



# THE EUCLID CHEMICAL COMPANY

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## E<sup>3</sup>-F



### HIGH FLOW EPOXY GROUT SYSTEM

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**E<sup>3</sup>-F** high flow epoxy grout is the performance standard for flowable epoxy grouts. A special resin and hardener formulation plus a proprietary aggregate filler allows E<sup>3</sup>-F to travel through a standard grout box in less than a minute. Designed with excellent engineering properties, this product provides high bearing and ease of placeability. E<sup>3</sup>-F was specially designed for applications involving the grouting of large plates and narrow configurations.

#### PRIMARY APPLICATIONS

- Large or wide plates requiring precision grouting
- Machinery, equipment or structural elements needing maximum bearing support
- Rail grouting, keyways and inverted baseplates
- Narrow clearance situations including anchor bolts

#### FEATURES/BENEFITS

- Fast return to service
- User friendly placing characteristics
- Excellent bond, machinery to foundation
- Maximum possible bearing
- High chemical resistance
- Exceptional strengths including flexural and tensile

#### PACKAGING/YIELD

E<sup>3</sup>-F is packaged in 1.5 ft<sup>3</sup> (0.042 m<sup>3</sup>) units.  
Part A, resin: 2.87 gal (10.8 liter)  
Part B, hardener: 0.36 gal (1.4 liter)  
Part C, filler, aggregate: 3/60 lb (27.2 kg) bags

#### SPECIFICATIONS/COMPLIANCES

- E<sup>3</sup>-F meets the requirements of ASTM C 307 Type I, Grade II, Class A.
- E<sup>3</sup>-F meets the thermal compatibility with concrete requirements of ASTM C 884.

#### TECHNICAL INFORMATION

##### **Typical Engineering Data**

The following results were developed under laboratory conditions.

##### **Compressive Strength,**

ASTM C-579 2" (50 mm) cubes @ 70°F (21°C)

<u>Age</u>	<u>Strength</u>
24 hours	6,900 psi (48 MPa)
3 days	10,400 psi (72 MPa)
7 days	11,500 psi (79 MPa)
28 days	12,700 psi (88 MPa)

##### **Creep Data, ASTM C-1181**

3 days	3.4 x 10 <sup>-4</sup> in./in. (3.4 x 10 <sup>-4</sup> mm/mm)
7 days	4.4 x 10 <sup>-4</sup> in./in. (4.4 x 10 <sup>-4</sup> mm/mm)
28 days	5.5 x 10 <sup>-4</sup> in./in. (5.5 x 10 <sup>-4</sup> mm/mm)

##### **Coefficient of Thermal Expansion, ASTM C-531**

2.70 x 10<sup>-5</sup> in./in./°F (4.9 x 10<sup>-5</sup> mm/mm/°C)

**Bond to Concrete:** Exceeds tensile and shear strength of concrete.

**Chemical Resistance:** ASTM D-543, excellent resistance to most chemicals, specific recommendations available upon request.

**Abrasion Resistance:** Greater than concrete.

##### **Flexural Strength, ASTM C 580**

1 day	3,300 psi (23 MPa)
3 days	3,600 psi (25 MPa)
7 days	3,800 psi (26 MPa)
28 days	3,900 psi (27 MPa)

##### **Modulus of Elasticity, ASTM C 580**

1 day	0.75 x 10 <sup>6</sup> psi (5.2 x 10 <sup>3</sup> MPa)
3 days	1.16 x 10 <sup>6</sup> psi (8.0 x 10 <sup>3</sup> MPa)
7 days	1.21 x 10 <sup>6</sup> psi (8.3 x 10 <sup>3</sup> MPa)
28 days	1.46 x 10 <sup>6</sup> psi (10.1 x 10 <sup>3</sup> MPa)

##### **Tensile Strength, ASTM C 307**

1 day	1,850 psi (13 MPa)
3 days	2,100 psi (14 MPa)
7 days	2,150 psi (15 MPa)
28 days	2,225 psi (15 MPa)

**Gel Time, ASTM D 2471 @ 73°F(23°C):** 80 minutes

##### **Peak Exotherm, ASTM D 2471**

91°F (33°C) @ 230 minutes

## Appearance

E<sup>3</sup>-F is a three part epoxy grout system which consists of a Part A (resin), Part B (hardener) and Part C (aggregate). After mixing and placing, the color is similar to that of concrete though the grout may always appear somewhat darker than the surrounding concrete.

**Shelf life** is 2 years in original, unopened package.

## COVERAGE

One unit of E<sup>3</sup>-F will grout approximately 18 ft<sup>2</sup> (1.7 m<sup>2</sup>) when placed at an average depth of 1" (25 mm).

## 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 a scabber, bushhammer, shotblast or other suitable equipment which will give a surface profile of a minimum 1/8" (3 mm) and expose the coarse aggregate of the concrete. The final step in cleaning should be the complete removal of all residue with a vacuum cleaner or pressure washing.

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 A & B (resin & hardener) for 2 minutes using a drill and mixing prop. For ease of mixing, add the Part B to the Part A (not the reverse). The epoxy must be well mixed to ensure proper chemical reaction. After the epoxy has been mixed, add the

Part C (aggregate) and mix for 2-3 minutes more until the aggregate is completely wetted out. For large jobs, use a mortar mixer for mixing in the Part C Aggregate. 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 should be placed at a maximum of 3" (75 mm) per lift when placed in a large mass.

**Note:** Bring all E<sup>3</sup>-F materials as well as foundation and baseplate as close to 70°F (21°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 cut down on working time.

**Curing**-E<sup>3</sup>-F requires no special curing procedures.

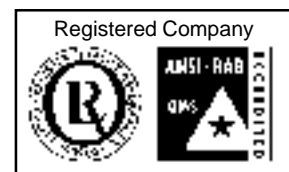
**Finish**-If a smooth finish is desired, the surface of the grout may be brushed and troweled with a light application of EUCO SOLVENT.

## CLEAN-UP

Tools and mixer may be cleaned with EUCO SOLVENT, xylene or toluene solvents.

## PRECAUTIONS/LIMITATIONS

- Wear protective gloves and eye glasses when handling epoxies.
- Do not use over frozen concrete.
- Store material at room temperature before use.
- Grout should be placed at ambient temperatures of 40-90°F (4-32°C).
- Rate of strength gain is significantly affected at temperature extremes.



Form E3-F-12.99

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