Mix Plast 3100

TECHNICAL DATA SHEET

High Efficient Super-plasticiser based on PCE with retarding properties for Ready-Mix Concrete

DESCRIPTION

Mix Plast 3100 is an innovative liquid admixture designed specifically to allow superior workability in concrete / mortar mixes with reduced water and also achieve high resistance to water ingress. The product has been mainly designed for applications in ready mix and site-batched concrete.

Mix Plast 3100 is free of chloride and has low alkali content, therefore, it is compatible with all types of cement and binders (like fly ash, ground granulated slag, silica fume, metakaolin, etc).

FEATURES AND BENEFITS

- Reduced water content with high workability for longer periods
- High efficiency even at low dose.
- Resistance to segregation even at high workability
- Extra-long setting time with longer workability
- Reduced water content for a given workability
- Lower pumping pressure
- Superior ultimate strengths
- Increased ease in finishing concrete

USES

- ✓ Ready mixed concrete
- ✓ Pumped concrete
- ✓ Long-distance transporting
- ✓ High workability without segregation or bleeding
- ✓ High performance concrete for durability
- ✓ Congested/complex reinforced sections
- ✓ Mixes requiring >20% water reductions

Chemistry and mechanism of action

What sets Mix Plast 3100 apart from the conventional super-plasticisers is a new and unique mechanism of action that significantly enhances the efficacy of cement dispersion. Conventional super-plasticisers based on melamine and naphthalene sulphonates are polymers which are absorbed by the cement granules. They wrap around the granules' surface at the very early stage of the concrete mixing process. The sulphonic groups of the polymer chains increase the negative charge of the cement particle surface and disperse these particles by electrical repulsion. This electrostatic mechanism results in the cement paste to disperse and has the advantage of requiring less mixing water to obtain the desired concrete workability.

The chemical structure of Mix Plast 3100 is different from the conventional super-plasticisers. It contains carboxylic ether polymer with long side chains. At the beginning of the mixing process it initiates the same electrostatic dispersion mechanism as the conventional super-plasticisers, but the side chains linked to the polymer backbone creates a steric hindrance which stabilises the cement particles' ability to separate and disperse. The said steric hindrance also provides a physical barrier (alongside the electrostatic barrier) between the cement particles. Through this process, flowable concrete with significantly reduced water content is obtained.

TEST CERTIFICATION & APPROVALS

- ASTM C494 Type B, D & G
- EN 934-2 T3.1/3.2
- IS 9103

PERFORMANCE TEST DATA

Aspect	Liquid brown
Relative Density	1.10 ± at 25°C
pH	7±
Chloride ion content	< 0.2%

DOSAGE

Optimum dosage of Mix Plast 3100 should be determined with trial mixes. As a general guideline, a dosage range of 300 ml to 1800 ml per 100 kg of cementitious material is usually recommended. Due to the variations in concrete ingredients, job site conditions, applications dosages outside of the recommended range may be required. In such cases, consult with your local Mix&Fix representative.

For further information on Mix Plast 3100 admixture or on its use in developing concrete mixes with special performance characteristics, contact your local Mix & Fix representative.

Effects of over dosage

A severe over-dosage of Mix Plast 3100 can result in the following:

- Increased plastic shrinkage
- Long extension of initial and final set
- Reduced permeability
- Increase in air entrainment
- Bleed/segregation of mix, quick loss of workability

Slight overdosing may not negatively affect the ultimate strength of the concrete and still can achieve higher strengths than regular concrete, provided that, it is properly compacted and cured. Appropriate allowance should be made for the effect of fluid concrete pressure on form work, and stripping times should be strictly monitored.

In the event of over dosage, consult your local Mix&Fix representative immediately.

SPECIFICATIONS

The super-plasticiser Mix Plast 3100 with high range water reducer is based on polycarboxylic ether polymer. This product shall have minimum specific gravity of 1.09 and comply with ASTM C494 Type B, D & G and shall be free of naphthalene and melamine when subjected to IR spectra.

APPLICATION

Mix Plast 3100 is a ready-to-use liquid which is dispensed into the concrete along with the mixing water. Higher plasticising effect and water reduction can be achieved if the admixture is added to the damp concrete after 50% to 70% of the mixing water has been already added. The addition of Mix Plast 3100 to dry aggregate or cement is not recommended.

Thorough mixing is mandatory and a minimum 60 seconds mixing cycle, after the addition of the Mix Plast 3100 for forced action mixers is strongly advised.

COMPATIBILITY

Mix Plast 3100 is not compatible with Melamine or Naphthalene based admixtures and should not be used in conjunction in the same mix. Mix Plast 3100 is compatible with lingo - sulphonates and carboxylic acid based plasticiser and retarders and also with most type of air entrainers, accelerators, retarders, extended set-control admixtures, corrosion inhibitors, and shrinkage reducers. Mix Plast 3100 is also compatible with slag and pozzolans such as fly ash, metakaolin and silica fume.

WORKABILITY

Mix Plast 3100 ensures that rheoplastic concrete remains workable in excess of 3 hours at +25°C.

Workability loss is dependent on temperature, and on the type of cement, the nature of aggregates, the method of transport and initial workability.

It is strongly recommended that concrete should be properly cured particularly in hot, windy and dry climates.

NON CORROSIVE

Mix Plast 3100 admixture will neither initiate nor promote corrosion of reinforcing steel embedded in concrete, pre-stressed concrete or concrete placed on galvanized steel floor and roof systems. Neither calcium chloride nor any calcium chloride-based ingredients are used in the production of Mix Plast 3100 admixture. In all concrete applications, Mix Plast 3100 admixture will conform to the most stringent or minimum chloride ion limits currently suggested by construction industry standards and practices worldwide.

STORAGE /SHELF LIFE

Mix Plast 3100 must be stored above 5°C. If product has frozen, thaw at 5°C or above and completely reformed via mild mechanical agitation. Do not use pressurized air for agitation. Store under cover, out of direct sunlight and protect from extremes of temperature.

Shelf life is 12 months when stored as above.

If the recommended storage conditions are not maintained, then in may result in premature deterioration of the product and/or packaging. For specific storage advice consult your local Mix&Fix representative.

PACKAGING

Mix Plast 3100 is supplied in 230 Kg, 1000 Kg or bulk on request.

SAFETY

Similar to all chemical products, care must be taken during use and storage to avoid contact with eyes, mouth, skin and food. This safety should be maintained till the curing process is complete. Splashes to eyes and skin must be treated immediately. If accidentally ingested, seek immediate medical attention. Keep away from children and animals. Reseal containers after use. Do not reuse containers for storage of edible items.

OTHER SERVICES

For price analysis, specifications, supplementary brochures, references, reports, and technical assistance, please contact bmc.com.bd@gmail.com

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For further information, please consult the expert technicians of Mix & Fix. The technical advice on how to use our products, whether written or verbally given, is based on the current state of our scientific and practical expertise and does not imply the assumption of any guarantee and/or responsibility for the final results of works executed using our products. Therefore, the customer is not exempt from the exclusive task and responsibility of verifying the suitability of our products for the intended use and purposes. This version supersedes all previous versions.