EPSILONE **PC 475**

ADMIXTURES & CONCRETE RELATED PRODUCTS

# SPECIAL SUPERPLASTICIZER FOR HIGH PERFORMANCE PRECAST & READY MIX CONCRETE

## PRODUCT

EPSILONE PC 475 is a highly effective synthetic polymer based additive which performs extremely well with Portland cement of various types specifically designed to produce ready mixed concrete for precast with low water binder ratio and excellent workability. EPSILONE PC 475 improves the physical and mechanical performance of concrete.

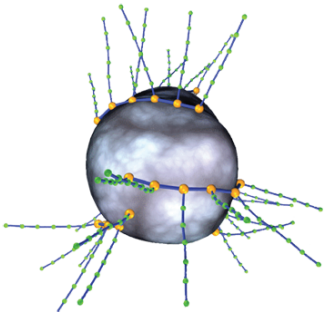
## WORKING MECHANISM

Sulphonated naphthalene- or melamine-based superplasticizer is adsorbed onto the surface of cement particles at a very early stage of the cement hydration process.

These polymer chains adsorbed to the surface increase the negative charge on the surface of cement particles, and dispersion is obtained by electrostatic repulsion.

In addition to the previous process, EPSILONE PC 475 is specially designed with MultiCarboxylate Ether with long lateral chains that improve greatly the dispersion of cement particles.

Therefore, in addition to the electrostatic repulsion which occurs at the start of the mixing process, the presence of these lateral chains generates a steric hindrance which greatly enhances the capacity of cement particles to separate and disperse. This property enables the production of concrete with extended workability retention.



Schematic shows cement particle with polymer backbone and the long lateral chains linked to it.

## PROPERTIES

- Allows reduction in cement while maintaining desired strength.
- Accelerates strength development and resulting in higher frequency in use of forms.
- Helps reduce steam curing time thereby reducing energy cost.
- Permits reduction in amount of water normally required for a given workability.
- Allows producer to switch from Type III (high early) cement to less expensive Type I (ordinary).
- Enables development of high strength concrete other than by cement addition.
- Provides flow ability (greater than 200mm slump) of fresh concrete that does not segregate and sets in normal period of time while maintaining desired water-cement ratio
- Provides concrete with self consolidating properties
- Enhances passing/filling ability of the fresh concrete
- Enhances aesthetic for minimal repairs
- High water reduction
- High workability-ease of placing and compaction without segregation
- Reduced risk of cracks
- Good adhesion - ease of pumping. No bleeding
- Good workability - excellent surface appearance
- Minimal bleed water - excellent concrete quality
- High elastic modulus - superior load bearing capacity
- Provides properties for sustainable precast

## SCOPE OF USE

EPSILONE PC 475 is recommended for all areas of use of high performance concrete in ready mix Precast Industry:

- Precast/Prestressed concrete
- Hollow core production
- Tilt Up
- Highly durable concrete
- Retaining walls
- Colored Precast
- High strength concrete
- Concrete mixes containing Silica Fume: GGBFS or PFA
- Concrete with high resistance against aggressive media
- Concrete using white cement

## CHARACTERISTICS

| | |
|---|---|
| Appearance | Liquid (Light brown) |
| Specific gravity @25°C | 1.065 ± 0.02 |
| Chloride content | NIL– BS 5075/EN 934-2 |

SODAMCO® weber SAINT-GOBAIN

# EPSILONE PC 475

## STANDARDS
ASTM C 494 Type F
ASTM C1017 Type I
BS EN 934-2
BS 5075: Part 3

## INSTRUCTION FOR USE
EPSILONE PC 475 should be dispensed after all concrete constituents are charged in the central mixer preferably after approximately 60% of water addition.

## DOSAGE RATES
Range of dosage rates: from 500 to 2700 ml per 100 kg of cementituous content.
Dosage above the recommended values can be employed. Still, the required dosage for a specific job with controlled delay in setting and workability should be determined by in-situ trials

Admixture demand varies with w/b of the concrete, cement type, pozzolanic materials and ambient temperature.
Trials are to be conducted prior to use in order to determine required performance, including workability retention, setting, and strength development.

## EFFECT OF OVERDOSE
Overdose of EPSILONE PC 475 may result in the following:
- Slight delay of initial setting
- Higher workability
- Higher Ultimate Strength

Dependant upon the level of overdose, concrete mixture details and conditions involved.

## COMPATIBILITY
EPSILONE PC 475 can be used in mixtures containing:
- Silica fume
- Fly Ash
- GGBFS
- Pozzolanic Binders

EPSILONE PC 475 is not compatible with naphthalene sulfonate- and melamine sulfonate-based superplasticizers.
Consult SODAMCO's technical dept. for advice.

## PACKAGING
EPSILONE PC 475 is supplied in:
1000 liter containers.

## STORAGE
EPSILONE PC 475 can be stored up to 1 year from manufacturing date under cover, out of direct sunlight and protected from extreme temperatures.
In case of frost, the product recovers its properties after progressive thawing and homogenizing by agitation.

## HEALTH & SAFETY
In case of contact with skin or eyes, rinse thoroughly with water. If irritation persists, seek medical attention. If swallowed, do not induce vomiting and seek medical attention.

## QUALITY STATEMENT
All our products are manufactured to comply with our internal QA/QC program and quality management msystem to ensure consistency and quality

## DISCLAIMER
While the company guarantees its products against defective materials, the use and application of these products are made without guarantee since the conditions of their application are beyond its control. It is recommended to verify with the company that the product is suitable for the intended use, and that this Data Sheet version is the latest one. The company may modify it without prior notice. Technical characteristics are listed for guidance only. For more information, please contact the company's office in your location.

## NOTE
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Edition: 08/14-A
*Available only in Qatar

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