VK 2000 TF

Technical Data Sheet

Description

VK 2000 TF is a sprayable, solvent free two-component polymer ceramic coating material. It is ideally suited for use as corrosion protection of steel hydraulic engineering with high mechanical load.

Composition

Matrix - A modified solvent free Epoxy-Polymer with a Polyamin-hardener.

Recommended Applications

- Canal bridges
- Sluices
- Off Shore
- Bulkheads
- Pipelines
- Condenser water boxes
- Containers/Tanks
- Pumps
- Condenser tube sheets
- Cooling water pipes

Features

- Tough and permanent coating with high mechanical and chemical resistance and excellent wear protection.
- Suitable for cathodic corrosion protection systems.
- Good adhesion to steel surface.
- Replaces tar-containing coating materials.
- Economical due to its long service life, easy maintenance and light repair capability.
- Solvent-free
- Cured coating is highly brilliant.

Resistance

Medium:	Temperature:	Classification of Resistance:
Sewage alkaline (pH 11)	+20 °C	1
Sewage alkaline (pH 11)	+40 °C	1
Sewage slightly acid (pH 6)	+20 °C	1
Sewage slightly acid (pH 6)	+40 °C	1
Sewage strongly acid (pH 1)	+20 °C	2
Sewage strongly acid (pH 1)	+40 °C	3
Ammonium hydroxide (5 %)	+40 °C	3
Fatty alcohol	+20 °C	1
Fatty alcohol	+50 °C	1
Ethanol (40 %)	+20 °C	1
Ethanol (96 %)	+20 °C	3
Ethylene glycol	+20 °C	1
Heating oil/diesel fuel	+20 °C	1
Compressor oil	+20 °C	1
Methyl ethylene ketone (MEK)	+20 °C	3
Caustic soda lye (5 %)	+20 °C	1
Caustic soda lye (5 %)	+50 °C	2
Sodium chloride solution (10 %)	+20 °C	1
Hydrochloric acid (10 %)	+20 °C	2
Hydrochloric acid (20 %)	+20 °C	3
Nitric acid (5 %)	+20 °C	3
Sea water		1
Sulphuric Acid (10 %)	+20 °C	2
Toluene	+20 °C	2
Water cooling/process water	+50 °C	1
Xylene	+20 °C	1

Legend:
1 = resistant
2 = short-term resistant 40 days
3 = over-flow-resistant, immediate cleaning recommended

Due to the reason that the resistance of the coating can be affected by various factors (medium, temperature, concentration, layer thickness etc.) we recommend to consult us prior to the application.

Technical Data				
Shore-D hardness		ASTM D 2240, DIN EN ISO 868	> 80	
Density (mixture)		ASTM D 792	1.4	g/cm³
Compressive strength		ASTM D 695	60	N/mm²
Adhesion on steel (per pull-off tester by ERICHSEN) against the tear procedure		DIN EN ISO 4624	5-15 (reference value*)	MPa
Temperature resistance	dry-continuous		+100*	°C
Warm water	continuous		+45*	°C
	short term		+60*	°C
Solid content (mixture)	volume		100	%
	weight		100	%
Porosity test		DIN 55670	5	V/µm stratum thickness
Coat thickness measuring Electromagnetic measuring method		DIN EN ISO 2808		

*Due to the fact that the resistance of the coating can be affected by various factors (medium, temperature, concentration, layer thickness, etc.) we recommend to consult us prior to application.

Surface Preparation

Appropriate surface preparation is essential in order to obtain good results with this product. The exact requirements change according to kind of application, expected serviceable life and the original status of the surface.

Steel
Surface preparation by blasting according the DIN standard
DIN EN ISO 12944-3 and -4 as well as DIN EN 14879-1
Surface preparation methods
DIN EN ISO 8504-2 Abrasive blast cleaning
Preparation of steel substrates before application of paints and related products
DIN EN ISO 8501-1 Preparation grade Sa 2½
DIN EN ISO 8501-2 Visual assessment of surface cleanliness
DIN EN ISO 8501-3 Preparation of grade welds, edges, etc., table 1 P3
Test for the assessment of surface cleanliness
DIN EN ISO 8502-4 Dew Point
Optional:
DIN EN ISO 8502-3 Assessment of dust, quantity <2, size <2
DIN EN ISO 8502-6 Bresle method
Surface roughness characteristics of blast-cleaned steel substrates
DIN EN ISO 8503-1 Ry5 (Rz) 40 - 100 µm

For the preparation of other surfaces, kindly contact us.

