

Firepaint Lite

Fireproof paint for steel

Technical Data Sheet

03/2024

Material

Knauf Firepaint Lite is a single-component, water-based, physically drying, heat-swelling paint for passive fire protection of steel structures. The coating is intended for fire protection of open and closed steel profiles R15 to R90

Storage

12 months. Store in a dry place on wooden pallets in unopened original packaging. Storage temperature +5 °C to +35 °C.

Quality assurance

A product type test has been performed in accordance with the requirements of LVS EN 13813, and continuous control of the production process is ensured. The product is marked with the CE mark.

Application

Firepaint Lite fireproofing paint for steel is used as a heat-intumescent coating system for the protection of beams and columns made of structural steel to ensure the load-bearing capacity of the structures during a fire.

The fireproofing paint provides fire resistance from R15 to R90 for open type profiles (H and I profiles) and R15 to R60 for closed type profiles (round and square tubes) in the critical temperature range of 350 °C - 750 °C, according to standard EN 13501-2.

Firepaint Lite is approved for environmental category type Y - intended for indoor and partially exposed conditions.

“Partially exposed” includes - temperatures below 0 °C but not exposed to rain and with limited or incidental UV exposure (the effect of UV exposure is not assessed).

The fireproof paint for steel is designed for corrosion category C1 without topcoat or corrosion categories C2 and C3, according to EN ISO 12944 with an approved topcoat.

For interior applications.



Features and benefits

- Ready to use
- Easy to apply
- Creates an extremely smooth surface
- Heat-swellaable
- Economical: high solids content
- Fast drying
- Matt white shade
- Wide range of compatible primers and topcoats
- For interior use

Installation

Substrate

The substrate must be dry, clean, free of dust and loose particles, and suitable for the load. The surface must be cleaned of salts, detergents and other contaminants by high-pressure water jetting.

Unprimed steel

When the ferrous metal surface is dry, it must be blast cleaned to at least Sa 2½ according to EN ISO 12944-4 and primed with a compatible primer, not exceeding the maximum dry film thickness. If oxidation occurs during cleaning or priming, the surface must be blast cleaned again and the primer must be applied again.

Note

Using mechanized tools, such as needle guns and mechanized rotating wire brushes, it is possible to prepare a rough surface suitable for priming.

Installation

Primed Steel

Firepaint Lite is intended for application to a suitably prepared and primed substrate. Before applying the heat-intumescent paint, the compatibility between Firepaint Lite and an unknown, previously applied primer should be checked. Any damage, such as corrosion or mechanical damage, should be repaired using the same or a different – compatible primer.

To test the compatibility of an existing primer of unknown origin with Firepaint Lite

the following must be carried out:

- primer surface inspection,
- primer thickness inspection,
- primer flame test,
- primer and heat-swelling paint flame test.

In case of incompatibility, appropriate surface cleaning and primer renewal must be carried out

Galvanized steel

The surface should be cleaned of salts, detergents and other contaminants by high-pressure water jetting. If necessary, to create a evenly rough surface, light abrasive cleaning with sandblasting or by mechanical means – the surface should be roughened. The surface should be primed with a compatible primer, not exceeding the maximum dry film thickness.

Knauf fireproof paint for steel should never be applied directly to the surface of the steel. It should be applied in accordance with the minimum and maximum application intervals of the specified primer, in accordance with the technical data sheet of the respective primer. The maximum dry film thickness of the primer recommended by Knauf must not be exceeded, as this may negatively affect the fire resistance.

If you are unsure about the suitability of a primer, you should definitely contact your Knauf representative.

Application

Firepaint Lite is applied in one or more thin coats, it is particularly important to obtain a continuous, uniform layer of paint in each coat. The application technique should ensure good coverage on all surfaces of the profiles. When applying paint, the nozzle should be preferably 30–50 cm from the surface. It is very important to use the correct size nozzles (not too large) and to hold the paint gun at an appropriate and even distance from the surface to be sprayed. When painting, great attention should be paid to edges, openings and the backs of fasteners, etc. Therefore, good painting practice is to apply a strip coating to these surfaces.

Note!

If there are puddles and standing water in the room where the work is being carried out, they will affect the coating system. Under no circumstances should puddles be allowed to form!

