li>• Retention of physical properties at elevated temperatures</li> </ul>  |
| <ul style="list-style-type: none"> <li>• Thixotropic</li> </ul>   | <ul style="list-style-type: none"> <li>• Resistance to sagging and draining</li> </ul>   |
| <ul style="list-style-type: none"> <li>• Stable gel time</li> </ul>   | <ul style="list-style-type: none"> <li>• Consistent gel and cure time at various catalyst levels</li> </ul>  |
| <ul style="list-style-type: none"> <li>• Manufactured using statistical process and quality controls</li> </ul> | <ul style="list-style-type: none"> <li>• Consistent performance, batch to batch</li> </ul>   |

**PROPERTIES**

**TYPICAL LIQUID PROPERTIES<sup>1</sup> @ 25°C**

| VERSION  | %NV<br>RCI 18-001 | VISCOSITY*<br>CPS<br>RCI 18-021 | THIX INDEX<br>RCI 18-021 | GEL TIME**<br>MINUTES<br>RCI 18-050 | GEL TO PEAK<br>RCI 18-050 | PEAK EXOTHERM °F<br>RCI 18-050 | SPECIFIC GRAVITY<br>RCI 18-030 | COLOR LIQUID<br>RCI 18-043 |
|----------|-------------------|---------------------------------|--------------------------|-------------------------------------|---------------------------|--------------------------------|--------------------------------|----------------------------|
| 33350-00 | 55                | 500                             | 3.0                      | 22.5                                | 16                        | 350                            | 1.08                           | amber/opaque               |
| 33350-02 | 55                | 500                             | 3.0                      | 30                                  | 21.5                      | 340                            | 1.08                           | amber/opaque               |
| 33350-05 | 55                | 500                             | 3.0                      | 22.5                                | 16                        | 350                            | 1.08                           | amber/opaque               |
| 33350-10 | 55                | 500                             | 3.0                      | 22.5                                | 11                        | 350                            | 1.08                           | amber/opaque               |
| 33350-12 | 55                | 500                             | 3.0                      | 30                                  | 11                        | 350                            | 1.08                           | amber/opaque               |
| 33350-15 | 55                | 500                             | 3.0                      | 22.5                                | 11                        | 350                            | 1.08                           | amber/opaque               |
| 33350-22 | 55                | 500                             | 3.0                      | 37.5                                | 36.5                      | 320                            | 1.08                           | amber/opaque               |
| 33350-99 | 55                | 500                             | 3.0                      | 35-40                               | N/A                       | N/A                            | 1.08                           | Amber/opaque               |

\* Brookfield LVF, spindle #3 @ 60 rpm

\*\* with 1.25% by volume of Superox® 46747 per 100 grams resin

*Seta Closed Cup Flash Point of all PolyLite® 33350 resins is 31.6 °C (89 °F)*

*Shelf Life is three months. Minimum shelf life performance refers to product in the original, unopened container. Shelf stability is affected by storage conditions. See the "Storage" section of this bulletin for further details.*

**TYPICAL MECHANICAL PROPERTIES**

|   | ASTM TEST METHOD | CLEAR CASTING |
|---|------------------|---------------|
| Barcol Hardness .....                               | D-2583 .....     | 44            |
| Heat Distortion Temperature, °C {°F} .....          | D-648 .....      | 116 {241}     |
| Flexural Strength, psi .....                        | D-790 .....      | 21,000        |
| Flexural Modulus, x 10 <sup>5</sup> psi .....       | D-790 .....      | 5.1           |
| Tensile Strength, psi .....                         | D-638 .....      | 12,000        |
| Tensile Modulus, x 10 <sup>5</sup> psi .....        | D-638 .....      | 5.1           |
| Tensile Elongation @ Break, % .....                 | D-638 .....      | 4.0           |
| Water Absorption 24 hr. @ 25°C, % weight gain ..... | D-570 .....      | 0.17          |
| Water Absorption 2 hr. @ 100°C, % weight gain ..... | D-570 .....      | 0.59          |

Cure initiated with 1.25 vol% Superox® 46747. Clear casting cured overnight at room temperature, then post-cured 2 hours at 150°F and 2 hours at 250°F. Hydrex 100® 33350 resins are formulated for use with Superox 46747. Use of another initiator may result in inconsistent properties.

<sup>1</sup> Properties reported in this bulletin are typical of those obtained in controlled laboratory tests and may vary.

**HANDLING**

Hydrex 100® 33350 resins pre-promoted so that the addition of Superox® 46747 MEKP will induce gel and cure at room temperature. As with all polyesters, rate and degree of cure are functions of initiator concentration and of temperature. Resin and work area should be between 24°C (75°F) and 35°C (95°F) to ensure satisfactory results. Initiator levels should be within a range of 1.0-2.5% based on weight of resin. The use of initiator levels outside of this range may result in an inadequate cure, with laminates exhibiting moderate to severe post-cure after demolding. If different gel times are required, contact your Reichhold representative to determine alternative products available for special requirements.

Certain precautions are required to ensure proper secondary bond performance. Secondary bonding will be adversely affected in resin-rich areas or in laminates that have been exposed to heat or direct sunlight for an extended period of time. Contamination of the primary laminate (e.g., grinding dust, oil, moisture, waxes or release agents, etc.) will also adversely affect secondary bond performance. If any of these conditions occur, or if greater than 48 hours has elapsed, thorough sanding and cleaning of the substrate is recommended prior to secondary laminate application.

The type of glass reinforcement used will also affect secondary bond performance. A Reichhold representative will be happy to assist with selection of reinforcements.

**STORAGE**

To ensure maximum stability and maintain optimum resin properties, resins should be stored in closed containers at temperatures below 75°F (25°C) and away from heat sources and sunlight. All storage areas and containers should conform to local fire and building codes. Drum stock should be stored away from all sources of flame or combustion. Inventory levels should be kept to a reasonable minimum with first-in, first-out stock rotation.

Additional information on handling and storing unsaturated polyesters is available in Reichhold's application bulletin "Bulk Storage and Handling of Unsaturated Polyester Resins." For information on other Reichhold resins or initiators, contact your sales representative or authorized Reichhold distributor.

**SAFETY****READ AND UNDERSTAND THE MATERIAL SAFETY DATA SHEET BEFORE WORKING WITH THIS PRODUCT**

Obtain a copy of the material safety data sheet on this product prior to use. Material safety data sheets are available from your Reichhold sales representative. Such information should be requested from suppliers of any chemical and understood prior to working with the material.

**DIRECTLY MIXING ANY ORGANIC PEROXIDE WITH A METAL SOAP, AMINE, OR OTHER POLYMERIZATION ACCELERATOR OR PROMOTER WILL RESULT IN VIOLENT DECOMPOSITION.**

**TECHNICAL SUPPORT**

Reichhold's technical support staff has extensive practical experience with polyesters and manufacturing techniques. Please do not hesitate to request our assistance through your sales representative.

Copies of test methods used to determine reported properties are available through your Reichhold sales representative.

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