Preparation of Material

The material is delivered in proper mixing ratio. Put the curing agent completely into the basic material and agitate carefully, preferably with a mechanical agitator. Be sure to contact also bottom and sides of the container. Only prepare as much material as you can handle within pot life.

Mixing ratio 100 : 25 (4 :1) part by weight
(Part A : B) 2.5 : 1 by volume

Application Instructions

Conditions of object:
Temperature of substrate and air +10 to +30 °C, relative air humidity max. 85 % (after 1st coating); temperature of the surface to be coated has to be at least +3 °C over the respective dew-point. Low temperatures delay curing and aggravate treatment. Higher air humidity as well as falling below dew-point may result in formation of condense humidity on subsoil respectively coating surface, thus possibly causing severe impairment in adhesion. The conditions of object have to be observed during treatment and curing time. When close to these limits, the use of heaters or drying apparatus is recommended.

Airless spraying:
Airless equipment, e.g. Graco King Xtreme with a minimum pressure ratio of 1 : 68. We recommend to remove the high pressure filters and to pump the material directly without a siphon tube.

Important: Use only without thinner. To facilitate spray application it is necessary to use isolated hoses and a flow heater (particularly at low temperatures).

Inlet pressure	6-8 bar
Nozzle size	0.43-0.74 mm
Spray hose	ca. 20 m ⅜" + 2 m ¼"
Spraying angle	40-70°
Flow heater	30-35 °C
It is recommended to have a sufficient quantity of spare parts on site, for example filter, packings, seals (nozzle and airless equipment).	

Brush/roller:
Mainly recommended for small areas, repairs or as a primer for edges, corners, penetrations etc. If necessary additional appli-cations have to be done to achieve the required film thickness.
If applied by roller a film thickness of 150-200 µm WFT/NDFT can be obtained per coat.

Pot life in minutes:

	+16 °C	+20 °C	+25 °C	+32 °C
15.0 kg	60	50	35	25

This schedule states the practical curing time from beginning of mixing.

Composition of Coating/ Material Consumption

Minimum stratum thickness 500 µm,
recommended nominal stratum thickness: 600-1500 µm,
maximum stratum thickness: triple nominal stratum thickness.

Theoretical covering capacity: 1.4 m²/kg on 500 µm resp.
0.9 m²/kg on 800 µm.
Theoretical consumption: 0.72 kg/m² on 500 µm resp.
1.15 kg/m² on 800 µm.
The practical consumption depends on the surface configuration and the application method.

Re-coating Intervals/Sequence Coatings

VK 2000 TF is re-coatable with itself after approx. 16 h max.
24 h on +20/+30 °C (air temperature). Surfaces have to be clean, dry, free from oil and grease. When exceeding the interval times, surfaces have to be roughened. The re-coating interval shortens strongly through sun influence.
Appropriate safety measures must be taken.

Curing Time

	+20 °C	+25 °C	+30 °C	+40 °C
Water load:*	5 days	4 days	3,5 days	2,5 days
Mechanical load:	4 days	3,5 days	3 days	2 days
Full physical and chemical load:	8 days	6 days	4 days	3 days

* touch up surfaces 30 °C/48 h
The above mentioned values are standard values. Variations caused by practical requirements or conditions are possible.

Packing Units

The material is supplied in the following packing size:
15.0 kg (12.0 kg Part A and 3.0 kg Part B)
Delivery in colour black and light grey.

Cleaning

All tools should be cleaned using industrial solvents (Thinner E+B, acetone, xylene, alcohol, methylethylketone) before the material hardens. If the material is allowed to set, it can only be removed by mechanical means.

Storage

The material should ideally be stored in unopened original bins under cool, dry and frost free conditions, at temperatures between +10 and +32 °C, divergence during transport is acceptable. Please observe the expiry date stated on the material.

Safety Instructions

For the handling of our products, the significant physical, safety-related, toxicological and ecological data according the substance-specific safety data sheet are to be extracted. The applicable rules and regulations, such as for example the Hazardous Substances Regulation, have to be observed.
A detailed safety data sheet will be delivered with the material or is available upon request.

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