

CE-252

11/13 Supersedes 07/99

TUFCHEM[®] SILICATE CONCRETE – FOUNDATION GRADE

DESCRIPTION

TUFCHEM Silicate Concrete-Foundation Grade (FG) is a two component inorganic acid resistant polymer concrete based upon potassium silicate chemistry. It is formulated for the casting method of placement. TUFCHEM Silicate Concrete - Foundation Grade should be installed at a minimum thickness of 1.5". In continuously wet environments, a chemical resistant membrane should be installed onto concrete substrates before installation of the TUFCHEM Silicate Concrete-Foundation Grade overlayment.

TUFCHEM Silicate Concrete - FG Filler is available with factory dispersed polypropylene fibers to improve tensile properties and minimize hairline shrinkage cracks.

TUFCHEM Silicate Concrete - FG is resistant to all concentrations of most acids including sulfuric, hydrochloric, nitric, chromic, acetic, and phosphoric. It is not resistant to acid fluorides or hydrofluoric acid, and it should not be used in alkaline or caustic environments.

For complete installation instructions, consult Corrosion Engineering installation specification [CES-343](#). Corrosion Engineering also publishes a detailed design guide for the complete use and installation of TUFCHEM Silicate Concrete - FG. Consult your local Corrosion Engineering representative for complete details.

AREAS OF USE

- Provides a cost effective alternative to acid brick construction for the restoration of Portland cement concrete floors, trenches, sumps, and other vessels.
- May be used in lieu of Portland cement concrete in corrosive environments for pump pads, containment pads, curbs, dikes, tank/ equipment support columns and bases.
- May be used for the construction of acid resistant tank lids or domes, lintels, stack caps, small diameter flues, pipes, manholes, and nozzles.

OUTSTANDING FEATURES

- User friendly - handles and places like regular concrete
- Resistant to all acids at all concentrations except hydrofluoric.
- Can be pumped with conventional concrete pumping equipment
- Factory added fiber provide secondary reinforcement

TYPICAL PHYSICAL PROPERTIES

PROPERTY	TUFCHEM SILICATE CONCRETE - FG
Color	Concrete gray
Working Life / Set time @ 70°F	30 minutes. Accepts foot traffic in 8 hrs
Density (ASTM C-138)	140 lb /cu ft
Compressive Strength (ASTM C-579) 1 / 7 / 28 Days	>1,600 psi / >3,100 psi / >3,600 psi
Tensile Strength (ASTM C-190) (28 days)	>725 psi
Flexural Strength, 7 Days, 70°F (ASTM C580)	>900 psi
Absorption, % (ASTM C-413) (48 hour immersion)	5.2%
Shrinkage (ASTM C-531) - 1/ 7/ 28 Days	0.12 % / 0.18 % / 0.20 %
Coefficient of Thermal Expansion (75°F-210°F) (ASTM C-531)	8.2 x 10 ⁻⁶ in/in. °F
Modulus of Elasticity (ASTM C-508)	1.4 x 10 ⁶ psi
Adhesion to : sandblasted concrete sandblasted steel cured TUFCHEM Silicate Concrete	100 psi unprimed, 240 psi primed 420 psi 150 psi unprimed, 170 psi wet primed, 180 psi dry primed
Maximum Service Temperature	1650° F

ESTIMATING/PACKAGING THEORETICAL QUANTITIES – NO OVERAGE ALLOWANCE

PRODUCT	CODE	PACKAGING	MIX RATIO
TUFCHEM Silicate Solution	19546 19547	44 lb pail 600 lb drum	Mix ratio is 5.75-6.25: 1 Powder to Solution by weight, depending on flowability required. A 319 lb (2.3 cu ft) unit consists of 1 x 44 lb pail solution and 5 x 55 lb bags filler
TUFCHEM Concrete Filler	19549 19550	55 lb bag 2176 lb sack	
TUFCHEM Concrete Filler with Polypro fibers added	19537 19538	55 lb bag 2176 lb sack	A 4175 lb (29.8 cu ft) unit consists of 1 x 600 lb drum of solution and 65 x 55 lb bags of filler 23.4 mixed lbs are required per SF @ 2" thickness 17.5 mixed lbs are required per SF @ 1.5" thickness

SAFETY PRECAUTIONS / DISCLAIMER

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 [material safety data sheets](#) before using. While all statements, technical information, and recommendations contained herein are based on information our company believes to be reliable, nothing contained herein shall constitute any warranty, express or implied, with respect to the products and/or services described herein and any such warranties are expressly disclaimed. We recommend that the prospective purchaser or user independently determine the suitability of our product(s) for their intended use. No statement, information or recommendation with respect to our products, whether contained herein or otherwise communicated, shall be legally binding upon us unless expressly set forth in a written agreement between us and the purchaser/user.



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