B151.en

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Knauf Firepaint Steel

Coating for passive fire protection of structural steel

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Product description

Knuf Firepaint Steel is a one component, solvent-borne, physically drying intumescent coating for passive fire protection of structural steel against cellulosic fires. It is suitable for in-shop and on-site applications. Knuf Firepaint Steel received European Technical Approval.

Storage

Knuf Firepaint Steel shall be stored in dry, shaded areas. The recommended storage conditions are between 5°C and 40°C. The shelf life may vary depending on the storage conditions. At 25°C it is 12 months from date of manufacture. The shelf life may be reduced if the products are stored outside Knauf's recommended storage conditions. The products must be re-inspected before use in case the shelf life is exceeded.

Method of delivery

Knauf Firepaint Steel

bucket 20l article no 528431

Scope of application

Knuf Firepaint Steel is used as reactive coating system to fire protect beams and columns made of structural steel to achieve a fire resistance duration in accordance with EN 13501-2.

The product is approved on the basis of Approval testing in accordance with EN 13381-8:2010 and ETAG 018.

Knuf Firepaint Steel is intended to fire protect various sizes of open sections (H and I) and square and circular hollow columns for up to a fire resistance classification, in the design temperatures range of 350ºC to 750ºC.

Knauf Firepaint Steel is intended for:

• As a repair and touch-up coating for damaged areas of freshly applied Knauf Firepaint Steel.

• Applied in up to 1500 µm dry film thickness per coat (equivalent to 2000 µm wet film thickness).

• As intumescent fire protection for internal and external structural steel beams and columns (acc. to ETA):

o open H- or I-sections - up to R 240

o circular hollow sections - up to R 240

o rectangular hollow sections - up to R 300

Properties

- Easy application
- Easy to work with
- Cost effective - high volume solids and quick drying
- Off-site and on-site application by airless spray.
- Suitable for indoor and outdoor use
- Matt white finish.
- Wide range of primers and topcoats.

Application guidelines

Surface preparation

Carbon steel

Cleaning and degreasing. Entire area to be (high pressure) fresh water cleaned in order to remove salts and other contaminants. When the surface is dry, perform abrasive blasting to minimum Sa 2½ according to ISO 8501-1. In case oxidation has occurred between blasting and application of the primer, then the surface should be reblasted and primed. Under restrictions St3 steel can be accepted. Degrease and high pressure water wash the substrate, prior to the St3 cleaning. Special care shall be taken to avoid polishing of the surface. Power tools such as chipping hammers, needle guns and power rotary wire brushes will provide acceptable roughness for proper adhesion of the primer. It is not acceptable that any mill scale is present on the cleaned surface. For steel prepared to St3, use primer Knauf Firepaint primer K1. Afterwards apply Knauf Firepaint Steel and the possible topcoat as per the normal instructions. The St3 preparation is generally only recommended for repair of small areas.

Galvanised steel

Cleaning and degreasing. Entire area to be (high pressure) fresh water cleaned in order to remove salts and other contaminants. When surface is dry, perform either light abrasive sweep blasting to a uniform rough surface or roughen the surface by mechanical means. Afterwards, apply one coat of primer Knauf Firepaint Primer K2 at maximum DFT of 100 micron.

After priming and before application of Knauf Firepaint Steel, remove oil and grease etc. with suitable detergent. Salt and other contaminants shall be removed by (high pressure) fresh water cleaning. Leave the surface drying for sufficient time to ensure full evaporation of water, prior to application of Knauf Firepaint Steel.

Knauf must be consulted in all cases of doubt about the suitability for overcoating of the primer. Cases where Knauf should be consulted include (but not limited to): surface contamination, damages and defects, unknown primer preapplied, non-approved primer and exceeded dry film thickness of primer.

Primers

Only Knauf-approved primers can be used in combination with Knauf Firepaint Steel. Knauf Firepaint Steel must under no circumstances be applied directly to the steel surface.

Knauf Firepaint Steel shall be applied within the minimum and maximum overcoating intervals of the primer specified. Please consult the datasheet of the relevant primer. The maximum dry film thickness of the primer recommended by Knauf shall not be exceeded as this could influence the performance during a fire.

