



VENTIL  
AQUA 25 YEARS

*Knowledge to Protect your Future*

**Advanced Technologies for Industrial Wastewater Treatment and Reuse**

**- BEYOND CONVENTIONAL -**

[www.ventilaqua.com](http://www.ventilaqua.com)





# VentilAQUA Globally

Growing strategy based on export and overseas markets



**+700**

TREATMENT PLANTS IN THE WORLD



**+60**

COUNTRIES COVERED AND GROWING



**3**

MANUFACTURING SITES



**28.665.818 m<sup>3</sup>**

TREATED WASTEWATER  
IN VENTILAQUA PLANTS



[www.ventilaqua.com](http://www.ventilaqua.com)



inovadora



[www.ventilaqua.com](http://www.ventilaqua.com)

**Europe**

- Spain
- France
- Germany
- Austria
- Switzerland
- Italy
- Netherlands
- Belgium
- Norway
- Finland
- UK
- Ireland
- Poland
- Romania
- Greece
- Cyprus
- Turkey
- Russia
- Slovenia
- Serbia
- Israel

**ME/A**

- UAE
- Oman
- Irak
- Egypt
- Saudi Arabia
- Kuwait
- Marroco
- Algeria
- Mauritania
- Ivory Coast
- Benin
- Mali
- Angola
- Uganda
- Rwanda
- South Africa

**Asia/Oceani**

- a** India
- Bangladesh
- China
- Indonesia
- East Timor
- Australia
- New Caledonia

**America**

- USA
- Mexico
- Panama
- Guatemala
- Costa Rica
- Trinidad&Tobago
- Colombia
- Peru
- Chile
- Brazil



# Challenges in Global Industry

Reduce costs 

Improve treatment and compliance 

Reuse water 

## Reduce costs

Chemicals

Sludge production

Power consumption

Space requirements

Fees

## Improve treatment and compliance

COD levels

Color

Persistent COD

Tensioactives

Oils&Greases

## Reuse water

Protect filters

Protect membranes  
(organics, metals, Si, Mg, Sr, Ba)

Reduce power

Odours

Foam



### CHEMICAL TREATMENT

Coagulation/Flocculation  
**Dissolved Air Flotation**  
 Electrocoagulation/oxidation  
 Dissolved Ozone Flotation  
 Perozonation  
 Fenton & Electro Fenton  
 process  
 PolyFenton  
 Water Plasma AOP  
 Adsorption/Resins  
 Jet loop aeration  
 Acid stripping

### BIOLOGICAL TREATMENT

Conventional activated sludge processes  
 Nitrogen and/or phosphorous removal  
**Membrane biological reactors (MBR)**  
 Aerated percolators  
**Moving bed biological reactors (MBBR)**  
**Batch biological reactors (SBR)**  
 Biodiscs  
 Conventional percolators

### PHYSICAL TREATMENT

Sieving/Grids/Screens  
 Sedimentation  
 Filtration  
 Membranes  
 Oil cleaning and recovery

