



COMPANY PROFILE

ABOUT US

WE MAKE **PROGRESS** BY THE **PROCESS**.

In partnership with our customers **we DESIGN, BUILD and OPERATE customized process & environmental solutions for industries.**

We continuously innovate by **working with our customers** to develop solutions that achieve the **targeted results.**

Strong and synergistic relations are the starting point to reach truly successful results.

Progress is what we aim for every day.



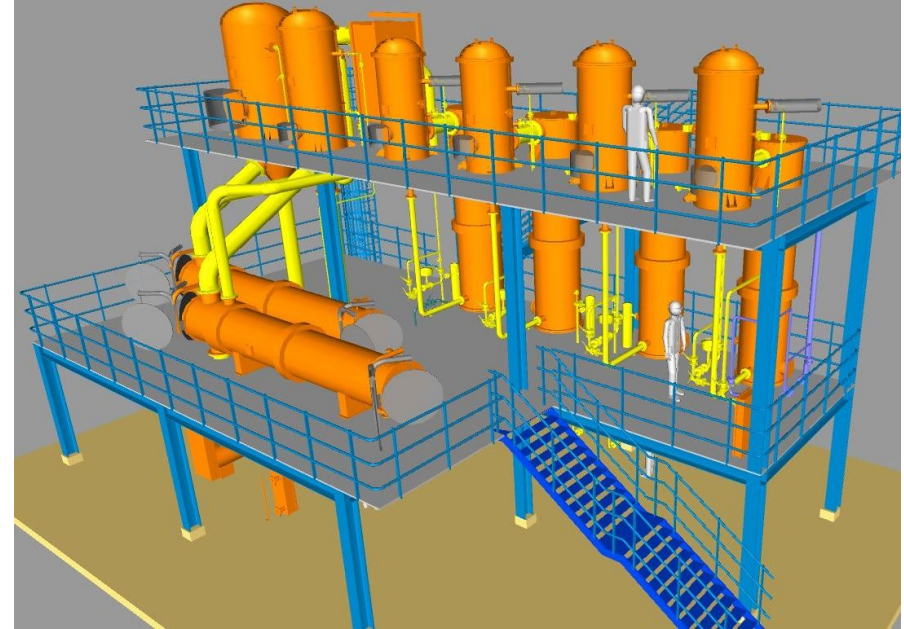
We **support our customer** from **Design** to **Operation** proposing both **DB** and **DBO** procurement **models** depending on **the needs**

DESIGN

Since the early phases of the project:

- Pilot testing activities
- Technical & Economical feasibility studies
- Basic engineering
- Detailed engineering for disciplines:

Process
Mechanical
Structural
Piping
Electrical
Automation
Project management



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BUILD

Construction capabilities:

- Machines & static equipment fabrication
- Nr 4 proprietary workshops dedicated to:
 - High alloys
 - Carbon steel
 - Glass lining
- Skid assembly at workshop or at site



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OPERATE

Almost 30 years operation of one of the largest liquid waste treatment center in Italy:

- Industrial wastewater
- Sludge
- 250 CER codes
- 24h/day for 365 days/year
- 200 customers



The core of technical consultancy services relies on the possibility to **run tests** and **chemical analysis**

LABORATORY TESTS



Laboratory tests are done to check preliminary technical feasibility at:

- Our facilities
- At customer site

PILOT PLANTS TESTS



Pilot tests are run typically after laboratory tests to investigate:

