



SC-ECC (Self-Compacting Engineered Cementitious Composite)

Product Data Sheet		
Reference	PDS/SC-ECC/22	Rev 1.0

1. Product Description

SC-ECC (Self-Compacting Engineered Cementitious Composites) a self-compacting remediation composite is a prepackaged site mix composed of cement, sand and aggregates blended with a specially engineered **KPA ECC Reactive Powder** incorporating **Polyvinyl Alcohol (PVA)** fibers.

KPA ECC Reactive Powder is a pre-packaged ready-to-use enhancer for high performance and durability. It is specifically designed to promote high flowability, non-segregating concrete that can spread into place, fill the formwork, and encapsulate reinforcement without the need for any mechanical consolidation. The high-performance characteristics of **SC-ECC** is derived from its specially designed and blended chemical composition.

SC-ECC is suitable for structural remediation and rehabilitation of concrete structures such as bridges, buildings, dams, hydraulic structures, power stations, industrial facilities, marine structures, tunnels, and water and wastewater treatment plant facilities. It is also recommended for use for strengthening works where single placing is in excess of 50mm thickness especially for protection to

existing external post tensioning systems in marine environments.

SC-ECC also provides excellent chloride penetration resistance to concrete structures from reinforcement corrosion including other detrimental effects on concrete over long periods of exposure. **SC-ECC** enhances workability and flowability when used as a repair material for formwork grouting.

With the added enhancers, **SC-ECC** has the ability to fill voids in structures which are heavily reinforced and in need of repair thus eliminating the possibility of segregation or honey combing.

2. Technical Data

SC-ECC has unique performance characteristics as a strengthening material. With its high tensile, flexural and compressive





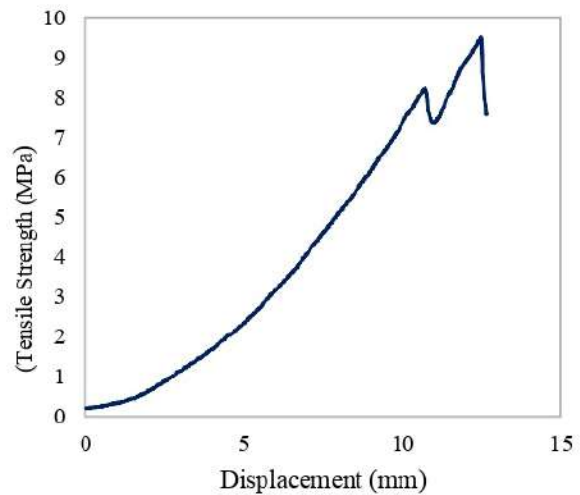
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strengths it is designed to be strong and durable.

SC-ECC Typical Mechanical Properties

Description	Results
Tensile strength (MPa)	> 9.0
Flexural strength (MPa)	> 5.0
Bleeding	No Bleeding
Compressive strength (MPa)	
At 7 th day	> 60MPa
At 14 th day	> 70 MPa
At 28 th day	> 80 MPa



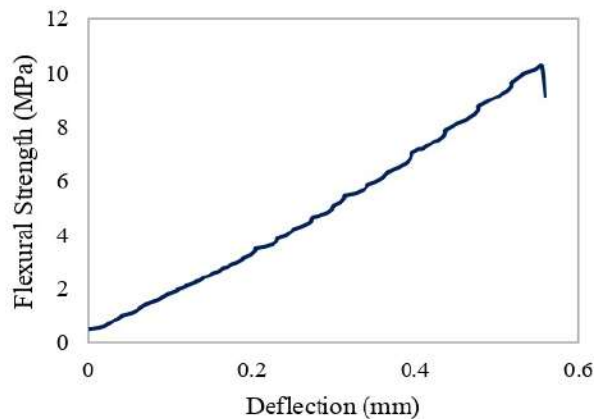
and **Part B: KPA Liquid** which is supplied in a Jerry can.

As typical with all cementitious materials, **KPA ECC Reactive Powder** must be stored in dry conditions, off the ground, unopened, undamaged and protected from direct sunlight temperatures and exposure. When stored dry in its original packaging, it will retain its properties for at least 12 months.

4. Guidelines for Application

a) Mixing

The mixing procedure of the **Self-Compacting Engineering Cementitious Composites (SC-ECC)** is conducted in accordance with the guidelines of **European Federation of National Associations Representing for Concrete (EFNARC)**



3. Packaging and Shelf Life

The packaging consists of **Part A: KPA ECC Reactive Powder** which is supplied in one pail



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All dry ingredients such as cement, sand and aggregates are mixed in a mechanical mixer to achieve a homogenous mix prior to the addition of **KPA ECC Reactive Powder (Part A)** followed by **KPA Liquid (Part B)** and recommended quantity of water.

b) Application Details

General application guidelines are presented below.

- **SC-ECC** is specially designed for formwork grouting where placement by gravity pour or pump is recommended.
- Preparation of substrate shall be in accordance with best practice.
- **SC-ECC KPA Reactive Powder and KPA Liquid** shall be mixed with potable water, Ordinary Portland Cement, sand, and aggregates in the prescribed ratio.
- If formwork type repair is used, leave the formwork in place for at least 3 days. Upon removal of the formwork, cure the exposed surfaces immediately with wet hessians.
- The mixer shall be cleaned after every batching to remove residuals that may affect the overall product performance.

c) Post-Placement Procedures

SC-ECC shall be wet cured for a minimum of three days after placement. In-service operation may begin immediately after 3 days of curing.



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