**EC Technology**

**DOF Technology**

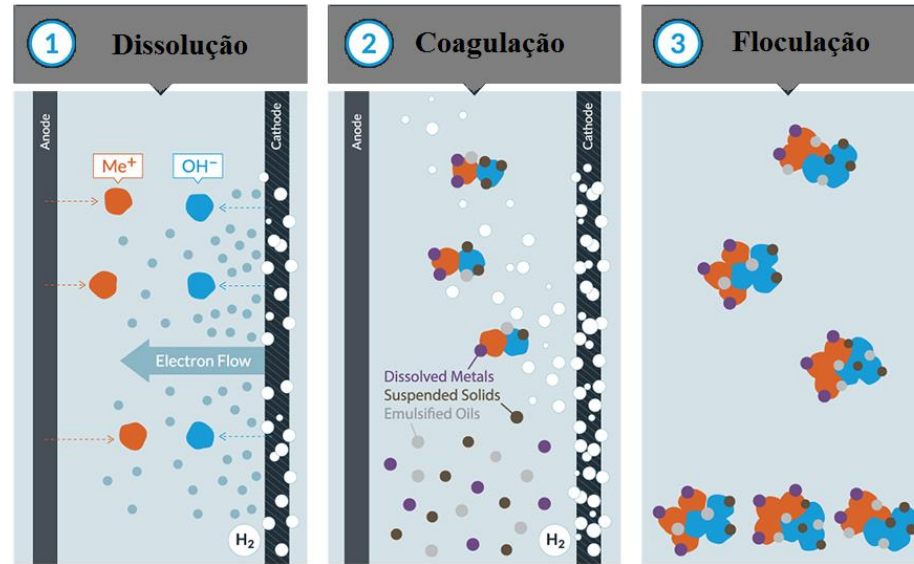
**Perozonation Technology**

# EC Technology



## 3 Steps Process

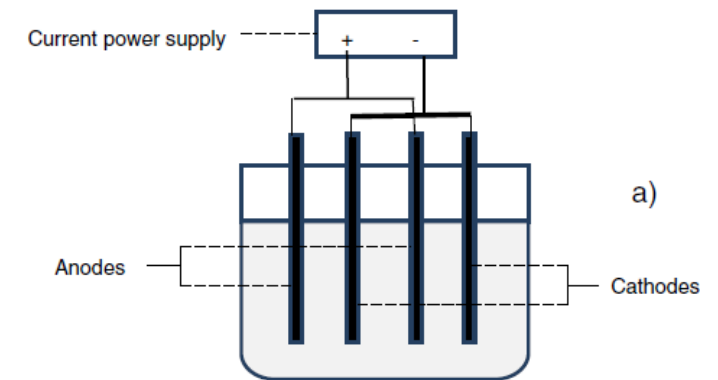
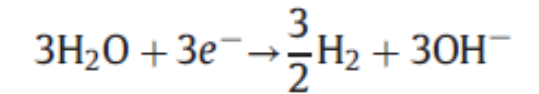
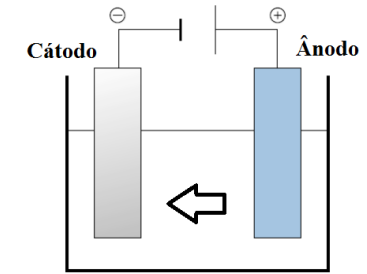
- Electrochemistry
- Coagulation
- Flocculation



H<sub>2</sub> bubble generation, with 0,001 to 0,1 µm diameter increasing sludge flotation process

