

CORCHEM® 259 SOLVENTLESS NOVOLAC [4:1]

GENERIC	Proprietary advanced technology multifunctional phenol novolac resin reacted with modified, multiple ring cycloaliphatic amine adducts. The polymer structure is extremely chemical resistant with a high heat deflection temperature and reinforced with laminar flake pigments.
DESCRIPTION	Thick film heavy-duty phenol novolac lining designed to cure at ambient temperature conditions to provide exceptional structural strength and corrosion protection for surfaces exposed to elevated temperatures in severe chemical and physical environments. It's formulated to be extremely adhesive, hard, tough and abrasion resistant.
USE	Storage vessels, containment walls and floors, railcars, tank trucks, heater treaters, free water knockouts, separators, frac tanks, clarifiers, filters, piping and processing equipment handling oil field products at elevated temperature and pressure including hot sour crude, brine waters, and drilling muds. 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. It will provide a high degree of protection against corrosive moisture, fumes, carbon dioxide, hydrogen sulfide, methane gases, industrial water and wastewater solutions containing salts, detergents, many acids, alkalis, and other chemicals. Use as a heavy-duty chemical resistant protective lining.
SERVICE LIMITATIONS	Temperature resistance up to 300°F (wet) depending upon the individual exposure. CONTACT CORCHEM® FOR SPECIFIC RECOMMENDATIONS BEFORE PROCEEDING for immersion service and exposure to 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	Light Blue & Gray.
FINISH	High Gloss. Finish may vary due to texture and porosity of substrate. NOTE: Subject to color change (yellowing, darkening, etc.) Chalking will occur with extended exposure to sunlight (UV).
VOLUME SOLIDS	100%.
VOC CONTENT	0 gms/l or 0.0 lbs/gal. Conforms: to Conforms to 40 CFR §59.402 VOC content limits.
DRY COVERAGE	Theoretical (no loss): 1,600 sq. ft. per gallon for one mil (.001). Allow for application loss and surface irregularities when computing coverage.
DRY FILM THICKNESS	Up to 25 mils per coat if thinner is added. Up to 60 mils per coat if no thinner added. Multiple applications are recommended and may be necessary to achieve the specified or desired film thickness. Temperature, variations in design configuration, application equipment, and other factors also affect achievable millage per coat.
COMPONENTS	Two. By volume 4 to 1 (Component A : Component B). <i>Component A is resin and Component B is amine.</i>
PACKAGING	1-gallon and 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.
HAZMAT DATA	Hazard Class 9 – Environmentally Hazardous Substance (Component A), Hazard Class 8 – Corrosive (Component B). This material ships in any quantity via common carrier only. <i>Refer to individual Component's Safety Data Sheet for complete Hazmat and Safety information.</i>

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. 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). Metal surfaces should have an anchor profile of three mils (.003) or more. If metal substrate has "cavities" or "indentations" apply primer application coat and back roll to completely wet and thoroughly penetrate surface to ensure all voids and irregularities are filled.

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 grout, according to C263 Technical Bulletin, in small quantities and hand apply with trowel.

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.
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.

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/m² for immersion service, NaCl limit of ≤ 160 mg/m² for non-immersion service (IMO PSPC NACE-IMCS 2008).

POT LIFE This material is formulated for Plural Component spray application.
In special circumstances conventional methods may be used. If mixing the material, pot-life is approximately 10 – 15 minutes @ 70°F (one gallon mixed quantity). Pot-life is significantly shorter for higher temperatures or larger quantities and longer for lower temperatures or smaller quantities.

THINNER *Use of Thinner is NOT recommended.*
If thinner must be used (for brush or roller application only), use only CORCHEM® 4 THINNER. Thin only if required for proper application. Do not exceed applicable volatile organic compound (VOC) regulations. Thinner added:

Reduction Percent	Adjusted VOCs	Fluid oz/gal	Reduction Percent	Adjusted VOCs	Fluid oz/gal
05%	41 g/l (0.34 lbs/gal)	6	10%	79 g/l (0.66 lbs/gal)	12
15%	113 g/l (0.94 lbs/gal)	17	20%	145 g/l (1.21 lbs/gal)	22

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.

MATERIAL MIXING **Application should be accomplished using Plural Component equipment.**

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® 4 THINNER. Pre-mix each component separately prior to combining as follows: **Add 1 Part Component B by volume into 4 Parts Component A by volume.** Do not vary proportions. 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.

APPLICATION METHODS Plural component spray, roller, brush (small areas). Airless spray (hot pot) and/or conventional air spray (pressure pot) are NOT suitable for application of this material.

CONVENTIONAL SPRAY Not Suitable.

AIRLESS SPRAY Not Suitable.

