

### READY MIX APPLICATIONS

ELEMIX<sup>®</sup> concrete additive is comprised of innovative polymeric spheres that have been specially formulated for use in concrete. This additive distributes uniformly in concrete to dramatically reduce weight and enhance durability in structural and non-structural applications.



#### APPLICATONS

ELEMIX concrete additive has been successfully used in numerous commercial applications. Markets include: grouts and fills, cast in place, elevated decks, toppings and low-density fill.

#### SUSTAINABLE SOLUTION

- Delivers reduced weight designed to targeted units while achieving structural strengths.
- Improves concrete performance through enhanced thermal properties and resistance to cracking.
- Increases efficiencies with easy placement, pumping and finishing while reducing building and transportation costs.
- Reduces variability of concrete, resulting in fewer lost loads.

#### TYPICAL MIX DESIGNS

A variety of mix designs have been studied, yielding a range of densities and strengths. The following table depicts typical ranges of ingredients:

##### Typical Ranges of Ingredients for Structural Mixes

Ingredient	lb/yd <sup>3</sup>	kg/m <sup>3</sup>
Cement*	525–800	311–475
SCM**	0–225	0–133
Fine aggregate	950–1,700	564–1,008
Coarse aggregate	225–1,000	133–593
Water	250–420	148–249
ELEMIX concrete additive	1–13	0.6–7.7
Admixtures as directed by manufacturer		

\*Recommended minimum total cementitious level 640 lb/yd<sup>3</sup> (380 kg/m<sup>3</sup>)

\*\*Dosage is approximate and will depend on mix designs and the specific gravity of the raw materials.

#### CODE COMPLIANCE

ELEMIX concrete additive is compliant to ICC-ES AC-408 Acceptance Criteria of Structural Concrete with Lightweight Synthetic Particles.

#### RANGES OF DENSITY

(STRUCTURAL AND NON-STRUCTURAL)

- Wet Density 145-30 pcf (2400-1200 kg/m<sup>3</sup>)
- Corresponding ELEMIX additive dosage 1-28 lb/yd<sup>3</sup> (1-17 kg/m<sup>3</sup>)

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#### TECHNICAL CHARACTERISTICS

Concrete made with ELEMIX additive meets applicable requirements for many concrete applications.

##### **ASTM C39 Compressive Strength** **ELEMIX additive combined** **with normal weight aggregates**

120 pcf (1920 kg/m<sup>3</sup>)  
2500–4500 psi (17–31 MPa)

130 pcf (2080 kg/m<sup>3</sup>)  
2500–5900 psi (17–41 MPa)

135 pcf (2160 kg/m<sup>3</sup>)  
2500–7000 psi (17–48 MPa)

##### **ELEMIX additive combined** **with lightweight aggregates**

100 pcf (1600 kg/m<sup>3</sup>)  
2500–5400 psi (17–37 MPa)

120 pcf (1920 kg/m<sup>3</sup>)  
2500–7000 psi (17–48 MPa)

##### **ASTM C78 Flexural Strength** (Properties are density dependent)

120 pcf (1920 kg/m<sup>3</sup>)  
350–980 psi (2.4–6.8 MPa)

130 pcf (2080 kg/m<sup>3</sup>)  
700–800 psi (5–6 MPa)

##### **ASTM C143 / ASTM C1611 Consistency**

Slump 0–8 inches (0–203 mm)  
Slump Flow <26 inches (<660 mm)

##### **ASTM C666 Freeze–Thaw** **Resistance (Procedure A & B)**

Structural mixes greater than 80% Durability Factor

##### **ASTM C672 Scaling–Deicing**

Visual Rating of Surface ~2  
(slight to moderate scaling)

##### **ASTM E119 Fire Rating**

(ANSI/UL 263 — CAN/ULC S101)  
Fire Testing of Building Construction  
and Materials

UL Design No. D974, D976, D977  
ULC Design No. F915, F916, F917

##### **ASTM C469 Modulus of Elasticity** **and Poisson’s Ratio**

Modulus of Elasticity  
 $e_c = 1920\text{--}3120$  ksi (13,238–21,512 MPa)

Poisson’s Ratio: .18 –.25

NOTES: Results are affected by coarse aggregate  
type and loading.

Strength results are based on 28 days.

#### DURABILITY

The use of ELEMIX concrete additive has been found to provide durable concrete in freeze–thaw degradation. Mixtures using ELEMIX additive without traditional air-entraining admixtures have also produced durable concrete.

**ASTM C666 >80%** relative dynamic modulus

**ASTM C672 ~2** rating without use of sealer

NOTE: Performance is dependent on dosage of ELEMIX.

#### PLACING AND FINISHING

Concrete made with ELEMIX concrete additive can be placed and finished using traditional tools and equipment.