

NEW GENERATION POLYCARBOXYLATE ETHER SUPERPLASTICIZER - EXTENDED SLUMP RETENTION

PRODUCT

EPSILONE HW 382 is a highly effective superplasticizer based on modified synthetic carboxylated polymers specifically designed to produce ready-mix concrete with low water-to-binder ratio (w/b) and excellent workability. It can help the ready-mixed concrete industry, where more than normal slump retention and durability are required. The ability to work over a wide range of w/b, including low w/b, and still obtain extended slump retention allows for the manufacturing of high-quality concrete.

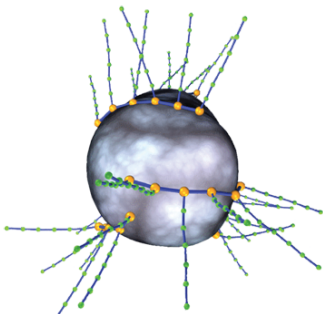
WORKING MECHANISM

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 HW 382 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

- Water reducing
- Superior slump retention. Ease of delivery to point of placement
- High workability-ease of placing and compaction

without segregation

- Reduced risk of cracking
- Good adhesion - ease of pumping. No bleeding
- Good workability - excellent surface appearance
- Minimal bleed water - excellent concrete quality
- High elastic modulus and high strength - superior load bearing capacity

SCOPE OF USE

EPSILONE HW 382 is recommended for all areas of use of high-performance concrete in the ready-mix industry:

- Super slump retaining concrete with equal or less water content than conventional admixtures
- Concrete mixtures containing silica fume, GGBS, or PFA
- Concrete with high resistance against aggressive media
- Long distance transport
- Hot weather concreting
- Highly durable concrete
- Mass concrete
- Pumped concrete
- Prestressed concrete
- Shotcrete
- Slipform concrete applications
- Structures with congested reinforcement

CHARACTERISTICS

Appearance	Liquid (white Brown)
Specific gravity	1.040 ± 0.02
Chloride content	NIL- BS 5075/EN 934-2

STANDARDS

ASTM C 494 Types D & G
ASTM C 1017 Type II
BS EN 934-2
EN 480 – 8 - EN 480 – 10

INSTRUCTION FOR USE

EPSILONE HW 382 should be dispensed after all concrete constituents are charged in the central mixer, preferably after approximately 60% of mixing water addition.



EPSILONE HW 382

DOSAGE RATES

Range of dosage rates: from 400 to 2100 ml per 100 kg of cementitious content.

Dosage above the recommended values can be employed with prior testing and confirmation of the desired performance with specific materials being used.

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.

For any concrete application including highly flowable concrete mixes with slump exceeding 200mm, the dosage of EPSILONE HW 382 will vary depending on the mix design, local materials, and individual needs of the concrete producer.

Trial mixes should be run to verify plastic and hardened performance with local materials.

EPSILONE HW 382 has a linear dosage response so the dosage amount can be precisely tailored to the degree of water reduction or slump characteristics required for the application.

Dosage rates vary depending upon the amount of plasticity and/or water reduction desired. Various concrete materials, slump, ambient air temperature, additions of pozzolanic materials, mixing time, and type and brand of cement will affect dosage rates.

It is suggested that trial mixes be conducted in order to determine the required dosage for optimum performance with concrete components

EFFECT OF OVERDOSE

Overdose of EPSILONE HW 382 may result in the following:

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

- Very slight delay of the initial and final setting times of the concrete mixture.
- Increase in workability
- Higher Ultimate strength when curing practices are implemented as per ACI 308R

- No more severe side effects are known with the history of EPSILONE HW 382

COMPATIBILITY

EPSILONE HW 382 can be used in mixtures containing:

- Silica fume
- Fly Ash
- GGBFS
- Pozzolanic Binders

EPSILONE HW 382 is not compatible with naphthalene sulfonate- and melamine sulfonate-based superplasticizers.

Consult SODAMCO's technical dept. for advice.

PACKAGING

EPSILONE HW 382 is supplied in: 1000 liter containers.

STORAGE

EPSILONE HW 382 can be stored up to 1 year from manufacturing date, out of direct UV light and protected from extreme temperatures.

EPSILONE HW 382 is preferably stored in plastic tank to provide extended product shelf life.

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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