PLURAL COMPONENT Contact CORCHEM® for detailed Application Equipment Guide. **(DO NOT THIN)**

5:1 feed pumps with regulators and pressure gages, A&B agitators, A&B 30 mesh low pressure WYE filters between tanks and XP pump lowers, A&B ¾" fluid lines from the feed pumps to the proportioning pumps and ½" air lines for the feed pumps and agitators. *NOTE:* If using inline pump filters, use 30 mesh screens. The pump mix ratio needs to be 4:1 (4 Component A : 1 Component B). 4000 watt Viscon HP inline fluid heaters with temperature gages. Heated hose bundle (200' maximum) with ½" paint line for the (Component A), ⅜" ID paint line for the (Component B), and hose heat controller unit with temperature sensor. 23:1 or larger solvent pump with fluid line to the mix manifold. Use a mix manifold with split nosed mixing manifold block. The static mixers and paint line forward of the remote mix manifold should be set as follows:

Two ¾" ID x 12 fold SST Stainless Steel static mixers	One 25' to 50' ⅜" ID diameter paint line	One 6' to 10' x ¼" ID diameter whip line	WIWA 500 or Graco XTR-7 spray gun
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(NOTE: Do not use plastic static mixers.) Material should be preconditioned to 80°- 90° F prior to use. *NOTE:* In the heated hoppers, the "A" side should be at a minimum of 110° F and the "B" side at 90-100° F. Failure to heat the material prior to proportioning may cause air ingestion and/or cavitation of the pumps resulting in the application of off-ratio material.

- Set "A" inline heater to 120° F and set "B" inline heater to 100° F.
- Material temperature must be 120°- 130° F before being sprayed.
- Hose heat should be set at 120°- 130° F.
- Material temperature at the gun should be 110°- 120° F.
- Dynamic pressure (while spraying) 2,800-3,000 psi.
- The size of airless spray tip will depend on the area being sprayed, the viscosity, and the temperature of the materials. Use a Graco XHD RAC tip sized between 0.023"-0.027".
- Mixed spray life is approximately 5 minutes at 120°F (49°C)
- **Static mixers, whip lines, and gun should be flushed clean within 1-2 minutes after releasing gun trigger with CORCHEM® 4 THINNER. Failure to flush material after 1-2 minutes can result in build-up or clogging of the static mixer, whip line and spray gun.**

BRUSH Suitable – Short hair or natural bristle. May be used for touch-up of small areas or for stripe coating of welds and edges.

ROLLER Suitable – Short nap synthetic covers for back rolling. Ribbed metal roller for hand lay-up application.

CLEAN UP Suitable – CORCHEM[®] 4 THINNER is a special formulated blend of chemical solvents designed for thinning and / or clean-up of certain designated CORCHEM[®] products.

Not suitable – Methyl Ethyl Ketone (MEK) is NOT recommended as a sole cleanup solvent. MEK alone is not sufficient to adequately clean all components of this material.

APPLY In an even wet coat. Ensure seams and irregularities are completely covered. Application below minimum or above maximum suggested dry film thickness ranges might 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 primer or substrate.

CURING SCHEDULE This curing schedule is predicated upon no added thinner and application conditions where the mixed product, substrate, and ambient air temperatures are the same:

Temperature	50°F	70°F	90°F
Minimum Recoat Time	4 Hours	2 Hours	1 Hours
Maximum Recoat Time	48 Hours	24 Hours	18 Hours
Immersion – Final Cure	48 Hours	24 Hours	18 Hours

Curing times are significantly shorter for higher temperatures and are longer for lower temperatures. Curing times are affected by the method of application; thickness of applied film, the amount of ventilation and air circulation; relative humidity; etc. *Refer to RECOAT AND REPAIR Section if coating reaches complete cure and hardness or if subjected to extended exposure to sunlight.*

NOTE: **Contact CORCHEM[®] before adding thinner to the material for additional recoat and curing information prior to application.** Heat curing may be used to increase drying speed and 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" (Method B) for holiday detection. **Use test voltage of 100v per mil.**

Soluble salt testing, if specified, refer to ISO 8502-9 or NACE SP-0508-2010, recommend NaCl limit of $\leq 50 \text{ mg/m}^2$ for immersion service, NaCl limit of $\leq 160 \text{ mg/m}^2$ for non-immersion service (IMO PSPC NACE-IMCS 2008).

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 $\geq 1,000 \text{ psi}$.

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.** If thinner is added to this product 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 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.

MAINTENANCE / CLEANING 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 and avoid 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 NOVOLAC RESINS AND AMINE COMPOUNDS. DO NOT USE IF YOU HAVE HAD A REACTION TO THESE MATERIALS. WARNING! VAPOR HARMFUL! CAUSES SEVERE EYE AND SKIN BURNS. MAY CAUSE SKIN SENSITIZATION OR OTHER ALLERGIC RESPONSES. HARMFUL OR FATAL IF SWALLOWED!

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 SDS 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 this 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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