



**WATERPROOFING
AND PROTECTION OF
SEWAGE SYSTEMS**

Vandex[®]

Environmental protection is a must

It is generally accepted that waste water is often detrimentally changed. It comprises contaminated water, non-potable or rain water, residential, industrial and factory waste water, sewage, public fountain water, leaking pipes, and much more.

Any structure which is in contact with waste water will be subject to stresses, such as:

- continuously changing degree of contamination
- environmental effects
- fluctuating liquid level
- formation of aggressive microclimates in sealed holding tanks.

Concrete is the major building material. Since it is frequently affected by the before mentioned stresses, protection is essential.

The Vandex System provides this protection.

A systematic procedure assures success:

Structural Survey

Damage Diagnosis

Reinstatement

Quality Control

Regular Inspection

This Vandex Protection System features a modular structure so that – depending on existing stress conditions – individual modules can be assembled to produce various solutions.



Spray application VANDEX POLYCEM Z

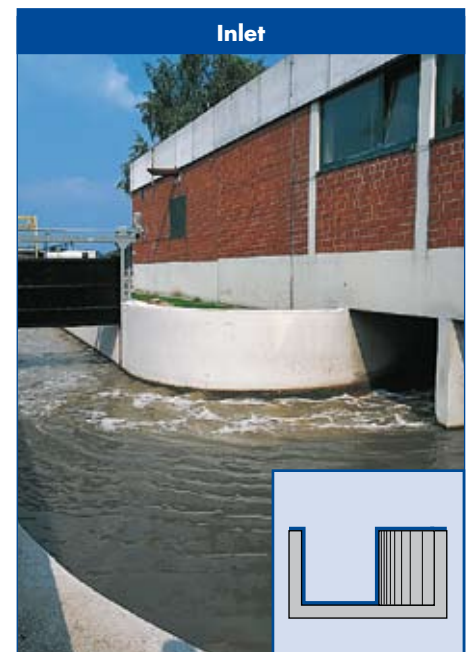


Spray application VANDEX BB 75 Z in treatment tank

Where is Vandex used

Vandex products are applied in sewage systems specifically to protect the concrete components exposed to certain types of wear and stress.

- Exposed to water
- Tidal effect
- Spillways
- Exposed to weather
- Rotating scraper blade wear
- Sandfilter beds
- Settlement and treatment tanks
- Pump sumps
- Box-outs
- Inspection shafts
- Manholes
- Channels
- Interceptors
- Inlets

