TITLE : WASTEWATER TREATMENT PLANT WITH OIL AND PETROLEUM PRODUCTS CONTENT

DAILY DEBIT : 700 mc



SCOPE OF SUPPLY : WASTE WATER TREATMENT PLANT WITH 700 mc/day

PLANT MUST BE MOBILE, PLUG IN - PLUG OUT

INSTALLED : MODULAR CONTAINER

INLET WATER QUALITY : PROVIDE BY COSTUMER

No	Parameter	Value
1.	Flow rate	7000 MTD
2.	pH	5.5-10.4
3.	Temperature	90 C
4.	TDS	400 (Spec < 1900 ppm)
5.	TSS	50 (Spec < 1900 ppm)
6.	TOC	60 (Spec < 760 ppm)
7.	COD	200 ppm
8.	Sulfate	40 (Spec < 700 ppm)
9.	Benzene	800 ppm (Spec < 0.056 ppm)
10.	Toluene	450 ppm (Spec < 0.028 ppm)
11.	Ethyl Benzene	600 ppm (Spec < 0.142 ppm)
12.	Styrene	500 ppm (Spec < 0.1 ppm)
13.	EDC	< 0.2 ppm
14.	Oil & Grease	100-1000 ppm (<114 after vacuuming)

OUTLET PARAMETERS :

Parameter	Pre-treatment Standards (ug/l)	
	Maximum for any One day	Maximum for Monthly Average
Benzene	134	57
Ethyl Benzene	380	142
Toluene	74	28

OUTLET PARAMETERS :

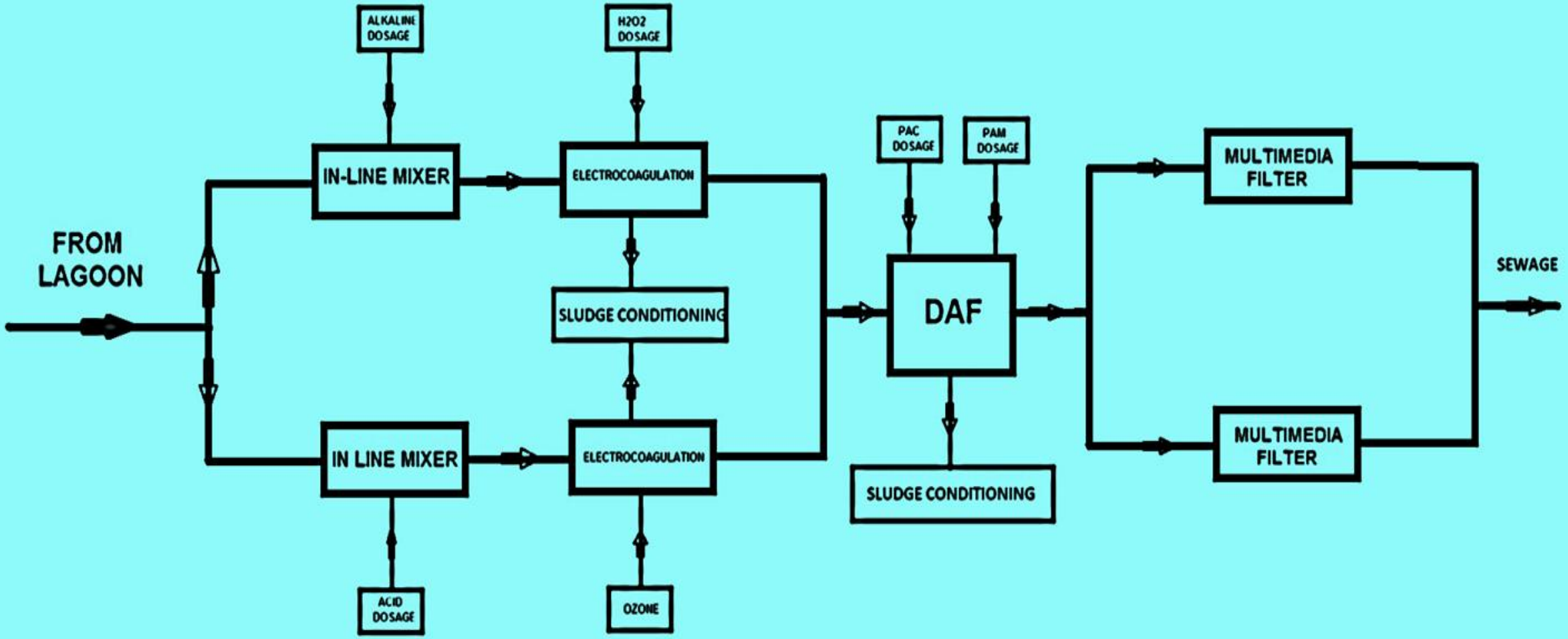
PARAMETER	UNITS	JUBAIL Maximum Limits	Yanbu Maximum Limit as Grab	YANBU Maximum 24h Average
pH	pH/Units	5-11	5-11	5-9
Temperature	C	60	-	50
Total Dissolved Solids (TDS)	mg/l	2000	2500	2500
Total Suspended Solids (TSS)	mg/l	2000	-	500
Total Organic Carbon (TOC)	mg/l	800	-	400
COD	mg/l	-	1800	1500
Sulfate	mg/l	800	300	150
Oil and Grease	mg/l	120	200	100
Styrene				
EDC				

