

TI 229B

Technical Information Surface Protection Linings
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STEULERFLAKE SPG HTU

Spray coating with barrier fillers; high temperature, chemical and abrasion resistance

Base

Epoxy Novolac Vinyl ester resin

Material Group

Tank-/vessel linings – Flake coatings

Description and use

Glass flake filled system based on special Novolac vinyl ester resin with excellent resistance against high temperatures and aggressive chemicals. Due to its high content of platelet-shaped barrier fillers which align themselves parallel to the substrate, very good diffusion and permeation resistance to water vapour is achieved.

The Top Coat avails an enhanced resistance against condensed sulphuric acid.

The system has good mechanical and wear resistance.

For coating of ducts, vessels and chimneys of flue gas desulphurisation plants and other plant components in several industries.

Properties

- High chemical resistance
- Very good diffusion resistance
- Temperature resistant up to 220 °C (dry exposure), up to 80 °C (wet exposure), up to 100 °C (liquid splashes)

System Design

- Steulerflake HT Primer U
- Steulerflake SPG U (Intermediate Layer)
- Steulerflake SPG HTU (Top Coat)

standard thickness is 1.2 mm.

Physical Data

Property [unit], Test method	Value
Density [g/cm ³], DIN EN ISO 1183-1, ASTM D 792	1.35
Flexural strength [MPa], DIN EN ISO 178, ASTM C 580	60
Compressive strength [MPa], DIN EN ISO 604, ASTM C 579	80
The thermal coefficient of linear expansion [1/K], ISO 11359-2, ASTM C 531	2.2×10^{-5}
Tensile strength [MPa], DIN EN ISO 527	40
Data are mean values.	

Chemical Resistance

Extensive resistance to acids (in particular condensing sulphuric acid), alkalis, solvents, oils and other, also oxidizing chemicals.
Please contact our Application Technology Department for approval of the project-specific possible application.

Substrate

Requirements

Processing temperature	approx. 10–30 °C
Dew point distance	> 3 K
Dew point distance from 70% air humidity	> 5 K

Optimal temperature is 20 °C. Higher and lower temperatures influence the pot life and consistency of the mixtures.

Avoid draughts and solar radiation.

Steel

Refer to DIN EN14879-1 as well as to STEULER-KCH-Formsheet 020 and 030.

The steel surface is blasted to a metallic bright finish. A surface cleanliness of Sa 2½ according to DIN EN ISO 12944-4 and the roughness grade "Medium (G)" according to DIN EN ISO 8503-1 must be achieved; minimum surface roughness $R_z = 70 \mu\text{m}$. After blasting, the formation of new rust must be prevented by suitable measures, such as priming directly.

The condition of the substrate must be documented by STEULER-KCH-Test-Record 003 (Steel) resp. STEULER-KCH-Test-Record 004 (Inspection of Grit Blasting Works).

Moisture

During application, the substrate must be kept dry. No moisture (condensate, mist, etc.) must get onto the material.

Packaging / Shelf life

All components must be stored and transported dry. The minimum shelf life applies to a storage temperature of 20 °C, unless otherwise specified. Higher temperatures reduce, lower temperatures increase the minimum shelf life.

Component	Item number	Package	Content	Shelf life
Steulerflake-HT-Primer-Solution U	5032098001	Hobbock	25 kg	6 Months
Steulerflake-SPG-Solution U	5032102001	Hobbock	25 kg	6 Months
Steulerflake-SPG-Solution HTU	5032900001	Hobbock	25 kg	6 Months
Oxydur-Accelerator OF	5032011044	Bottle	0.5 kg	12 Months
Oxydur-Hardener C	5032015007	Bottle	1 kg	12 Months
Steulerflake-Colour-Paste blue	5011015007	Drum	1 kg	12 Months
Steulerflake-Colour-Paste blue	5011015003	Drum	5 kg	12 Months

For handling, transport and storage observe the relevant safety data sheets.