Electrochemical Process with electron transfer

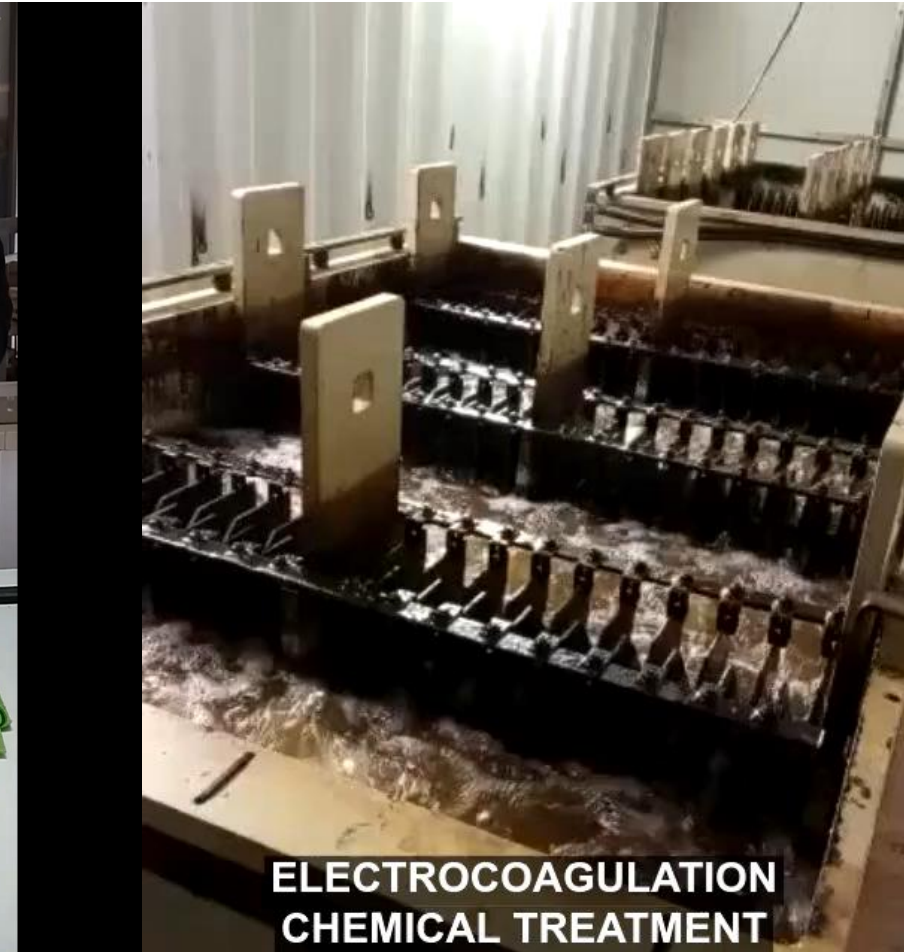
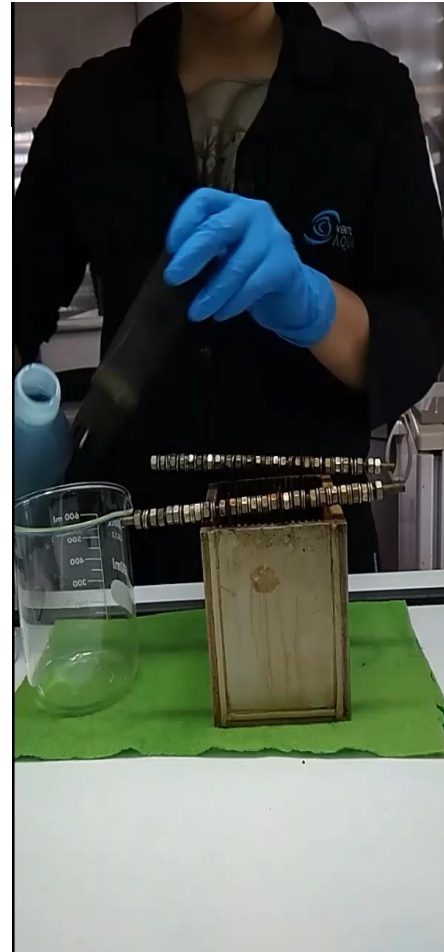
Electrode + (oxidized anode) and cathod - (reduced)



## Advantages from VentilAQUA EC units:

- Non-binding customer to **electrode replacement**
- **Very low cost for electrodes** – cheap steel sheets – can even use non conforming metal sheets or scrap metal sheets
- **Easy logistics** and easy to find electrodes, worldwide
- Low current and electrical density (8v vs. 120 V; 20 kw vs. 120 kW installed) – **less risks, less security procedures, longer life time cycles**
- Space between electrodes avoids **blockage problems from sludges** and metal oxidized materials
- **Integrated cleaning device** for electrodes, keeping them active and avoiding passivation

