Tufchem™ Epoxy Polymer Concrete

SELECTION & SPECIFICATION DATA

Type

Epoxy polymer concrete

Description

Tufchem Epoxy Polymer Concrete is a versatile 3-component epoxy polymer concrete designed with low shrinkage, low exotherm, and high flow for casting applications. It may be placed 1.5 inches (40 mm) to 12 inches (300 mm) deep.

Uses

- Floors, walls, trenches and sumps
- Foundations, footings, pads and pedestals
- Beams, columns, curbs and piers
- Precast structures, shapes and assemblies
- Utility vaults
- Railroad ties
- Railcar chemical unloading containment dikes
- Deep pour structural machine base grout
- Releveling floors before installing acid brick linings or Tufchem Tiling Systems
- Rapid repair to deteriorated acid brick floors
- Aprons around anchored thermoplastic lined trenches and sumps
- Grout behind anchored thermoplastic liners for trench and sump refurbishments

Features

- Proportioned components for easy mixing
- Low exotherm allows deep pours up to 12 inches (300 mm) without overheating
- Easy to place and finish
- Stiffness and slump are adjustable to accommodate varying slopes and clearances
- Good resistance to a broad range of chemicals
- Specialty fillers for severe abrasion applications also available. Contact Armor for details

Limitations

- Requires use of formwork for vertical applications
- Not for use beyond its chemical resistance or thermal capabilities. Consult Armor with specific questions

INSTALLATION GUIDANCE

Reference Specifications

CES-360 Installation of Armor Resinous Polymer Concretes

Installation Conditions

Tufchem Epoxy Polymer Concrete is formulated for ideal handling at 70°F (21°C). Materials and substrate should be acclimated to the air temperature prior to installation, and the air temperature should be between 50°F (10°C) and 90°F (32°C) during installation and cure.

For temperatures between 35°F (2°C) and 50°F (10°C) substitute Tufchem Epoxy Hardener with Epoxy Cold Room Hardener in accordance with product data sheet CE-159 Epoxy Cold Room Hardener.

Substrate must be clean, dry and neutral pH.

Ratio

By weight, 1.0 resin: 0.17 hardener: 10.0 filler or 1.0-part mixed resin and hardener: 8.5 parts filler

Mixing

Pour measured quantity of resin into clean dry mixing vessel. Slowly add measured quantity of hardener to resin and mix thoroughly. Add filler and mix until filler is thoroughly wetted.

Work Life

2 hours at 70°F (21°C)

Work life is shorter at higher temperatures. A larger volume of mixed material will have a shorter work life than a smaller volume.

Cleanup

Xylene or MEK

CURE TIME

Temperature	Initial Set	Full Cure
70°F (21°C)	8 hours	5 days

SAFETY

Safety

Mixes and applications of this product present a number of hazards. Read and follow the hazard information, precautions and first aid directions on the individual product labels and safety data sheets before using.

Ventilation

Provide thorough air circulation during and after application until the material has cured when used in enclosed areas.

Tufchem™ Epoxy Polymer Concrete

PACKAGING & ESTIMATING

Product	Code	Packaging
Tufchem Epoxy Resin, Gray	19704 19712	47 lb (21.3 kg) pail 500 lb (227 kg) drum
Tufchem Epoxy Resin, Red	29656	47 lb (21.3 kg) pail
Tufchem Epoxy Resin, Blue	29657	47 lb (21.3 kg) pail
Tufchem Epoxy Hardener	19705 29554 19713	7.8 lb (3.5 kg) can 23.4 lb (10.6 kg) can 435 lb (197 kg) drum
Polymer Concrete Filler	21933 19714	25 lb (11.3 kg) bag 1,180 lb (535 kg) sack

A 3.82 cubic foot (505 lb) unit consists of 1 x 47 lb pail resin, 1 x 7.8 lb can hardener, and 18 x 25 lb bags filler at 1.0-part mixed resin and hardener to 8.2 parts filler by weight.

A 23.5 cubic foot unit (3,104 lb) consists of 6 x 47 lb pails resin, 2 x 23.4 lb cans hardener, and 111 x 25 lb bags filler at 1.0 parts mixed resin and hardener to 8.4 parts filler by weight.

Above mix ratios are rounded to match standard package sizes. For larger pours using bulk packaging, maintain a ratio of 1.0-part resin to 0.17 parts hardener to 10.0 parts filler or 1.0-part mixed resin and hardener to 8.5 parts filler by weight.

Mix can be made more fluid by holding back up to 3 bags of filler for the 3.82 cubic foot unit or 18 bags for the 23.5 cubic foot unit. Yield will be reduced when filler is held back.

Theoretical Coverage

Allow 132 mixed lb/ft^3 (2,114 kg/m^3) of volume. When casting as a 2-inch (50 mm) overlay, allow 22 mixed lb/ft^2 (108 kg/m^2). For a 3-inch (76 mm) casting, allow 33 mixed lb/ft^2 (161 kg/m^2) Normal wastage allowances should be added.

Storage & Shelf Life

Maintain products in original packaging and sealed until ready for use. Estimated shelf life is 12 months when stored in a dry area at 70°F (21°C). Actual shelf life may vary with storage conditions.

If there is any question with respect to the quality of the components check reactivity prior to use. For assistance consult with Armor.

TYPICAL PHYSICAL PROPERTIES

Property	Typical Value
Color	Gray. Blue and red available subject to order minimums.
Density, ASTM C138	132 lb/ft^3 (2,114 kg/m^3)
Compressive strength, ASTM C579	>15,000 psi (103 MPa)
Tensile strength, ASTM C190	>1,500 psi (10.3 MPa)
Modulus of rupture 28-day, ASTM C580	>4,000 psi (27.6 MPa)
Shrinkage, ASTM C531	0.14%
Absorption, ASTM C413	0.33%
Coefficient of thermal expansion, 75°F-210°F ASTM C531	22 x 10^{-6}/°F (39.6 x 10^{-6}/°C)
Minimum application thickness	1.5 inches (40 mm). For castings less than 1.5 inches (40 mm), refer to product data sheet CE-183 Tufchem Grout.
Slump using 8.5 filler: 1.0 mixed resin and hardener mix ratio	Approximately 4-5 inches (100-130 mm). Do not compare slump values to Portland cement concrete mixes as finishing characteristics are different

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