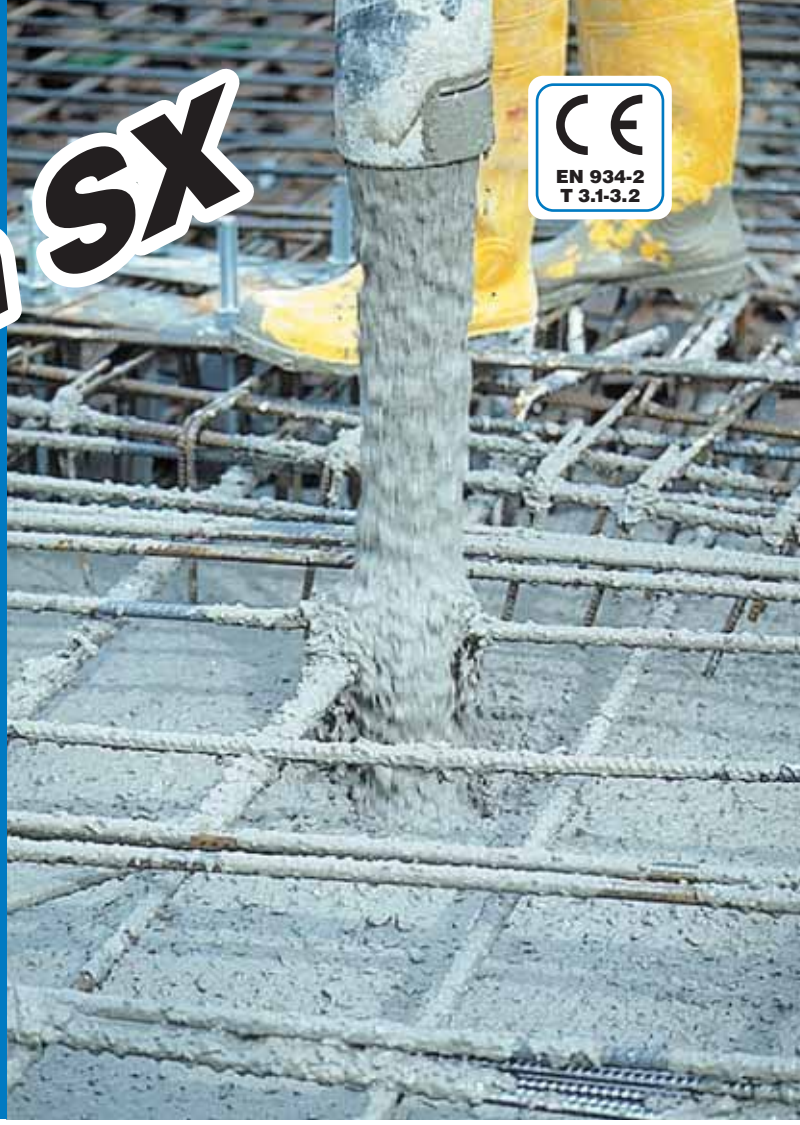
MAPEI

Dynamon SX



Superplasticizer based on a modified acrylic polymer for concrete with low water/cement ratio, high mechanical strength and long slump retention

DESCRIPTION

Dynamon SX is an admixture based on a modified acrylic polymer for concrete, belonging to the new revolutionary MAPEI **Dynamon SX** system.

The **Dynamon SX** system is based on DPP (Designed Performance Polymer) technology; a new chemical process that can model the admixture's properties in relation to the specific performances required for concrete. This process is developed by means of the complete design and production of monomers (know-how exclusive to MAPEI).

WHERE TO USE

Concretes manufactured with **Dynamon SX** have a high level of workability (consistency class S4 or S5, according to EN 206-1), and are consequently easy to apply when fresh. At the same time they offer excellent mechanical performance when hardened.

Dynamon SX is an admixture with superior performance when compared with traditional naphthalene-sulphonate or melamine-sulphonate based superplasticisers and first generation acrylic admixtures in terms both of water reduction and slump retention.

Dynamon SX is especially suitable for all applications where there is the need for greater water reduction, along with relatively high mechanical strength at the early stages and with long slump retention in different consistency classes.

Its performance makes it particularly suitable for manufacturing self-compacting concretes since **Dynamon SX** can ensure high workability.

For self-compacting concrete it is necessary to use **Viscofluid SCC** or **Viscofluid SCC/10** (viscosity modifying admixtures) with **Dynamon SX** in order to avoid the risk of segregation and ensure mix homogeneity even with a very high slump-flow.

The main application of **Dynamon SX** is the production of concretes:

- for high mechanical performance with long maintenance of consistency classes;
- for waterproof and durable structures, according to the exposure classed in the EN 206-1 standard;
- with characteristic strength class (R_{ck}) in the range 25-50 N/mm^2;

Dynamon SX

- self-compacting concretes.
  Together with **Viscofluid SCC** or **Viscofluid SCC/10** viscosity modifying admixtures, **Dynamon SX** is suitable for manufacturing self-compacting concretes to accelerate the casting procedure since they can be placed without vibration.

