

Product Information X² Tank&PipelineProtect VEC – W

Biogas Plant



In biogas plants it can come – often even after a short operating time - to damages on concrete and steel due to high chemical attack. The formed biogas as well as the “fermenting” biomass is heavy corrosive, most of the times with a temperature of 37 °C in the “mesophilic” region. Apart from the end-products (components of biogas) are the following substances problematic:

- Ammonia, gaseous and liquid (problem: high pH-value)
 - Sulfuric acid in the upper area of the plant (problem: low pH-value and oxidative)
 - Hydrogen sulfide in the bottom of the plant (problem: reducing effect)
- Organic acids (problem: low pH-value, complexing agents)

What happens to concrete?

There are two different kinds of attack:

- **Expanding chemical attack:** Mainly in the fermenter the sulfate solution soaks into the concrete and dispread due to the poor sulfate constancy of the concrete -> „bloated appearance“
- **Solving chemical attack:** Because of low acid resistance Ca-minerals are dissolved away out of the concrete -> „washed-out concrete effect“

What happens to steel?

The multiple higher corrosion rate of steel in biogas plants is sufficiently known. The reason refers to the low pH-value in some areas at the plant as well as the impact of oxidative substances. Also heavy damages occur by microbe affected corrosion.



Do you plan or run biogas plants?

We appreciate to give you technical advice and provide you a product, which fulfills all conditions!

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Waste Water Plants:

Various connecting pipes for the sedimentation tanks shall be coated on either side with our product **X² T&P VEC-W**, for system enhancement

- excellent chemical resistance against the sewage sludge also at high operating temperatures
- high resistance to elevated temperatures during fluctuation up to 50°C caused by hot days and cold nights e.g. in the desert areas
- permanent corrosion resistance, since the pipe work is partially sealed in waterproof concrete walls. A renewal of these pipes it not possible.



Internal coating for crude oil dehydrators

- Horizontal cylindrical crude oil dehydrators made of carbon steel with a diameter of ca. 3 meters and a length of ca. 15 meters
- Operating parameters of 16 bar with a temperature of 160°C

Specification

- Provide permanent corrosion protection.
- Chemical resistance against H₂S (sour gas) and consistency against the attack of anaerobic bacteria (SRB / biological corrosion)

Technical solution

- **X²T&P VEC - W** for internal coating with following special benefits
 - Extreme adhesion on substrate by additives forming “chelate-compounds” with the steel surface
 - Excellent chemical and thermal resistance by unique multi-functional combination of resin and hardener



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Breweries

For breweries we recommend the indoor premises for the waste-water treatment facility to be coated completely with our high quality products X² T&P VEC-W, to obtain a resistance of the concrete against chemical attack. Our Product is certified for drinking water and food stuff.



Silo Systems

Silo installations for de-icing salt and other fine-grained bulk solids. After adequate sandblasting of the substrate, four tanks each 6 meters in diameter and height of 8,8 meters, were coated internally with our product X² T&P VEC-W, which performs outstanding chemical stability and excellent abrasion resistance. Deicing salt (road salt) consists of minimum 94% sodium chloride. Due to the contained chloride-ions, it is a very aggressive rust accelerator! Heavy. Our coating system X²T&P VEC-W provides absolute salt water resistance. Therefore, our product guarantees long lasting corrosion protection for tank installations storing such aggressive goods.



X² Tank&PipelineProtect Maritime Applications:



Ballast Water Tanks, Fresh Water Tanks, Wastewater Tanks, Fuel Tanks

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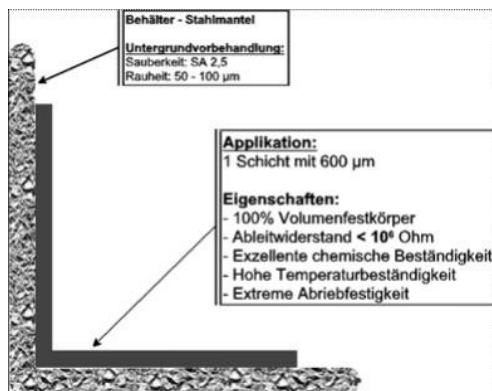
Slug Catchers on Gas Pipelines

Natural Gas as low emission energy source becomes more and more important in global use and may replace crude oil in the future. Many new systems will be installed and old ones will be well maintained. X² Tank&PipelineProtect VEC-W will help to protect gas system within there heavy duty operation over decades.

Hydro sulphide in connection with moisture and other aggressive ingredients, often under high pressure, are attacking systems in the natural gas production process. Best Available Technology today is our X² Tank&PipelineProtect VEC-W. No other product will guaranty such a long term protection against abrasion, corrosion, temperature, high pressure and chemical attack.

Unique benefits for Storage Tanks

- Long-term resistance against the storage fluid
- 1-coat system possible
- Excellent Corrosion Protection
- Sprayable without preheating
- 100 % solvent-free
- High temperature resistance
- High mechanical strength
- Extreme abrasion resistance
- Excellent flexibility



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Gas Scrubber

The internal coating of flue gas scrubber has to meet extremely high demands; absolute acid resistance due to the low pH-value as well as performance of special needs concerning thermal resistance. Physical stress effects occur by high and rapid temperature variation (hot gases of 180°C and cold water of 30°C). That means heavy duty for internal coatings. The outstanding physical properties of **T&P VEC-W** guarantees excellent chemical resistance beside remarkable temperature resistance at constantly high temperatures also at extreme thermal fluctuations (thermo-shock-effect). Therefore, **X² T&P VEC –W** provides maximum long-term corrosion protection for product facilities with unique requirements.



Insulating Radiation



X² T&P VEC-W, which demonstrates high radiation insulating qualities, was applied a layer, thickness of 0,7 mm, on the outsides of the nuclear waste bins. The detailed measurements resulted in a reduction of ray level radiated through the waste bins by averaged 85 %. This conclusion emphasizes once more the versatility of our coating systems.