

POLYLITE® 33540-00 Shrink Control Tooling System

DESCRIPTION

POLYLITE® Profile 33540-00 is a MACT-compliant, shrink-controlled resin system with a 14-year track record of revolutionizing the cost and performance of FRP tools. POLYLITE® Profile 33540-00 is a non-promoted, non-thixotropic, unsaturated polyester laminating resin developed to be used with specific alumina trihydrate fillers for fabricating FRP tooling. This resin is formulated to cure at room temperature with the addition of Promoter 46559-00 (cobalt-based promoter solution), followed by Superox® 46750-00 (peroxide catalyst).

APPLICATIONS

- FRP tooling
- Other applications which require dimensional stability and high-quality surface

Similar Resin: POLYLITE® Profile 33541-00, pre-promoted.

FEATURES

- MACT Compliant Shrinkage Control Tooling System
 - 40 CFR Part 63, Subpart WWWW, Section 63.5935
- Marine MACT Compliant
 - Requires non-atomized application
 - Requires >45% Filler levels
- Less than 0.3% linear shrinkage per ASTM D-2556
 - Typically 0.1% linear shrinkage per ASTM D-2556
- Reduces tool-building time up to 80%
- Rapid Barcol development
- Changes color during cure
- Fillable to 50% with ATH
- Manufactured using statistical process and quality controls

BENEFITS

- Complies with MACT Regulation for Shrink Control Resins
- Tools reproduce master exactly
- Resulting tools are stress-free
- Print-through and surface distortion eliminated
- Minimized potential for pre-release
- Reduced post-finishing time
- Significant labor cost reduction
- Prototype tools can be made quickly and economically
- Tools can go into production sooner
- Tools can be demolded earlier
- Quality control indicator
- Lower composite cost
- Increased composite stiffness
- Consistent performance, batch to batch

The information herein is general information designed to assist customers in determining whether our products are suitable for their applications. Our products are intended for sale to industrial and commercial customers. We require customers to inspect and test our products before use and to satisfy themselves as to contents and suitability for their specific applications. We warrant that our products will meet our written specifications. **Nothing herein shall constitute any other warranty express or implied, including any warranty of merchantability or fitness for a particular purpose,** nor is any protection from any law or patent to be inferred. All patent rights are reserved. The exclusive remedy for all proven claims is limited to replacement of our materials and in no event shall we be liable for special, incidental or consequential damages.



PROPERTIES

PHYSICAL DATA IN LIQUID STATE AT 25°C / 77°F

Properties	Unit	Value	Test Method
Non-Volatiles, NV	%	53	18-001/B070
Viscosity - Brookfield, LVF, #1 at 30 rpm	cps/ mPa's	120	18-021/ASTM D 2196-86
Gel time With 0.5 parts (by weight) Promoter 46559-00 followed by 1.25% (by weight) Superox® 46750-00	minutes	22	
Total time to Peak	minutes	29	
Peak Exotherm	°C / °F	213 / 415	
Flash Point (Seta Closed Cup)	°C / °F	32 / 89	ASTM D 3278-95
Weight per Gallon	lbs	8.8	
Color		Clear amber	
Shelf life, minimum	months	3	

FILLED PROPERTIES AT 25°C / 77°F

Properties	Unit	Value	Test Method
Viscosity - Brookfield, LVF, #3 at 60 rpm	cps/mPa's	850	18-021/ASTM D 2196-86
Gel time With 0.5 parts (by weight) Promoter 46559-00 followed by 1.25% (by weight) Superox® 46750-00	minutes	19	
Total time to Peak	minutes	29	
Peak Exotherm	°C / °F	127 / 260	
Weight per Gallon	lbs	12.3	
Shrinkage, linear	%	0.3 Maximum	ASTM D-2566

FILLED MATRIX

Polylite® Profile 33540-00	parts	100	
Promoter 46559-00	parts (bor)	0.5	
Alumina Trihydrate With 0.5 parts (by weight) Promoter 46559-00 followed by 1.25% (by weight) Superox® 46750-00	parts (bor)	100	
Superox® 46750-00	parts (bor)	1.25	

Type and lot of alumina trihydrate may significantly influence gel and cure times. Testing is recommended prior to production use. Filled properties reported in this bulletin were attained using R.J. Marshall Company A-208 alumina trihydrate filler. To reduce the effect of filler on gel time, a filler with a medium particle size (10-18µ) is recommended.