- Process parameters
- Process scale-up
- Process reliability

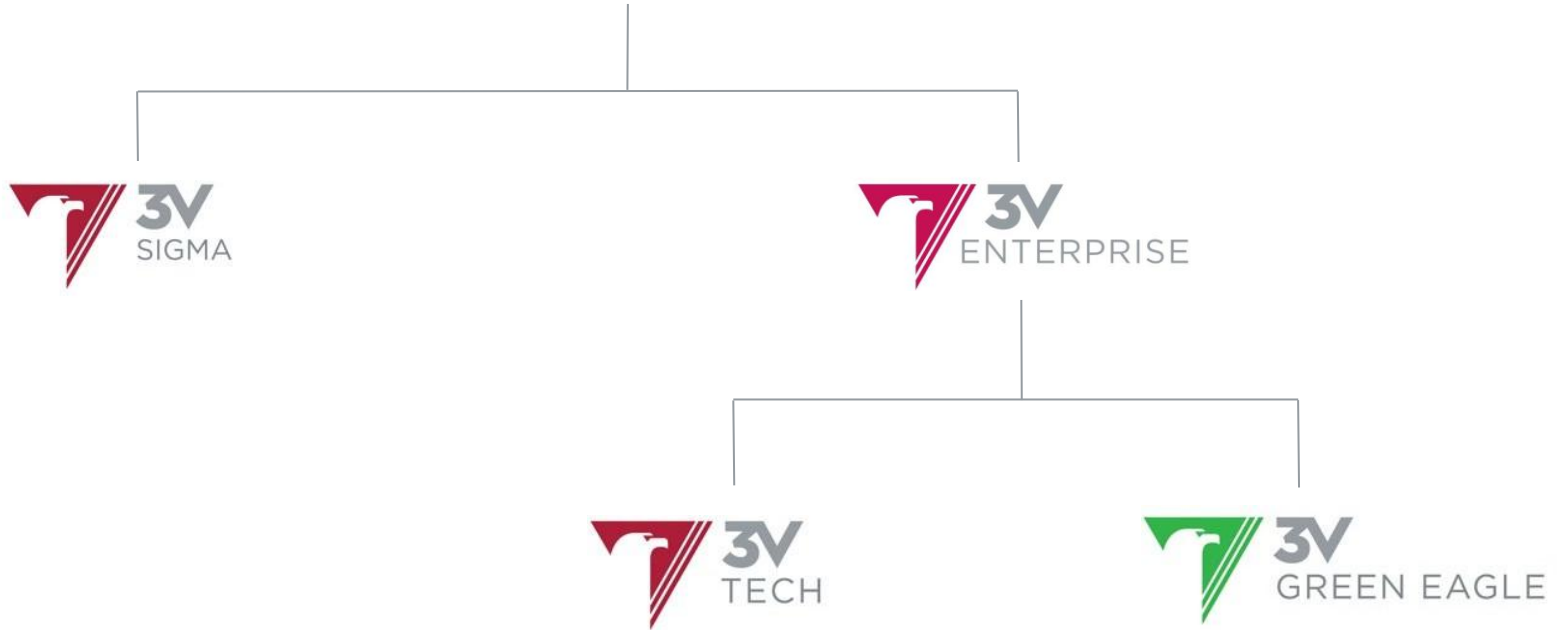
CHEMICAL ANALYSIS



Done before and after tests to control the process and the possibility to achieve the target

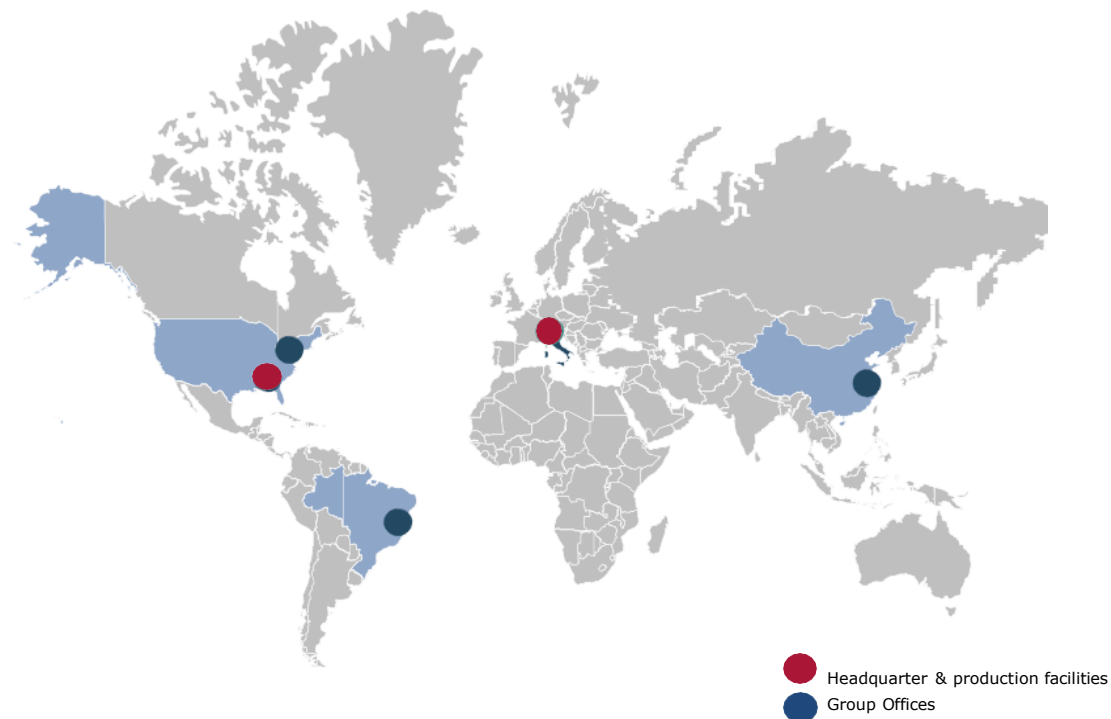
- Traditional & Instrumental
- On water, wastewater, sludge
- On chemical products

