

Dear Madam or Sir,

We hope this email finds you well. In June we pushed ahead our cooperation with several industrial groups in Germany, Austria, Sweden, Italy, France, Belgium, the United Kingdom, and the United States in a tight succession of meetings, and intensively discussed new and ongoing projects. We furthermore carried on with the preparations for exhibitions and conferences we will be attending after the summer break till year end, to date 10 in a row starting end of August.

From our R&D department, we are happy to provide you with a new update regarding customer projects.

A feasibility study in the field of "from industrial wastewater sludge to biogas"

The Problem: The feasibility study was done with one of the largest groups in the EU acting in raw material manufacturing and industrial services. The group is operating wastewater plants for their own needs. Biogas generation from secondary sludge before the digester is promising but still limited. Currently, only 50% of the biogas potential is exploited. Moreover, sludge disposal is an even significant part of the plant's operational costs (50-160 EUR/ton, depending on the territory).

The Objective: Therefore, our customer intends to have a rapid, simple, and cost-effective process for the pre-treatment of secondary sludge to biogas generation, a better hydrolysis, and a decrease in the dry sludge volumes at the end of the process.

The Solution: The company's research team, together with the ACT team, executed a laboratory feasibility study at the customer's facility on the secondary industrial sludge under normal temperature and pressure conditions. Thereby demonstrating that through a simple process, our sludge pre-treatment process could be easily adapted and applied with a very good result, as shown in the table below.



Results:

COD Sludge Before pre-treatment (ppm mg/kg)	COD Sludge 1 hour After pre-treatment (ppm mg/kg)	Increasing level %
<100	>600	600

Maybe you face similar challenges in your business. Then please feel free to contact us.



<https://www.linkedin.com/company/alpha-cleantec-ag/>

About Alpha Cleantec AG

We believe that our eco-system requires looking after so we have a world worth living in to pass to our next generations. Decontamination of soil and water from hazardous contaminants plays a major role in this regard, in our view. This is why we established Alpha Cleantec AG as an environmental technology company in 2016 with the vision to provide safe, green, rapid, efficient and cost-effective technologies to resolve environmental harms and hazards caused by inadequate human and industrial activities.

For Decontamination of a wide range of contaminants (see table below), we provide two technologies, AFA and SOA, achieving decontamination ratios of up to 97% in just hours (such as for Hydrocarbons, BTEX, Petroleum leftovers, Aromatics, PAHS, Chlorinated Solvents, PCBs, Dioxins as well as Pesticides and Herbicides) to be applied in soil, groundwater, wastewater and railway ballast treatment.

For wastewater facilities we have developed, based on our proprietary technology, a process allowing to pretreat sludge before the digester, thereby significantly increasing biogas generation (up to 50%) and decreasing dry sludge disposal at the end of the process (up to 20%).

For Vegetation control we have developed a process based on an environmentally friendly mixture of inorganic salts that generates concentrated (non-Glyphosate) herbicide absorbing water from the plants and drying the plant including the roots, without changing the salinity of the soil.

Table of contaminants treatable by our technologies

CONTAMINANTS	IN-SITU		ON SITE	
	SOA	AFA	SOA	AFA
BTEX				
Benzene	*	*	*	*
Toluene	*	*	*	*
Ethylbenzene	*	*	*	*
Xylene	*	*	*	*
PETROLEUM HYDROCARBONS				
Gasoline Range Organics (GRO)	*	*	*	*
Diesel Range Organics (DRO)	*	*	*	*
Oil Range Organics (ORO)	*	*	*	*
AROMATICS				
Chlorobenzene	*	*	*	*
Bromobenzene	*	*	*	*
Dichlorobenzene	*	*	*	*
Nitrobenzene	*	*	*	*
Phenol	*	*	*	*
Styrene	*	*	*	*
Naphthalene	*	*	*	*
Trichlorobenzene	*	*	*	*
Trimethylbenzene	*	*	*	*
PAHS				
Phenathrene	*	*	*	*
Naphthalene	*	*	*	*
Acenaphthylene	*	*	*	*
CHLORINATED SOLVENTS				
Tetrachloroethylene	*	*	*	*
Trichloroethene	*	*	*	*
Dichloroethene	*	*	*	*
Vinyl chloride	*	*	*	*
Tetrachloroethane	*	*	*	*
Trichloroethane	*	*	*	*
Dichloroethane	*	*	*	*
Dibromochloroethane	*	*	*	*
Bromodichloromethane	*	*	*	*
Carbon tetrachloride	*	*	*	*
Chloroethane	*	*	*	*
Chloroform	*	*	*	*
Chloromethane	*	*	*	*
Chlorotoluene	*	*	*	*
Methylene chloride	*	*	*	*
PCBS				
DIOXINS				
PESTICIDES AND HERBICIDES				
Glyphosate	*	*	*	*
Goal	*	*	*	*

We plan to inform you in the future about newly accomplished projects, pilots or case studies. Please let us know if you do not wish to get our company news.

Kind regards/ Mit freundlichem Gruß

Raymond Hernandez
Senior Business Development Manager

Alpha Cleantec AG
Phone: +49 (0) 6221 64 924 66
E-Mails:
hernandez@alphacleantec.com
info@alphacleantec.com
www.alphacleantec.com