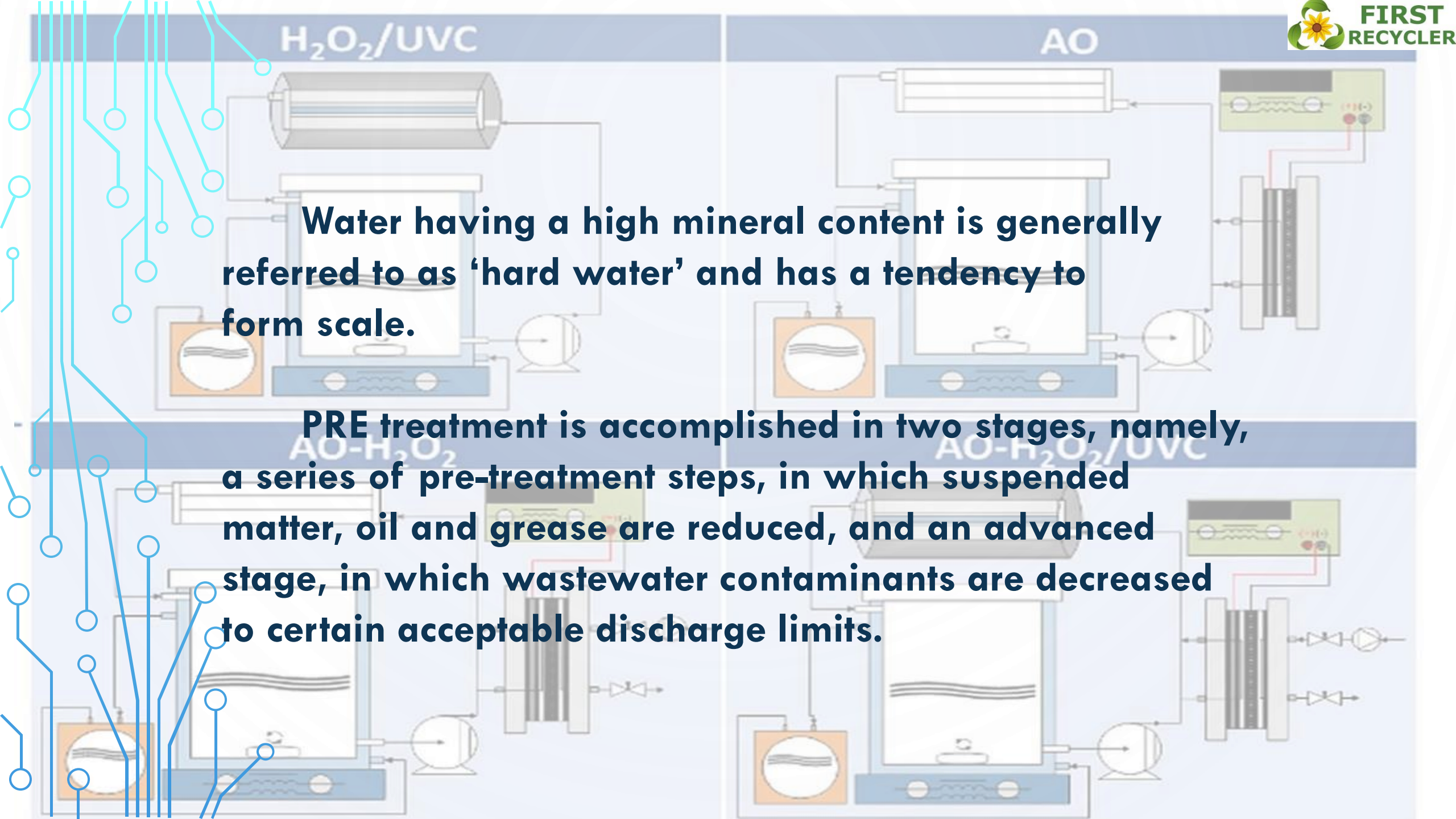


SOLUTION PROPOSAL :

- pH adjustment;
- Electrocoagulation with advanced oxidation;
- D.A.F;
- G.A.C;
- Sludge dehydration;
- SCADA and Remote Control.

