



# POLYCOR®

## 99C Series Casting Gel Coats

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### Description

POLYCOR® gel coats are high performance products formulated for the Casting Industry. These gel coats have lower volatile organic compounds (VOC) than conventional gel coats.

POLYCOR® gel coats meet the EPA National Emission Standards for Hazardous Air Pollutants (NESHAP): Reinforced Plastic Composites Production.

While offering lower VOC's, 99C gel coats have retained the important construction application qualities customers have come to expect from Polynt Composites gel coats, such as resistance to porosity, tearing, and color separation, sag resistance, consistent liquid properties, good patchability, and more. These all add up to higher quality appeal in FRP parts made from Polynt's 99C Series gel coats.

The 99C's are formulated to be resistant to water and certain chemicals. These gel coats were primarily developed for casting applications. These gel coats provide durable, reduced maintenance products.

These gel coats require only the addition of the proper amount of the appropriate methyl ethyl ketone peroxide to cure.

### Typical Properties (77°F)

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 test results. Gel coats with properties outside of these ranges can perform acceptably.

Test	POLYCOR® 99C Series (White or Colors)
Viscosity <sup>(1)</sup>	3,900 cps
Thixotropic Index (2/20)	6.0
Flash Point	88°F
Weight per Gallon	10.2-11.8 lbs.
Gel Time <sup>(2)</sup>	9.0-7.0 minutes
Lay-up Time	30-60 minutes
Sag Resistance	Good @ 20 mils
Hide (most formulations)	Complete @ 11 mils

<sup>(1)</sup> Brookfield RVF #4 Spindle @ 20 rpm

<sup>(2)</sup> 1.8% United Initiators Norox® MEK-Peroxide @ 77°F



## Application

Although POLYCOR® 99C gel coats are formulated as low VOC products, it should be noted that over-atomization of a gel coat means more volatilization (more overspray, more monomer and solids loss, more odor). It is important then to strive for good atomization (good fan pattern, no fingers or tails, uniform particle size of about 1/16") while maintaining lowest pump and atomizing pressures as practical.

The inherent chemistry of these gel coats does not allow for the same ease of *fluid movement* experienced with other gel coats. Adjustments may have to be made for pump pressure, delivery rate, tip size and atomization. Polynt Composites does not recommend fluid lines longer than 50 feet, or pumps smaller than 20:1 ratio. In addition, 99C's are more sensitive to cold temperatures than are other gel coats. POLYCOR® 99C's are formulated for airless as well as conventional spray application. Neither brushing nor rolling is recommended. Refer to Polynt's *Composites Applications Guide* ("Cookbook," Conventional Gel Coat–Spray Equipment) for equipment recommendations. For best results these high performance coatings require careful application procedures. Poor application will quickly negate the beneficial properties of these gel coats. Refer to Polynt's *Composites Applications Guide* ("Cookbook," Conventional Gel Coat–Application). Polynt Composites recommends a gel coat 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.

For optimum results, uniform catalyst mix must be achieved. Even with the equipment properly calibrated, potential problems can occur due to poorly atomized catalyst; surging problems (gel coat or catalyst); poor tip alignment (catalyst to gel coat mix); contamination; and poor application procedures, which will quickly negate all benefits of calibration. The equipment (and application procedures) must be monitored on a routine basis to ensure proper application and cure of the gel coat. Inquire about and adhere to all equipment manufacturers' recommendations.

For best overall end performance properties, a wet film thickness of  $18 \pm 2$  mils is recommended as ideal.

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.

In addition to the low VOC chemistry, the lower viscosity and thixotropic index result in both less overspray and less monomer loss, but the total film thickness should be sprayed in multiple passes (at least 3 at 18 mils, 4 at 20 to 24 mils). More rapid film build could result in some sag.

Proper mold maintenance is important. Although 99C's have excellent patching properties, minimal repair work is always desirable. Sanding and compounding can hasten the chalking and loss of gloss of all gel coats. Avoid overspray settling on mold surfaces by beginning the spray pattern closest to the vapor/air exhaust and progressing to the opposite mold end. Maintain recommended spray distances from the mold surface.

## 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, United Initiators Norox® MEKP-925 and Norox® MEKP-925H, and Pergan HP-90 may yield slightly shorter gel and cure times.



The catalyst level should not exceed 3% or fall below 1.2% for proper cure. Recommended range is 1.2% to 3.0% with 1.8% at 77°F being ideal. Normally, the gel coat film is ready for lamination in 30 to 45 minutes. This time element is dependent on material temperature, room temperature, humidity, air movement, and catalyst concentration. Special fast-cure versions are available upon request. Fast-cure products have shorter stability and should not be inventoried over 45 days.

These products should not be used when temperature conditions are below 60°F, as curing may be adversely affected.

### Caution

99C gel coats are not compatible in the liquid state with isophthalic gel coats or resins. Spray and pumping equipment must be completely clean of these products before 99C's can be used.

Do not overmix gel coats. Overmixing breaks down gel coat viscosity, increasing tendencies to sag, and causes styrene loss, which could contribute to porosity. Gel coats should be mixed once a day for 10 minutes. The gel coat should be mixing to the sides of the container with the least amount of turbulence possible. Air bubbling should not be used for mixing. It is not effective and only serves as potential for water or oil contamination.

Do not add any material, other than recommended methyl ethyl ketone peroxide, to these products without the advice of a representative of Polynt Composites. Under no circumstances should glycerin be added.

### Storage Limitations

Uncatalyzed, 99C Series gel coats have a shelf life of 120 days when stored at 73°F or below, in a closed, factory-sealed, opaque container, and out of direct sunlight. Fast cure 99C Series gel coats (gel time less than 9.0 minutes) have a shelf life of 60 days. For both standard and fast cure products the shelf life is measured from date of manufacture.

The shelf life is cut in half for every 20° 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.