

Product Data Sheet

CasTech SP-423

Nov-2025, Ver. 01.01

Naphthalene Sulphonate based Set-Retarding High Range Water Reducer

DESCRIPTION

CasTech SP-423 is a naphthalene sulphonate based high range water reducing / superplasticizer admixture that improves the early and final strengths and prevents consistency loss of concrete by giving it a rheoplastic property.

USES

- Production of pumpable and non-pumpable ready-mix concrete
- Production of wet shotcrete
- When the transportation of concrete takes more than 1 hour
- Concrete pumped to a distance of more than 200 metres or to high places
- Critical pours where hydration temperature control is desired (e.g. mass concrete)
- Rheoplastic concrete that can easily be placed in densely reinforced elements
- Concrete placed in high temperature and low humidity environments

BENEFITS

- Decreases the amount of water by at least 12% by weight compared to concrete without admixture
- Enables lower water/cement ratio, or higher workability at the same water/cement ratio, and easy pumpability
- Increases early and final strengths compared to concrete without admixture
- Improves compressive and flexural strengths compared to concrete without admixture
- Minimizes the negative effects of temperature on concrete workability
- Enables the concrete to keep its rheoplastic property for a long time
- Improves formwork and surface finishes

ADVANTAGES

Effect on concrete:

- Improves other mechanical properties such as impermeability, durability, contraction and creep

- Enables placing with less vibration even in densely reinforced concrete structures

TYPICAL PROPERTIES

Consistence	Liquid
Colour	Dark Brown
Chloride According to EN 934-2	Nil
Classification According to ASTM C494	Type D and Type G
Specific Gravity	1.2 ±0.2 @ 25°C
Air Entrainment	Less than 1%
pH (ISO 4316)	5.0 – 7.0
Alkali Content (EN 480-12) (%)	< 1

WORKING PRINCIPLE

CasTech SP-423 reacts only with the binder. When added to the concrete, it is absorbed by the binder particles, which then repel each other by electrostatic force. The desired workability is therefore obtained with less water, and mechanical strength increases in proportion to the reduction in mixing water.

COMPATIBILITY

CasTech SP-423 is suitable for concrete designs containing OPC or SRC cement, micro silica or silica fume, fly ash (PFA) and ground granulated blast furnace slag (GGBS). When using other CasTech admixtures in the same mix, the products should be added separately and must not be blended prior to addition. Using more than one admixture requires suitability and preliminary tests.

INSTRUCTIONS FOR USE

Binder (cement, micro silica, fly ash) and aggregate must be mixed until a homogeneous mixture is obtained. After adding 50% – 70% of the mixing water, **CasTech SP-423** must be added along with the remaining water and mixed for 60 seconds, or for the duration determined in laboratory trials, for homogeneous diffusion.

DOSAGE

CasTech SP-423 is suggested to be used at 1.0 – 2.0 kg per 100 kg of binder (cement, micro silica, fly ash). The dosage must be determined beforehand by laboratory trials according to concrete class and properties. CasTech Technical Service must be consulted for detailed information.

PRECAUTIONS

Health & Safety:

As with all chemical products, caution should always be exercised. Protective clothing, such as gloves and goggles,

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should be worn. See packaging/MSDS for specific instructions. Treat any splashes to the skin or eyes with fresh water immediately. Should the product be accidentally swallowed, do not induce vomiting, but call for medical assistance immediately.

PACKAGING

CasTech SP-423 is available in IBC and loose in bulk supply.

TECHNICAL SUPPORT

CasTech offers a full technical support package to specifiers, contractors and end users, as well as technical assistance on site and after-sales consultations.

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