The finished coating should look like a homogeneous film with a smooth surface; if necessary, surface irregularities, e.g. dust, dry spray, abrasive particles, should be corrected. Firepaint Lite heat-swelling paint is applied on-site at the construction site after the installation of the steel structure. When applying the paint on-site, it is usually applied with a high dry film thickness to obtain the required fire protection level with a minimum number of coats. In this case, the steel elements do not need to be treated after painting; therefore, the drying speed to a solid coating is not so important. It is important that Knauf fire-resistant paint is applied with the maximum coat thickness per coat. Outside the construction site, Firepaint Lite can be applied in a metal processing/ painting factory, before the structures are installed. For instructions when painting outside the construction site, contact your Knauf representative.

The design must be carried out in accordance with ETA 24/0052

Machinery/equipment

Firepaint Lite fireproof paint is applied with an airless sprayer (e.g. PFT Samba XL), brush or roller. The maximum application thickness and smoothest coating can be achieved with an airless sprayer. To reduce paint loss, excessive mist formation or at lower ambient temperatures, it is recommended to use an airless sprayer with a heated hose (maximum +35 °C).

Recommended airless spraying equipment:

- pump flow rate – 5 l/min,
- spray gun – heavy-duty texture gun or similar,
- nozzle angle – 0.014" to 0.021",
- nozzle width – according to the structures to be coated,
- nozzle pressure – 2200 - 3000 psi,
- hose length – up to 30 m 3/8" and extension up to 3 m 1/4".

When painting and repainting small areas – it is recommended to use a hand tool – a brush or roller. Corrections can be made with a putty knife or plastering trowel.

When using a brush or roller, the application layer is small and a structured surface is formed.

Correct layer thickness

The dry layer thickness of Knauf fireproof paint for steel must comply with the specifications.

It is recommended to apply in one coat – not exceeding a wet layer thickness of 1000 µm, at an air temperature of +23 °C and a relative humidity of 50%

Note!

Do not apply an excessively thick layer, as this will prolong the drying time and require more paint to be used.

Wet/Dry Film Thickness

In order to ensure that the coating system performs as intended, it is important to ensure the correct dry film thickness.

The required dry film thickness for Knauf fireproofing paint products varies depending on the cross-sectional size of the steel profile and the configuration of the steel profile used. The painter is responsible for ensuring that the dry film thickness on all surfaces complies with the specifications.

The painter must therefore have a complete list of steel profiles and the corresponding dry film thickness parameters, according to the specification, including information on the number of planes to be treated. In order to ensure that the work is carried out according to the specifications, it is recommended that all steel profiles are marked according to the specified list of steel profiles and dry film thickness parameters.

To ensure the specified wet film thickness, it is recommended to measure the thickness frequently with a wet film gauge during application. This will allow the applicator to adjust the thickness of the paint layer if necessary.

The dry film thickness should be measured on a completely dry Firepaint Lite fireproof paint coating. It is important that dry film measurements are made on a completely dried paint layer, otherwise the measurement results may be incorrect.

Electronic dry film thickness gauges are usually used for such measurements. The painter must ensure that the dry film thickness meets the specifications. If the measured dry film thickness is insufficient, an additional coat or touch-up should be applied.

Note!

If a test measurement is required before the coating is completely dry, such dry film thickness test measurements can be made using an electronic dry film thickness gauge in conjunction with a spacer plate. To prevent the gauge from sinking too deeply into the soft coating, the plate should be placed between the coating and the gauge. If the drying degree is checked in areas exposed to direct sunlight, the surface may have dried unevenly.

The intumescent coating is a thermoplastic product and if exposed to heat after drying, the coating becomes soft at temperatures exceeding 40°C. The degree of drying should be checked in cooler areas or in the morning hours when the steel profiles are coldest. It is important that no topcoat is applied before the dry layer of Knauf Fireproof Paint has been measured and approved. If the topcoat is applied to an area with insufficiently dried Knauf Fireproof Paint, it must be removed before repair/painting. The paint layer should be applied evenly, as far as possible in accordance with the specifications. Excessively thick coats of paint should not be applied, as this may cause oozing, cracking and will increase the drying/overcoating time.

Topcoats

Depending on the application of the coating system, a topcoat may be required. Only Knauf approved topcoats may be used in conjunction with the fire protection paint. The topcoat should be applied to achieve a higher corrosion category or for decorative purposes. The painter must ensure that the total specified dry film thickness of Knauf Fire Protection Paint for Steel is achieved before applying the topcoat. To obtain a correct measurement result, dry film thickness measurements must be made on a completely dried Knauf Fire Protection Paint. Before applying the topcoat (or an additional coat of Knauf Fire Protection Paint for Steel), the painter must ensure that the surface to which the Knauf Fire Protection Paint is to be applied is free from salts, oil, grease or other contaminants. The topcoat may delay the drying time of Knauf Fire Protection Paint for Steel. Particular attention should be paid to areas where the total dry layer thickness of Knauf Fireproof Paint for Steel exceeds 2 mm. It is considered good practice to measure the drying rate of the intumescent coating before applying the next layer.

