

ARMORGUARD™VE

967BK150 (Black)

967WK396 (White)

Vinyl Ester Barrier Coats

Copyright 2006-2009

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. A number of benefits have been demonstrated, capitalizing on some of these products' unique properties. Among these benefits are:

- 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, CCP's 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 .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 catalyst to cure at room temperature.

Typical Properties (at 77°F):

These values may or may not be manufacturing control criteria; they are listed for 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.



967BK150 & 967WK396 - Copyright 2006-2009

Test	967BK150	967WK396
Viscosity, Brookfield RVF #4 Spindle @ 4 rpm	12,000 – 15,000 cps	10,000 – 13,000 cps
Thixotropic Index (2/20)	4.0 – 6.0	4.5 – 6.5
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 @ 1.8% DDM-9	8 – 13 minutes	9 – 14 minutes
Lay-up Time	60 minutes	60 minutes
Sag Resistance	At 24 mils wet (on top of a gel coat)	At 24 mils wet (on top of a gel coat)
Hide	Complete at 20 mils wet	Complete at 22 mils wet
Color Match	Black	White

Refer to the MSDS for handling precautions. MSDS's will be supplied automatically with the first order for material, and are available by product code upon request from CCP's Regulatory Department, or on CCP's website at www.ccpcompositesus.com.

Application

At rest, the ArmorGuard® 967BK150 or 967WK396 appear to be very thick in the container. It is important to mix the material (before each use) to break down this high viscosity.

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 .021 inch orifice with a 60° fan. The fluid hose should be at least 1/2 inch in 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.**

967BK150 & 967WK396 - Copyright 2006-2009

As with conventional gel coats, spray approximately 6 mils per pass, up to the desired thickness. See MB-324 for additional specific application and equipment data.

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. 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.

Catalyst level should not exceed 2.5% or fall below 1.2% for proper cure. The recommended catalyst range for proper cure is 1.2% to 2.5%, with 1.8% at 77°F being ideal. Normally, the gel coat film is ready to lay up within 60 minutes. This time element 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 over-mix gel coats. Over-mixing 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 and bottom 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 a potential for water or oil contamination.

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

Storage Limitations

Uncatalyzed, this product has a usage life of 60 days from date of shipment from CCP when stored at 73°F or below, in a closed, factory-sealed, opaque container, and out of direct sunlight. The usage life is cut in half for every 20°F over 73°F. Totes of product can have even shorter usage life--66% of that for drums.

Data Sheets/MSDS

CCP data sheets and MSDS's are available in printable format at www.ccpcompositesus.com.

967BK150 & 967WK396 - Copyright 2006-2009

**CCP COMPOSITES US
WARRANTIES, DISCLAIMERS AND LIMITATION OF LIABILITY (Rev. 10/11)**

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; 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 APPLICATION INFORMATION OR ASSISTANCE WHICH SELLER MAY FURNISH TO BUYER IS GRATUITOUS AND SHALL IN NO WAY BE DEEMED PART OF THE SALE OF PRODUCT HEREUNDER OR A WARRANTY OF THE RESULTS OBTAINED THROUGH THE USE OF SUCH PRODUCT.**

Without limiting the generality of the foregoing, if any product fails to meet warranties mentioned above, Seller shall at Seller's option either replace the nonconforming product at no cost to Buyer or refund the Buyer the purchase price thereof. The foregoing is Buyer's sole and exclusive remedy for failure of Seller to deliver or supply product that meets the foregoing warranties. Seller's liability with respect to this contract and the product purchased under it shall not exceed the purchase price of the portion 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 limitations loss of profits, capital or business opportunity, downtime costs, or claims of customers or employees of Buyer. Failure to give Seller notice of any claim within thirty (30) days of shipment of the product concerned shall constitute a waiver of such claim by Buyer. Any product credit received by Buyer hereunder, if not used, shall automatically expire one (1) year from the date the credit was granted. Notwithstanding any applicable statute of limitations to the contrary, any action by Buyer relation to a claim hereunder must be instituted no later than two (2) years after the occurrence of the event upon which the claim is based. All the foregoing limitations shall apply irrespective of whether Buyer's claim is based upon breach of contract, breach of warranty, negligence, strict liability, or any other legal theory.

967BK150 & 967WK396 - Copyright 2006-2009

COMPOSITES SAFETY INFORMATION (October 2011)

All sales of products manufactured by CCP Composites US (CCP), and described herein, are made solely on condition that CCP's 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 Material 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 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 work place 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 Material Safety Data Sheet for each product (identified by product number) before using. If unavailable, these can be obtained, free of charge, from your CCP representative or from: CCP Composites US, P.O. Box 419389, Kansas City, MO 64141-6389; 816-391-6053.

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.