



CELDAR® TECHNOLOGY

Case history

WASTEWATER TREATMENT IN BIO-DIESEL PRODUCTION INDUSTRY

Location	SERBIA
PRODUCED WASTEWATER	15 cubic meter/hour
Typical problems in wastewater	High COD, Oil, High MW Organic compounds

TREATMENT PRINCIPLES AND AIMS

The customer asked us to evaluate the **Electrocoagulation** for the Treatment of Bio-Diesel Effluent and to be able to drain the treated water into the sewer system.

Another option required was the **Zero liquid discharge** and therefore the possibility of **water recycling** with the least amount of consumption possible.

This option is possible using an **ELECTROCOAGULATION PLANT** since no chemicals are used and therefore the physical and chemical characteristics of the water to be treated have little variation compared to the treated water.

The customer has planned to install a final biological treatment, but asks to be able to avoid oversizing, for reasons of space and especially to be able to eliminate many substances in the pre-treatment that have proved difficult to bio-degradable.

Substantially, the assessment that we can give is that **Electrocoagulation** can be used as a complementary and preliminary treatment to a biological plant as it is able to remove about half of the soluble COD. This is certainly an advantage, as the subsequent sizing of the biological plant will be reduced.

So, this technique, which is much less expensive than a biological cycle (due to the reduced energy cost), provides a real economic advantage.

The experimental work was done using different types of electrodes in our system to generate a partial oxidation of non-biodegradable substances in the electrolysis cell.

The results were much appreciated

The analytical data are shown in the following table

WASTEWATER ANALYS

pH	2
Sulphates	6420
COD	22980
Ammonia	8,24
Conductivity	25000

TYPE OF ELECTRODES

IRON (Electro Fenton)

	1 hour	2 hours
pH	7,7	7,8
Sulphates	5490	4788
COD	18000	15900
Ammonia	5,88	4,73

MIXED (CELDAR/GRAPHITE)

Chlorides addition

	1 hour	2 hours	
pH	2,5	4	
Sulphates	5856	5129	
COD	17000	11200	51,3
Ammonia	1,46	0,9	