FIRST RECYCLER

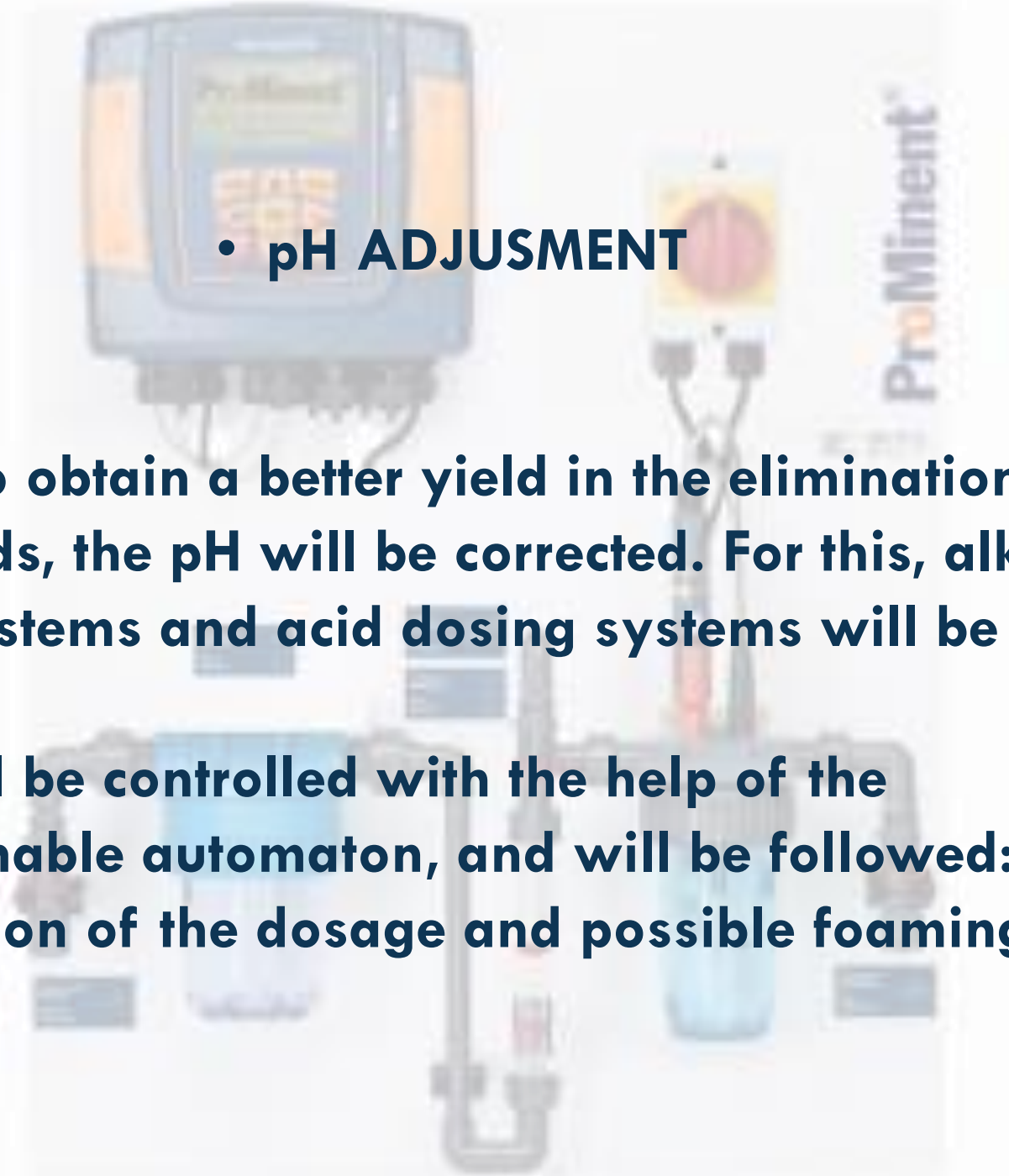




FIRST RECYCLER

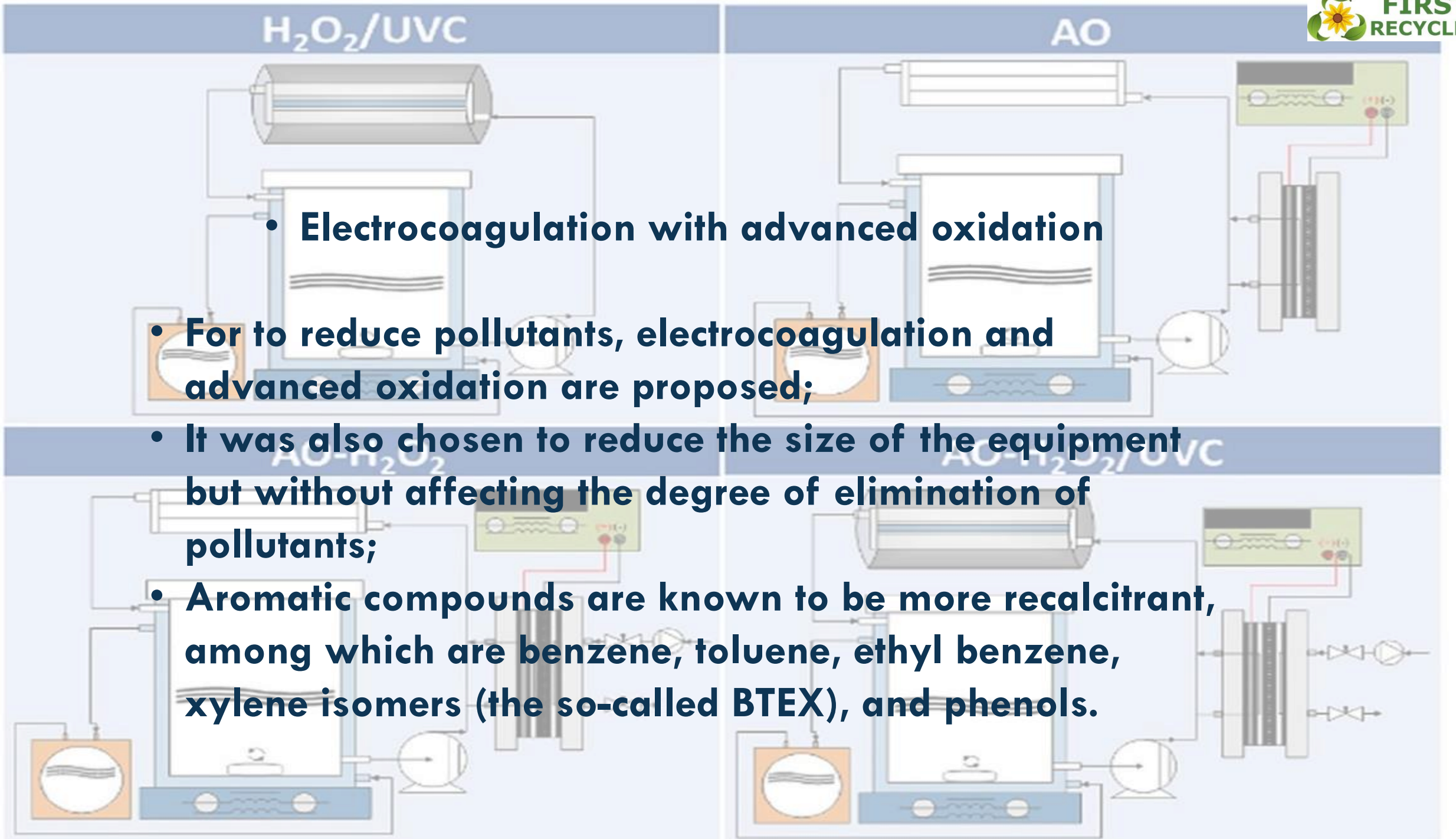
Water having a high mineral content is generally referred to as ‘hard water’ and has a tendency to form scale.