Repair and maintenance

Knauf Fireproof Paint for Steel can be used for repair – as a touch-up coating for damaged sections painted with Knauf Fireproof Paint for Steel. Before repair, ensure that the surface is clean and free of contamination. Remove loose parts. If the paint damage is deep and exposed steel is visible, the area should be cleaned to St 3 (spot repair) or sandblasted to a minimum of Sa 2½ before applying the new coating system. Damaged areas can be treated by airless spraying, brushing or roller. The conditions for carrying out these works should be in accordance with normal working conditions. If damage occurs while the swelling paint is still soft, the paint may be able to be removed with a clean putty knife. It is recommended to first remove all soft, swelling layer, but after the damaged part has dried, repair the damaged parts with airless spray, brush or roller.

To repair older systems, the coating system must be removed and the damaged areas thoroughly cleaned with a mechanical tool to St 3 (spot repair) or sandblasted to a minimum of Sa 2½ before applying the new coating system. The edges must be widened to sound and undamaged areas, loose material must be removed and painted to full thickness. Damaged areas of the coating must be repaired immediately, as the swelling coating underneath these areas may be exposed to adverse weather conditions. Repairs to Knauf fire protection paint coatings may only be carried out with Knauf approved coatings or with the same Knauf fire protection paint products if coatings have not been used previously. Knauf fire protection paint products must not be applied directly to coating systems that have already been coated.

Temperature/climate

Knauf heat-swelling paint can be applied to steel in the temperature range of +5 °C to +35 °C. The surface temperature must always be +3 °C above the dew point temperature and the relative humidity must be 20% to 85%.

Drying

The area where Knauf fireproof paint for steel is applied should be well ventilated, but air circulation should be ensured for optimal drying. For better drying, it is recommended to apply several thin coats to achieve the specified dry film thickness (e.g., two 500 µm coats instead of one 1000 µm coat). When applying the paint in warm outdoor conditions, direct sunlight should be avoided to prevent the formation of a hard paint film (which will increase the total drying time). If direct sunlight cannot be avoided, a thinner coat of paint should be applied to ensure that the entire coating system dries faster. It is always recommended to protect the product from condensation and water during application and drying. The material should be stirred briefly before use.

Features and benefits

Avoid inhalation of spray paint mist and prolonged skin contact with the paint. When spraying, use respiratory protection, a half or full mask - type S/SL and class P2. See safety data sheet. Wear gloves and eye protection.

The product contains the biocides BIT and CMIT/MIT (3:1). May cause an allergic reaction. This technical sheet determines the amount of material used and the recommended work, but it cannot replace the skills of the contractor. In addition to these recommendations, the work must be carried out in accordance with the requirements of the construction works. The manufacturer guarantees the quality of the product, but this has no influence on the type and conditions of its use. In case of doubt, a trial application should be carried out. This technical data sheet cancels previous editions of the technical sheets.

Occupational safety and waste disposal

Cleaning, disposal: Instruments should be cleaned with water. Liquid paint residues should not be poured into the sink, but should be managed in accordance with the requirements of regulatory enactments on hazardous waste management.

Waste identification class: 080112 (see material safety data sheet)

Technical data

Designation	Unit	Value / Size
Reaction to fire class	LVS EN 13501-1	E
Fire resistance	LVS EN 13501-2 LVS EN 13881-8	ETA 24/0052, Annex A R15-R90 for open type profiles R15-R60 for closed type profiles
Hardness	kg/l	1,4
Durability	EAD 350402-00-1106	Y*
Volatile substances	g/l	45
Dry residue	%	> 68
Application temperature	°C	+5 līdz +35
Krāsa	-	white
Film thickness	-	2000 g/m ² = 1440 µm wet film, 980 µm dry film thickness

* Only with Knauf approved topcoat.

Delivery

Title	Packaging	Art. Nr.	EAN code
Knauf Firepaint Lite	25 kg, plastic bucket 24 pcs. on a pallet	00824753	4750614007884

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Manufacturer: SIA Knauf