

TalrakcreteUltra® Drymix

Ultra-high Performance Concrete Premix



The Construction Alchemists

Description

TalrakcreteUltra® Drymix is a pre-batched dry-mix of ultra-high performance concrete (UHPC) supplied in hermetically sealed bags which needs just addition of water. It is based on a path breaking Quantz® technology of high particle packing density to produce a UHPC mix of very high compressive and flexural strength. A maximum of 6.25 Kgs of coarse graded aggregates in SSD condition, may be added to each bag of TalrakcreteUltra® Drymix, as recommended below.

Features & Benefits

- No site batching of materials required excepting addition of mixing water.
- Pre batched at factory - Consistent quality and strength
- Compressive strength exceeding 100MPa and high flexural strength.
- High workability- easy to place in congested reinforcement without vibrations.
- No need to add any super plasticizers
- High early strength - Early stripping of form in in-situ construction and Enhanced production rate in precast industry

Primary Application

TalrakcreteUltra® Drymix can be used to produce consistent quality UHPC mix with a guaranteed compressive strength of a minimum of 100 MPa at site. Useful in the construction of high-rise buildings, long span bridges with normal and prestressed construction. TalrakcreteUltra® Drymix can be used in the precast industry to produce precast components of high quality and strength with excellent finish.

Technical properties

The concrete made using the TalrakcreteUltra® Drymix exhibits the following properties. The tests are conducted at $27 \pm 2^\circ\text{C}$.

Workability

The flow cone test as per DIN Standards



Time after Mixing (seconds)	30 secs	60 secs	120 secs	Total
Spread value (cm) in Hagerman cone test	25.0	32.0	33.5	35

Compressive Strength

The compressive strength test conducted cube specimen of 100 X 100 X 100 mm

Age (days)	24 hrs	3 days	7 day	28 days
Min. Compressive Strength (MPa)	25	60	80	120

Flexural Strength

The Flexural strength test conducted on prism specimen of 15 X 15 X 70 cm

Age (days)	24 hrs	3 days	7 day	28 days
Min. Flexural Strength (MPa)	5	6	10	15

Fresh Wet Density : 2300 - 2400kg/m³

Design Criteria

TalrakcreteUltra® Drymix is designed with a packing density of particles with the help of algorithms developed for particle packing optimization at the Nano level, material characterization, and calculation of water film thickness, FEM and an effective application of the large data on material characterization.

Specification Clause

The concrete shall be prepared using TalrakcreteUltra® UHPC Drymix and specified quantity of clean and dust free coarse graded aggregates of 12.5 - 4.75 mm in SSD condition. Only specified amount of mixing water shall be used as per manufacturer's instructions. The 28 day compressive strength of the UHPC mix shall not be less than 100 MPa.

Application Instruction

Mixing

Pan type concrete mixer is most suitable for mixing TalrakcreteUltra® Drymix. The following are the proportions in which materials should be mixed

TalrakcreteUltra® Drymix : 25 Kg

Water : Drymix ratio : 0.1 to 0.12

Mixing water : 2.5 to 3.0Kg.

Depending on the batch size number of 25 kg bags required per batch shall be calculated and stored near the mixer. The entire water required for the batch is measured and is first taken into the pan mixer and the same is started. While the mixer is running, TalrakcreteUltra® Drymix shall be added from the bags one by one. The mixing shall be continued for a minimum period of 15 minutes.

If addition of coarse aggregated is envisaged, 6 Kg/ 25 Kg of TalrakcreteUltra® Drymix, of 12.5 mm - 4.75 mm graded aggregate conforming to IS: 383 in SSD condition shall be added to the wet mix after the completion of the initial mixing. The mixing shall be continued for the further 3 minutes before discharging.

Consumption

- 76 bags of TalrakcreteUltra® Drymix per m³ of UHPC produced if coarse aggregates are used at 6Kg /25kg bag of TalrakcreteUltra® Drymix
- 94 bags of 25 Kg each of TalrakcreteUltra® Drymix are required to produce 1m³ of UHPC without addition of coarse aggregates.

Estimating Packaging

TalrakcreteUltra® Drymix is supplied in 25kg Moisture resistant poly bags

Storage

TalrakcreteUltra® Drymix has a shelf life of 6 months if kept in dry store in original, unopened bags. If stored at high temperature and/or high humidity conditions the shelf life may be reduced.

Precautions

Health & Safety instructions

Confined areas must be well ventilated. Contact with the skin should be avoided, if contact occurs, the skin should be washed immediately. Eye contamination must be immediately washed with plenty of water and medical treatment sought.



Talrak Construction Chemicals Pvt. Ltd.

An ISO 9001:2015 Certified Company

Works:

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Important note :

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Ref : TCC/TDS/UHPC01 - R2