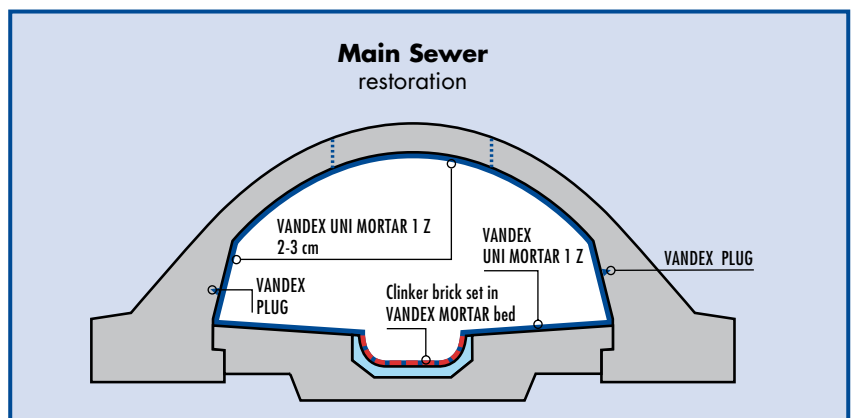
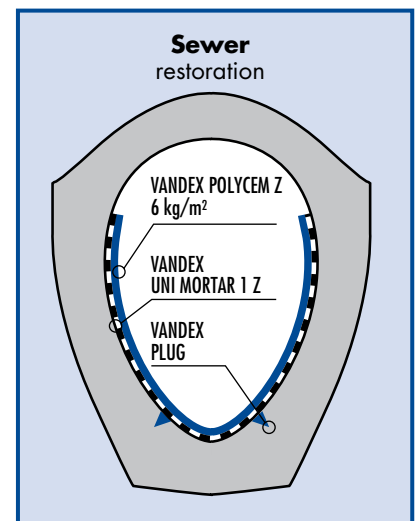
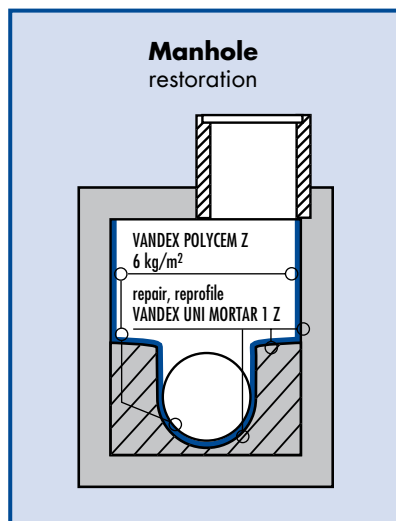
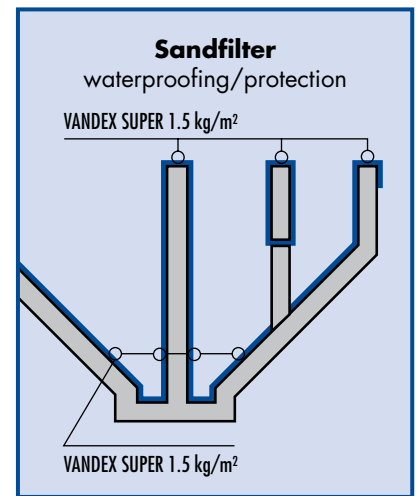
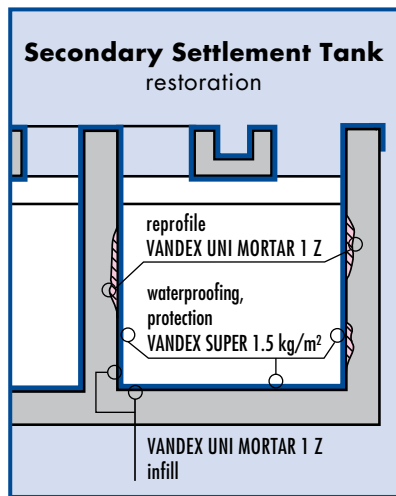
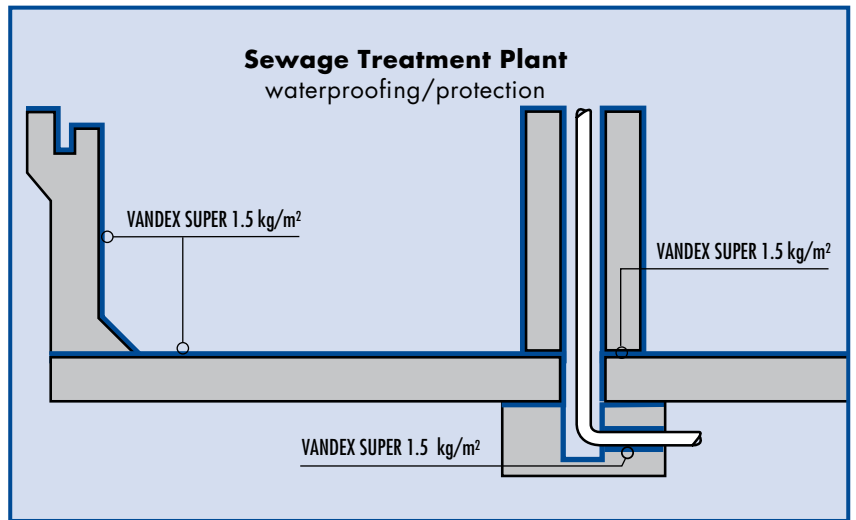


Vandex offers proven systems

Vandex products allow expert application to be carried out in a few simple stages.

They are packed in ready-to-use, handy containers.

All of the Vandex major products can be applied either by hand or by mechanical means.



Vandex know-how guarantees safe solutions to problems

Whether in new construction or refurbishment, the project engineer must always work out additional concrete protection techniques which are both practical and cost effective.

With their ease of application, Vandex products are ideal in these circumstances.

Vandex products have been specially developed for specific situations, such as:

VANDEX SUPER or VANDEX BB 75

Waterproofing

VANDEX UNI MORTAR 1 Z

Reprofiling and coating

VANDEX SUPER or VANDEX BB 75 Z

Protection of concrete against sewage

VANDEX MINERALIT

Increasing surface resistance

VANDEX POLYCEM Z

Protection for extreme loads

These products can be combined in different ways to deal with various situations.

Prior to deciding on protective measures, an investigation of the structure or the design needs to be undertaken, and certain tests need to be performed to evaluate long term suitability of the products. The following table shows some of the criteria for the choice of the products and their coating thickness.

Planning of the respective coating systems can be broken down into the following steps:

- Stress classification
- Specific areas of test
- Optimizing the building material
- Processing specifications
- Operator information



