

CORCHEM[®] 243 CHEMICAL RESISTANT ESTER

GENERIC	Advanced technology novolac-epoxy vinyl ester resin system, which cures by polymerization of reactive vinyl groups in the presence of peroxide catalyst. The polymer structure is extremely chemical resistant and is reinforced with laminar flake pigments.
DESCRIPTION	CORCHEM [®] 243 is a thick film heavy-duty vinyl ester lining formulated with surfactants, wetting agents, and adhesion promoters to cure at ambient temperature conditions. It features a fast cure and early return to service; the cured polymer structure is extremely hard, tough and provides protection against abrasion and corrosion for surfaces in severe chemical and physical environments. Designed to provide exceptional thermal and chemical resistance. It offers high resistance to solvents, acids, and oxidizing agents. Self-priming to steel and most substrates.
USE	Steel storage tanks and vessels, piping and processing equipment handling petroleum products such as sour crude, industrial waste and brine waters and water solutions containing salts, detergents, most solvents, acids, alkalis, and other chemicals. Provides a high degree of protection against corrosive moisture, fumes, carbon dioxide, hydrogen sulfide and methane gases. It is also resistant to petroleum products such as kerosene, diesel, gasoline, aviation fuels, motor oils, lubrication materials, greases, hydraulic fluids, alcohols, aliphatic and aromatic hydrocarbon solvents. Self-priming to steel and most substrates.
SERVICE LIMITATIONS	Temperature resistance up to 350°F (dry) and up to 180°F (wet) depending upon the individual exposure. CONTACT CORCHEM[®] FOR RECOMMENDATIONS BEFORE PROCEEDING for immersion service and exposure to specific corrosive chemicals, elevated temperatures and/or pressures, or use with cathodic protection systems. Avoid sudden depressurization of lining. NOTE: Exterior insulation of tanks, vessels and processing equipment is recommended to prevent "cold wall effect" if interior lining is subject to elevated temperatures.
COLORS	Beige & Gray.
FINISH	Low Gloss.
CAUTION!	Chalking will occur with extended exposure to sunlight.
VOLUME SOLIDS	100% (Theoretical) / 85% (Practical). Contains a volatile monomer. <u>Substantial evaporation (loss) during application and curing may result.</u>
VOC CONTENT	191.72 g/l or 1.60 lbs/gal. Conforms to 40 CFR §59.402 VOC content limits.
DRY COVERAGE	Theoretical (no loss): 1,600 sq. ft. per gallon for one mil (.001) / Practical (no loss): 1,360 sq. ft. per gallon for one mil (.001). When computing working coverage, allow for <u>substantial monomer evaporation</u>, in addition to application loss and for surface irregularities.
DRY FILM THICKNESS	Typical dry film thickness of 32 – 40 mils in two or more application coats. Can be applied up to 25 mils dry per coat. Multiple applications are recommended and may be necessary to achieve the specified or desired film thickness or due to variations in design configurations, application equipment, temperature and other factors. NOTE: See HAND LAY-UP METHOD for alternative system thickness.
COMPONENTS	Two. Use 2 - 2½ oz. of Peroxide Catalyst to 1-gallon Base material.
PACKAGING	1-gallon and 5-gallon pre-measured package kit [Peroxide Catalyst included].

