



# CapcoNorm<sup>®</sup> SPL545

## Superplasticizer / Mid-Range Water-Reducing Admixture

CapcoNorm SPL545 is a superplasticizer/Mid-range water-reducing admixture that is used to increase the concrete/mortar consistency without changing the water-to-cement ratio or to reduce the water-to-cement ratio without reducing the consistency.

This product is produced based on the general Iran National Standard No. 2930-1 and the performance requirements of tables 1-3 and 2-3 of Iran National Standard No. 2930-2. Also, this admixture meets the requirements of grades F of the ASTM C494 Standard and Table 1 of the EN 934-1 standard, and the requirements of tables 1-3 and 2-3 of the EN 934-2 Standard

The physical and chemical properties of CapcoNorm SPL545 are according to the following table and produced in the allowable changing range of Iran National Standard No.2930-1.

(The previous name of this product was Plastit SPL545)

Physical State	Liquid
Color	Colorless to Amber
Chemical Base	Modified Polycarboxylate Ether
Density	1/07 ± 0/02 g/cm <sup>3</sup>
Chloride Content	Little
The equivalent Alkaline Substance	0.7%
pH	6/5 ± 0/5
Freezing Temperature	-2°C

### The usage and the effect of the admixture on the concrete

#### The usage of the admixture on concrete

- Production and implementation of different types of reinforced and unreinforced concrete including pumped concrete, Pozzolan concrete, lightweight concrete, the pre-cast sections, pre-stressed concrete, architectural concrete, ...

- The production of cement-based mortars with high quality
- Production of the concrete with the water to cement ratio between 0.40 and 0.50
- Reducing the construction costs due to speeding up the concrete casting operations and molding

#### The advantages of using the admixture in concrete

- A reduction in water to cement ratio in an equal consistency and significant increase in the 7-day and 28-day compressive strength
- A reduction in water adsorption and permeability due to the reduction in the water to cement ratio
- Increasing the abrasion strength of the concrete due to a reduction in the water-to-cement ratio
- A better distribution of the cement, improving the compaction in different conditions and increasing the compressive strength in an equal water-to-cement ratio.

#### The effect of the admixture on fresh concrete

- It leads to a significant increase in the consistency in a constant water-to-cement ratio and a significant reduction in the water-to-cement ratio in a constant consistency
- It does not change the initial setting time of the standard mortar to more than 30 minutes in a congruous dosage.
- It does not change the final setting time of the standard mortar to more than 60 minutes in a congruous dosage.
- The production of air bubbles in the fresh concrete is controlled in a way that the changes in the air percentage remain in the allowable standard range announced in the properties sheet.

### **The effect of the admixture on the hardened concrete**

- It does not reduce the 7-day compressive strength of the concrete in an equal water-to-cement ratio
- It increases the 28 days strength of the concrete in the same water-to-cement ratio and air bubble percentage

### **The instruction to use the admixture in the concrete**

#### **The allowable range of using the admixture in the concrete**

The allowable range for using The CapcoNorm SPL545 is from 0.3% to 1.2% of the cement content (300 to 1200 grams per 100 kg of cement content including cement, silica fume, slag, fly ash, and other similar pozzolans). Specifying the optimum amount of the admixture should be accomplished with respect to the properties of the mix design and the implementation and weather conditions, and finally making the test mixes. The excessive use of admixture may result in the separation of components and concrete bleeding, specifically for the concrete containing slow-setting cement.

#### **The instructions to add admixture to concrete**

To use the admixture, it is necessary to dilute the admixture with water twice the volume of the admixture and add it to the concrete. It is also necessary to take the following notes into consideration:

- Mix the concrete for 2 to 5 minutes after adding the admixture and assure the uniform distribution of the admixture in the concrete. It is better to add the admixture 2 to 10 minutes after concrete mixing to obtain the best result.
- Avoid the direct contact of the admixture with the dry cement and aggregates
- Subtract the water used to dilute the admixture and the water as much as the admixture volume (Before adding to the

concrete) from the mixing water of the concrete.

### **Safety tips while using the admixture**

This product is not categorized as a dangerous substance; however, it can be allergic to contact with skin. Therefore, it is necessary to use a suitable gown, goggles, and mask while working and take the following tips into consideration:

- Blink in water for at least 15 minutes in case of eye contact
- Wash your skin with clean water for 15 minutes in case of any contact with the skin
- The contaminated clothes must be washed with suitable detergents to be usable for further work.
- It is necessary to visit a doctor if the injured individual still feels uncomfortable

### **Other necessary notes in using the admixtures**

#### **Compatibility of admixture with other products**

The simultaneous use of this product with other admixtures of Capco Company is allowed except for the products based on Naphthalene in a mix design. However, it is necessary to batch each admixture separately and then add it to the concrete mix.

#### **The corrosion of admixture**

This product does not start or extend corrosion in the buried bars in concrete, the pre-stressed steel, floor systems, and the roof made of galvanized steel. No Calcium chloride or any other compounds containing chloride is used in producing the CapcoNorm SPL545.

### **Transportation and storage of the admixture substance**

#### **The conditions and maintenance temperature of transportation**

The allowable transportation and maintenance temperature of this product is between 5 and 35

°C. It is also necessary to consider the following tips:

- Avoid putting the container having the admixture in direct exposure to sunlight
- Prevent the admixture from freezing

### **The admixture lifetime**

If the containers of this product are conserved and stored in a standard condition, they will be usable for 12 months provided that the lid of the container is kept closed.

### **The admixture substance packaging**

This product is supplied in 20 Kg gallons, 220 Kg barrels, and 1100 Kg Pallets.

### **Complementary information**

Contact the technical section of Capco Company for complementary information. You can also refer to the performance form of (CapcoNorm SPL545-PPI) SPL545 for more information on the performance of this product and its efficiency in the characteristics of fresh and hardened concrete.