Corrosion Engineering™	
AN ERGONARMOR COMPANY	**TECHNICAL INFORMATION**

SPECIFICATION FOR INSTALLATION

CORROSION ENGINEERING RESIN-BASED POLYMER CONCRETES AND GROUTS

1. SCOPE

1.1 This specification governs the installation of the following resin based polymer concretes: TUFCHEM® Epoxy Grout, TUFCHEM Epoxy Polymer Concrete, PENNCHEM® Grout, PENNCHEM Novolac Grout, PENNCHEM Novolac Concrete, ACROCAST ™ Vinyl Ester Concrete and FURALAC® Concrete.

1.2 This specification covers three distinct types of polymer based compounds: epoxy based (regular and novolac), vinyl ester, and furan. While each type of polymer has its own unique characteristics, many steps are consistent across all three polymer types. Where there are distinct handling and application differences, they are noted.

2. APPLICATION

2.1 Mixing Ratios

2.1.1 Corrosion Engineering Polymer Concretes should be mixed in accordance with mix ratios outlined in the most current printing of the appropriate product data sheet. Some variation of the filler loading (but not the Resin:Hardener ratio) is permitted to improve flow and handling characteristics. Consult Corrosion Engineering for specific details.

2.2 Vinyl Ester and Epoxy-based Concretes and Grouts

2.2.1 Mechanical mixing is recommended. All tools, as well as the mixer must be clean and dry. Place all equipment and materials close to the work to allow for continuous grouting.

2.2.2 Pour the Resin into a clean, dry container.

2.2.3 Pour the Hardener into Resin.

2.2.4 Stir the hardener/resin mixture until a uniform color is obtained (at least two minutes).

2.2.5 Pour the mixed hardener/resin into a clean, dry mechanical mixer.

2.2.6 Slowly add the measured amount of Polymer Concrete or Grout Filler while continuously mixing. Grout Filler differs from Polymer Concrete Filler by utilizing finer aggregate fractions for improved flow characteristics.

2.2.7 Continue to mix until all aggregate particles are uniformly coated with the resin/hardener mixture.

2.2.8 Never add water, Portland cement or any other additive or adulterant to Corrosion Engineering Polymer Concrete or Grout components or mixes.

2.3. FURALAC® Concrete Specific Notes

2.3.1 Small mixes can be made with a power drill or they can be mixed manually in a conventional mortar box. However, a chain driven gasoline powered mortar mixer with a sweep blade provides more efficient mixing. A mixer which can accommodate a complete unit (two cubic feet) of FURALAC Concrete is most practical for larger areas. FURALAC Concrete is to be proportioned in a ratio of 9.0/1.0/0.10 parts by weight of Filler/Resin/Hardener.

2.3.2 Pour the measured amount of FURALAC Concrete Filler into a clean, dry mortar box or mixer.

2.3.3 Add the measured amount of FURALAC Concrete Hardener into the FURALAC Concrete Filler and mix until the Filler and Hardener are well blended. This will take a few minutes in a mechanical mixer.

2.3.4 NEVER ADD FURALAC CONCRETE HARDENER DIRECTLY INTO FURALAC CONCRETE RESIN, AS A VIOLENT EXOTHERMIC REACTION WILL OCCUR.

2.3.5 After the Filler/Hardener components are well blended, slowly add the measured amount of FURALAC Concrete Resin and mix the components to a uniform consistency, at least three additional minutes.

3. USE INSTRUCTIONS

3.1 Preparatory Work

3.1.1 Clean the concrete surface to remove latence, oil, and grease by chipping, brush hammering, or abrasive blasting. Castings of polymer concrete onto Portland cement based substrates requires preparation in accordance with sound industry practice. As a minimum consult applicable ASTM Standards for surface preparation such as:
D4258 - Practice for Surface Cleaning Concrete for Coating
D4259 - Practice for Abrading Concrete
D4260 - Practice for Etching Concrete
D4261 - Practice for Surface Cleaning Concrete Unit Masonry for Coating
D4262 - Test Method for pH of Chemically-Cleaned or Etched Concrete Surfaces
D4263 - Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method
D4285 - Method for Indicating Oil or Water in Compressed Air

Exact surface preparation method shall be determined by installation contractor based on his personal preferences, experience, equipment, access, job specific situations, etc.

3.1.2 For structural base plate applications, clean bottom of machinery base plates or other metal to be anchored by abrasive blasting and solvent wiping immediately prior to grouting. All traces of rust shall be removed. Clean out bolt holes. Remove all loose material and dust.

3.1.3 For structural base plate applications, set base plate or equipment in position. Allow provision for air relief when grouting. Align and level equipment.