SHELF LIFE	90 days from shipment date when stored in a stable environment, climate controlled above 40°F and below 77°F, in its original sealed container. See NOTICE below:
NOTICE!	TEMPERATURE SENSITIVE MATERIAL! Storage Life decreases with increasing temperature. Do not store this material near potential heat sources; <u>This material should never be stored in direct sunlight.</u> Refer to individual Component's Safety Data Sheet, (Section 7), for complete Storage and Handling information.
HAZMAT DATA	Hazard Class 5.2 – Organic Peroxide (Component A), Hazard Class 3 – Flammable (Component B). This material ships in any quantity via common carrier only. Refer to individual Component's Safety Data Sheet for complete Hazmat and Safety information.
SURFACE PREPARATION	Surface should be cleaned prior to abrasive blasting as prescribed in SSPC-SP 1 or other specified methods (i.e., NACE PUB.6G186/SSPC-Guide 15). Round off sharp edges and rough welds in accordance with NACE SP0178 or other applicable Standards, (i.e. SSPC-PA Guide 11, ISO 12944-3). Burrs and weld spatter should be completely removed. Surfaces must be clean, dry and free of any visible dirt, chalk, grease, oils, salts, and deleterious materials before application is performed. Vacuum the topside of all horizontal and sloped surfaces. Fill pitted steel by troweling CORCHEM® 263 FILLER SURFACER over pits leaving them flush with surface. Repair perforations in steel by patching or plugging with ≥3/16 inch steel using full fillet welds on large perforations and CORCHEM® 263 FILLER SURFACER as bonding adhesive on small perforations. Grind top edges of patches to a round contour.
CARBON STEEL	Immersion or Severe Exposures: NACE No. 1 / SSPC-SP-5 (White Metal Blast Cleaning). Mild Exposures: NACE No. 2 / SSPC-SP-10 (Near-White Blast Cleaning). Metal surfaces should have an anchor profile of <u>three mils (.003) or more.</u>
NON-FERROUS METALS	Before blast cleaning of non-ferrous metal surfaces, visible deposits of oil, grease, or other contaminants shall be removed in accordance with SSPC-SP 1 or other specified methods (i.e., NACE PUB.6G186, SSPC-Guide 15). SSPC-SP 16 (Brush-Off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non-Ferrous Metals). Coatings applied to these surfaces may not achieve the same degree of adhesion and toughness.
WELDING	Welding should precede coating. If already coated, follow instructions in American Welding Society, ANSI Standard Z49.1 Safety in Welding and Cutting.
CHIME AREA	Apply sufficient CORCHEM® 263 FILLER SURFACER to obtain a smooth radius of 1.5 inches (or make grout by mixing 4 parts clean, dry 100 mesh silica sand with 1 part CORCHEM® 263 FILLER SURFACER). Premix base grout and activator in small quantities and hand apply with trowel.
CONCRETE AND MASONRY	Concrete and masonry to cure at least 28 days. Surface and substrate must be dry. Clean surfaces by abrasive "brush-off" blast. Level protrusions and repair cavities, voids, and cracks. Apply first application coat and back roll to completely wet and thoroughly penetrate surface to ensure that all irregularities are filled and sealed. NOTICE! This coating may be slippery under wet conditions.
PRE-COATING INSPECTION	Perform pre-coating inspections as required by procurement documentation. Check for desired surface cleanliness and surface profile, (relevant standards: ASTM D4417, Method B or C / SSPC PA 17), before proceeding to coating application operations. Soluble salt testing, if specified, refer to ISO 8502-9 or NACE SP-0508-2010, recommend NaCl limit of ≤ 50 mg/m ² for immersion service, NaCl limit of ≤ 160 mg/m ² for non-immersion service (IMO PSPC NACE-IMCS 2008).
POT LIFE	Approximately 1 hour @ 70°F (mixed one-gallon kit). Pot life is <u>significantly shorter for higher temperatures or larger quantities</u> and longer for lower temperatures or smaller quantities.
THINNER	<i>Use of Thinner is NOT recommended.</i> If thinner must be used (for brush or roller application only), use only CORCHEM® 16 STYRENE. Thin only if required for proper application. Do not exceed applicable volatile organic compound (VOC) regulations.

