



ARMORGUARD®

967 Series Vinyl Ester Barrier Coats 967BK150 (Black), 967WK396 (White)

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Description

ArmorGuard® 967BK150 and 967WK396 have been formulated as barrier coats to reduce osmotic blistering, and as *print blockers*, to provide a smoother gel coat finish.

Features and Benefits

- Reduced styrene
- Black color (967BK150) that provides a visual aid to see air bubbles during lamination
- White (967WK396) available for use behind low-hide colors
- Less osmotic (water) blistering
- Improved cosmetics due to reduced fiber print-through and distortion
- Reduced back-side tack

Using the IAPMO/ANSI Z.124.1 .2 – 2005, Sec. 6.1.1. Water Resistance Test Method, Polynt Composites' test results indicate that a *blister* rating of 4.0 (16 to 20 mils of gel coat, no barrier) can be reduced down to nearly *ZERO* using 16 to 20 mils of the same gel coat backed up with ArmorGuard® 967BK150 or 967WK396. The same test shows that fiber print is reduced down from a rating of about 1.0 to less than 0.3.

Do not use ArmorGuard® 967BK150 or 967WK396 as a finish coat, as exterior durability is poor, and will result in rapid chalking and fading.

ArmorGuard® Vinyl Ester 967BK150 and 967WK396 gel coats meet the EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) for Boat Manufacturing and Reinforced Composites Construction.

Both thixotropic and accelerated, ArmorGuard® 967BK150 and 967WK396 require only the proper amount and type of methyl ethyl ketone peroxide to cure at room temperature.

Typical Properties (77°F)

These values may or may not be manufacturing control criteria; they are listed as a reference guide only. Particular batches may 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	ArmorGuard® 967BK150	ArmorGuard® 967WK396
Viscosity ⁽¹⁾	13,500 cps	11,500 cps
Thixotropic Index (2/20)	5.0	5.5
Flash Point	88°F	88°F
Hazardous Air Pollutants	31.7%	32.0%
Volatile Organic Compound	36.2%	36.5%
Weight per Gallon	9.28 lbs	9.33 lbs.
Gel Time ⁽²⁾	11 minutes	12 minutes
Lay-up Time	60 minutes	60 minutes
Sag Resistance	@ 24 mils wet (<i>on top of a gel coat</i>)	@ 24 mils wet (<i>on top of a gel coat</i>)
Hide	Complete @ 20 mils wet	Complete @ 22 mils wet
Color Match	Black	White

⁽¹⁾ Brookfield RVF #4 spindle @ 4 rpm

⁽²⁾ 100 g mass, 1.8% Arkema Luperox® DDM-9

Application

Before mixing, ArmorGuard® 967BK150 or 967WK396 appear to be very thick in the container. It is important to mix the material before each use to provide the specified viscosity (*see table above*). Several suitable types of mixing equipment and styles of agitators are available for both pails and drums. Regardless of the specific type used, the equipment must have 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. Do not overmix ArmorGuard® 967BK150 or 967WK396. Overmixing can break down the polymer coating viscosity increasing the tendency to sag. Overmixing can also result in styrene loss which could contribute to porosity. Air bubbling should not be used for mixing. It is not effective and only serves as a potential source of water or oil contamination

Because of the low styrene nature of this product, fluid movement can be slow and sprayability can suffer if sprayed at a cold temperature. It is recommended that the temperature of the material be at least 75°F. In-line fluid heaters can be used to raise the temperature of the material to room temperature. In addition, a larger angle tip is recommended to compensate for a small fan; use a 0.021 inch orifice with a 60° fan. The fluid hose should be at least ½ inch diameter, but a four-foot length of 3/8 inch whip can be used at the gun.

Preferred method of application is spray, either conventional or air atomized, air-assisted airless, or airless. Recommended delivery rate is no more than 2.5 pounds per minute with air atomized equipment and no more than 3 pounds per minute with airless equipment. Brushing or rolling is not recommended. Spray 20 to 24 mils wet, behind a cured cosmetic gel coat. CAUTION: Do not spray less than 16 mils wet.



Less than 16 mils wet will not cure properly and can actually cause blisters worse than if there was no barrier coat at all.

As with conventional gel coats, spray approximately 6 mils per pass, up to the desired thickness.

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 suitable application and cure of the barrier gel coat. Ask about and adhere to all equipment manufacturers' recommendations.

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. Other MEKP type catalysts with low hydrogen peroxide levels similar to Luperox® DDM-9 should also be suitable.

The recommended catalyst range for proper cure is 1.2% to 2.5%, with 1.8% at 77°F being ideal. Normally, the barrier coat film is ready to lay-up within 60 minutes. Lay-up time is dependent on material temperature, room temperature, humidity, air movement, and catalyst concentration.

This product should not be used when temperature conditions are below 65°F, as cure may be adversely affected.

Caution

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

Storage Limitations

Uncatalyzed, this product has a shelf life of 90 days from date of manufacture when stored at 73°F or below, in a closed, factory-sealed, opaque container, and out of direct sunlight. The 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.

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