ceEntek

ce200™-120D

Sulfuric acid and microbial attack resistant high strength, high modulus concrete enhanced with Carbon NanoFibers for sewage transport and treatment structures, installations and repairs of structures exposed to sulfuric acids.

Product Description

ce200™ – 120D is a two phase, non-shrinkage, high performance concrete grout which when mixed with the Carbon NanoFibers enhanced water, produces a homogenous, easily flowable and pumpable material with superior final strength and modulus. It has been formulated to combine the strength of an OPC based system with the sulfuric acid resistant of a calcium alumina cement based on ceEntek's advanced Nano engineered binder and packing optimization. It produces a high-strength concrete with best in class performance, superior rheological properties, and extended lifetime.

Application Areas

ce200™ – 120D has been designed to meet the requirements for cast in situ and pre-cast application.

- Pre-cast elements including jacking pipes, manhole inspection chamber, Vortex drop shaft and similar.
- Protective coating and strengthening of sewage tunnels.
- Protective coating of water treatment tanks.
- Protective coating of bridge decks.

Please contact us for your specific projects and requirements.

Features and Benefits

- Tested in sulfuric acid with pH 1
- Minimal strength loss over time (1% in 100 years; 'standard' pH sewage)
- Extremely dense surface avoids microbial attacks
- Compressive strength > 110MPa (28days)
- De-molding strength > 15MPa (24Hours/20°C)
- Outstanding flexural strength > 20MPa (28days)
- High Modulus and excellent fatigue resistance
- No bleeding or segregation
- Superior bond to cementitious or steel basis

Application Method

ce200™ – 120D has been formulated for use in pre-cast, in-situ cast and spray applications. Installations should be by trained, experienced contractors. ceEntek will ensure this training is provided to qualified parties.

Consumption

ce200™ – 120D is a two-phase system delivered in jumbo bags and pails. One pail supplies the Carbon NanoFibers in paste form for one jumbo bag.

Technical Data Sheet

ceEntek

ce200™-120D

High Performance Concrete

Description

ce200™-120D is a high performance concrete enhanced with Carbon NanoFibers and microfibers, specially designed for extreme acid resistance.

Features and Benefits

- E-modulus >35MPa
- No water carrying capillaries, impermeable, negligible chloride penetration, UV resistant
- Not impacted by freeze/thaw cycles
- Superior bonding strength to other cementitious materials and to steel
- Lifetime: 100+ years

Typical Uses

- Sewage tunnel
- Tunnel ring coating
- Jacking pipe
- Protective layer against saltwater penetration

Advantages

- Chemical and acid Resistant
- Epoxy-Free
- High-Strength
- Excellent adhesion to concrete, masonry, metals
- Durable
- Replaces MIC plus HDPE liner

Mechanical Properties

PROPERTIES		ce200™-120D
Compressive strength[1] (MPa)	1-day	>15
	7-day	>90
	28-day	>120
Flexural strength[2] (MPa)	7-day	>15
	28-day	>20
Density (kg/m3)		2250
Flow[3] (mm)		240 / 280 (with / without fibers)
Shrinkage (%)		<0.02
Loss of mass from cavitation (%)		0
Loss of property in 90d pH 1 acid soaking test[4] (%)		<2 loss of mass and <16 loss of strength

[1] Compressive strength in accordance to ASTM C109 test in a 100mm cubic specimen.
[2] Flexural strength in accordance to ASTM C348 test in a 40mm prism specimen.
[3] Flow in accordance to ASTM C230.
[4] 90-day pH 1 acid soaking test is equivalent to 100 years in standard sewage conditions.

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