



# POLYCOR®

## 948 Series Enamel Gel Coats

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### Description

POLYCOR® 948 Series enamels are formulated to be used as topcoats on fiberglass laminates such as boat and camper shell interiors. Normally enamels are used as interior finishes or to cover a laminate to provide a colored surface.

POLYCOR® 948 Series enamels are available in white or any of the colors listed in the standard color gel coat color deck. Special colors are available upon request. They can be made from an isophthalic or ISO/NPG base resin. Consult a Polynt Composites sales representative to find out more about a particular product.

### Features and Benefits

- Cure tack-free
- Can be used like paint – a topcoat to seal and hide a substrate
- Produce a hard, tough, durable, flat finish
- Good water resistance characteristics
- Reduced VOC emissions

Enamels cannot be used as gel coats because they contain wax and cure tack-free, thus delamination and pre-release could result. But, in addition to providing a tack-free surface, the wax helps to suppress styrene, which reduces the volatile organic compounds emitted into the air.

Standard enamels should not be used for water immersion service. Contact a Polynt Composites sales representative for a recommendation if water immersion is required.

### Typical Liquid Properties (at 77°F)

The liquid properties of POLYCOR® 948 Series enamels are shown below. These values may or may not be manufacturing control criteria; they are listed as a reference guide only. Particular batches will not conform exactly to the numbers listed because storage conditions, temperature changes, age, testing equipment (type and procedure) can each have a significant effect on the results. Products with properties outside of these readings can perform acceptably. Final suitability of this product is in the end use performance.



Test	948 Series Colors	948 Series Whites	948 Series Brushables
Viscosity <sup>(1)</sup>	11,000-20,000 cps	15,000-21,000 cps	18,000-23,000 cps
Thixotropic Index	5.0-8.0	5.5-7.5	6.0-9.0
Gel Time <sup>(2)</sup>	10-17 minutes	10-17 minutes	11-20 minutes
Tack Free/Dull Gloss Time	60-90 minutes	60-90 minutes	60-90 minutes
Adhesion Time	4 hours	4 hours	4 hours
Solvent Wipe Time	After overnight cure, slight color may be removed but surface will remain tack-free		
Sag Resistance	Good @ 20 mils	Good @ 20 mils	Good @ 20 mils
Hide	Generally complete at 10 mils		
Weight per Gallon	10.0-10.8 lbs/gal	10.5-11.0 lbs/gal	10.0-11.0 lbs/gal

<sup>(1)</sup> Brookfield RVF #4 spindle @ 4 rpm

<sup>(2)</sup> Method POLYNT-22-TAS-TM-515.2, 100 g mass, 1.8% Arkema Luperox® DDM-9

POLYCOR® 948 Series enamels are available in various colors and cure rates. Ask a Polynt Composites representative about a specific formulation.

Reds, yellows and dark blues may have low hiding power. Ask a Polynt Composites representative whether the selected red, yellow or blue requires a special application procedure, which would amount to increased film thickness in multiple cure applications.

## Application

POLYCOR® 948 Series enamels should be mixed prior to use. Use mixing equipment with sufficient horsepower (relative to container size) to achieve thorough circulation from top to bottom and out to the sides of the container. The agitator must be properly sized for the container and must allow for uniform mixing regardless of the liquid level in the container. Mixing once a day for 10 minutes is typically sufficient. Air bubbling should not be used for mixing. It is not effective and only serves as a potential source of water or oil contamination. Do not overmix POLYCOR® 948 Series enamels. Overmixing can break down the resin viscosity increasing the tendency to sag.

POLYCOR® 948 Series enamels should be sprayed after the laminate has cured and while it still has a tacky surface. Glossy/resin rich laminates may cause the enamel to separate, sag, and have poor adhesion. Ensure that glossy areas are well sanded, then blow off the area and clean with solvent.

Laminates containing a “wax surface” or “mold release” should be sanded before coating with POLYCOR® 948 Series enamel. Sand with rough sandpaper to remove all indications of wax or mold release, and then wash with solvent.

If a fleck coat or cobwebbing of POLYCOR® 948 Series enamel is desired over the base coat of enamel, it should be applied while the base coat is wet.



Most POLYCOR® 948 Series enamels are formulated for spray application. Brushable versions have the word “Brushable” included in the product description and the product code has a B at the end. Refer to Polynt’s Composites Applications Guide for guidelines on brush application.

Non-brushable versions are formulated for spray application, but they can be rolled. Brushing these versions is not recommended due to flow and leveling issues. When spraying, the equipment must be well maintained and regularly calibrated. Application procedure recommendations should be followed carefully. Poorly maintained equipment or poor application will quickly negate the beneficial properties of these enamels. Refer to Polynt’s Composites Applications Guide for equipment and application recommendations.

Polynt Composites does not recommend fluid lines longer than 50 feet or pumps smaller than 20:1 ratio. Polynt Composites recommends an enamel delivery rate of no more than 2.5 pounds per minute with conventional air atomized equipment and no more than 4 pounds per minute with airless equipment.

