

**FESTEL CAPITAL**

Dr. Gunter Festel  
Schuermattstr. 1, CH-6331 Huenenberg  
Phone +41 41 780 1643  
Mobile +41 796 527 112  
Email [gunter.festel@festel.com](mailto:gunter.festel@festel.com)



## Hybrid System for Wastewater Treatment

### Summary

The porous ceramic particles in the hybrid system for wastewater treatment comprise of titanium oxide surfaces to degrade persistent substances by photocatalytic decomposition under UV-radiation and a bacterial biofilm on the inner surface to degrade chemical substances. The methodology can be implemented in areas of contaminated soil by the treatment of leaching water.

Industrial partners are sought for various possible commercialisation options.

### Background

FESTEL CAPITAL is supporting a German university to commercialise an innovative hybrid system for combined photocatalytic and biological degradation of wastewater pollutants.

### Description

Wastewater can contain persistent chemical substances, which cannot be catabolised by bacteria. Such substances can be degraded by titanium oxide under exposure to UV-light by the photocatalytic effect. The hybrid system is a combination of both biological and photochemical degradation through the use of porous ceramic particles. The outer surface of the particles is coated with a titanium oxide layer for the photocatalytic effect. Within the pores (inner surfaces), bacterial films are able to grow, protected against the UV-radiation. When wastewater comes into contact with these particles, persistent chemical substances are first degraded by the photocatalytic effect on the titanium oxide layer. The products of the degradation can be metabolised by bacteria in a second step in the porous system of the particle.

## **Application areas**

- Wastewater treatment
- Degradation of persistent chemical substances, e.g. from armaments industry
- Treatment of leachate from contaminated soil on waste sites

## **Advantages**

Advantages this technology offers include the following:

- Combination of photochemical and biological wastewater treatment in contrast to other methods like pyrolysis.
- Application possible in areas of contaminated soil by treatment of leaching water.

### **Investment Opportunity**

The aim of FESTEL CAPITAL is to commercialise this innovative wastewater treatment system. In the search for industrial partners different commercialisation options, such as out-licensing or a sale of all relevant intellectual property and know-how, are possible. Detailed information can be provided after the signing of a confidentiality agreement.

### **Disclaimer**

FESTEL CAPITAL has prepared this document to the best of FESTEL CAPITAL's knowledge and belief based on all available information. FESTEL CAPITAL takes no warranty for the accuracy and completeness of this information. Therefore, all liability for costs or damage resulting from information and conclusions in this document is excluded.

### **About FESTEL CAPITAL**

FESTEL CAPITAL is an advisory and investment firm focusing on the commercialisation of technologies in the areas of energy, environment, health, materials and nutrition.

CONTACT: Dr. Gunter Festel, Schuermattstrasse 1, CH-6331 Huenenberg/Zug, Phone +41 41 780 1643, Mobile +41 796 527 112, E-Mail [gunter.festel@festel.com](mailto:gunter.festel@festel.com).