

# USPORUVAC D2 (RETARDER D2)

*Admixture retarding concrete setting  
In compliance with: EN 934-2, T8;*

## FILED OF APPLICATION

For prolonged transportation of concrete;  
Concreting at high ambient temperatures;  
Concreting massive concrete sections;  
Concrete application lasting longer period, where it is necessary to regulate the setting time of concrete;  
Concreting of large concrete sections in multiple layers, where it is necessary to perform re-vibration of different layers of fresh concrete;  
It is our recommendation, when concreting is carried out at temperatures above 25°C, some quantity of Retarder D2 to be stored in concrete mixer-truck. It will be used in the case of delay of transportation and casting of concrete. Therefore, there will be reduced risk of premature setting of concrete, defects in concrete elements, or risk of addition of extra water, thus decreasing the strength properties of concrete.

## PROPERTIES

Enables controlled retardation of concrete setting time;  
Improves workability of fresh concrete without extra addition of water;  
Enables water-reduction up to 10% depending on dosage, as well as appropriate increase in the final strength characteristics of the concrete;  
Enables re-vibration and homogenization of concrete layers;  
Reduces the risk of formation of cracks as result from quick setting of concrete;  
Enables controlled cement hydration process, thus avoiding high temperatures development in massive concrete sections;

## TECHNICAL FEATURES

PROPERTY	METHOD	DECLARED VALUE
Appearance	Visual	Transparent to light yellow liquid
Density (at 20°C)	ISO 758	(1.085±0.02) g/cm <sup>3</sup>
pH-value (at 20°C):	ISO 4316	7,0±1
Chlorides content:	EN 480-10	≤0.1%
Alkali content:	EN 480-12	≤4.0%

## DOSAGE AND PERFORMANCE:

The optimum dosage of RETARDER D2 ranges between 0.1 and 1.0% of the amount of cement in the concrete mixture. If higher dosages are used (higher than 1%), than preliminary tests are required. Dosage depends on the period for which concrete setting need to be delayed, ambient temperature, type and quantity cement, consistency of fresh concrete etc.

Approximate recommendation is that the dosage of 0.1% RETARDER D2 causes prolonging concrete setting for 1 hour, at 20°C. The optimum dosage of RETARDER D2 is best determined by conducting laboratory or industrial testing.

Dosing RETARDER D2 is performed manually or automatically. The best effect is achieved when the RETARDER D2 is added during the production of concrete, together with the last 20-30% of the required water, in a previously mixed aggregate, cement and 80% of the water in the concrete. Duration of mixing of concrete when RETARDER D2 is used, should not to be shorter than 90 seconds.

**Effects of overdose:** Overdosing of RETARDER D2 can cause long-term delay of the concrete setting time.

## COMPATIBILITY

RETARDER D2 is compatible with number of admixtures from ADING production program. If two or more admixture are used in the concrete mixture, it is necessary to make preliminary tests. Various admixtures are dosed separately i.e. they are not to be inter-mixed prior to application in the concrete mixture. RETARDER D2 is compatible with all types of Portland cement, including sulphate-resistant cements.

## PACKAGING

Plastic cans: 5 and 22 kg


Plastic barrels: 220 kg

Containers: 1100 kg

## STORAGE

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

## CE MARKING

 2032	
ADING AD Skopje, Novoselski pat (ul 1409) br.11 1060 Skopje, North Macedonia 08 GAHB001/6 EN 934-2:2009+A1:2012 <b>USPORUVAC D2</b> Set retarding admixture for concrete EN 934-2:T8	
Chloride ion content	<b>≤ 0,1% by mass</b>
Alkali content	<b>≤ 4,0% by mass</b>
Corrosion behaviour	<b>Contains components only from EN 934-1:2008, Annex A.1</b>

**Health hazard:** Retarder D2 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:** Retarder D2 is a non-flammable liquid. Additional formations are provided in Material Safety Data Sheet for the material.

**Cleaning and deposit:** Retarder D2 is cleaned with water. Old and used packaging must be disposed according to local regulations for that type of waste. Additional informations are provided in Material Safety Data Sheet for the material.