When establishing the fan pattern for the spray equipment, use the lowest pump pressure needed to achieve a good fan pattern (no fingers or tails, uniform particle size of about 1/16”). Use of higher pressures can lead to a porosity or excessive overspray. Overspray can result in a leathery or chicken skin texture if it falls on the part surface. To minimize overspray that falls onto the mold, plan the spray pattern so that the beginning is closest to the vapor/air exhaust and progresses to the opposite mold end. The spray pattern should also allow for a wet line to be maintained.

A spray distance of 18-36 inches is recommended. Closer spray distances can result in blowing of the film or air entrapment. Spraying at distances greater than 4 feet will increase orange peel and porosity. For deep channels, recessed, and hard-to-spray areas, an extension nozzle is highly recommended.

For best overall end performance properties, a wet film thickness of 16-20 mils is recommended. The film should be applied in multiple passes with each pass having a thickness of 5-8 mils. More rapid film build could result in some sag and porosity. Films less than 12 mils may not cure properly, may be hard to patch, have more print-through, and be more susceptible to water blisters. Films above 24 mils may pre-release, trap porosity, crack and are more subject to weathering discoloration.

One gallon of POLYCOR® 948 Series enamel will cover approximately 60-80 square feet, depending on the film thickness of the coating.

## Cure

It is recommended that gel time be checked in the customer’s plant because age, temperature, humidity and catalyst will produce varied gel times. All data referencing gel or cure refers specifically to Arkema Luperox® DDM-9 catalyst. United Initiators NOROX® MEKP-9 and NOROX® MEKP-9H, Akzo Nobel CADOX® L-50a and CADOX® D-50 are expected to yield similar performance. Arkema Luperox® DHD-9, NOROX® MEKP-925 and NOROX® MEKP-925H, and Pergan HP®-90 may yield slightly shorter gel and cure times.

The recommended catalyst range is 1.2-3.0%, with 1.8% at 77°F being ideal. Cure characteristics are dependent on material temperature, room temperature, humidity, air movement, and catalyst concentration.

Special fast cure versions are available but must be requested. These products offer lay-up times of less than 45 minutes. Fast cure products have shorter stability and should not be inventoried over 45 days.



Enamels (whether standard or fast cure) should not be used when temperature conditions are below 70°F, as curing may be adversely affected.

### Caution

POLYCOR® 948 Series enamels are not compatible in the liquid state with gel coats or resins. Spray and pumping equipment must be completely clean of these gel coats or resins before enamels can be used.

Do not add any material, other than the recommended methyl ethyl ketone peroxide, to this product without the advice of a representative of Polynt Composites.

### Storage Limitations

Uncatalyzed, POLYCOR® 948 Series enamels have a shelf life of 120 days from date of manufacture when stored at 73°F or below in a closed, factory-sealed, opaque container, and out of direct sunlight. Fast cure enamels (gel time less than 9.0 minutes) have a shelf life of 60 days. Shelf life is cut in half for every 20°F over 73°F. Totes of product can have even shorter shelf life – 66% of that for drums.

### SDS / Data Sheets

SDS and data sheets can be obtained by contacting your Polynt representative or Polynt Customer Service at 800-322-8103.

## POLYNT SAFETY INFORMATION

All sales of products manufactured by Polynt Composites USA Inc. and described herein, are made solely on condition that Polynt Composites USA customers comply with applicable health and safety laws, regulations and orders relating to the handling of our products in the workplace. Before using, read the following information, and both the product label and Safety Data Sheet pertaining to each product.

Most products contain styrene. Styrene can cause eye, skin and respiratory tract irritation. Avoid contact with eyes, skin and clothing. Impermeable gloves, safety eyewear and protective clothing should be worn during use to avoid skin and eye contact. Wash thoroughly after use.

Styrene is a solvent and may be harmful if inhaled. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Extended exposure to styrene at concentrations above the recommended exposure limits may cause central nervous system depression causing dizziness, headaches or nausea and, if overexposure is continued indefinitely, loss of consciousness, liver and kidney damage.

Do not ingest or breathe vapor, spray mists or dusts caused by applying, sanding, grinding and sawing products. Wear an appropriate NIOSH/MSHA approved and properly fitted respirator during application and use of these products until vapors, mists and dusts are exhausted, unless air monitoring demonstrates vapors, mists and dusts are below applicable exposure limits. Follow respirator manufacturer's directions for respirator use.

The 12th Report on Carcinogens issued by the National Toxicology Program lists styrene as a "reasonably anticipated" carcinogen, but the Report cautions that the NTP listing does not mean that styrene presents a risk to persons in their daily lives. The Styrene Information and Research Center does not agree with the classification as it did not include a review of all available data. SIRC states: "HHS included styrene in the 12th RoC despite the fact that European Union regulators have determined styrene does not represent a human cancer concern. E.U. scientists reviewed the full styrene database, weighing all of the available data in reaching their conclusion."

