Technical data sheet

POLYCOR®

969 Series

Sanding Gel Coats

Description

POLYCOR® 969 sanding gel coats have low volatile organic compound properties that are demonstrated as:

- Reduced monomer losses into the air; less over-spray
- Cured film thickness can be 5 to 7% more than other gel coats
- Less odor
- Smoother sprayed film (less orange peel)

While offering these benefits, these gel coats have retained the important construction application qualities customers have come to expect in CCP Composites Co. 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 CCP 969 series gel coats.

POLYCOR® 969 gel coats meet the EPA National Emission Standards for Hazardous Air Pollutants (NESHAP): Reinforced Composites Production. Some versions in **the POLYCOR®** 969 series are formulated to meet South Coast Air Quality Management District (SCAQMD) Rule 1162. Refer to the individual product MSDS for specific HAP and monomer content information.

These gel coats have been specifically formulated for use as a sanding substrate. Sanding gel coats are used for FRP parts that will be subsequently painted. They can be used for room temperature and heated molding (RTM) applications. These products can be post baked at temperatures up to 285°F for as long as two hours.

They may also be used for utility, non-critical exterior applications. They are not intended (nor should they be used) as a surface coat for the marine, tub/shower or swimming pool industries. They should not be used for water immersion service, (boat hull, swimming pool, spa, water tank, etc.) even if/when painted. These products combine easy spray, resistance to porosity and pinholing, and ease of sanding when cured.

POLYCOR® 969 sanding gel coats are ready to use and require only the addition of the proper amount of an appropriate methyl ethyl ketone peroxide to cure.

POLYCOR® 969 sanding gel coats are available in various colors, and cure rates. Contact a CCP sales representative with specific product requirements.

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 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	Standard Cure	Fast Cure
Viscosity, Brookfield RVF #4 Spindle @ 4 rpm	13,000 – 18,000 cps	13,000 – 18,000 cps
Thixotropic Index RVF #4 Spindle @ 2/20 rpm	4.5 – 6.5	4.5 – 6.5
Flash Point	88°F	88°F
Hazardous Air Pollutants	See MSDS for amounts	See MSDS for amounts
Volatile Organic Compound	23 – 38%	23 – 38%
Weight per Gallon	11.0 – 12.0 lbs.	11.0 – 12.0 lbs.
Gel Time at 1.8% MEKP	11 - 16 minutes	7 – 11 minutes
Lay-up Time	60 – 75 minutes	30 – 45 minutes
Sag Resistance	Good at 20 mils	Good at 20 mils
Hide Complete (Most Formulations)	Complete at 10 mils	Complete at 10 mils

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.

Application

Although POLYCOR® 969's are formulated as low VOC products, it should be noted that over-atomization of a gel coat means more volatilization (more over-spray, 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 inch) while maintaining lowest pump and atomizing pressures as practical.

The inherent chemistry of low VOC 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. CCP does not recommend fluid lines longer than 50 feet, or pumps smaller than 20:1 ratio. In addition, 969's are more sensitive to cold temperatures than are other gel coats.

These products are formulated for airless, air-assist airless and conventional spray application. Neither brushing nor rolling is recommended. Refer to CCP's Composites Application Guide, 10th Edition, Part Four, Chapter II.3 (page 29), 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 ccp's composites application guide, 10th edition, part four, chapter ii.4 (page 46), conventional gel coat – application.

CCP recommends a gel coat delivery rate of no more than 2.5 pounds a minute with conventional air atomized equipment, and no more than 4 pounds a minute with airless or air-assist airless equipment.

Batch mixing is ideal to achieve the best catalyst mix and cure, because 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.

For the best end performance properties, a wet film thickness of 18 ± 2 mils is recommended as ideal. Films less than 12 mils may not cure properly, may be hard to patch, and will have more print-through. Films above 24 mils may pre-release, trap porosity, and crack more easily.

In addition to the low VOC chemistry, the lower viscosity and thixotropic index result in both less over-spray 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 POLYCOR® 969's have excellent patching properties, minimal repair work is always desirable.

Avoid over-spray 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.

For RTM, molds above 100°F require a high temperature mold release. The mold type and temperature will affect mold release selection. See mold release data sheets for proper selection. Note: Mold release transfer can affect paintability and must be evaluated with the final paint system.

Mold release agent(s) must be properly wiped off the mold before spraying gel coat. Residual mold release will cause *wax spews* when parts are sanded and baked.

Parts should be washed, scuff-sanded to remove all gloss, and washed again with a suitable solvent. This should remove any mold release transfer and provide for mechanical adhesion of paint systems. Note: Parts should be inspected just before painting because they can pick up moisture and other contaminates if not properly stored.

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. Norac 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 Chemtura HP-90 may yield slightly shorter gel and cure times.

Room Temperature

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 60 to 75 minutes with standard cure products, and 30 to 45 minutes with fast cure materials. This time element is dependent on product, material temperature, room temperature, humidity, air movement, and catalyst concentration. Fast cure products have shorter stability and should not be inventoried over 45 days.

RTM

The catalyst level should not exceed 2% or fall below 1.0% for proper cure. Recommended range is 1.0% to 2.0%.

-- Common RTM molding temperature is 140°F. At 140°F, the gel time is very fast (less than 3 minutes). Changes in catalyst levels will not greatly affect gel time at temperatures above 100°F but will affect the cure. For proper cure, do **NOT** go below 1.0% MEKP.

-- Temperatures above 180°F may require a specialized catalyst/promotion system. Lay-up, glass placement and/or resin injection time will vary depending on temperature. At temperatures in the 140°F range, the injection window is between 5 to 10 minutes. Note: When heated molds are used, gel coat must be processed as soon as possible to prevent pre-release and poor adhesion

Caution

POLYCOR® 969 sanding gel coats are not compatible in the liquid state with isophthalic gel coats or isophthalic resins. Spray and pumping equipment must be completely clean of these gel coats or resins before POLYCOR® 969's can be used.

Do not over-mix gel coats. Over-mixing can break 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 a potential for water or oil contamination.

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

Storage Limitations

Uncatalyzed, standard cure gel coats have a usage life of 90 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. Fast cure gel coats (gel time less than 9.0 minutes) are stable for 45 days. 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).

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Data Sheets/MSDS

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

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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 statue 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.

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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.