



# FORTE CRETE150

# POURABLE UHPC

## TECHNICAL DATA SHEET

### Description

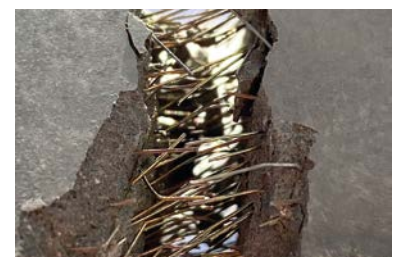
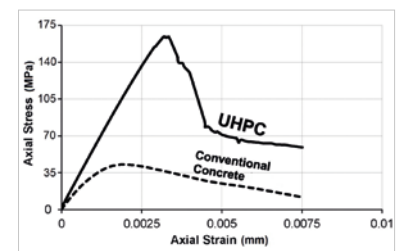
ForteCrete150 is a special class of densely packed fiber reinforced composite with optimized granular packing and very low water content that offers exceptional strength, durability, ductility, pull-out resistance and long term stability. It is designed to exhibit outstanding mechanical properties including sustained postcracking tensile strength. ForteCrete150 is highly resistant against acid waters, deicing salt, freeze-thaw deterioration/degradation, chloride ion penetration, chemical attack and carbonation.

### Applications

ForteCrete150 is suitable for casting urban street furniture, thin stairs and balconies, interior décor panels, decorative facades and impact and blast resistant structures. It is primarily used for road overlays, links slabs, expansion joint keys, strengthening of concrete and steel members, pier jacketing and as a closure pour UHPC material to connect prefabricated structural elements on-site.

### Typical Material Properties

Density	2450-2550 kg/m <sup>3</sup>	
Slump test	230-250 mm	
Compressive strength	> 150 MPa	at 28 days
	> 100 MPa	at 4 days
Flexural Strength	> 20 Mpa	at 28 days
Pull-out resistance	> 6.5 MPa	
Abrasion Resistance	< 8.0 cm <sup>3</sup> /50 cm <sup>2</sup>	Class XM3+
Water Permeability	< 6.5 mm	Class V-III
Modulus of Elasticity	45 to 50 GPa	
Chloride Ion Permeability	< 10x10 <sup>-14</sup> m <sup>2</sup> /s	(very low)
	< 200 Coulombs	
Freeze/Thaw Resistance-RDM	> 95%	intact
Carbonation Test	0 mm	Class XC4



## Packaging

- **Premix (gray):** pre-blended Portland cement, quartz sand and silica fume
  - 20 kg bag, 50 bags on pallet
- **Brass Coated Steel fiber 1512 g**
  - Dia 0.20 mm, 12.5 mm long
  - tensile strength 2200+MPa
- **Admixture HRWR**
  - 335 ml (360 g)
- **Water**
  - \*Ice may be required when batching in warm/hot weather



## Storage

ForteCrete150 premix should be stored on pallets in dry condition or covered to prevent moisture ingress and UV exposure. Product shelf life in original packing is 12 months under this conditions.

## Mixing Procedure:

1. Mix all dry constituents with maximum mixer paddle speed for 1.5-2 minutes
2. Add 140ml of the HRWR to 1720ml of water and gradually pour to the mixer and blend for next 2 minutes
3. Add remaining HRWR and mix till required flowability of UHPC is achieved (approx. 20min with slow mixing speed)
4. Add gradually steel fiber once mix is flowable. Fibres must be added once UHPC is flowable to reduce the amount of mixing energy required or to produce a higher volume of UHPC with a given mixing energy

**Note:** During mixing dry materials may build up on the mixer walls. Stop the mixer, remove materials from walls with finishing trowel and restart the mixer.

## Placing Procedure:

ForteCrete150 shall be poured within 60 minutes of batching. Standard tools for placing concrete shall be used. ForteCrete150 is self-compacting and self-leveling. Vibration should be avoided to prevent possible fiber segregation. All exposed surfaces shall be covered with plastic membrane sheets immediately after placement to prevent loss of moisture. With ambient temperatures below 10°C procedures for concrete placing in cold weather shall be implemented.

## Finishing Procedure:

ForteCrete150 shall be poured 10 mm higher than the finish level and surface grounded to remove surface air voids upon reaching strength of 60 MPa.

## Health and Safety:

ForteCrete150 is non-toxic and safe to use. PPE clothing, gloves, and mask shall be used when handling and mixing.