

# SUPERFLUID 21M EKO

*Superplasticizer for concrete, based on polycarboxylates*

*In compliance with: EN 934-2 T11.1&T11.2*

## FIELD OF APPLICATION

Superplasticizer used for production of high performance concrete, with prolonged workability retention of fresh concrete;

Superfluid 21M EKO enables high water reduction, as well as production of concrete with high consistency class;

Production of concrete with high early and final strength characteristics;

Production of concrete with consistency retention up to 90 minutes;

Enables prolonged transportation of concrete and concreting at high ambient temperatures;

Superfluid 21M EKO is used for production of concrete applied with pump at high distances, as well as concreting of densely reinforced sections;

Preparation of concrete with high degree of water-tightness and resistance to atmospheric influences and other aggressions;

Preparation of concrete intended for casting under water;

## PROPERTIES

- Water reduction up to 20%;
- High early and final strength characteristics;
- Increased the compactness and water-tightness of concrete;
- Improves the physical and mechanical properties of the concrete;
- Increased resistance to ice and salt
- Increased durability of concrete;
- Increased resistance to carbonation;
- Increased resistance atmospheric influences;
- Easy concrete application;

## TECHNICAL FEATURES

PROPERTY	METHOD	DECLARED VALUE
Appearance	Visual	light yellow liquid
Density (at 20°C)	ISO 758	(1,08±0,02) g/cm <sup>3</sup>
pH-value (at 20°C):	ISO 4316	3,5 - 5,5
Chlorides content:	EN 480-10	≤0.1%
Alkali content:	EN 480-12	≤2.0%

## DOSAGE AND PERFORMANCE:

Optimal dosage of Superfluid 21M EKO is 0,4% to 1,2% from cement quantity in concrete mixture. These dosages allow water reduction from 10% to above 20% (Diagram 1). Thereby, initial and final strength properties of concrete are increased respectively (Diagram 2).

Diagram 1

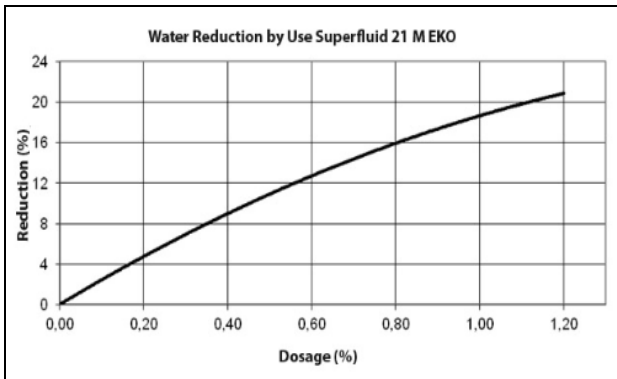
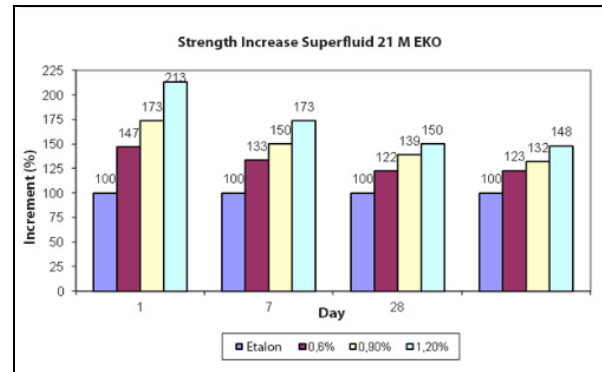


Diagram 2



The optimum dosage of Superfluid 21M EKO is best determined by conducting laboratory or industrial testing.

In cases when concrete is applied at high ambient temperatures or when the production, transport and installation of concrete last more than 60 minutes, fresh concrete should be prepared with a higher class of consistency - S4 or S5.

At extremely high ambient temperatures, or in cases when production, transport and casting of concrete last longer than 120 minutes, in addition to Superfluid 21M EKO, it is recommended to use set-retarding admixture USPORUVAC-D2, with dosage which depends on the specific conditions.

Dosing of admixtures is performed manually or automatically during the concrete production. Best effect is achieved in cases when Superfluid 21M EKO is applied with 20% to 30% from required water quantity at previously prepared mixture of aggregate, cement and 80% from required water quantity.

Duration of mixing of concrete when Superfluid 21M EKO is used should not to be shorter than 90 seconds.

**Effects of overdose:** Overdosing of Superfluid 21M EKO can cause segregation of fresh concrete.

## COMPATIBILITY

Superfluid 21M EKO is compatible with number of additives from ADING production program, such as set accelerators, set-retarders, admixtures for winter concreting, waterproofing admixtures, air-entraining admixtures. If two or more additives are used in the concrete mixture, it is necessary to make preliminary tests. Different admixture are dosed separately i.e. they are not to be inter-mixed prior to application in the concrete mixture. Superfluid 21M EKO is compatible with all types of Portland cement, including sulphate-resistant cements.

## PACKAGING

Plastic cans: 20 kg  
Plastic barrels: 200 kg  
Containers: 1000 kg

## STORAGE

In the original packaging at temperature between 5°C and 35°C. Shelf life: 12 months.

## CE MARKING

<b>CE</b> 2032	
ADING AD Skopje, Novoselski pat (ul 1409) br.11 1060 Skopje, North Macedonia 14 GABE001/7 EN 934-2:2009+A1:2012 <b>SUPERFLUID 21M EKO</b> Set retarding/high range water reducing/superplasticizing admixture for concrete EN 934-2:T11.1&T11.2	
Chloride ion content	<b>≤ 0,1% by mass</b>
Alkali content	<b>≤ 2,0% by mass</b>
Corrosion behaviour	<b>Contains components only from EN 934-1:2008, Annex A.1</b>

**Health hazard:** Superfluid 21M EKO does not contain toxic substances, however attention must be paid to avoid contact with the skin, eyes or not to be swallowed. In case of contact to skin or to eyes, rinsing is required with clean running water. If swallowed, medical assistance must be immediately requested. Additional formations are provided in Material Safety Data Sheet for the material.

**Fire:** Superfluid 21M EKO is a non-flammable liquid. Additional formations are provided in Material Safety Data Sheet for the material.

**Cleaning and deposit:** Superfluid 21M EKO is cleaned with water. Old and used packaging must be disposed according to local regulations for that type of waste. Additional formations are provided in Material Safety Data Sheet for the material.