

PRODUCT DATA SHEET

Sika® Unitherm® Concrete W

Water based fire protection coating system for concrete structures, interior use*

DESCRIPTION

Sika® Unitherm® Concrete W is a water based fire protection coating system for concrete, masonry and brickwork located in interior situations, i.e. not exposed to weathering.

Sika® Unitherm® Concrete W forms an insulating carbon char foam under the effect of heat or fire and protects the concrete substrate against heat and fire.

USES

Sika® Unitherm® Concrete W may only be used by experienced professionals.

Sika® Unitherm® Concrete W is mainly designed for refurbishing/ change of use of building structures like concrete, masonry and brickwork. Sika® Unitherm® Concrete W prohibits the spalling of concrete structures and significantly delays the head build up of steel reinforcements.

* In case of semi-exposed or exposed areas (Type Y and X) please contact the technical department for further consultation.

CHARACTERISTICS / ADVANTAGES

- Protection of concrete, masonry and brickwork against fire or heat
- Delays heat transfer through walls in case of fire
- Ecological and efficient water based coating, lowest material consumption
- Free of halogens and aromatic solvents, VOC < 1 g/l
- Meets CO₂ S_D (Class C1) > 50m without any additional coating
- Direct application on concrete. No need of primer or scrim
- Simple and easy application
- Third party approved repair mortars of the Sika MonoTop® range
- Individual coloration possible by use of topcoat

ENVIRONMENTAL INFORMATION

- VOC compliant according to German AgBB and to French Decrete No. 2011-321 (A+)

APPROVALS / STANDARDS

Independently fire tested and approved to major European and national standards including:

- ETA-18/1152
- EN 13381-3:2015 including Annex A, smouldering fire
- EN 1062-1, table 7

PRODUCT INFORMATION

| | |
|----------------------------|---|
| Packaging | 25 kg net. |
| Shelf Life | 18 months |
| Storage Conditions | In originally sealed containers in a cool and dry environment. Protect against frost! |
| Appearance / Colour | White |
| Density | ~1.4 g/cm ³ |

SYSTEM INFORMATION

Systems

Damaged concrete surfaces:

Suitable repair mortar of the Sika MonoTop® product range

Primer:

Not needed

Fire protection coating for concrete:

Sika® Unitherm® Concrete W

Topcoat (optional):

- Sika® Unitherm® Top W, available in all RAL colour shades
- Sika® Unitherm® Top S / Sika® Unitherm® Top S EG available in RAL colour shades or on request for other colour shades
- Sikagard®-675 W, available in RAL colour shades

For decorative reasons or in case of higher relative humidity we recommend the use of one of the above mentioned top coats (see separate product data sheets of the topcoats).

The use for semi-exposed and exposed areas (Type Y and X) is possible. Please contact the technical department for further consultation.

APPLICATION INFORMATION

Consumption

The following table indicates the equivalent concrete ⁽¹⁾ thickness to be substituted by Sika® Unitherm® Concrete W based on different fire resistance periods.

| Concrete structure/ concrete type ¹ | DFT Sika® Unitherm® Concrete W |
|---|--------------------------------|
| Coverage range for slabs and walls, one dimensional | 0,395 - 0,918 mm |
| Coverage range for columns and beams, horizontal and vertical orientation | 0,395 - 0,917 mm |

| Exposure period | 60 min | 90 min | 120 min |
|---|--------|--------|---------|
| Equivalent concrete thickness for slabs and walls | 20 mm | 13mm | 17 mm |
| Equivalent concrete thickness for columns and beams | 25 mm | 16 mm | 12 mm |

¹ C30/ 37 concrete type, other concrete types (up to C90/ 105) are available upon request.

The test results are based on EN 13381-3:2015 and the requirements set in EN 1992-1-2 and DIN 4102-4.

