

TI 255

Technical Information Surface Protection Linings
Issue 19.09.2019

STEULERFLAKE VSC

Airless-spray applied lining with barrier fillers; High chemical and thermal resistance, electrically conductive

Base

Vinyl ester resin

Material Group

Tank- / vessel linings – Flake coatings

Description

Graphite flake filled system based on special vinyl ester resin with excellent resistance against high temperatures and aggressive chemicals. Due to its rich content on barrier fillers which are orientated parallel to the substrate an outstanding resistance against diffusion / permeation of water vapour is obtained.

Due to its barrier fillers the system is electrically conductive and shows a long term resistance against strong alkalis and fluoride containing acids (HF).

Nominal thickness is 1.2 mm.

Use

Lining for ducts and tanks and chimneys of raw gas cleaning plants and other equipment based on steel structures in several industries attacked by strong alkalis or hydrofluoric acid or if electrical conductivity is required.

The system is also applicable as top layer on Oxydur Flake or other Steulerflake systems from our assortment.

Properties

- high chemical resistance
- high diffusion resistance
- electrically conductive
- Temperature-resistant up to 120 °C (depending on the medium used)
- standard thickness approx. 1.2 mm

Physical Data

Property (unit), Test method	Value
Density (g/cm ³), DIN EN ISO 1183-1, ASTM D 792	1.17
Compressive strength (MPa), DIN EN ISO 604, ASTM C 579	40
Flexural strength (MPa), DIN EN ISO 178, ASTM C 580	30
Tensile Strength (MPa), DIN EN ISO 527, ASTM C 307	20
The thermal coefficient of linear expansion (1/K), ISO 11359-2, ASTM C 531	3.1×10^{-5}
Electrical resistance (Ohm) acc. to DIN EN 14879-3 for a relative humidity of > 70 %, ASTM F 150/98	$\leq 10^6$
Maximum service temperatures in °C	120*
*depending on the medium used	

Chemical Resistance

Extensive resistance to acids (also hydrofluoric acid), alkalis, solvents, oils and other, also oxidizing chemicals.

Please contact our application engineering for approval of the project-specific possible application.

For detailed information about the chemical resistance please refer to Technical Information 210B.

Substrate

Steel

Refer to DIN EN14879-1 as well as to STEULER-KCH-Formblatt 020.

The steel surface shall be sandblasted to a metallic bright finish. A preparation degree of SA 2 ½ as specified in DIN EN ISO 12944-4 and a roughness grade "medium (G)" as specified in 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, e.g. immediate application of a primer.

The substrate should have a temperature of approx. 10 – 25 °C.

Moisture

During application, the substrate must be kept absolutely dry. Uncured material has to be protected from any kind of moisture (condensation, fog, precipitation or other water source). Distance to dew point has to be at least 3 K, at a relative humidity of above 70 % at least 5 K.

System Design

- Steulerflake Primer VS
- Steulerflake VSC (3 layers in colour change)

Packaging / Shelf life

All components must be stored and transported dry and frost-free. Shelf life is specified for a storage temperature of 20 °C. Higher temperatures reduce, lower temperatures increase the shelf life.

Components	Colour approx.	Item number	Package	Content	Shelf life
Steulerflake-Priming-Solution VS		5032099001	Drum	25 kg	3 Months
Oxydur-Hardener E		5032016007	Bottle	1 kg	12 Months
Steulerflake VSC black		5032190001	Drum	25 kg	3 Months
Steulerflake VSC grey		5032191001	Hobbock	25 kg	3 Months

Due to the colour change in three jobs, twice as much black Steulerflake VSC solution is used as grey.

Mixing Ratio / Consumption

Steulerflake Primer VS

	Part by weight	Part by volume
Steulerflake-Priming-Solution VS	1.000	0.930
Oxydur-Hardener E	0.020	0.020
Consumption	approx. 0.150 kg/m ²	
Work steps	1	

Steulerflake VSC

	Part by weight	Part by volume
Steulerflake VSC black/grey	1.000	0.850
Oxydur-Hardener E	0.020	0.020
Consumption per application	approx. 0.800 kg/m ²	
Layer thickness	by 3 applications 1.2 mm	
Work steps	3	

Waiting Times

Waiting times between the layers depend on the temperature and are as follows:

10 °C	minimum 8 h	maximum 120 h
20 °C	minimum 6 h	maximum 78 h
30 °C	minimum 4 h	maximum 24 h

Pot Life

The working times depend on the temperature and are as follows:

Temperature	Primer	Cover Layers
10 °C	approx. 80 minutes	approx. 120 minutes
20 °C	approx. 60 minutes	approx. 80 minutes
25 °C	approx. 40 minutes	approx. 50 minutes

Curing times

To achieve full mechanical resistance 3 days and chemical resistance 5 days.

Safety measures

Mix and apply material only in well ventilated areas. Provide ventilation suited to the conditions when working in pits or tanks. Do not smoke!

Do not expose materials to heat or open flame. This applies in particular to welding works (weld beads). Avoid direct skin contact with the materials. Wash hands with soap and water; do not clean the skin with solvents. Skin protection soap and skin protection ointment should be used. In all other respects comply with the relevant regulations for prevention of accidents.

Refer to the Safety Data Sheets!

GISCODE

Product	GISCODE
Steulerflake Primer VS	SB-STY 10
Steulerflake VSC	SB-STY 10

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.