

# PANTARHOL® LHS 100 (VZ)

Item No 0411

**Long hydration stabiliser and retarder for concrete acc. to EN 934-2 for resource-saving use**

## FIELDS OF APPLICATION

PANTARHOL® LHS 100 (VZ) is a very effective ready-to-use long hydration stabiliser that stabilises concrete mixtures over a long period of time without loss of quality. PANTARHOL® LHS 100 (VZ) contributes to environmental protection and resource conservation.

PANTARHOL® LHS 100 (VZ) is suitable for the following applications:

- Stabilisation and reuse of concrete washing water
- Stabilisation and reuse of plastic concrete (such as returned concrete)
- Concrete which requires hydration control due to long hauls or hot weather conditions
- Long-term retarder for wet shotcrete applications
- Concrete designed for long pumping distances

The high-quality admixture offers the subsequent benefits:

- Sustainable use of resources, less waste
- Prolonged workability of concrete
- More flexibility in processing times
- Enhanced performance of concrete
- Increased compressive and flexural strength
- Reduction of washing water
- Prevents from clogging the drum
- Substantial cost savings due to reduced disposal costs

## DOSAGE

Recommended dosage range 0.1 – 5.0 mass-% of the cement content;  
is equivalent to 1 - 44 ml per kg cement.

The exact dosage depends on the type of application, the required time of hydration control, on the concrete class, its temperature, the type and quality of cement and cementitious materials such as

GGBS, Fly Ash and Microsilica as well as the type and quality of sand and aggregates.

Against this background initial trial mixes should be conducted to determinate the right dosage.

For further assistance please contact Ha-Be's Technical Support.

## WORKING PRINCIPLE

PANTARHOL® LHS 100 (VZ) stabilizes and retards fresh concrete, returned concrete and washing water by controlling the hydration of Portland cement and other cementitious materials. The hydration process can be reactivated after hours or days without loss of final strength.

The retarding effect is influenced by dosage, type of cement and temperature.

## TECHNICAL DATA

Homogeneity	homogenous
Colour	colourless to yellowish
State	liquid
Density	1.13 ± 0.03 g/cm <sup>3</sup>
pH-value	7.0 ± 1.0
Chloride content	< 0.1 mass-%
Alkali content (Na <sub>2</sub> O equivalent)	< 8.5 mass-%
Workability	from +1 °C
Shelf life	approx. 1 year from date of production if stored properly
Storage conditions	Store in unopened, original sealed packaging between +5 °C and +25 °C. Protect from frost and insolation.

## PROCESSING INDICATIONS

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PANTARHOL® LHS 100 (VZ) can be used to either stabilize washing water in the truck mixer that contains cement or to stabilize plastic concrete (such as returned concrete).

### Washing water

To stabilize washing water it is necessary to add 150 – 200 litres of water to the truck mixer drum, together with 1 kg of the admixture for a stabilization time of 24h. For 48h two litres are necessary and for 72h 3 litres. After adding the admixture, it is important to flush the drum carefully by moving the washing water forwards and backwards, so that the drum surface is wetted completely. When loading the truck mixer with fresh concrete the mixing water (free water content) has to be reduced by the amount of the 150 – 200 litres of washing water.

### Plastic concrete

To stabilize plastic concrete it is necessary to add 40 litres of water per m<sup>3</sup> of plastic concrete together with a sufficient amount of admixture. The sufficient amount of admixture depends on following circumstances:

- Age of concrete
- Temperature of concrete
- Cement content
- Type of cement
- Stabilisation time
- Concrete grade

After adding the water and the admixture it is important to flush the drum carefully by intense mixing (five minutes) and moving the concrete forwards and backwards, so that the drum surface is wetted completely. When loading the truck mixer with fresh concrete the mixing water (free water content) has to be reduced by the amount of water that was used for the stabilisation. The relation between fresh concrete and stabilized concrete has to be 2:1 or higher. The concrete grade should be the same or higher.

### Example:

A truck mixer returns from jobsite with 2 m<sup>3</sup> concrete. The concrete is 3h old (from batching). The concrete has a temperature of 30 °C, contains 350 kg of CEM I 42,5 N. The concrete should be stabilized for 24h.

Then 2 x 40 kg (=> 80 kg) of water together with e.g. 2,5 % (17,5 kg) of PANTARHOL® LHS 100 (VZ) have to be added.  
 $350 \text{ (kg CEM I)} \times 2,5\% \Rightarrow 8,75 \text{ kg/m}^3$ ;  $8,75 \text{ kg} \times 2 \text{ m}^3 \Rightarrow 17,5 \text{ kg}$  of PANTARHOL LHS 100 (VZ).

After 24h, 4 m<sup>3</sup> of the same concrete or concrete of a higher quality are loaded on the stabilised concrete. The mixing water for the 4 m<sup>3</sup> has to be reduced by 80 kg. (20 kg / m<sup>3</sup> because it is already in the drum and has to be taken into account to achieve the right w/c ratio for the whole load.) The concrete load has to be mixed to homogenize the truck mixer load.

Furthermore PANTARHOL® LHS 100 (VZ) allows the stabilisation of concrete for a long time period and is suitable for challenging concrete applications where the prevention of concrete hydration is required (e.g., shotcrete applications). In such cases PANTARHOL® LHS 100 (VZ) is either added to the tempering water or to the ready mixed concrete. The mixing time must comply with the regulations defined in EN 206-1.

This product is not classified as hazardous according to the CLP regulations. See safety data sheet for further information.

## PACKAGING

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- 30 l can
- 200 l barrel
- 1000 l container
- loose by bulk supply

## REMARKS

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This information describes the application- and processing possibilities of a product and its operation principles under regular conditions. Having no influence on the further application and processing, especially in conjunction with other construction materials, the given indication is neither a warranty in respect of the product's properties or its fitness for a particular purpose nor a full instruction of use. This information, any other recommendation or

verbal advice are not binding and do not infer to any liability or legal demand.

Due to continuous further development, the most recent Technical Data Sheet is valid and will be supplied on request. All orders are accepted subject to our current general terms and conditions.

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**SUITABILITY- AND PRE-TESTS ARE NECESSARY BEFORE APPLYING THE CONCRETE ADMIXTURE!**