TECHNICAL CHARACTERISTICS

Dynamon SX consists of a water solution containing 26% acrylic polymers (with no formaldehyde). The polymers efficiently disperse the cement grains and they facilitate the slow development of the first products deriving from the cement hydration.
It is possible to use the dispersing action of **Dynamon SX** in the following three advantageous ways:

a) to reduce the amount of water but with the same workability. In this way it is possible to increase the mechanical strength, to reduce the permeability and increase the durability;

b) to increase workability with the same water-cement ratio;

c) to reduce both the water and the cement at the same water-cement ratio and the same workability. In this case technical advantages are obtained due to lower hygrometric shrinkage, lower creep and lower development of heat due to hydration. This last characteristic is particularly important for concrete with a high cement factor (> 350 kg/m^3).

APPLICATION PROCEDURE

Dynamon SX develops maximum dispersing action when added after the other mix ingredients (cement, aggregates, mineral addition or filler and at least 80% of the mixing water) and before **Viscofluid SCC** or **Viscofluid SCC/10**.

COMPATIBILITY WITH OTHER PRODUCTS

Dynamon SX admixture is compatible with other products for preparing special concretes, especially with:

- **Dynamon HAA**, hardening accelerating admixture for achieving very high early mechanical strength;
- **Viscofluid SCC** or **Viscofluid SCC/10**, viscosity modifying admixtures for manufacturing self-compacting concretes;
- **Mapeplast SF**, silica fume based powder admixture for manufacturing “top-quality” concrete (strength, impermeability, durability);
- **Expancrete**, expansive agent for manufacturing shrinkage compensated concrete;
- fly ash for manufacturing concrete with traditional self-compacting concrete;
- different types of limestone fillers for manufacturing self compacting concrete and any other type of concrete that requires these fillers;
- **DMA 1000, DMA 2000**, or **DMA 3000 Form-Release Agents**, for releasing concrete from formworks;
- **Mapecure E** and **Mapecure S** curing emulsions to protect form-released concrete structures from rapid water evaporation (floorings).

Our Technical Services Department is available to evaluate which admixture is the most suitable to manufacture freeze/thaw cycle resistant concretes, depending on the type of cement used.

CONSUMPTION

Dosage by volume
For traditional systems - from 0.5-2 l per 100 kg of cement.

For self-compacting concrete - from 0.5 to 2 l per 100 kg of fine particles (maximum 0.1 mm diameter).

PACKAGING

Dynamon SX is available in bulk, 200 l and 25 kg drums, 1000 l tanks.

STORAGE

Store in sealed containers and protect from frost.
Exposure to direct sunlight can provoke colour tone variations without altering the performance of the product in any way.

SAFETY INSTRUCTIONS FOR PREPARATION AND APPLICATION

Dynamon SX is not hazardous according to the ruling standards on the classification of mixtures. It is recommended to take the usual precautions for handling chemical products. The Safety Data Sheet is available on request.

FOR PROFESSIONALS.

TECHNICAL DATA (typical values)

PRODUCT IDENTITY			
Consistency:	liquid		
Colour:	amber		
Density according to ISO 758 (g/cm³):	1.07 ± 0.02 at +20°C		
Dry content according to EN 480-8 (%):	26 ± 1.3		
Principal action:	increase workability and/or reduction of mixing water and slump retention over long periods		
Classification according to EN 934-2:	high range water reducing superplasticizer, tables 3.1 and 3.2		
Chlorides soluble in water according to EN 480-10 (%):	< 0.1 (absent according to EN 934-2)		
Alkali content (Na_2O equivalent) according to EN 480-12 (%):	< 2.5		
Storage:	12 months, protect from frost		
Hazard classification according to EC 99/45:	none. Before using refer to the "Safety instructions for preparation and application" paragraph and the information on the packing and Safety Data Sheet		
Customs class:	3824 40 00		
PERFORMANCE DATA OF DYNAMON SX WITH CONCRETE*			
Admixture dosage (% in volume by weight of cement):	0	1.0	1.5
w/c:	0.60	0.44	0.40
Water reduction (%):	–	27	33
Initial slump (mm):	200	220	220
Slump after 1 hour (mm):	60	200	200
1-day Rcm (N/mm²): **• 20°C:**	8	18	22
3-day Rcm (N/mm²): **• 20°C:**	16	34	38
7-day Rcm (N/mm²): **• 20°C:**	22	46	52
28-day Rcm (N/mm²): **• 20°C:**	36	62	69
R_{ck} (N/mm²):	30	55	65
Water penetration under pressure according to EN 12390/8 (mm):	25	2	0
Durability (resistance to the environmental exposure classes according to EN 206-1):	X0	X0, XC1, XC2 XC3, XC4, XS1 XS2, XS3, XD1 XD2, XD3, XF1 XA1, XA2, XA3	X0, XC1, XC2 XC3, XC4, XS1 XS2, XS3, XD1 XD2, XD3, XF1 XA1, XA2, XA3

* *The above mentioned data refer to average values obtained in concretes prepared with type II/A-L 42.5 R cement (360 kg/m³) and natural aggregates.*

Dynamon SX

WARNING

Although the technical details and recommendations contained in this product report correspond to the best of our knowledge and experience, all the above information must, in every case, be taken as merely indicative and subject to confirmation after long-term practical applications: for this reason, anyone who intends to use the product must ensure beforehand that it is suitable for the envisaged application: in every case, the user alone is fully responsible for any consequences deriving from the use of the product.

All relevant references of the product are available upon request

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