TEMPERATURES	Apply at 40°F to 125°F (Air and Surfaces) and 5°F above the dew point. Sudden and/or substantial temperature change during curing process or in-service conditions can cause film defects.
MATERIAL MIXING	<p>Application should be accomplished using Catalyst Injection equipment.</p> <p>In special circumstances conventional methods may be used. If mixing the material, pay careful attention to the pot-life. Then note - All equipment should be cleaned and flushed with CORCHEM® 16 STYRENE as appropriate. Component B, (Resin), should be pre-mixed separately before combining as follows: <u>Add 2.0 to 2.5 ounces of Component A into 1 gallon of Component B.</u> Do not vary proportions. No induction time is required. Power-stir until completely mixed and continue agitation during application. Strain only if required for proper application. If using equipment for mixing or application, <u>do not allow catalyzed material to remain in equipment after use!</u> Clean immediately with CORCHEM® 4 THINNER.</p> <p>NOTE: Check pot life and cure time before applying. Contact CORCHEM® for complete instructions on the amount and use of Peroxide Catalyst to reduce or extend pot life and cure time. Adding too little or too much Peroxide Catalyst will lower chemical and physical resistance properties.</p>
APPLICATION METHODS	Spray by catalyst injection equipment, airless spray, roller, or brush (small areas) and hand lay-up method. Contact CORCHEM® for further information regarding specialized equipment.
CONVENTIONAL SPRAY	Not suitable.
AIRLESS SPRAY	Suitable - Graco or equal. Pump ratio 56:1 or higher, XTR-7 gun with fluid tip .023" or larger orifice size with Reverse-A-Clean tip, 3/8" I.D. or larger high pressure 5600 psi solvent resistant fluid line, 1/2" I.D. or larger air supply line. Continuous air source capable of 80 to 100 psi inbound pressure at pump.
PLURAL COMPONENT SPRAY	Not Suitable.
CATALYST INJECTION SPRAY	<p>Recommended – Air Assisted Airless spray with catalyst injection. Spray-Quip 398-275, Binks 105-1401, or equivalent equipment setup.</p> <p>Recommended setup – Graco NXT 50:1 airless pump mounted with Binks super slave adjustable catalyst injection pump equipped with 3/8" I.D. pressure solvent resistant fluid hose, 5/16" I.D. air supply hose or larger with a 1/8" peroxide resistant catalyst hose [within a hose], Binks Century air-assisted, catalyst injection gun (102-2545) equipped with a .030" orifice or larger tip, with a continuous air source capable of 100 psi or more inbound pressure at the pump.</p>
BRUSH	Suitable – Short hair or natural bristle.
ROLLER	Suitable – Use 1/2 inch or longer nap synthetic covers.
HAND LAY-UP METHOD	Use two or more layers of polyester felt or glass mat or other suitable fiber reinforcement. Adjoining layers must overlap by at least 3 inches. Apply a heavy coat of CORCHEM® 243 CHEMICAL RESISTANT ESTER at a rate of 25 square feet per gallon by roller or spray. Lay sections of fiber reinforcement into wet coating and work in thoroughly with ribbed metal roller to fully wet the fiber reinforcement and remove air bubbles. Minimum film thickness should be 60 mils (.060). Apply a topcoat by spray or roller to a minimum film thickness of 20 mils (.020). The total dry film thickness for the complete laminate system is a minimum of 80 mils (.080). Ensure all seams and irregularities are completely covered.
APPLY	<p>Spray application – In an even wet coat, use of a thin or "mist" coat prior to regular application may be needed to reduce pinholing and/or blistering over a rough/porous type substrate. Application below minimum or above maximum suggested dry film thickness ranges might adversely affect performance.</p> <p>Hand Lay-up – Apply and back roll to <u>completely wet and thoroughly penetrate surface</u> to ensure that all irregularities are completely covered, and seams, joints, are filled and sealed.</p>

VENTILATION Proper ventilation during the curative process is vital for the evacuation of solvent vapors. Warm dry air should be circulated across the entire coated surface throughout the curative process. Solvent fumes are heavier than air and should be exhausted through lower openings while fresh dry air is supplied through upper openings.

CLEAN UP Recommended – CORCHEM® 4 THINNER is a special formulated blend of chemical solvents designed for thinning and/or clean-up of certain designated CORCHEM® products. Methyl Ethyl Ketone (MEK) is not as effective as CORCHEM® 4 THINNER for clean-up.