PRE treatment is accomplished in two stages, namely, a series of pre-treatment steps, in which suspended matter, oil and grease are reduced, and an advanced stage, in which wastewater contaminants are decreased to certain acceptable discharge limits.



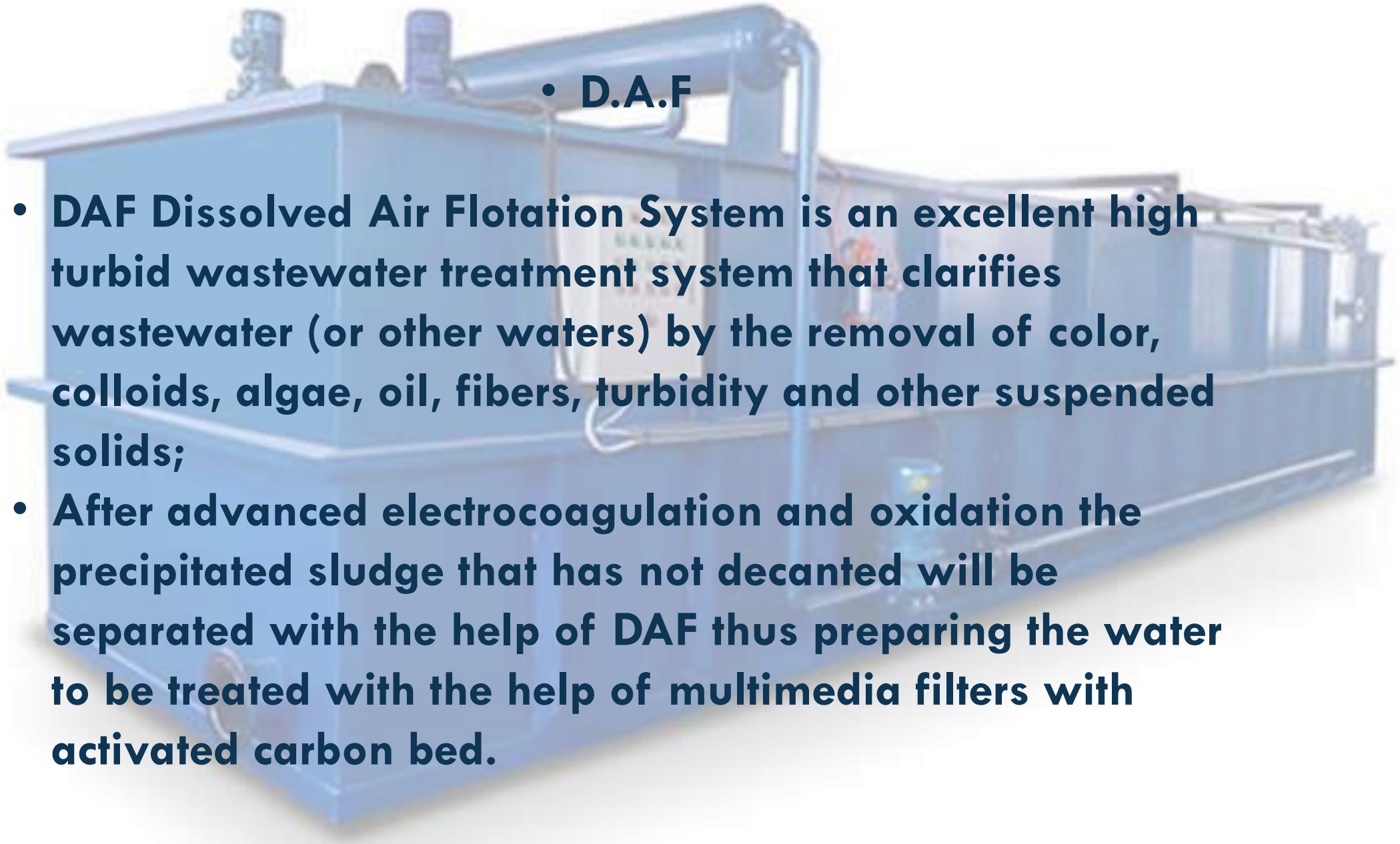
• pH ADJUSMENT

- In order to obtain a better yield in the elimination of the compounds, the pH will be corrected. For this, alkaline dosing systems and acid dosing systems will be provided;
- These will be controlled with the help of the programmable automaton, and will be followed: optimization of the dosage and possible foaming.



- Electrocoagulation with advanced oxidation

- For to reduce pollutants, electrocoagulation and advanced oxidation are proposed;
- It was also chosen to reduce the size of the equipment but without affecting the degree of elimination of pollutants;
- Aromatic compounds are known to be more recalcitrant, among which are benzene, toluene, ethyl benzene, xylene isomers (the so-called BTEX), and phenols.



- **D.A.F**

- DAF Dissolved Air Flotation System is an excellent high turbid wastewater treatment system that clarifies wastewater (or other waters) by the removal of color, colloids, algae, oil, fibers, turbidity and other suspended solids;
- After advanced electrocoagulation and oxidation the precipitated sludge that has not decanted will be separated with the help of DAF thus preparing the water to be treated with the help of multimedia filters with activated carbon bed.

- G.A.C

- At these installations all the carbon used is analyzed so that appropriate measures can be taken to handle and remove saturated carbon from the mobile filters. All molecules that have been adsorbed on activated carbon at the customer site are desorbed in reactivation furnaces. These contaminants are then completely destroyed by an incineration and neutralization plant. The entire installation and its emissions are continuously monitored online, which guarantees that only harmless water vapor can be seen coming out of the chimney.

- SCADA and Remote Control

1. Date log and date interpretation;
2. Remote connection;
3. Possibility of distance diagnosis thus facilitating servicing;
4. Warning system in case of damage or exceeding exhaust limits.

