CORCHEM®

TECHNICAL BULLETIN

CORCHEM® 253 CO_2 LINING

GENERIC Proprietary modified multifunctional epoxy phenol novolac resins reacted with multifunctional amines. The polymer structure is tight/densely cross-linked and has a high heat deflection temperature.

DESCRIPTION Heavy-duty coating designed to cure at ambient temperature conditions to provide protection against wet/dry gases and liquids containing high carbon dioxide [CO_2] concentrations in elevated pressure and/or temperature service environments. It is formulated to be extremely adhesive, hard, tough and abrasion resistant.

USE Steel storage vessels, piping and processing equipment used for carbon dioxide [CO_2] flooding and enhance oil recovery operations. Provides protection for steel against corrosive moisture, fumes, carbon dioxide, hydrogen sulfide and methane gases. Intended to be applied in both field locations and shop facilities. The principal use is in chemical problem areas such as oil field production.

SERVICE LIMITATIONS Temperature resistance up to 250°F depending upon the individual exposure. CONTACT CORCHEM® FOR SPECIFIC RECOMMENDATIONS BEFORE PROCEEDING for immersion service, exposure to corrosive chemicals and/or gases, 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 Gray, Green, & White.

FINISH Medium-High Gloss.

CAUTION! Color and gloss retention may be affected (yellowing, darkening and/or flattening) by exposure to elevated temperatures. Chalking will occur with extended exposure to sunlight (UV).

VOLUME SOLIDS 78%.

DRY COVERAGE Theoretical (no loss): 1248 sq. ft. per gallon for one mil (.001). When computing coverage allow for application loss and surface irregularities.

DRY FILM THICKNESS Normal / standard dry film thickness of 5 – 8 mils applied per coat with a total system dry film thickness of 10 – 16 mils applied in two or more coats. 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.

COMPONENTS Two. By volume 1 to 4 (Component A : Component B).

POT LIFE <1 hour @ 70°F (mixed one-gallon kit). No induction time is required. Pot life is significantly shorter for higher temperatures or larger mixed quantities and longer for lower temperatures or smaller quantities.

VOC CONTENT 186 gms/l or 1.55 lbs/gal. Conforms to United States National Volatile Organic Compound Emission Standards.

THINNER CORCHEM® 4. Thin only as required for proper application. Do not exceed applicable volatile organic compound (VOC) regulations. Thinner added:

05% - 216 gms/lit or 1.80 lbs/gal	10% - 238 gms/lit or 1.98 lbs/gal
15% - 268 gms/lit or 2.23 lbs/gal	20% - 291 gms/lit or 2.42 lbs/gal

APPLICATION METHODS Air or airless spray, roller, brush (small areas).

TEMPERATURES Apply at 35°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.

CURING TIME This curing schedule is 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	24 Hours	8 Hours	2 Hours
Maximum Recoat Time	72 Hours	48 Hours	12 Hours
Immersion – Final Cure	10 Days	7 Days	5 Days

Curing times are significantly shorter for higher temperatures or lower thickness and are longer for lower temperatures or higher thickness. Curing times are affected by the method of application; thickness of applied film; the quantity of thinner (if used); the amount of ventilation and air circulation; relative humidity; etc. Heat curing will increase drying speed and improve resistance properties. Contact CORCHEM® for instructions and heat cure times.

PACKAGING 1-gallon & 5-gallon pre-measured packaged kits.

SHELF LIFE 1 year from shipment date protected between 40°F and 100°F in its original sealed container.

DOT/FLASH POINT Flammable Liquid Classification.

PERFORMANCE DATA Contact CORCHEM® for desired information.

SURFACE PREPARATION Round off sharp edges and rough welds. 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.

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 three mils (.003) or more.

NON-FERROUS METALS NACE No. 4 / SSPC-SP-7 (Brush-Off Blast Cleaning). 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 U.S.A. Standard Z49.1 Safety in Welding and Cutting.

APPLICATION MIXING All equipment should be cleaned and flushed with CORCHEM® 4 THINNER. **Add Component A into Component B.** 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. Do not allow catalyzed material to stand in equipment after use! Clean immediately with CORCHEM® 4 THINNER or Methyl Ethyl Ketone (MEK).

APPLY In an even wet coat. Ensure seams and irregularities are completely covered. Application below minimum or above maximum suggested dry film thickness ranges may adversely affect performance. 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.

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

INSPECTION Check for desired dry film thickness, (relevant standards: ASTM D7019 / SSPC PA 2), and for pinholes, holidays, bare areas, (relevant standards: ASTM D5162 “Method A” / NACE SP0188 “Low-Voltage Wet Sponge Test”), etc. before placing in operating service.

AIRLESS SPRAY Graco or equal. Pump ratio 45:1 or higher, gun with fluid tip of .021" or larger orifice size with Reverse-A-Clean tip, 3/8" I.D. or larger high-pressure 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.

CONVENTIONAL SPRAY Binks or equal. Pressure material pot with mechanical agitator, dual regulators, air-gages, and oil and moisture separators. No. 2001 gun (external mix), 68SS fluid nozzle, 568 fluid needle, 68 PB air cap, heavy-duty fluid spring, Teflon fluid packing, 3/8" I.D. or larger high solvent resistant fluid line and 3/8" I.D. or larger air-supply line. Continuous air source capable of 20 cfm or more at 80 psi per nozzle and 60 psi to the pot.

GENERAL Regulate pressure as required for proper application. Proportionally adjust pressure higher for smaller hose diameter and/or longer hose length and adjust pressure lower for larger hose diameter and/or shorter hose length. Select tip angles and orifice diameters according to application needs.

BRUSH Short hair or natural bristle.

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.

TANKS & VESSELS 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 3/8" I.D. or larger air supply line connected directly to proper air source capable of producing grade D air 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 insure that no potential for fire, explosion or health hazard remains.

SAFETY INFORMATION

THIS PRODUCT CONTAINS KETONES, EPOXY PHENOL NOVOLAC RESINS AND AMINE COMPOUNDS. 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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Document ID: C253-2-TB-04212020-1244
Revision: 1

MADE IN TEXAS, USA