Group Overview



Group Overview

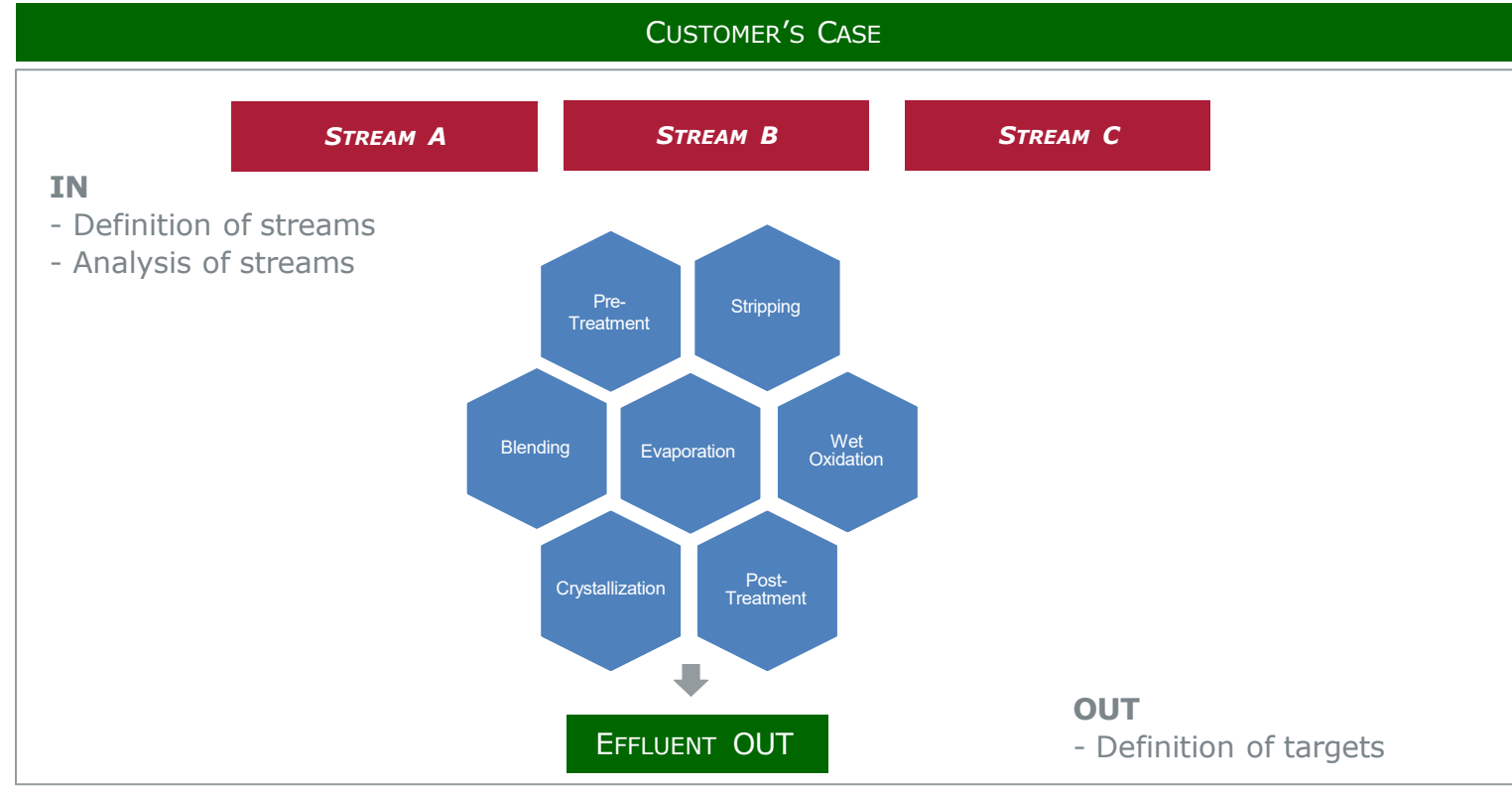
- **Global market presence**
operating in Europe, America,
Middle East, Far East
- More than **600 people**,
270 employed
by **3V Enterprise**.