The International Agency for Research on Cancer (IARC) reclassified styrene as Group 2B, "possibly carcinogenic to humans." This revised classification was not based on new health data relating to either humans or animals, but on a change in the IARC classification system. The Styrene Information and Research Center does not agree with the reclassification and published the following statement: Recently published studies tracing 50,000 workers exposed to high occupational levels of styrene over a period of 45 years showed no association between styrene and cancer, no increase in cancer among styrene workers (as opposed to the average among all workers), and no increase in mortality related to styrene.

Styrene is classified by OSHA and the Department of Transportation as a flammable liquid. Flammable products should be kept away from heat, sparks, and flame. Lighting and other electrical systems in the workplace should be vapor-proof and protected from breakage.

Vapors from styrene may cause flash fire. Styrene vapors are heavier than air and may concentrate in the lower levels of molds and the work area. General clean air dilution or local exhaust ventilation should be provided in volume and pattern to keep vapors well below the lower explosion limit and all air contaminants (vapor, mists and dusts) below the current permissible exposure limits in the mixing, application, curing and repair areas.

Some products may contain additional hazardous ingredients. To determine the hazardous ingredients present, their applicable exposure limits and other safety information, read the Safety Data Sheet for each product (identified by product number) before using. If unavailable, these can be obtained, free of charge, from your Polynt Composites representative or from: Polynt Composites USA Inc., 99 East Cottage Avenue, Carpentersville, IL 60110, 800-322-8103.

FIRST AID: In case of eye contact, flush immediately with plenty of water for at least 15 minutes and get medical attention; for skin, wash thoroughly with soap and water. If affected by inhalation of vapors or spray mist, remove to fresh air. If swallowed, get medical attention.

Those products have at least two components that must be mixed before use. Any mixture of components will have hazards of all components. Before opening the packages read all warning labels. Observe all precautions.

Keep containers closed when not in use. In case of spillage, absorb with inert material and dispose of in accordance with applicable regulations. Emptied containers may retain hazardous residue. Do not cut, puncture or weld on or near these containers. Follow container label warnings until containers are thoroughly cleaned or destroyed.

**FOR INDUSTRIAL USE AND PROFESSIONAL APPLICATION ONLY. KEEP OUT OF REACH OF CHILDREN.**

## LIMITED WARRANTY AND LIMITATION OF LIABILITY

### LIMITED WARRANTY.

Seller warrants that: (i) Buyer shall obtain good title to the product sold hereunder, (ii) at shipment such product shall conform to Seller's specifications for the product; and (iii) the sale or use of such product will not infringe the claims of any U.S. patent covering the product itself, but Seller does not warrant against infringement which might arise by the use of said product in any combination with other products or arising in the operation of any process. **SELLER MAKES NO OTHER WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, EVEN IF THAT PURPOSE IS KNOWN TO SELLER. ANY ADDITIONAL REPRESENTATIONS OR SUGGESTIONS REGARDING THE PRODUCT OR ITS POSSIBLE USES ARE BASED UPON SELLER'S GOOD FAITH OPINION AND BELIEF, BUT ARE NOT TO BE CONSTRUED AS AFFIRMATIONS OF FACT, PROMISES, OR DESCRIPTIONS, AND SHALL IN NO WAY BE DEEMED PART OF THE SALE OF PRODUCT.** In particular, and without limiting the foregoing, because of environmental and use conditions beyond Seller's control, Seller offers no warranty and makes no promise concerning the results that may be obtained by the Buyer (or the Buyer's customer) with the product or the performance of the product. Each user should satisfy itself, by adequate testing, of the suitability of the product for its particular application.

### LIMITATION OF LIABILITY.

- (a) Seller's total liability for any claim arising out of or in connection with this contract, including for breach of contract, warranty, statutory duty, or for other tort, including seller's negligence, shall not exceed the purchase price of such product as to which such liability arises. Seller shall not be liable for any injury, loss or damage, resulting from the handling or use of the product shipped hereunder whether in the manufacturing process or otherwise. **IN NO EVENT SHALL SELLER BE LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION LOSS OF PROFITS, CAPITAL OR BUSINESS OPPORTUNITY, DOWNTIME COSTS, OR CLAIMS OF CUSTOMERS OR EMPLOYEES OF BUYER, WHETHER IN AN ACTION UNDER CONTRACT, NEGLIGENCE OR ANY OTHER THEORY, ARISING OUT OF OR IN CONNECTION WITH THIS CONTRACT, OR THE USE, INABILITY TO USE, OR PERFORMANCE OF THE PRODUCT.**
- (b) If Seller furnishes technical or other advice to Buyer, whether or not at Buyer's request, with respect to processing, further manufacture, other use or resale of the products, Seller shall not be liable for, and Buyer assumes all risk of, such advice and the results thereof.

The information provided is believed to be accurate at the time of preparation, or prepared from sources believed to be reliable, but it is the responsibility of user to investigate and understand other pertinent sources of information, to comply with all laws and procedures applicable to the safe handling and use of the product and to determine the suitability of the product for its intended use.