

PC-4410

TECHNICAL DATA SHEET

Polycarboxylic ether superplasticizer for the production of high quality ready-mix concrete with low water cement ratio.

DESCRIPTION

PC-4410 has been primarily developed for applications in the ready mixed and precast concrete industries where the highest durability and performance is required.

Super plasticizing action of PC-4410 is different than conventional super plasticizers based on sulfonated melamine and naphthalene formaldehyde condensate which create electrostatic repulsion of particles. PC-4410 initially create the same electrostatic repulsion and further stabilizes the mixes due to static repulsion of long lateral chains linked to the polymer backbone.

USES

The excellent dispersion properties of **PC-4410** 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

PC-4410 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 application 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 Brown
Chloride According to EN 934-2	Nil
Classification According to ASTM C494 and ASTM C1017	Type B and Type D
Specific Gravity	1.08±0.02@ 25°C
Air Entrainment	Less than 1.9%
pH (ISO 4316)	4.0 – 6.0
Alkali Content (EN 480-12) (%)	< 3

COMPATIBILITY

PC-4410 is compatible with all Portland cements that meet recognized international standards. PC-4410 must not be used in conjunction with any other admixture unless prior approval is received from CasTech Technical Department. PC-4410 is suitable for mixes containing: Micro silica Pulverized fuel ash Ground granulated blast furnace slag cement.

INSTRUCTIONS FOR USE

PC-4410 is a ready to use admixture that is added to the concrete at the time of batching. The maximum effect is achieved when the PC-4410 is added after the addition of 70% to 80% of the water. PC-4410 must not be added to the dry materials. Thorough mixing is essential and a minimum mixing cycle, after the addition of the PC-4410, of 90 seconds for forced action mixers is recommended.

DOSAGE:

The normal dosage for PC-4410 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:**

PC-4410 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 PC-4410 can be removed with water.

STORAGE

PC-4410 should be protected from extreme temperature. Should the material become frozen, it must be completely thawed and thoroughly mixed before use. PC-4410 has a minimum shelf life of 12 months provided temperature is kept within range 5°C to 30°C.

Fire:

PC-4410 is non-flammable

PACKAGING

PC-4410 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.