



Product Data Sheet		
Reference	PDS/UHPC-G120/24	Rev 2.0

SPT – UHPC

SPT Ultra High Performance Concrete

1. Product Description

SPT-UHPC is a self – consolidating high ductility remediation concrete specially designed using cement – sand mix and blended with a pre – packaged **KPA – HD Reactive Powder**. **KPA – HD Reactive Powder** is a pre – packaged ready – to – use enhancer for high performance and ductility. It is specifically designed for 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 and ductile characteristics of **SPT- UHPC** is derived from its specially designed fibers and unique chemical composition.

SPT-UHPC is an engineered cementitious composite (ecc) suitable for structural remediation and rehabilitation of concrete structures such as bridges, buildings, dams, power stations, industrial facilities, tunnels, and other infrastructure facilities. It is also recommended for use in localized repair works.

SPT-UHPC also enhances wear and abrasion resistance in concrete structures. It enhances workability and flowability when used as a repair material for formwork grouting and does not bleed.

With the added enhancers, **SPT-UHPC** 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. Packaging and Shelf Life

The packaging consists of **Part A: KPA-HD Reactive Powder** which is pre-packaged and supplied in a pail with a pre-determined volume of **Part B: KPA Liquid** which is supplied in a Jerry can.

As typical with all cementitious materials, **KPA – HD 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.

3. Technical Data

When mixed **KPA-HD Reactive Powder** along with a combination of cement and steel fiber, has the ability to perform as a high-performance concrete. With its near zero shrinkage and bleeding properties, **SPT-UHPC** has unique performance characteristics as a repair material. With its high compressive and tensile strength, it is designed to be strong and durable.

Description	Results
Flexural Strength (MPa)	> 20.0
Tensile Strength (MPa)	> 7.0
Compressive Strength (MPa) At 28 th day	> 120.0
Density (kg/m ³)	> 2350
Water Absorption (%)	< 0.5
Chloride Permeability	< 200 C
Matrix	Without coarse aggregates, using silica sand and KPA-HD
Fiber	Steel fiber / PVA
Interface	Chemical & frictional bonds controlled for bridging properties
After cracking	Strain hardening
Crack width	Less than 100 micrometers

4. Guidelines for Application

A) Mixing Ratio

Water-cement ratio (0.25) shall be adjusted to suit site conditions.

B) Mixing Method

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

C) Application Details

General application guidelines are presented below.

- **SPT-UHPC** is specially designed for formwork grouting where placement by gravity pour is recommended.
- Preparation of substrate shall be in accordance with best practice.
- **KPA-HD Reactive Powder** and **KPA Liquid** shall be mixed with potable water, Ordinary Portland Cement, and fiber 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.

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