POLYLITE® 33541: **Gel Time:** 25 to 28 min. at 1.25% Superox® 46750 -00
Viscosity: 120 cps/ mPa's (Brookfield LVF#1 at 30 RPM)

HANDLING AND CURING

USE AT LOW AMBIENT TEMPERATURES

To achieve the best possible profile when using the PolyLite® Profile system, an ambient temperature of 24°C/75°F or higher should be maintained. Warming the filled resin will improve sprayability, but it will not compensate for a cool ambient temperature. The chopper gun slave arm should not be set beyond 1.25% initiator. (1.25% is equivalent to delivering 1.88% based on resin.) Although increasing the peroxide level may shorten the gel time, it may also retard cure.

In cases where the recommended ambient temperature cannot be maintained, additional Promoter 46559-00 promoter should be added to the mix until the proper test laminate hardness development is achieved. A 120-mil thick test laminate should be made before using any mix. At ambient temperatures below 24°C /75°F, the laminate should be tested for Barcol development. A Barcol of 20-25 should be obtained in 3 hours or less. If the Barcol is below this level, an additional 0.1% of Promoter 46559-00 should be added to the mix. If a Barcol of 20-25 still cannot be obtained in 3 hours, the use of PolyLite® Profile 33540-00 should be delayed until the ambient temperature can be maintained at 24°C /75°F.

The procedures outlined in Reichhold's *Profile Tooling Manual* should be followed when using PolyLite® Profile 33540-00.

PolyLite® Profile 33540-00 is unpromoted and requires the addition of 0.4-0.6 parts (by weight) of Promoter 46559-00 before catalyzing with Superox® 46750-00 initiator. Promoter levels below 0.4 parts are not recommended. Thoroughly mix the promoter into the resin before adding the initiator. Adding Superox® 46750-00 will induce gel and cure at room temperature. Superox® 46750-00 levels should be between 1 and 2 parts, based on weight of resin. Using initiator levels outside of this range may result in inadequate cure.

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) will also adversely affect secondary bond performance. The laminate surface must be free of contamination prior to secondary bond 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 24°C/75°F and away from heat ignition sources and sunlight. Resin should be warmed to at least 18°C/65°F prior to use in order to assure proper curing and handling. All storage areas and containers should conform to local fire and building codes. Copper or copper containing alloys should be avoided as containers. Store separate from oxidizing materials, peroxides and metal salts. Keep containers closed when not in use. 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 all products and understood prior to working with their materials.

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

SUPEROX[®] 46-750

DESCRIPTION

Superox[®] 46-750 is formulated specifically for use in RTM and tooling resins. It will give you a uniform cure in both thick and thin sections of RTM parts. Allows for thick laminate buildup, reducing tool-making time.

TYPICAL PROPERTIES

Active Oxygen	5.6 % , max.
Form	Liquid
Color	Water white
Specific Gravity @ 25°/4°C	1.15
Flash point (C.O.C.)	200°F, min.
Fire point	200°F, min.
Flash point (SETA C.C.)	150°F, min.
Soluble in	Oxygenated organic solvents
Moderately soluble in	Water

APPLICATION

Superox[®] 46-750 is an excellent liquid general-purpose cure initiator for the room temperature cure of polyester resins. Superox[®] 46-750 is a great tool for improving green strength development, resulting in faster mold cycling for increased production and good physical properties. Superox[®] 46-750 is also great for controlling exotherm temperatures.

