STEULER | Linings

TI 220

Technical Information Surface Protection Linings
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STEULERFLAKE STG

Lining system with barrier filler for steel substrates based on epoxy novolac vinyl ester resin

Base

Epoxy Novolac Vinyl ester resin

Material Group

Tank-/vessel linings – Flake coatings

Description and use

Paint coating for steel substrates with very high chemical resistance. Due to the use of particular barrier fillers (glass flakes) the system performs a very high diffusion resistance even at low layer thickness.

For coating of ducts, vessels and chimneys of flue gas desulphurisation plants and other plant components in several industries. Particularly suitable for small surfaces, difficult geometries and repair areas.

Properties

- Very high chemical resistance
- Very good diffusion resistance
- Temperature resistant up to 200 °C (dry stress), up to 80 °C (wet stress), up to 100 °C (liquid splashes)

standard thickness approx. 1.2 mm

System Design

- Steulerflake Primer HTU
- Steulerflake STG

Physical Data

Property [unit], Test method	Value
Density [g/cm³], DIN EN ISO 1183-1, ASTM D 792	1.35
Flexural strength [MPa], DIN EN ISO 178, ASTM C 580	61
Compressive strength [MPa], DIN EN ISO 604, ASTM C 579	81
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	38
Adhesive strength to steel [MPa], DIN EN ISO 4624	> 4
Barcol hardness, DIN EN 59	> 38
	Data are mean values.

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Chemical Resistance

Good resistance to inorganic acids and mineral oils and other, also oxidizing chemicals.

Please contact our Application Technology Department for approval of the project-specific possible application.

Substrate

Requirements

Application 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 EN 14879-1 as well as to STEULER-KCH-Formsheet 020 and 030.

The steel surface is blasted to near white blast cleaning. 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 Rz = 70 µm. 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-STG-Solution	5032012001	Hobbock	25 kg	6 Months
Oxydur-Accelerator D	5032007023	Can	2.5 kg	24 Months
Oxydur-Accelerator OF	5032011096	Bottle	0.15 kg	12 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

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

Mixing Ratio / Consumption

Steulerflake Primer HTU

Component	kg/m²	Part by weight	kg / mix	Mix
Steulerflake-HT-Primer-Solution U	0.144	100	5.00	2.2 l
Oxydur-Accelerator OF (25–30 °C)	0.003 (0.003)	2.0 (1.6)	0.10 (0.08)	50 ml (40 ml)
Oxydur-Hardener C	0.003	2.0	0.10	50 ml
Total	**0.150**		**5.20**	

Total consumption (approx.): 0.15 kg/m²

Application steps: 1

Mix yields (approx.): 34.7 m²

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Steulerflake STG

Component	kg/m²	Part by weight	kg / mix	Mix
Steulerflake-STG-Solution	0.260	1.000	5.00	4.0 l
Oxydur-Accelerator D (25–30 °C)	0.005 (0.004)	0.020 (0.016)	0.10 (0.08)	100 ml (80 ml)
Oxydur-Hardener C	0.005	0.020	0.10	100 ml
Steulerflake-Colour-Paste blue**	(0.003)	(0.010)	(0.05)	(24 ml)
Total	**0.270**		**5.20**	
** In every second layer (for the colour change).				

Consumption per application in kg/m² (approx.):	0.270	Application steps:	6
Mix yields in m² per application (approx.):	19	Layer thickness:	6 application steps approx. 1.2 mm

A complete 25 kg hobbock of Steulerflake STG can be pre-accelerated with 0.5 kg Accelerator D and then further processed in partial quantities. A standard mix uses 5 kg of the accelerated solution (4 litres).

Pot Life

Pot life depends on temperature:

Temperature	Primer (approx.)	Top Coats (approx.)
10 °C	80 minutes	70 minutes
20 °C	55 minutes	40 minutes
25 °C	30 minutes	25 minutes

Waiting and curing times

The waiting time until further processing depends on the temperature:

Temperature	Walkable after	Maximum waiting time
10 °C	8 h	120 h
20 °C	6 h	78 h
30 °C	4 h	24 h

The finished coating is fully chemically resistant at 20 °C after 7 days.

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.

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GISCODE

Product	GISCODE
Steulerflake Primer HTU	SB-STY30
Steulerflake STG	SB-STY20

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.

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