

E³-HCR

HIGHLY CHEMICAL RESISTANT EPOXY GROUT



EUCLID CHEMICAL

PACKAGING

E³-HCR is packaged in 14.0 litre kits.

APPROXIMATE YIELD

3.91 litre Resin, 0.86 litre Hardener, 25kg Filler yields 14.0 litre

CLEAN-UP

Tools and mixer may be cleaned with soap and water.

SHELF LIFE

1 Year in original, unopened container.

DESCRIPTION

E³-HCR is a 3-component, highly chemical resistant novolac epoxy grout designed for industrial applications in aggressive chemical environments where exposure to concentrated acids, alkalis, corrosives or solvents can occur. E³-HCR has extremely high compressive strength, with ultra-low creep and outstanding Effective Bearing Area (EBA).

PRODUCT CHARACTERISTICS

FEATURES / BENEFITS

- Highly chemical resistant
- Positive effective bearing
- Ultra-high early strengths, fast return to service
- User-friendly placing characteristics
- Clean tools with soap and water
- Excellent bond, machinery to foundation
- >95% Effective bearing
- Exceptional flexural and tensile strengths
- Very low creep

PRIMARY APPLICATIONS

- Grouting for machinery / pump baseplates
- High chemical resistance requirements
- Secondary containment
- Process equipment

TECHNICAL INFORMATION

The following are typical values obtained under laboratory conditions. Expect reasonable variation under field conditions.

| Property | 1 Day | 7 Days | 28 Days | Post Cure * | Chemical Resistance Chart | |
|--|---|----------|----------|-------------|--|----|
| Compressive Strength ASTM C579, 50mm cubes at 23°C | 100 MPa | 118 MPa | 130 MPa | 139 MPa | Solvent: Acetone | 1 |
| Flexural Strength ASTM C580 | 37.5 MPa | 39.6 MPa | 40.0 MPa | 40.3 MPa | Butyl Acetate | 1 |
| Tensile Strength ASTM C307 | 16.7 MPa | 17.0 MPa | 17.4 MPa | 17.7 MPa | Isopropyl Alcohol, 70% | 1 |
| Bond Strength ASTM C882 | N/A | 22.2 MPa | 23.3 MPa | - | MEK | 1 |
| Compressive Creep ASTM C1181 | 4.1 x 10 ⁻³ mm/mm/°C (2.8 MPa at 60°C) | | | | Mineral Spirits | 1 |
| Coefficient of Thermal Expansion (ASTM C531 - 7 Days) | 5.5 x 10 ⁻⁶ mm/mm/°C (23 to 99°C) | | | | Acids: Acetic, 10% | 3 |
| Effective Bearing Area ASTM C1339 | >90% | | | | Acetic, 25% | NR |
| Working Time ICRI Protocol | 34 minutes at 23°C | | | | Acetic, 50% | NR |
| Peak Exotherm ASTM D2471 | 68.3°C at 125 minutes | | | | Hydrochloric, 10% | 1 |
| Chemical Resistance | Excellent resistance to most industrial chemicals | | | | Hydrochloric, 37% | 1 |
| Abrasion Resistance | Greater than concrete | | | | Sulfuric, 10% | 1 |
| *Post Cure Procedure: Demold specimens after 24 hours; place in oven at 60°C for 18 hours; remove from oven for 24 hours; test | | | | | Sulfuric, 50% | 1 |
| | | | | | Sulfuric, 98% | 1 |
| | | | | | Bases / Alkalies: Sodium Chloride, 50% | 1 |
| | | | | | Sodium Hydroxide, 1-50% | 1 |
| | | | | | Miscellaneous: Diesel | 1 |
| | | | | | Gas | 1 |
| | | | | | Mineral Spirits | 1 |

Rating Key:

1 = Long term exposure (30 days)

2 = Extended exposure (7 days)

3 = Splash / Spill (3 days)

NR = Not recommended

E³-HCR (3) July 2023 replaces November 2022

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DIRECTIONS FOR USE

Surface Preparation:

New concrete must be a minimum of 28 days old. The concrete must be clean and rough. All oil, dirt, debris, paint and unsound concrete must be removed. The surface must be prepared mechanically using suitable equipment to give a surface profile of at least a CSP 5-7 in accordance with ICRI Guideline 310.2, exposing the coarse aggregate of the concrete. The final step in cleaning should be the complete removal of all dust and residue with a vacuum cleaner followed by pressure washing. Then vacuum all water up and allow to dry completely. **Acid etching is acceptable only when mechanical preparation is impractical.** It is recommended that only contractors experienced in the acid etching process use this means of surface preparation. The salts of the reaction must be thoroughly pressure washed away. Allow the concrete to completely dry. **Note:** Even with proper procedures, an acid etched surface may not provide as strong a bond as mechanical preparation procedures. All concrete must possess an open surface texture with all curing compounds and sealers removed.

Form Preparation: Forms must be liquid tight to prevent leakage, and they should be strong and well braced. To facilitate stripping, the forms should be coated with two applications of paste wax or each piece wrapped with polyethylene.

Anchor Bolt Holes and Blockouts: Holes and blockouts must be cleaned of all dust, dirt and debris and allowed to dry. If the sides are smooth, roughen the hole with a stiff bristle wire brush or with a rotary brush hammer.

Mixing: Mix parts resin and hardener separately using a drill and mixing prop. Then pour the hardener into the resin container. Mix for 2 to 3 minutes, scraping the bottom and sides of the container, to ensure proper chemical reaction. Do not whip air into the epoxy while mixing. After the epoxy has been mixed, directly pour all of the mixed resin into a horizontal shaft mortar mixer. Add aggregate to the mixture, one bag at a time, and mix for 2 to 3 minutes until the aggregate is completely wetted out. Place immediately.

Placement: Pour into anchor bolt holes and blockouts through a funnel or directly if space permits. When grouting plates, pour grout into the headbox and allow to flow under the plate. Straps pre-placed under the plate will aid in working the grout across. Grout can be placed at a minimum of 25mm thick to a maximum of 150mm per lift when placed in a large mass.

Note: Bring all E³-HCR materials as well as foundation and baseplate as close to 23°C as possible. Cold temperatures will significantly reduce flow characteristics and will increase the difficulty of baseplate grouting. Higher temperatures will increase initial flow, but reduce working time.

Curing: E³-HCR requires no special curing procedures.

Finish: If a smooth finish is desired, the surface of the grout may be brushed and troweled with a light application of solvent.

PRECAUTIONS / LIMITATIONS

- Wear proper PPE (Personal Protective Equipment) when handling epoxies.
- Do not use over frost covered or frozen concrete.
- Store material at room temperature before use.
- Grout should be placed at ambient temperatures of 10°C to 32°C.
- Rate of strength gain is significantly affected at temperature extremes.
- Do not remove or add more aggregate than stated on this technical data sheet.
- In all cases, consult the Material Safety Data Sheet before use.

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