Coatings against biocorrosion:

New Development! Unique long-term protection against bio corrosion!

Ceramic Polymer GmbH together with cooperating independent institutes have developed highly resistant internal coatings by extensive research with a long-term protection for tanks which store crude oil as well as all kinds of hydrocarbons against microbe induced bio corrosion and has applied for the patent.

The anaerobe corrosion occurring under exclusion of air/oxygen is caused by sulfate reducing bacteria (SRB). These bacteria form biofilms at the bottom of the filled tank, which spread rapidly and destroy the surface by accumulation of inter-bacterial depletion products.

The anaerobe corrosion features a ten times higher oxidation rate compared to conventional corrosion and is generated by the bacteria’s metabolism (hydrogen sulfide, sulfuric acid and nitric acid). Rust tubercles and resulting rapidly progressive pitting corrosion is the consequence.

The phenomenon “biogenic pitting corrosion” which firstly looks like normal rust, leads to a shorter durability of tanks with a loss of energy and down times until total breakdown. According to experts 20 % of all costs caused by corrosion are based on microbial destruction of the material.

By long-lasting R & D analysis we developed a production process for protective coatings by combining a broad-band-biodecide of nano-crystalline structure with ceramic fillings in a polymer matrix. After applying our internal coating for tanks, the biocidal active component remains at first tightly encapsulated in the polymer matrix, so that the coated surface is not antibacterially active and therefore physiologically harmless.

Because of already mentioned effects (aging, stress effects due to temperature, mechanical impact) microcracks may occur in the coating extending over several years. Now, when the local surface is forced open, the biocide crystals are exposed in the crack and unfold their effect along the surface inside of the entire microcrack.

The existing depot-effect causes a long-lasting biocidal corrosion protection against anaerobic strains of bacteria in the microcracks.

Thereby pitting corrosion is well-targeted avoided on a long-term basis.

Further product advantages

Ceramic-Polymer-Coating with broad-band-biodecide

- surface physio- and ecotoxicologically harmless
- long term, highly effective microcrack protection = pitting corrosion prevention