

PRODUCT DATA SHEET

Sika® Unitherm® Steel S Exterior

Solvent based fire protection coating for steel, fast dry, interior* / exterior use

DESCRIPTION

Sika® Unitherm® Steel S Exterior is a fast drying, thin film fire protection coating system for interior* and exterior structural steel work.

Sika® Unitherm® Steel S Exterior is forming a heat insulating layer under the influence of fire and improves the fire resistance of steel parts like columns, girders and framework.

USES

Sika® Unitherm® Steel S Exterior may only be used by experienced professionals.

For exterior use on structural steel members like columns, girders and framework which are subjected to weathering, high humidity, maritime environment etc. with a highly effective protection to delay the steel from reaching critical temperatures.

* For interior use on structural steel members like columns, girders and framework as long as there is no demand for national emission schemes, i.e. German AgBB, etc.

Note: With critical situation i.e. frequent formation of condensation and/or heating up of surfaces above + 45 °C adequate arrangements should be taken.

No topcoat required for dry environments except for a coloured decorative finish.

CHARACTERISTICS / ADVANTAGES

- Fast drying intumescent coating
- Applicable on steel constructions exposed to weathering, the system meets Type X classification (i.e. exterior conditions)
- VOC < 350 g/l
- Preserves the appearance of a steel construction
- Applicable to filigree and complex steel building elements
- Simple application, does not increase static load
- Individual coloration possible with corresponding topcoat, various colour shades in RAL, others available

APPROVALS / STANDARDS

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

- EN 13381-8 (ref: ETA 11/0324)
- BS 476-20 to 22 (ref: CF 216)
- DIN 4102-2 (ref: Z-19.11-1319)
- Solvent based coating for steel protection according to EN 13501-2 and ETAG 018-2, DoP, with CE-mark

PRODUCT INFORMATION

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|---------------------|--|---------------------|
| Packaging | Sika® Unitherm® Steel S Exterior | 25 kg and 5 kg net. |
| | Sika® Unitherm® Thinner | 25 l and 5 l |
| Appearance / Colour | White | |
| Shelf Life | 18 months | |
| Storage Conditions | In originally sealed containers in a cool and dry environment. | |
| Density | ~1.31 g/cm ³ | |
| Flash Point | + 32°C | |
| Solid Content | ~71 ± 3 % by volume (according BCF Guidance Methode) | |

SYSTEM INFORMATION

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| Systems | <u>Approved generic primer types:</u> | |
| | On blast cleaned steel: | a) Short / medium oil alkyd, e.g. Sika® Permacor®-1705 b) 2-pack epoxy, e.g. Sika® Permacor®-2706 EG c) Zinc rich epoxy, e.g. SikaCor® Zinc R d) water dispersed zinc rich epoxy, e.g. SikaCor® Zinc W e) Zinc silicate, e.g. SikaCor® Zinc ZS (+ tiecoat Sika® Permacor®-2706 EG) |
| | On manually de-rusted steel: | SikaCor® Aktivprimer Plus or Sika® Permacor®-2029 |
| | On galvanized steel: | Sika® Permacor®-2706 EG |
| | <u>Intumescent coating:</u> | Sika® Unitherm® Steel S Exterior |
| | <u>Without topcoat:</u> | Internal exposure, Type Z1 and Z2 |
| | <u>With topcoat:</u> | Semi-exposed, Type Y and external exposure, Type X |
| | Please consult the Technical Department for further advice. | |
| | <u>Topcoat:</u> | |
| | Sika® Unitherm® Top S produced in RAL colour shades or on request for other colour shades. | |
| | Interior use (decorative) | 1 x 160 g/m ² |
| | Exterior use (exposed to weathering) | 2 x 140 g/m ² |
| | (see separate product data sheet Sika® Unitherm® Top S / Sika® Unitherm® Top S EG). | |

APPLICATION INFORMATION

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| Consumption | Example: 1 000 µm dry ≈ 1 350 µm to 1 400 µm wet ≈ 1 845 g/m ² ≈ 1.408 l/m ² The fire rate of Sika® Unitherm® Steel S Exterior depends on national standard. See corresponding separate consumption table/diagram. Note: Ratio dry film thickness - wet film thickness varies depending on application method. Furthermore, proper ventilation is recommended. |
| 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® Top S topcoat as well as transportation special protection measures must be taken against weathering.

Surface Temperature

Object temperature not below + 5 °C, to max. + 40 °C*

* If higher temperatures occur, please consult the Technical department for further assistance.

Waiting Time / Overcoating

Sika® Unitherm® Steel S Exterior requires a minimum of 24 hours drying prior to application of topcoat Sika® Unitherm® Top S / Sika® Unitherm® Top S EG.

A complete drying of the fire protection coating prior topcoat application is highly recommended.

Through-drying of Sika® Unitherm® Steel S Exterior can be checked by 'fin-gernail-test'.

Prior to further applications possible contaminations must be removed.

Drying Time

Drying / Curing

Average drying time at + 23 °C:

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| Touch-dry | < 1 h |
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| Overcoatable | ~4 h |
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| Dry-to-handle | Depends on the total thickness of Sika® Unitherm® Steel S Exterior to be applied |
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Different temperature, different relative humidity's and different fire protection coating thicknesses have an influence on drying time.

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 INFORMATION

Various 'info data sheets' such as primers or repair instructions.

For further information please consult Sika.

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 Safety Data Sheet (SDS) containing physical, ecological, toxicological and other safety-related data.

DIRECTIVE 2004/42/CE - LIMITATION OF EMISSIONS OF VOC

According to the EU Directive 2004/42/CE, the maximum allowed content of VOC (product category IIA / j type Sb) is 500 g/l (Limits 2010) for the ready to use product.

The maximum content of Sika® Unitherm® Steel S Exterior is < 500 g/l VOC for the ready to use product.

APPLICATION INSTRUCTIONS

SURFACE PREPARATION

Blast cleaned steel:

Blast-cleaning to Sa 2 ½ according to ISO 8501-1.

Free from dirt, oil and grease.

Steel with manual de-rusting:

Manual de-rusting (wire brushing or power tool cleaning) according to ISO 8501-1, St. 3.

Galvanized steel:

Free from dirt, oil, grease and zinc salts.

In case of permanent exposure to submersion and condensation surfaces should be sweep blasted according to ISO 12944-4.

Other surfaces:

Tests should be carried out on the specific surfaces. Please seek further information on info data sheet no. 02 'Primers for Sika® fire protection coatings'.

For contaminated and weathered surfaces e.g. galvanized or primed areas we recommend to clean with SikaCor® Wash.

Application to multi coating systems e.g. to accommodate requirements according to ISO 12944-5 (e.g. DFT > 250 µm) are applicable to Sika® Unitherm® Steel S Exterior.

For further information, please consult the Technical Department.

MIXING

Stir thoroughly with slowly turning mechanical stirrer, free of lumps. Addition of thinner is not necessary.

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 coat-

ing 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 machine with pressure ratio $\geq 45 : 1$
- Screens and filters should be removed
- Hose diameter not below $\frac{3}{8}$ "
- Nozzle size 0.46–0.66 mm (0.019–0.027 inch)
- Solvent resistant hoses must be used!

By brush and roller:

- Material shall be applied undiluted
- Solvent resistant brush or roller must be used

Note: The Sika® Unitherm® Steel S Exterior shall be applied in several coats up to the final dry film thickness required. Wet film thickness max. 400 μm for first application coat on primer. Wet film thickness approx. 750 μm for each subsequent application coat is recommended.

CLEANING OF TOOLS

Immediately after use with Sika® Unitherm® Thinner.

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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