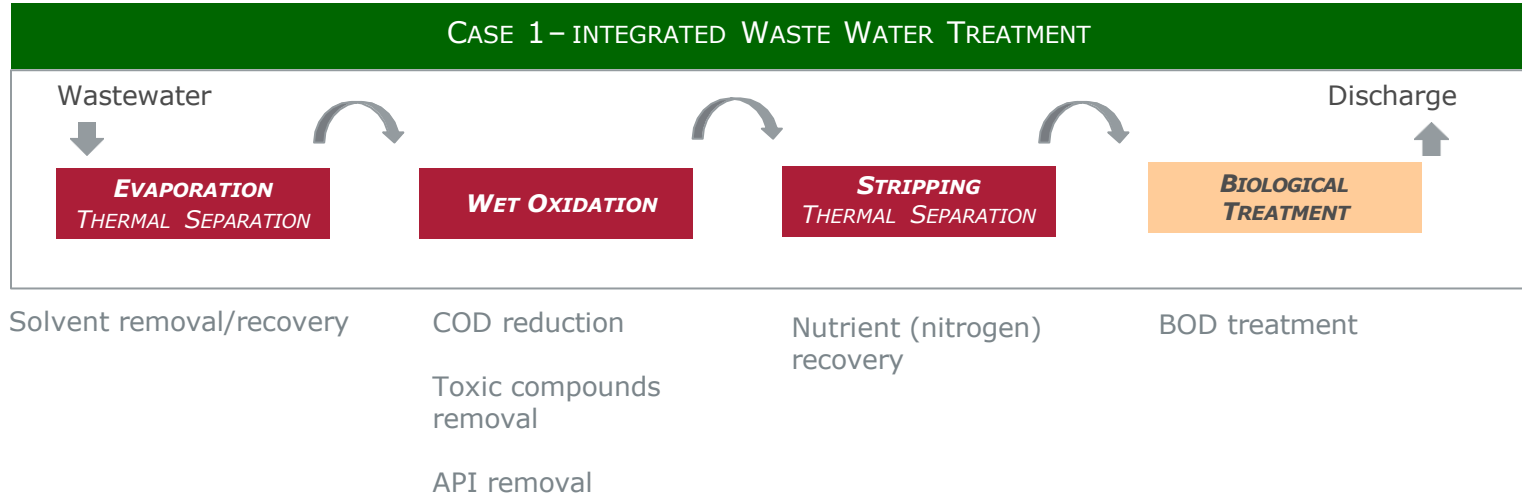


ENVIRONMENTAL SOLUTIONS

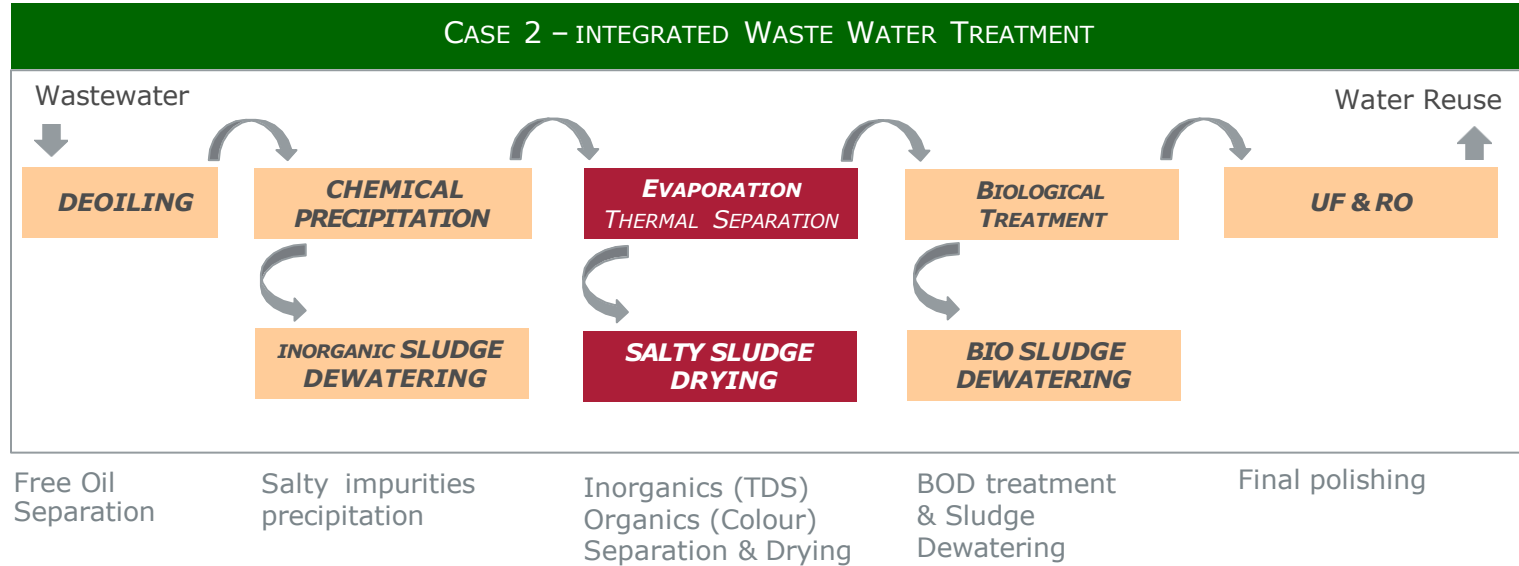
Customer's scenario to be defined



The integrated approach, based on our core technologies, gives us the possibility to treat **wastewater containing different kind of contaminants**



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WWT (WASTE WATER TREATMENT) TECHNOLOGIES PORTFOLIO:

- **TOP® & DUAL TOP®** : Wet Oxidation
- **ZLD (ZERO LIQUID DISCHARGE)**: Evaporation, Concentration, Crystallization
- **STRIPPING & SCRUBBING**: steam, nitrogen, fuel gas strippers, caustic & acid scrubbers
- **AOP (ADVANCED OXIDATION PROCESS)**: Chemical Oxidation
- **CONVENTIONAL WW TECHNOLOGIES**: Chimico-physical, Biotreaters, Clarifications, Filtration
- **SLUDGE TREATMENT**