Suitable – CORCHEM® 16 STYRENE is the only thinner suitable for this material. It may also be used for clean-up. If using CORCHEM® 16 STYRENE for clean-up, care should be taken to ensure all equipment and parts are thoroughly cleaned and free from residue. CORCHEM® 16 STYRENE may react with any coating residues or deposits not completely removed.

CURING TIME Suggested curing schedule predicated upon application conditions where the mixed product, substrate, and ambient air temperatures are the same:

Temperature	50°F	70°F	90°F
Minimum Recoat Time	8 Hours	4 Hours	2 Hours
Maximum Recoat Time	24 Hours	16 Hours	8 Hours
Immersion – Final Cure	7 Days	5 Days	3 Days

Curing times are significantly shorter for higher temperatures or lower thickness and are longer for lower temperatures or higher thickness.

NOTICE For faster curing / return to service time and lower temperature applications CORCHEM® 243 WINTER GRADE PEROXIDE CATALYST may be desired. Heat curing will increase drying speed and improve resistance properties. Contact CORCHEM® for instructions and heat cure times.

RECOAT AND REPAIR If material has reached complete cure and hardness, or if subjected to extended exposure to sunlight, uniformly abrade the surface and feather the edges. The surface must be roughened sufficiently to provide a profile adequate to ensure a mechanical bond.

POST-COATING INSPECTION Verify desired dry film thickness; refer to ASTM D7091-13 / SSPC-PA 2 “**Procedure for Determining Conformance to Dry Coating Thickness Requirements**”. Inspect for discontinuities, pinholes, holidays, bare areas, etc. before placing in operating service. Refer to NACE SP0188 / ASTM G62-07 “Standard Test Methods for Holiday Detection in Pipeline Coatings”.

For Dry Film Thickness of 20 mils or less refer to applicable Sections for “Low Voltage” or “Wet Sponge” testing.

For Dry Film Thickness greater than 20 mils refer to applicable Sections for “High Voltage” or “Spark” testing. **Use test voltage of 100v per mil.**

Adhesion testing, if specified, refer to ASTM D4541-LATEST, *Test Method E, Protocol 2 (pass/fail test)* for non-destructive testing. Pull to maximum load ≥ 1,000 psi.

PPE/CLOTHING **Refer to the Safety Data Sheet (SDS) for complete safety information.** Wear protective garments, shoes, goggles, and filter masks. Use protective barrier creams on exposed skin areas.

CONFINED SPACES **Refer to the Safety Data Sheet (SDS) for complete safety information.** Use explosion-proof lighting and electrical equipment, non-sparking tools, clothes and shoes. Ground all structures and equipment. Use procedures that prevent static electrical sparks. Wear properly fitted appropriate NIOSH/MSHA approved fresh air respirator such as MSA or equal with 1/4" I.D. or larger air supply line connected directly to proper air source during and after application unless air monitoring demonstrates vapor/mist levels are within safe limits. Use suction type exhaust fans and blowers with sufficient cfm capacity to keep solvent vapors below 20% of the explosive limit. **CAUTION!** Air circulation and exhausting of solvent vapors must be continued until the coatings have fully cured to ensure that no potential for fire, explosion or health hazard remains.

MAINTENANCE / CLEANING

SSPC PA-5 "Guide to Maintenance Coating of Steel Structures in Atmospheric Service" provides a good general overview of the need for and issues involved with the development of good maintenance practices and procedures.

Address thermal shock issues related to the normal operational condition of the vessel while "in service". Care should be taken to "normalize" the vessel and its contents avoiding sudden or dramatic changes in temperature during operation. It is also desirable to consider these issues during cleaning operations, taking care to avoid inadvertently shocking the lining system by the application of pressurized hot water or steam directly against cold coated steel.

