

Product Data Sheet

CasTech SP-422

Nov-2025, Ver. 01.01



HIGH-RANGE WATER-REDUCING AND ACCELERATING ADMIXTURE

DESCRIPTION

CasTech SP-422 is a high-performance polynaphthalene sulfonate (PNS) based superplasticizer, specially formulated for precast and ready-mix concrete applications requiring high early strength, superior workability, and excellent water reduction.

Developed using advanced sulfonated polymer technology, CasTech SP-422 provides powerful cement particle dispersion through electrostatic repulsion, resulting in significant water reduction, improved flow, enhanced early and ultimate strength, and superior concrete surface finish.

Its optimized formulation promotes rapid early strength gain, allowing faster demoulding cycles, reduced curing time, and accelerated production, making it ideal for precast concrete plants, prestressed elements, hollow-core slabs, beams, columns, pipes, pavers, and fast-track construction projects.

USES

The excellent dispersion properties of **CasTech SP-422** 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

- High water reduction efficiency
- Accelerated early strength development
- Reduced setting time
- Improved workability and flow
- Enhanced surface finish
- Faster formwork removal
- Increased production efficiency for precast plants
- Improved durability and density of concrete
- Compatible with most cement types and supplementary cementitious materials (SCMs)

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	Brown
Chloride According to EN 934-2	Nil
Classification According to ASTM C494 and ASTM C1017	Type E and Type F
Specific Gravity	1.2±0.03@ 25°C
Air Entrainment	Less than 1.9%
pH (ISO 4316)	7.0 – 9.0
Alkali Content (EN 480-12) (%)	< 3

COMPATIBILITY

CasTech SP-422 is compatible with all Portland cements that meet recognized international standards. CasTech SP-422 must not be used in conjunction with any other admixture unless prior approval is received from CasTech Technical Department. CasTech SP-422 is suitable for mixes containing:

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Micro silica Pulverized fuel ash Ground granulated blast furnace slag cement.

As with all structural concrete, normal curing methods apply.

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 CasTech SP-422 is added after the addition of 70% to 80% of the water. CasTech SP-422 must not be added to the dry materials. Thorough mixing is essential and a minimum mixing cycle, after the addition of the CasTech SP-422, of 90 seconds for forced action mixers is recommended.

DOSAGE:

The normal dosage for CasTech SP-422 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:

CasTech SP-422 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:

Cleaning:

Spillages of CasTech SP-422 can be removed with water.

STORAGE

CasTech SP-422 should be protected from extreme temperature. Should the material become frozen, it must be completely thawed and thoroughly mixed before use. CasTech SP-422 has a minimum shelf life of 6 months provided temperature is kept within range 5°C to 30°C.

Fire:

CasTech SP-422 is non-flammable

PACKAGING

CasTech SP-422 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.

CasTech MIDDLE EAST FZE

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