



## **CELDAR**® TECHNOLOGY

### Case history

#### PHOSPHORUS REMOVAL – RICE PRODUCTION

Location	ITALY
PRODUCED WASTEWATER	20 cubic meter/hour
Typical problems in wastewater	High Phosphorus, COD, Smell

#### TREATMENT PRINCIPLES AND AIMS

To solve the problem of big sludge formation in **wastewater treatment plant**, the customer asked us to evaluate the **ELECTROCOAGULATION SYSTEM** for the **removal of Phosphorus** 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 reusing the treated water 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 traditional methods for the elimination of phosphorus in high concentration are the precipitation with lime, but in this treatment, the production of sludge is enormous.

Electrocoagulation offers an alternative system where sludge production is much lower, times are short and the overall cost is very sustainable.

The obtained results and working conditions are below

Number of electrodes	36
Type of alloy	CELDAR
Volt applied	7
AMPERES	48
Reaction time	2 hours
Temperature	48 °C
Final treatment	Flocculation

		AS IT	After 10 min.	After 20 min.	After 30 min.	REMOVAL
pH		7,4	7,9	8,6	8,8	
Conductivity	milliSiemens	2,3	2,4	2,5	2,7	
COD	ppm	628,0	590,0	430,0	290,0	53,82
Smell		strong	absent	absent	absent	
Colour	APHA	320,0	120,0	10,0	5,0	98,44
TURBIDITY	NTU	1700,0	1200,0	400,0	55,0	96,76
Phosphorus		418,0	78,0	10,0	1,0	99,76