Mixing Ratio / Consumption

Steulerflake HT Primer U

Component	kg/m²	Part by weight	kg / batch	L / batch
Steulerflake-HT-Primer-Solution U	0.144	100	5.00	4.5
Oxydur-Accelerator OF	0.003	2	0.10	0.1
Oxydur-Hardener C	0.003	2	0.10	0.1
Total	0.150		5.20	

Total consumption in kg/m² (approx.):

0.15

Work steps:

1

Batch yields in m² (approx.):

34.7

Steulerflake SPG U

Component	kg/m ²	Part by weight	kg / batch	Batch
Steulerflake-SPG-Solution U	0.675	100	25.00*	2.0 l
Oxydur-Accelerator OF	0.011	1.5	0.38 (380 ml)**	35 ml**
Oxydur-Hardener C	0.014	2.0	0.50 (500 ml)	48 ml
Steulerflake-Colour-Paste blue***	(0.004)	(0.5)	(0.13)	(6 ml)
Total	0.700		25.88	

* Pre-dosed package. ** At temperatures of 25 to 30 °C only 0.33 kg (resp. 330 ml). For the small batch 30 ml.

*** In every second layer (for the colour change).

Consumption per application in kg/m ² (approx.):	0.70	Work steps (min.):	2
Standard batch yields in m ² per layer (approx.):	36.9	Small batch results in m ² (approx.):	3.7

Steulerflake SPG HTU

Component	kg/m ²	Part by weight	kg / batch	Batch
Steulerflake-SPG-Solution HTU	0.675	100	25.00*	2 l
Oxydur-Accelerator OF	0.011	1.6	0.40 (400 ml)**	37 ml**
Oxydur-Hardener C	0.014	2	0.50 (500 ml)	48 ml
Total	0.700		25.90	

* Pre-dosed package. ** At temperatures of 25 to 30 °C only 0.35 kg (resp. 350 ml). For the small batch 32 ml.

Consumption in kg/m ² (approx.):	0.70	Work steps:	1
Standard batch yields in m ² (approx.):	36	Small batch results in m ² (approx.):	3.6
Total thickness in mm (2x SPG U + 1x SPG HTU)			1.2

Pot Life

Pot life depends on temperature:

Temperature	Primer	Top coats
10 °C	approx. 80 minutes	approx. 90 minutes
20 °C	approx. 55 minutes	approx. 60 minutes
25 °C	approx. 30 minutes	approx. 40 minutes

Waiting and curing times

The minimum waiting time until further processing and the maximum waiting time between work steps are as follows (approx.):

Temperature	At least	At most
10 °C	8 h	120 h
20 °C	6 h	78 h
30 °C	4 h	24 h

To achieve full chemical resistance 7 days and mechanical resistance 3 days at 20 °C.

Safety and Disposal

The following points should be observed:

- Sufficient ventilation and venting (especially in pits and tanks)
- No smoking and no fire
- Safety Data Sheets
- Observe hazard warnings and safety instructions on labels
- Wear required personal protective equipment (avoid skin contact with materials)
- Clean and protect hands with skin protection soap (no solvents!) and skin protection cream
- Wear a dust mask when grinding (e.g. for repairs)
- Operating instructions as per § 14 of GefahrstoffV (Toxic Substances Act) and TRGS 507 (Technical regulations for Hazardous Substances - Germany)
- Accident prevention regulations by the Liability Insurance Association for the Chemical Industries (Germany)
- Avoid direct contact of the materials with the flame, especially during welding work (welding beads) on site

Preferably consume residual quantities. Do not pour into a spout or dustbin! Collect separately for disposal in durable, lockable and labelled containers.

GISCODE

Product	GISCODE
Steulerflake HT Primer U	SB-STY30
Steulerflake SPG U	SB-STY30
Steulerflake SPG HTU	SB-STY30

Cleaning of Equipment

Tools soiled with uncured materials can be cleaned with STEULER UNIVERSAL CLEANER (Technical Information TI 190). Only clean in well ventilated areas.

Steulerflake-Cleaner A to clean the spray equipment.

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This issue replaces all previous versions.