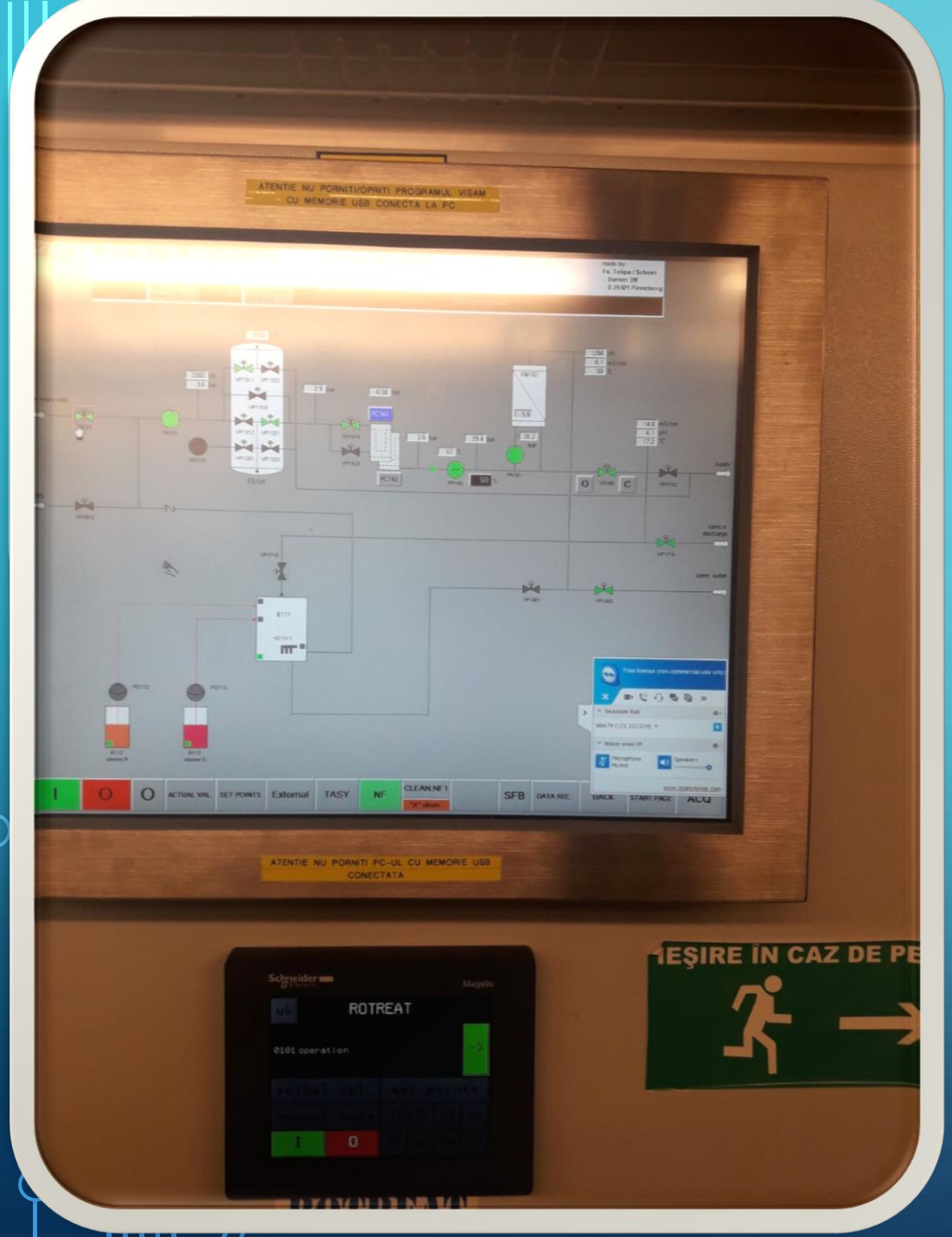
- The station is mounted in a maritime container, air conditioned, double floor, stainless steel walls;
- When sizing the station, an availability of 90% was taken into account;
- Taking into account the sensitivity of the process, the equipment is available in 1A+1R form, fully automated.


PS AIR
PS 180


FIRST
RECYCLER


2500
2000
1500
1000
500
200







FIRST RECYCLER