

PRODUCT DATA SHEET

Sika® UCS Pak

Underwater / Anti-washout admixture

PRODUCT DESCRIPTION

Sika® UCS Pak is a powdered underwater/anti-washout admixture formulated to increase the cohesion of concrete, enabling significant reductions in both binder washout in underwater concrete and static segregation for piled concrete in absorbent ground.

USES

Sika® UCS Pak allows for the production and the improvement of concrete to be placed underwater.

Sika® UCS Pak is mainly used for the following applications:

- Concrete to be placed underwater
- Marine construction
- Piling concrete in porous ground

CHARACTERISTICS / ADVANTAGES

Sika® UCS Pak has the following characteristics and should be used in combination with a Sika® HRWR/Superplasticiser:

- Strong increase in cohesion
- Extended workability
- Superior anti-washout properties
- Provides improved integrity of concrete placed underwater
- Reduced segregation and moisture loss to ground in concrete piles
- Less segregation and bleed
- Packaged in water soluble bags for easy dispensing

APPROVALS / STANDARDS

Conforms to the requirements of BS 8443, Table 2

PRODUCT INFORMATION

Chemical Base	Powder blend of plasticisers and viscosity modifiers
Packaging	0.4 kg water soluble bag (24 bags per tub)
Shelf Life	12 months from date of production if stored properly in undamaged unopened, original sealed packaging.
Storage Conditions	Store in dry conditions at temperatures between +5°C and +25°C. Protect from direct sunlight and frost.
Appearance / Colour	Pale Buff Powder
Density	~0.50 kg/L
Total Chloride Ion Content	<0.1% w/w (chloride free)
Equivalent Sodium Oxide	<1.7 % w/w (alkali content)

APPLICATION INFORMATION

Recommended Dosage

- **Placing in still water:** 4 bags / m³
- **Placing in running water:** 5 bags / m³
- **Avoidance of static segregation in piles:** 1-2 bags / m³

Dispensing

- Sika® UCS Pak should not be added to the gauging water.
- Sika® UCS Pak should preferably be added at the batching plant with the aggregate or cement to support dispersion.
- A wet mixing time, which is depending on the mixing conditions and mixer performance, of at least 120 seconds is recommended.
- Underwater concrete needs to have high workability (F4 consistence) in order to flow and compact. Underwater/anti-washout admixtures combined with superplasticisers require a long, slower mixing action to achieve a high workability.
- When added directly to a truck mixer, the mixer shall rotate its drums at maximum revolutions for at least 1 minute per m³ concrete and a minimum of 5 minutes to achieve a uniform mix.

Compatibility

Sika® UCS Pak may be combined with many other Sika products. Important: Always conduct trials before combining products in specific mixes and contact our Technical Service Department for information and advice about any specific combinations.

VALUE BASE

All technical data stated in this Product Data Sheet are based on laboratory tests. Actual measured data may vary due to circumstances beyond our control.

ECOLOGY, HEALTH AND SAFETY

REGULATION (EC) NO 1907/2006 - REACH

User must read the most recent corresponding Safety Data Sheets (SDS) before using any products. The SDS provides information and advice on the safe handling, storage and disposal of chemical products and contains physical, ecological, toxicological and other safety-related data.

APPLICATION INSTRUCTIONS

APPLICATION METHOD / TOOLS

- The standard rules of good concreting practice, concerning production and placing, are to be followed.
- Cement contents should be at least 400 kg/m³ (total cementitious content) with a maximum water/cement ratio of 0.45. Typically the fine aggregate content should be >45%.
- Laboratory trials shall be carried out before concreting on site, especially when using a new mix design or producing new concrete components.
- Underwater concrete can be placed by skip, pump or tremie. However, care is needed not to allow the concrete to free-fall through a water filled pump line or tremie pipe as the turbulent flow produced will cause the mix to segregate. Pumping will normally produce the best results and minimise washout as only the top surface is usually exposed to the full effects of the water movement.

CLEANING OF TOOLS

Clean all tools and application equipment with water immediately after use. Hardened / cured material can only be removed mechanically.

NOTES ON APPLICATION / LIMITATIONS

- When using Sika® UCS Pak a suitable mix design has to be taken into account and local material sources shall be trialled.
- Overdosing may cause an increase in air-entrainment that will tend to lower the compressive strength. Cohesion and anti-washout properties will be increased which may lead to reduced workability of the concrete. There may also be an increase in set time.
- The compressive strength of underwater concrete may be slightly reduced by the inclusion of Sika® UCS Pak but this is often negated by the addition of a Sika® HRWR/Superplasticiser.
- The setting time of underwater concrete will be increased when Sika® UCS Pak is used. This extra time to set is often beneficial to the concreting operation as underwater concrete pours generally take longer to complete than conventional land based pours.
- The air-content of the underwater concrete may be increased slightly due to the viscous nature of the mortar matrix preventing all entrapped air being released.
- Support from our Technical Service Department is recommended.

LOCAL RESTRICTIONS

Please note that as a result of specific local regulations the performance of this product may vary from country to country. Please consult the local Product Data Sheet for the exact description of the application fields.

LEGAL NOTES

The information, and, in particular, the recommendations relating to the application and end-use of Sika products, are given in good faith based on Sika's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with Sika's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. Sika reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

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