

Product Data Sheet

HPS-002

Nov-2025, Ver. 01.01

High-Range Superplasticizer based on Poly-carboxylate Ether

DESCRIPTION

HPS-002 is a versatile, high-range superplasticizer based on polycarboxylate technology, specifically formulated for high-performance applications in both the ready-mix and precast concrete sectors. This advanced additive is designed to enhance durability and performance across a broad range of concrete mixtures, from traditional formulations to self-compacting variants.

HPS-002 apart from conventional superplasticizers it is innovative dual-action mechanism. While traditional additives rely primarily on electrostatic repulsion.

HPS-002 combines this with the stabilizing influence of long lateral chains bonded to the polymer structure. This unique blend significantly improves workability retention and accelerates the development of early compressive strength.

USES

The excellent dispersion properties of **HPS-002** make it the ideal admixture for precast and ready mixed concrete where low water cement ratios are required. This property allows the production of very high early and high ultimate strength concrete with minimal voids and therefore optimum density. Due to the strength development characteristics, the elimination or reduction of steam curing in precast works be considered as an economical option.

BENEFITS

HPS-002 offers the following benefits for:

The ready-mix producer:

- Capability of delivering high performance concrete at any time to the job site in place.
- Production of a concrete with low water cement ratios without loss of workability
- Single product for many applications needs

The contractor / applicator:

- Easier placing and faster strength development
- Improved concrete surfaces

The engineer:

- Insurance that concrete meets original specification
- High quality durable concrete

ADVANTAGES

During mixing and placement:

- High workability without segregation or bleeding
- Can be placed and compacted in congested reinforcement
- Reduced labor requirement
- Improved surface finish
- Chloride free

Effect on hardened concrete properties:

- Increased early and ultimate compressive strengths
- Increased flexural strength
- Higher E modulus
- Improved adhesion to reinforcing and stressing steel
- Better resistance to carbonation
- Lower permeability
- Better resistance to aggressive atmospheric conditions
- Reduced shrinkage and creep
- Increased durability

TYPICAL PROPERTIES

Consistence	Liquid
Colour	Light Yellow
Chloride According to EN 934-2	Nil
Classification According to ASTM C494 and ASTM C1017	Type B and Type D
Specific Gravity	1.1±0.02@ 25°C
Air Entrainment	Less than 1.9%
pH (ISO 4316)	4.0 – 6.0
Alkali Content (EN 480-12) (%)	< 3

COMPATIBILITY

HPS-002 is compatible with all Portland cements that meet recognized international standards. **HPS-002** must not be used in conjunction with any other admixture unless prior approval is received from CasTech Technical Department. **HPS-002** is suitable for mixes containing: Micro silica Pulverized fuel ash Ground granulated blast furnace slag cement.

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INSTRUCTIONS FOR USE

HPS-002 is a ready to use admixture that is added to the concrete at the time of batching. The maximum effect is achieved when the HPS-002 is added after the addition of 70% to 80% of the water. HPS-002 must not be added to the dry materials. Thorough mixing is essential and a minimum mixing cycle, after the addition of the HPS-002, of 90 seconds for forced action mixers is recommended.

DOSAGE:

The normal dosage for HPS-002 is between 0.5% and 2.0% per 100 kg of cement (cementitious material). Dosages outside this range are permissible subject to trial mixes.

PRECAUTIONS

Health & Safety:

HPS-002 is non-toxic. Any splashes to the skin should be washed immediately with water. Splashes to the eyes should be washed immediately with water and medical advice should be sought.

Curing:

As with all structural concrete, normal curing methods apply.

Cleaning:

Spillages of HPS-002 can be removed with water.

STORAGE

HPS-002 should be protected from extreme temperature. Should the material become frozen, it must be completely thawed and thoroughly mixed before use. HPS-002 has a minimum shelf life of 6 months provided temperature is kept within range 5°C to 30°C.

Fire:

HPS-002 is non-flammable

PACKAGING

HPS-002 is available in IBC, 210-liter drums and in bulk tanks upon request.

TECHNICAL SUPPORT

CasTech provides technical support service on mix design, admixture selection, evaluation of trials, dispensing equipment etc. Please contact the Technical Department in these cases.

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