Application conditions

Knauf Firepaint Steel can be applied on steel temperatures between +5°C and + 50°C

The surface temperature must always be 3°C above dew point and the maximum relative humidity should not exceed 85% during the application.

The area where Knauf Firepaint Steel is applied must be well ventilated and proper air circulation shall be secured for optimal drying.

For applications under warm conditions special attention shall be given to avoid solvent entrapment due to application of high dry film thicknesses per coat. For optimum drying in these conditions it is generally recommended to apply several thinner coats to obtain the specified dry film thickness (e.g. apply 2 coats of 750 µm each instead of 1500µm in a single coat). For applications outdoors at warm conditions, direct sunlight exposure can be avoided to prevent skinning of the paint that will result in longer overall drying times due to solvent entrapment; if direct sunlight cannot be avoided a lower DFT per coat may be beneficial for the drying time of the complete coating system.

It is recommended that the products in all situations are protected from condensation and water during application and drying.

Knauf Firepaint Steel are relatively high viscosity materials and normally they are supplied showing a false body effect. Prior to application the material has to be stirred shortly in order to homogenise the material and break the false body effect to ensure good flow during the application. Excessive stirring should be avoided as this may cause increased solvent evaporation.

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Application equipment

Recommended airless spray equipment:

(Airless spray data are indicative and subject to adjustment)

Pump ratio: min. 45:1

Nozzle size: .017“ - .023“

Nozzle pressure: 200 bar/2800 psi

Fan angle: 30-50°.

After finishing the application, clean the equipment immediately with Knauf Firepaint Finish Thinner AL. It is recommended to remove the gun filter. Note: Increasing spray hose diameter may ease paint flow, thereby improving the spray fan. If longer hoses are necessary, it may be necessary to raise the pump ratio to 60:1 maintaining the high output capacity of the pump.

Thinning

Thinning of Knauf Firepaint Steel is normally not required. Only for areas where low DFTs (<225µm DFT, 300µm WFT) is to be applied 5% (vol) thinner can be used. Use Knauf Firepaint finish thinner AL.

When thinned down, the sag resistance of the coating is reduced so 1500µm DFT for Knauf Firepaint Steel cannot be achieved anymore.

Technical detalils	
Reaction to fire	D-s2,d0
Shade nos/Colours	10000 / White
Finish	flat
Volume solids	% 75 ± 3
Theoretical spreading rate	1.0 m^2/l - 750 µm
Flash point	23 °C
Specific gravity	1.3 kg/litre
Surface dry	30 minutes (20°C and 750 µm)
Dry to touch	35 minutes (20°C and 750 µm)
Dry to handle	1 day (20°C and 750 µm)
VOC content	320 g/l

Application

Spray application

During application it is recommended to put the steel sections on support trestles such that the area of contact is minimum. Best practice is “sharp” contact. This minimises the area of damages and therefore limits the to-be-repaired surfaces after the applications. With Knauf Firepaint products applied in one/few coat(s) at low dry film thicknesses, it is of special importance that a continuous, pinhole-free paint film is obtained at application of each coat. An application technique which will ensure good film formation on all faces of the profiles must be adopted. It is very important to use nozzles of the correct, not too big, size and to have a proper, uniform distance of the spray gun to the surface; 30-50 cm should be aimed at. Furthermore, great care must be taken to cover edges, openings, rear sides of stiffeners etc. Thus, on these areas application of a stripe coat will therefore be good painting practice.

The finished coating must appear as a homogeneous film with a smooth surface; irregularities such as dust, dry spray, abrasives, should be remedied.

Brush and roller application

Application with hand tools, brush or roller is possible but it results in a more uneven paint film by these methods compared to airless spray paints and many additional coats may be necessary to obtain the specified dry film thickness.

Application by hand tools, brush, or roller is generally only recommended for small areas, repairs and touch-up; although, repairs can often be made easily by putty knife or plastering trowel.

Safety

Handle with care. Before and during use, observe all safety labels on packaging and paint containers, consult Knauf Safety Data Sheets and follow all local or national safety regulations.

Knauf Firepaint Steel for professional use only.

Notes