

## Technical Datasheet

# X-Mix HPR Plus

## Set Retarding / Very High Range Water-Reducing /Super plasticizing Admixture

### Product Description

X-Mix HPR Plus is a high effective super plasticizer for producing free flowing concrete, manufactured from a naphthalene sulphonate polymer combination specially designed to impart a fluid concrete easily flowing, a substantial water reducing agent for promoting high early and ultimate strengths.

X-Mix HPR Plus is suitable for use with all types of ordinary Portland cements, sulfate resisting Portland cement and pozzolanic materials such as PFA and Micro-silica. This product is suitable for tropical and hot climatic conditions.

### Advantages

- Improved workability without increased water content
- Compressive strength improved up to 40% at maximum possible water reduction.
- Lower pumping pressure.
- Very high water reduction (depend on type of cement).
- Higher ultimate strengths.
- Improved workability retention.
- Improved cohesion of the concrete mix reduces significantly the risk of segregation and allows greater time for placement.
- Reduced permeability.
- Non-toxic.
- Chloride free.

### Uses

X-Mix HPR Plus is suitable for use as a super plasticizer in the production of free flowing concrete with high slump more than 200 mm free of bleeding and segregation such as :

- Slabs, foundations, walls, columns and piers.
- Self – compact concrete.

It is also used as a water-reducing agent for production of high early strength concrete such as :

- Precast Concrete, Pre-stressed concrete, Bridges and cantilever structures.

The product improves the effectiveness of the water content of a concrete mix by reducing surface tension.

It is also used to produce flowing, easy to compact concrete.

- Always used as good retarding for concrete with fast setting.

### Shelf Life

X-Mix HPR Plus has a minimum shelf life of 12 months under shaded area. Must be protected from direct sunlight and frost.

### Dosage

Dosage is 0.6 – 3 liter/100kg of cement @ 25° C, including any pozzolanic materials and cement replacements.

The actual dosage rates are dependent on the :

- 1- Cement rate in mix design.
- 2- Quality of cement & aggregates.
- 3- Water/Cement-ratio.
- 4- Ambient temperature.

Therefore, it is advisable to carry out trial mixes.

**Dosages outside this range can be used to produce particular mix requirements, provided that extensive trial mixes and laboratory have been conducted.**

### Product Properties

<b>Consistency</b>	Liquid
<b>Color</b>	Dark brown
<b>Specific Gravity according to ASTM D 2111 (g/cm<sup>3</sup>) @ 25° C</b>	1.215±0.01
<b>p<sup>H</sup></b>	>6
<b>Main action</b>	Water reduction & Retarding of initial hydration; retention of workability.
<b>Collateral action</b>	Retarding of initial setting time, workability retention
<b>Classification according to EN 934-2</b>	Set retarding/high range water reducing/ super plasticizing admixtures, T 11.1 / 11.2
<b>Classification according to ASTM C494</b>	Type G
<b>Classification according to ASTM C1017</b>	Type II
<b>Water reduction</b>	≥12 % according to EN 934-2 to almost 30%
<b>Chlorides soluble in water according to EN 480-10 (%)</b>	≤ 0.1 (absent according to EN 934-1)
<b>Alkali content (Na<sub>2</sub>O equivalent) according to EN 480-12 (%)</b>	< 55 g
<b>Nitrate content</b>	Nil

### Specification Compliance

- EN 934-2 T 11.1 / 11.2.
- ASTM C 494: Type G.
- EN 480-10.
- EN 480-12.
- ASTM D 2111.

## Packaging

20 liter jenkins, 210 liter drums, 1000 liters Bulk Tanks.

## Dispensing

X-Mix HPR Plus should be added to the concrete while being mixed using a suitable dispenser. Add to the concrete with the mixing water to obtain best results.

## Overdosing

When accidental overdosing occurs will result in:

- Increase in workability.
- Initial and final set retarding.
- Increase in air-entrainment.

## APPLICATION PROCEDURE

add X-Mix HPR Plus into the mixer after the other ingredients (water, cement, aggregates). X-Mix HPR PLUS is most effective if added when cement and aggregate granules are already wet, and least effective when the admixture is mixed with dry solids which partially absorb it (especially if porous). It is advisable to begin adding the admixture with an automatic dispenser after adding at least, half of the batching water required.

## Compatibility

X-Mix HPR Plus is compatible with a wide range of admixtures used in the same concrete mix. All admixtures should be added to the concrete separately and must not be mixed together prior to addition. The resultant properties of concrete containing more than one admixture should be assessed by trial mixes.

## Clean Up

Clean up spillages of by absorbing onto sand and transferring to suitable containers. Any residue should be washed down with large quantities of water. The disposal of excess or waste material should be carried out in accordance with local regulations.

## Health and Safety

**This product is for industrial use only by trained operatives. It is potentially hazardous if not used correctly. Please refer to the Material Safety Data Sheet (MSDS) prior to the purchase and use of this product. The MSDS can be obtained via our website [www.ncc.com.eg](http://www.ncc.com.eg).**

## Authorized Technical Specialist

Please note that only NCC X-Calibur Authorized Technical Specialists (ATSs) are permitted to change any of the information in this data sheet or to provide written recommendations concerning the use of this product. Visit [www.ncc.com.eg](http://www.ncc.com.eg) for a full list of NCC X-Calibur ATSs.

## Datasheet Validity

NCC X-Calibur makes modifications to its product datasheets on a continuous basis. Please check the datasheet update section on [www.ncc.com.eg](http://www.ncc.com.eg) to ensure you have the latest version.

## Warranties

NCC X-Calibur supplies products that comply with the properties shown on the current datasheets. In the unlikely event that products supplied are proved not to comply with these properties, then we will replace the non-compliant product or refund the purchase price.

NCC X-Calibur does not warrant or guarantee the installation of the products as it does not have control over the installation or end use of the products. Any suspected defects must be reported to X-Calibur in writing within five working days of being detected. NCC X-Calibur Construction Chemistry Inc. **makes no warranty as to merchantability or fitness for a particular purpose and this warranty is in lieu of all other warranties express or implied.** NCC X-Calibur Construction Chemistry Inc. shall not be liable for damages of any sort including remote or consequential damages, down time, or delay.

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### Quality Statement

All Products manufactured by NCC X-CALIBUR or imported from X-CALIBUR companies world-wide are manufactured to procedures certified to conform the quality, environment, systems described in the ISO 14001:2004. ISO 9001:2000.



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