Example:

500 µm dry ≈ 650 to 700 µm wet ≈ 910 g/m² ≈ 0.66 l/m²

Note: Ratio dry film thickness - wet film thickness varies depending on application method and surface quality.

For further information please consult the technical department.

Relative Air Humidity

Max. 80 % , application temperature shall be at least ≥ 3 K above dew point.

During application and drying of total Sika® Unitherm® coating system including Sika® Unitherm® topcoats special protection measures must be taken against weathering.
Furthermore, proper ventilation is recommended.

Waiting Time / Overcoating

Prior to further applications possible contaminations must be removed. Sika® Unitherm® Concrete W requires a minimum of 12h drying prior to application with itself.
Sika® Unitherm® Concrete W requires a minimum of 24h drying prior to application of topcoats Sika® Unitherm® Top W, Sika® Unitherm® Top S / Sika® Unitherm® Top S EG and Sikagard-675 W.
A complete drying of the fire protection coating prior topcoat application is mandatory.
Through-drying of Sika® Unitherm® Concrete W can be checked by 'finger-nail-test'.

Drying Time

Drying/Curing

Approx. 24 h after application of last coat at + 20°C object temperature and 60 % relative humidity.
Different temperatures, different relative humidity and different coating thicknesses have an influence on drying time.

Drying stage at + 20°C, 60 % rel. humidity, based on a wet film thickness of 0,500 mm:

| | | |
|----------------|---------|--------------|
| Drying stage 1 | ~10 min | (ISO 9117-5) |
| Drying stage 6 | ~20 min | |

BASIS OF PRODUCT DATA

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.

FURTHER DOCUMENTS

Additional 'info data sheets' are available.
For further information please consult Sika or visit us at www.sika.de

ECOLOGY, HEALTH AND SAFETY

For information and advice on the safe handling, storage and disposal of chemical products, users shall refer to the most recent Material Safety Data Sheet (MSDS) containing physical, ecological, toxicological and other safety-related data.

VOC DATA

According to the EU Directive 2004/42/CE, the maximum allowed content of VOC (product category IIA / i type Wb) is 140 g/l (Limits 2010) for the ready to use product.

The maximum content of Sika® Unitherm® Concrete W is < 140 g/l VOC for the ready to use product.

APPLICATION INSTRUCTIONS

SUBSTRATE PREPARATION

Surfaces to be coated must be brushed off and vacuum cleaned afterwards. They have to be solid to support any loads, free of sludge, dirt, oil, grease, wax, water-repellent agents and other contamination. Residual humidity in the concrete must be below 4 % according to CM-humidity measuring instrument.
In case of existing coatings, a compatibility test with the fire protection system is mandatory.

Any damage or imperfection (impact, corrosion, etc.) should be repaired prior the coating with the adequate Sika MonoTop® repair mortar.

MIXING

Stir thoroughly with slowly turning mechanical stirrer, free of lumps.

APPLICATION

The method of application has a major effect on achieving uniform thickness and appearance. Spray application will give the best results. The indicated dry film thickness is easily achieved by airless spray. In case of application by roller or brush, additional layers may become necessary to achieve the required coating thickness, depending on type of construction, site conditions, colour shade etc. Prior to application a trial on site may be useful to ensure the selected application method will provide the requested results.

Airless-spraying:

- Material shall be applied undiluted
- Airless spray equipment with transmission ratio > 45 : 1
- Screens and filters must be removed
- Hose diameter not below 3/8"
- Whip 1,5 - 2 m, diameter 6 may be used
- Nozzle size 0.46 - 0.61 mm (0.019 - 0.024 inch)
- Hoses must be used for water based products only

Brushing / rolling:

- Material shall be applied undiluted
- Load natural fine bristle brushes or short pile lambswool rollers are recommended

CLEANING OF TOOLS

Immediately after use with water.

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. It may be necessary to adapt the above disclaimer to specific local laws and regulations. Any changes to this disclaimer may only be implemented with permission of Sika® Corporate Legal in Baar.

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