SUPEROX[®] 46-750

STORAGE

- Storage at 80°F or below is recommended. Storage below 70°F is recommended for maximum shelf life.
- Store in original containers **away** from flammables and all sources of heat, sparks, or flames; out of direct sunlight; and **away** from **cobalt naphthenate**, other promoters, accelerators, oxidizing or reducing agents and strong acids or bases.
- **Leaking containers** – Remove and isolate in a safe area. Re-package or dispose immediately (see **spills**).
- **Never** store in refrigerators containing food and/or beverages.
- Consult National Fire Protection Association (NFPA) Code 432 and/or local regulatory agencies.
- Rotate stock, use oldest date first.

HANDLING

- Inform all personnel of procedures for safe handling and review MSDS with them.
- Remove from storage area only the amount needed for one shift.
- Wear safety glasses or goggles and chemical resistant gloves.
- Keep away from heat, flames, and sparks.
- Avoid breathing vapors.
- Dilution is not recommended.
- **Never** add peroxides directly to promoters or vice-versa, violent decomposition can occur.
- Prevent contamination such as contact with dust, over spray, wood, and combustible material.
- Avoid contact with materials other than polyethylene, polypropylene, Teflon®, Tygon®, or similar materials, glass or glass-lined steel, and 304 or 316 stainless steel or equivalent.

FIRST AID

- **EYES** – Flush immediately with large amounts of fresh water and continue washing for at least 15 minutes. **Medical attention is needed.**
- **SKIN** – Wash with soap and water.
- **INGESTION** – Administer large amounts of milk or water and call a physician immediately. Do not induce vomiting. As an aid to the physician, suggest calling your local Poison Control Center.

SPILLS

- Clean up immediately by absorbing with inert material – vermiculite or sand.
 - After absorbing, moderately wet immediately with water and place in a clean plastic bag inside a plastic pail.
 - Dispose of immediately in accordance with local, state, and federal regulations.
- NOTE:** Spilled peroxides, if not immediately cleaned up, can become contaminated and ignite or decompose in a hazardous, violent manner.

FIRE

- Peroxides ignite readily and burn vigorously with acceleration.
- Use water from a safe distance – preferably with a water-fog nozzle.
- For very small fires, an extinguisher with carbon dioxide, foam, or dry chemical may be effective.
- In case of fire in or near a storage area, cool stored containers with water spray.

PACKAGING, SHIPPING & AVAILABILITY

- The standard package sizes of Superox[®] 46-750 are cases of 4x8 lb. and 4x4 kg polyethylene bottles; and 40 lb. or 20 kg Hedpacks. For custom package sizes, please contact your local distributor or Syrgis Performance Initiators, Inc.
- Classification – Please refer to the specific Superox[®] 46-750 Material Safety Data Sheet under section 14, Shipping Description.
- Superox[®] 46-750 is available through a nation-wide distributor network. Call Syrgis Performance Initiators, Inc. for the name of the distributor in your area.

NOTE: MSDS's for all our products may be requested thru the website www.syrgisperformanceinitiators.com

"The information contained in this bulletin is based on information received of our staff and of others and is presented in good faith and with every belief in its accuracy. Due to the extensive technology involved in its usage, the manufacturer in no way guarantees such information, nor does he make any recommendations as to its use in the infringement of any patent. The information contained in this bulletin supersedes and replaces all information contained in all previous bulletins. Seller makes no warranty of any kind, expressed or implied, except that the goods sold hereunder shall meet the specifications of the buyer. After goods are accepted by the buyer within the time specified the buyer assumes all risk and liability for damages resulting from the use of the goods. Whether used by the buyer singly or in combination with other products, or if sold by buyer to third persons either in its original form or if repackaged by buyer and then sold to third persons."



SYRGIS PERFORMANCE INITIATORS, INC.

334 Phillips 311 Road, Helena Arkansas 72342

Tel. (800) 786-6722 • Fax (800) 987-0845 • www.syrgis.com

Distributed By
Freeman Manufacturing & Supply Co.
www.freemansupply.com 800-321-8511