OPEX < €0,25/m3



## SOME EXAMPLES WITH EXISTING TREATMENT PLANTS

Brazil



Portugal





Slovenija



France



Slovenija



Spain





Portugal



Slovenija





Brazil



Portugal



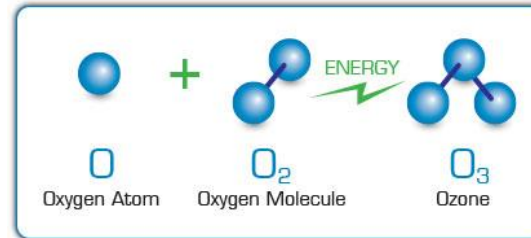
# Dissolved Ozone Flotation Technology

# Perozonation Technology



## Dissolved Ozone Flotation process (DOF)

- Flotation system for water clarification
- Compact, continuous flow
- Chemical agents dosing units
- Automatic reaction pH control
- Stirred reaction vessel
- Saturation vessel
- Sludge automatic extraction
- Recirculation pump
- Air and water flow and pressure control
- Wireless controls.



- Ozone pressure and flow control
- Automatic bottom sludge discharge for settling solids
- Pre-assembled on a compact structure
- Onboard ozone generator
- Safety devices - excess ozone catalytic destructor, ozone leak detector/alarm and emergency shutdown
- Full manufacturing in PP and HDPE
- Full control through PLC with touch panel and possible wireless controls.

**NEW  
HIGHTECH**

**DISSOLVED  
OZONE  
FLOTATION**

**ADVANCED  
OXIDATION**  
MICRO  
CONTAMINANTS  
REMOVAL  
**LOW OPEX**  
**COLOUR  
REMOVAL**  
**REUSE**  
**NEW  
STANDARDS**  
**ANTIBIOTICS  
REMOVAL**  
**HORMONES  
REMOVAL**



**VentilaQUA®  
VADOF® series**

## EXAMPLES

### Hydrocarbons emulsions



DOF + EC + MBBR bio  
Initial COD : 100.000 mg/l  
Reject COD : < 1.000 mg/l

### Polyphenolic (formaldehyde) resins



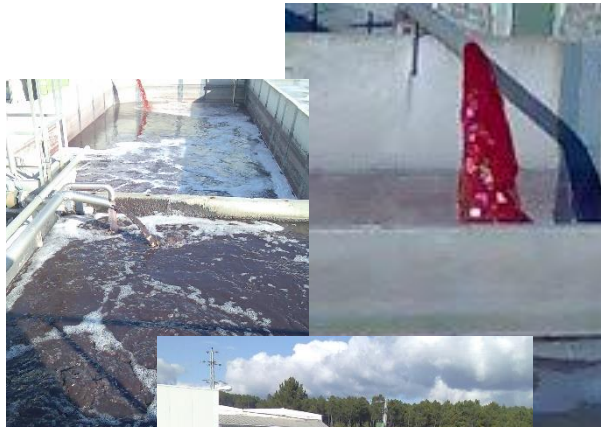
DOF + EC + MBBR bio + DAF  
Initial COD : 300.000 mg/l  
Reject COD : < 1.000 mg/l

### Textile manufacturer dealing with PVA

COD reduction of 75% with EC + Dissolved OZONE vs. only 50% reduction with standard DAF process

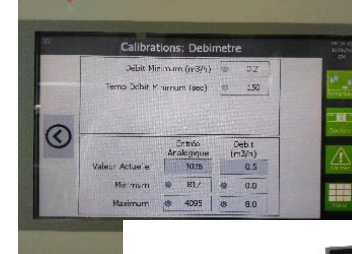
Reduction on load will have impact on fees to pay (30% less in fees)

# Short portfolio





Before



After



# Other big works



# VAMEC



# VAMED



# VAMEF



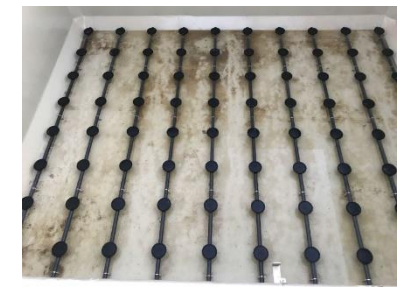
# VADOF



# VABEC



# SteriO3



**THANK YOU!**

**[WWW.VENTILAQUA.COM](http://WWW.VENTILAQUA.COM)**