

# VC 2004 XL

## Technical Data Sheet

### Description

VC 2004 XL is a solvent-free high-performance polymer composite material for applications that designed an exceptional resistance to chemical attack.

It may be used alone or together with other composite materials. The cured material provides excellent protection against Chemicals and a high-gloss finish.

### Composition

Solvent-free two-component novolac epoxy

### Recommended Applications

- Storage tanks for chemicals
- Pump casings
- Reaction vessels
- Chimney, stacks
- Ventilators, fans
- Flue gas canals
- Absorber/REA-Filter
- Valves
- Channels
- Pipes

### Features

- Excellent resistance against a multiple range of chemicals
- High dielectric resistance.
- Tough epoxy resin resists to temperature and impact shock.
- Outstanding adhesion.
- Fast curing time.

### Resistance

Acetone	1
Formic acid 10 %	1
Ammonia	1
Ammonium hydroxide 10-20 %	1
Ammonium hydroxide 30 % +	1
Benzene	1
Benzoic Acid	1
Butanol	1
Chromic Acid 10 %	2
Cyclohexane	1
Diesel	1
Diethanolamine	1
Ethanol	1
Ethylene Glycol	1
Acetic Acid 10 %	1
Acetic Acid 20 %	2
Acetic Acid 20 % +	3
Glycerin	1
Carbonic Acid 10 %	1
Carbonic Acid 30 %	2
Heating Oil	1
Hexane	1
Hexanol	1
Isopropanol	1
Lactic Acid 20 %	2
Mineral Oil	1
Naphtha	1
Sodium Hydroxide 40 %	1
Phosphoric Acid 0-10 %	1
Nitric Acid 10 %	1
Nitric Acid 10-20 %	2
Nitric Acid 20 % +	3
Hydrochloric Acid 36 %	1
Sulfuric Acid 98 %	1
Toluene	1
White Spirit	1
Xylene	1

1 = immersion  
 2 = short-term immersion (72 hours)  
 3 = splash-proof  
 4 = not suitable

**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	+20 °C + 100 °C	ASTM D 2240	86 85	
Compressive strength		ASTM D 695	901	kg/cm <sup>2</sup>
Flexural strength		ASTM D 790	810	kg/cm <sup>2</sup>
Tensile Shear Adhesion (mild steel)		ASTM D 1002	201	kg/cm <sup>2</sup>
Corrosion resistance		ASTM B 117	> 1000	hours
Solids content			100	%
Density		ASTM D 792	1.33	
Heat Distortion	+20 °C Cure	ASTM D 648	+60	°C
	+100 °C Cure		+98	°C
	+150 °C Cure		+122	°C
Temperature resistance	immersed conditions		+90	°C
	dry conditions		+200	°C

## 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. The base component has to be warmed up to a temperature of +15 to 25 °C before mixing. Put the curing agent 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** 4.35 : 1 part by weight  
(Part A : B)

## Application Instructions

Conditions of object:

Temperature of substrate and air no less than +12 °C, relative air humidity max. 80 %; 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.

Pot life in minutes:

	+12 °C	+20 °C	+30 °C
5.32 kg	50	30	15

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

## Composition of Coating/ Material Consumption

Depending on requirements and local conditions, VC 2004 XL be applied 2-3 times. VC 2004 XL is applied in a layer thickness range of min. 500 µm. The wet film thickness largely corresponds to the dry film thickness.

Apply the mixed material with brush or roller on the prepared surface. This should be done in two layers with a target thickness of 200-300 µm per layer, using a practical coverage rate of 2.5 m<sup>2</sup> per liter per layer. On rough concrete surfaces in particular the coverage rate of the first layer is significantly reduced.

For the spray application, use sufficient passageways to achieve a minimum thickness of 500 µm, check the film thickness regularly with a wet-film thickness gauge, and brush out the test marks. As a guideline, 1 liter of material should be sufficient to cover 1.6 m<sup>2</sup>.

## Re-coating Intervals/Sequence Coatings

VC 2004 XL must be re-coatable with itself or with other polymer compounds at the latest within 6 h. 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

At +20 °C the applied materials should be allowed to harden for the times indicated below before being subjected to the conditions indicated. These times will be extended at lower temperatures and reduced at higher temperatures:

	+20 °C
Movement without load or immersion:	12 hours
Light loading:	24 hours
Full loading and water immersion:	4 days
Chemical contact:	7 days

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:  
5.32 kg (4.33 kg Part A and 0.99 kg Part B).  
Delivery in colour grey and red.

## Cleaning

All tools should be cleaned using industrial solvents (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 and dry conditions, at temperatures between +15 and +30 °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.

Whilst all reasonable care is taken in compiling technical data on the company's products, all recommendations or suggestions regarding the use of such products are made without guarantee, since the conditions of use are beyond the control of the company. It is the responsibility of the customer to satisfy himself that each product is fit for the purpose for which he intends to use it, that the actual conditions of use are suitable, and that in the light of our continual research and development programme, the information relating to each product has not been superseded.

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