When cleaning any coated surface that is significantly colder than the cleaning method used, there is a potential risk of damage to the coating. The condition to avoid is suddenly raising the temperature of the coated surface in a specific area in a dramatic fashion.

SAFETY INFORMATION

THIS PRODUCT CONTAINS STYRENE AND VINYL ESTER RESINS. THE CATALYST USED IS AN ORGANIC PEROXIDE. DO NOT USE IF YOU HAVE HAD A REACTION TO THESE MATERIALS.

WARNING! FLAMMABLE! VAPOR HARMFUL! CAUSES SEVERE EYE AND SKIN BURNS. MAY CAUSE SKIN SENSITIZATION OR OTHER ALLERGIC RESPONSES. HARMFUL OR FATAL IF SWALLOWED!

Keep away from heat, sparks, and open flame. Use only with adequate ventilation. Prevent breathing of vapor or spray mists. Wear a properly fitted appropriate respirator during application and until all vapors and spray mists are gone. Prevent contact with eyes and skin. Do not take internally. Keep closures tight and upright to prevent leakage. Keep container closed when not in use. In case of spillage, absorb and dispose of in accordance with local applicable regulations. **FIRST AID:** In case of skin contact, wash thoroughly with soap and water; for eyes, flush immediately with plenty of water for 15 minutes and call a physician. Remove and wash contaminated clothing before reuse. (Discard contaminated shoes). If inhaled, remove to fresh air. If breathing difficulty persists or occurs later, consult a physician and have label and MSDS information available. If swallowed, **CALL A PHYSICIAN IMMEDIATELY. DO NOT INDUCE VOMITING.**

IN CONFINED SPACES AND TANKS OBEY SPECIAL SAFETY AND EQUIPMENT INSTRUCTIONS!

FOR INDUSTRIAL USE BY PROFESSIONAL APPLICATORS ONLY. NOT INTENDED FOR SALE TO THE GENERAL PUBLIC. This product should not be sold or delivered to any person under 18 years of age. KEEP OUT OF THE REACH OF CHILDREN! IF, FOR ANY REASON, ADDITIONAL PRODUCT AND SAFETY INFORMATION, INSTRUCTIONS OR EXPLANATIONS ARE NEEDED, CONTACT CORCHEM® IMMEDIATELY!

LIMITED WARRANTY

WARRANTY & LIMITATION OF SELLER'S LIABILITY: CORCHEM® CORPORATION warrants only that its coatings represented herein meet the formulation standards of CORCHEM® CORPORATION.

THE ABOVE WARRANTY SHALL BE IN LIEU OF ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE DESCRIPTIONS ON THE FACE HEREOF.

The buyer's sole and exclusive remedy against CORCHEM® CORPORATION shall be for replacement of the product, in the event a defective condition of the product should be found to exist. NO OTHER REMEDY (INCLUDING, BUT NOT LIMITED TO, INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR LOST PROFITS, LOST SALES, INJURY TO PERSON OR PROPERTY, OR ANY OTHER INCIDENTAL OR CONSEQUENTIAL LOSS) SHALL BE AVAILABLE TO THE BUYER. The sole purpose of this exclusive remedy shall be to provide buyer with replacement of the product if any defect in materials is found to exist. This exclusive remedy shall not be deemed to have failed its essential purpose so long as CORCHEM® CORPORATION is willing and able to replace the defective materials.

Technical and application information is provided for the purpose of establishing a general profile of the coating and proper coating application procedures. Test performance results were obtained in a controlled environment and CORCHEM® CORPORATION makes no claim these tests or any other tests, accurately represent all environments. As application, environmental and design factors can vary significantly, due care should be exercised in the selection and use of the coating.

PUBLISHED TECHNICAL DATA AND INSTRUCTIONS ARE SUBJECT TO CHANGE WITHOUT NOTICE.
CONTACT YOUR CORCHEM® REPRESENTATIVE FOR CURRENT TECHNICAL DATA AND INSTRUCTIONS.

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