3.1.4 Seal off areas not to be grouted, such as oil pan or anchor bolt sleeves. Corrosion Engineering Grouts will penetrate even very fine cracks in forms.

3.2 Form Work

3.2.1 Vertical castings require formwork to retain the wet polymer concrete. Before erection, cover forms with plastic or other suitable and compatible release agent. If there is any question as to release agent compatibility, consult Corrosion Engineering. Forms not so treated will bond to grout.

3.2.2 Build forms out of wood of adequate strength, suitably anchored and shored to withstand pressure of pour.

3.2.3 Seal forms with putty or equal to prevent leakage during grouting.

3.2.4 Allow sufficient clearance (at least 4") between the formwork and the edges of the base plate or material to be anchored for easy working of the grout or concrete.

3.3 Placing of Grout or Concrete

3.3.1 If chains are to be used to spread grout into tight cavities, and assist in flow, place them first.

3.3.2 For structural grout applications, place grout continuously, pouring from one side or end only. This avoids air entrapment. Work grout under frame with push rods, strips or vibrator.

3.3.3 Be sure grout completely fills space to be grouted and that grout is compacted and free of air pockets.

3.3.4 Polymer concretes and grouts are formulated to be placed at temperatures between 50°F and 90°F. Placement temperatures outside this range may, in low temperature applications, require the use of cold weather accelerators, or in hot weather, other special handling considerations. Consult Corrosion Engineering for project specific details. Protect newly poured concrete/grout from water and weather until initial cure has occurred.

3.3.5 On deep pours or pours over large areas, consideration should be given to the incorporation of suitable reinforcements to accommodate potential shrinkage and thermal stresses which may develop within the polymer concrete/grout. Large flat pours may further require the use of a “checkerboard” placing technique, whereby smaller alternating sections are poured at different times to accommodate shrinkage stresses which may propagate as hairline cracks. This is especially important for vinyl ester based compounds, but is good

practice for all resin types. For depths of over 12", multiple pours may be advisable. Consult Corrosion Engineering for project specific details.

3.4. Finishing

3.4.1 For structural grout applications, remove chains and tools used for placing the grout after grout has been placed, but before grout begins to harden.

3.4.2 For polymer concrete topping applications, finish exposed surfaces by dry troweling and optionally following by rolling with a short-nap paint roller. Do not over finish or over trowel.

4. CURE

4.1 The amount of cure time is dependent upon a variety of factors including the specific polymer concrete being used, temperature of components during mixing and placing, substrate temperature, and ambient air temperature during cure.

4.2 Allow structural machine base grouts to cure at least 24 hours at 70°F before placing reciprocating equipment into service. Allow to cure 60 hours at 70°F before starting large equipment which could create excessive stresses.

4.3 Allow Polymer Concrete mixes to cure sufficiently to accept anticipated loads. This will vary with the type of load, i.e. - foot traffic vs. heavy machinery. The exact cure time will vary with the specific polymer concrete formulation, and thickness to which it has been cast. Typically, epoxy based compounds can withstand foot traffic in 24 hours, and full loads in 48 hours assuming temperatures of components and ambient air are 70°F.

5. EQUIPMENT CLEANING

5.1 Mixing equipment and tools may be cleaned by scraping off all excess material and scrubbing with a scouring pad and then rinsing with cool water. This method is quicker and less hazardous than using a solvent. If solvent needs to be used, use xylene or mek**.**

6. SAFETY PRECAUTIONS AND DISCLAIMER

6.1 Corrosion Engineering Polymer Concretes, Grouts, components, and mixes of them present a number of hazards. Read before using and follow the hazard information, precautions, and first aid directions on the individual product labels and Material Safety Data Sheets.

6.2 The statements, technical information and recommendations contained herein are believed to be accurate as of the date hereof. Since the conditions and methods of use of the product and of the information referred to herein are beyond our control, Corrosion Engineering expressly disclaims any and all liability as to any results obtained or arising from any use of the product or reliance on such information; NO WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE, WARRANTY OF MERCHANTABILITY OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED, IS MADE CONCERNING THE GOODS DESCRIBED OR THE INFORMATION PROVIDED HEREIN. The information provided herein relates only to the specific product designated and may not be applicable when such product is used in combination with other materials or in any process. The user should thoroughly test any application before installation. Nothing contained herein should be taken as an inducement to infringe any patent and the user is advised to take appropriate steps to be assured that any proposed use of the product will not result in patent infringement.

6.3 Please contact Corrosion Engineering for specific recommendations at +1-610-833-4000 or fax +1-610-833-3040

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