Recommended Layer Thicknesses for Internal Coating in Sewage Treatment Plants

| surface | load/problem | criteria | layer thickness (mm) | | | |
|----------------------------------|--|--|--|--|--|--|
| | | | VANDEX UNI MORTAR 1 Z | VANDEX BB 75 Z | VANDEX SUPER | |
| walls | external hydraulic load | waterproofing | 10 | 3 | 0.75 | |
| | variable water level/ water quality | fluctuation cycle | 10 | 3 | 0.75 | |
| | concrete deteriorating aggressiveness | chemical loads | 10 | 3 | | |
| | evenness and minimum layer thickness | depth of roughness < 0.5 mm 0.5 mm – 5 mm > 5 mm | – 5 > 10 | 3 3 3 | | |
| | adhesion | adhesive strength < 0.8 N/mm ² < 1.0 N/mm ² < 1.5 N/mm ² > 1.5 N/mm ² | * P + 10 * P 3 – | 3 3 3 3 | | |
| slabs | evenness | unevenness < 2 mm/4 m length 2 mm – 5 mm/ 4 m length > 5 mm/4 m length | – 5 10 | 3 3 3 | | |
| | | junction slab/wall | groove/fillet | waterproofing (crack formation) | r > 50 mm and min. 100 mm wide to slab and wall (r = radius of fillet) | |
| | | all areas | immediate load | increasing surface resistance | 250 ml/m ² VANDEX MINERALIT | 250 ml/m ² VANDEX MINERALIT |
| heavily stressed surfaces | chemical corrosion | type of aggressiveness | finish with VANDEX POLYCEM Z 3 mm | finish with VANDEX POLYCEM Z 3 mm | | |

* P = Preparation

Vandex Special Products for the Waste Water Field



| Vandex Products | | | | Slab | Construction joint | Movement joint | Exposed to water | Tidal effect | Spillways | Walls (exposed to weather) | Rotating scraper blade wear | Sandfilter beds | Preliminary clarification tank | Activated sludge tank | Settlement tank | Aeration tank | Structural members in steel | Concrete protection | Reprofiling |
|--------------------------------|--|---|-----------------------------------|------|--------------------|----------------|------------------|--------------|-----------|----------------------------|-----------------------------|-----------------|--------------------------------|-----------------------|-----------------|---------------|-----------------------------|---------------------|-------------|
| Product | Type | Consumption | Packaging | | | | | | | | | | | | | | | | |
| CORROSION PROTECTION M | purely mineralic, also suitable for drinking water tanks | 2kg/m ² | 5 kg | | | | | | | | | | | | | | | | |
| UNI MORTAR 1 Z | waterproofing mortar with high sulphate resistance | 12–24 kg/m ² for 6–12 mm layer thickness | 25 kg | ● | | | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | | ● | ● |
| SUPER | in-depth waterproofing slurry resistant against sewage | 1.5kg/m ² | 25 kg | ● | ● | | ● | ● | ● | ● | | ● | ● | ● | ● | ● | | ● | ● |
| BB 75 Z | waterproofing slurry with high sulphate resistance | 6 kg/m ² /3 mm | 25 kg | ● | | | ● | ● | ● | ● | | ● | ● | ● | ● | ● | | ● | |
| BB 75 E Z | elasticized waterproofing slurry with high sulphate resistance | 6 kg/m ² /3 mm | 35 kg (2 comp.) | | ● | | ● | ● | ● | ● | | | | | | | | | ● |
| PLUG | rapid setting mortar for plugging water leaks | depending on size of leak: approx. 300 g/leak | 15 kg | ● | | | ● | ● | ● | ● | | ● | ● | ● | ● | ● | | ● | |
| POLYCEM Z | polymer modified cementitious protective coating for sewage treatment facilities | 6 kg/m ² /3 mm | 30 kg (2 comp.) | ● | | | ● | ● | ● | ● | | ● | ● | ● | ● | ● | | ● | ● |
| EXPASEAL 2520/2010/1808 | water-swellable waterstop for construction joints | 1 m per m' joint | Box 2520: 30 m 2010/1808: 60 m | ● | ● | | ● | ● | | | | ● | ● | ● | ● | ● | | | |
| CONSTRUCTION JOINT TAPE | waterproofing tape for construction joints and cracks | 1 m VANDEX CONSTRUCTION JOINT TAPE + 1 kg BB 75 E Z/m | 30 m | ● | ● | | ● | ● | ● | ● | | ● | ● | ● | ● | ● | | | |
| FLEXTAPE | sealing tape for movement and construction joints as well as cracks | 1 m per linear meter | 20 m | ● | ● | ● | ● | ● | ● | ● | | ● | ● | ● | ● | ● | | ● | ● |
| FLEXTAPE ADHESIVE | thixotropic epoxy resin adhesive | 0.8–1.1 kg per linear meter | 6 kg (2 comp.) | ● | ● | ● | ● | ● | ● | ● | | ● | ● | ● | ● | ● | | ● | ● |

Vandex Services:

- Competent consultation on structural protection problems in the waste water industry
- Problem analysis and solution proposals
- Application instructions



CONCRETE PROTECTION AND WATERPROOFING

INTERNATIONAL SALES:
VANDEX INTERNATIONAL LTD
 P.O. Box, CH-4501 Solothurn/Switzerland
 Phone: +41 32 626 36 36, Fax +41 32 626 36 37
 E-mail: info@vandex.com www.vandex.com

PRODUCTION AND SALES GERMANY:
VANDEX ISOLIERMITTEL-GESELLSCHAFT m.b.H.
 P.O. Box, 1406, D-21487 Schwarzenbek/Germany

