

# Dynamon SX-N

## Superplasticising admixture

### DESCRIPTION

**Dynamon SX-N** is a very efficient liquid superplasticising admixture, based on modified acrylic polymers. The product belongs to the Dynamon system based on the DPP (Design Performance Polymer) technology, a new chemical process that can model the admixture's properties in relation to specific performances required for concrete. The process is developed by means of a complete design and production of monomers (an exclusive Mapei know-how).

### WHERE TO USE

**Dynamon SX-N** is an all-round product to be used in nearly all types of concrete to improve the workability and/or reduce the amount of water needed.

Some specific applications are:

- Concrete with reduced permeability with specifications as to very high mechanical strength and to long durability in aggressive environment.
- Concrete with high levels of workability (consistency classes S4 or S5 – according to EN 206-1)
- Self-compacting concrete where high slump retention is required. If extra stabilisation is needed, a viscosity enhancing agent, e.g. **Viscofluid TA** can be added.
- Production of frost resistant concrete – in combination with air entraining agents (AEA); e.g. **Mapeair L** or **Mapeair 25**. The correct type and amount of AEA is dependent on the properties of the other available ingredients.
- Concrete for flooring where a smooth concrete with high workability is aimed for. Larger dosages and lower temperatures may increase the retardation.

**Dynamon SX-N** is quite different from superplasticisers based on sulphonated melamines or naphthalenes, and also from the first generation of acrylic-based polymers in two ways: firstly it is more efficient as a water reducer and secondly through the increased slump retention.

The dosage needed to obtain a specific workability is much lower with **Dynamon SX-N**, compared to earlier superplasticisers. Because of the improved slump retention, it is now possible to complete the concrete at the batching plant, and refreshing of the concrete by adding a superplasticiser on site can now be avoided.

Yet, re-tempering of the concrete by addition directly into the truck is no problem.

The time of addition of **Dynamon SX-N** is of less importance, but in general we recommend an increase in mixing time.

### PROPERTIES

**Dynamon SX-N** is an aqueous solution of active acrylic polymers that very efficiently disperses clusters of cement grains. This effect can in principle be used in the following three ways:

1. To reduce the amount of added water, yet retain the same workability. Lower water to cement ratio means higher mechanical strength, reduced permeability and increased durability.
2. To increase workability compared to concrete with equal water to cement ratio. With the same mechanical strength the casting is facilitated.
3. To reduce both the amount of water and the amount of cement without changing the concrete's mechanical strength. In this way it is possible to reduce the total cost of the concrete (less cement), reduce the concrete's potential for shrinkage (less water) and reduce the possibility of cracks due to temperature gradients (less hydration heat). Especially with concretes that normally have high amounts of cement, this effect is very important.



### Produsent:

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**ATTENTION**

**Dynamon SX-N** can be combined with other admixtures from Rescon Mapei; such as a set-accelerating admixture, for instance **Mapeset SA** or a set-retarding admixture, for instance **Mapetard R**. The product is also compatible with air entraining admixtures to produce frost resistant concrete, for instance **Mapeair L** or **Mapeair 25**.

The choice of admixture is done after an evaluation of the properties of the other ingredients in the mix.

**PACKAGING**

**Dynamon SX-N** is available in 25 litre cans, 200 litre drums, in 1000 litre containers and can also be delivered in bulk. The product must be kept free of frost and can be stored for at least one year in sealed containers. Keep the product protected from direct exposure to sunlight.

**SAFETY INSTRUCTIONS**

For health, safety and environmental information, see separate HMS data sheet at [www.resconmapei.com](http://www.resconmapei.com).

**DOSAGES**

To obtain the prescribed properties (i.e. strength, durability, workability, cement reduction), **Dynamon SX-N** is added in dosages between 0.3 and 2.0 per cent of cement weight. Increased dosages will also increase the slump retention, i.e. the time to be able to work with the concrete. Higher dosages and lower temperatures will delay the setting of the concrete. To obtain correct knowledge, trials with actual parameters are advisable, especially before larger pours.

As opposed to traditional super-plasticisers based on melamines or naphthalenes, the maximum effect of **Dynamon SX-N** is obtained regardless of the time in the mixing procedure it is added, but the time of addition can influence the mixing time.

If at least 80% of the mixing water is added before **Dynamon SX-N** the required mixing time will generally be shortest. It is nevertheless important to perform trials using the actual mixing equipment. **Dynamon SX-N** can also be added directly into the truck on site. The concrete should then be mixed at full speed at least for one minute per m<sup>3</sup> of concrete in the truck, and never less than 5 minutes.

**WARNING**

Although the technical details and recommendations contained in this product data sheet 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 conformation after long-term practical application; for this reason, anyone who intends to use the product must ensure beforehand that it is suitable for the envisaged application. In any case, the user alone is fully responsible for any consequences deriving from the use of the product.*

*All deliveries from Rescon Mapei AS are made in accordance with the sale and delivery conditions applicable at the time, and these conditions are taken to be accepted on placement of an order.*

<b>TECHNICAL SPECIFICATIONS:</b>		
Form:	Liquid	
Colour:	Yellowish brown	
Viscosity:	Easy flowing; <30mPa · S	
Solids content, %:	19.5 ± 1.0	
Density, g/cm <sup>3</sup> :	1,06 ± 0,02	
pH-value:	6.5 ± 1	
Chlorides, %:	< 0.01	
Alkali content (equiv. Na <sub>2</sub> O) %:	< 2.0	
<b>CONCRETE PERFORMANCES</b>		
<i>as a waterreducing admixture (same workability) T..3.1</i>		
Cement kg/m <sup>3</sup> (type CEM I - 42,5 R)	350	350
Admixture dosage (% by weight of cement)	0	1,0
Water to cement ratio	0,51	0,41
Water reduction (%)		20
Compressive strength (N/mm <sup>2</sup> cubes)		
1 day	19	28
7 days	34	46
28 days	40	54
<i>as a superplasticiser (increased workability)</i>		
Cement, kg/m <sup>3</sup> (type CEM I - 42.5 R):	350	350
Admixture dosage (% by weight of cement):	0	1.0
Water to cement ratio:	0.48	0.48
Air content:	2.1	1.5
Workability ,mm:		
- slump, 5 min	25	200
- slump, 30 min	20	180
- slump flow, 5 min		400
- slump flow, 30 min		330

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