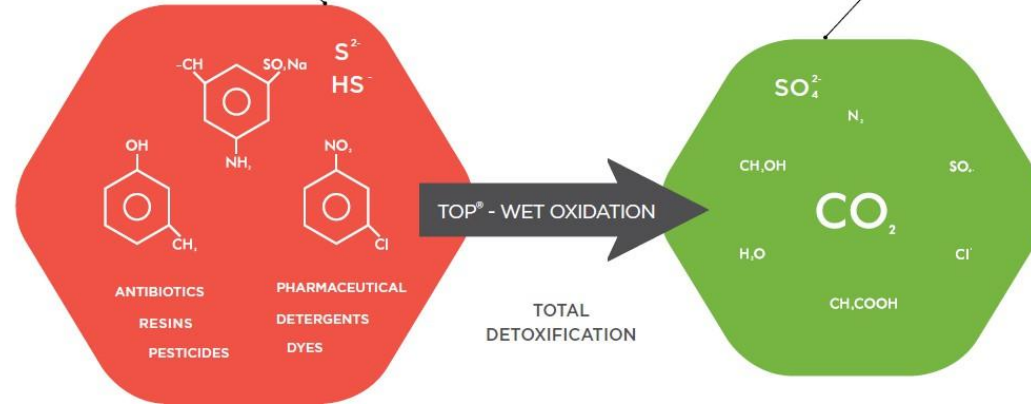


ENVIRONMENTAL TECHNOLOGIES & REFERENCES

TOP® & DUAL TOP® CONCEPT



TRANSFORMING 100% NON- BIODEGRADABLE
WASTE



TOP® & DUAL TOP® allows the oxidation of dissolved or suspended compounds – including Sulfur - in water using oxygen as oxidizer. The reaction is activated by introducing oxygen in High Pressure & Temperature reactor



TOP® & DUAL TOP® BENEFITS

- Oxidation of toxic & complex organic compounds to carbon dioxide (CO_2)
- Oxidation of toxic & complex organic compounds to biodegradable substances
- Oxidation of API, PFAS, micropollutants to biodegradable substances
- Oxidation of reactive sulfides (HS^- , S^{2-} , H_2S) to sulphates (SO_4^{2-})
- COD reduction
- BOD / COD ratio increasing
- Detoxification of waste water
- Color reduction



INLET

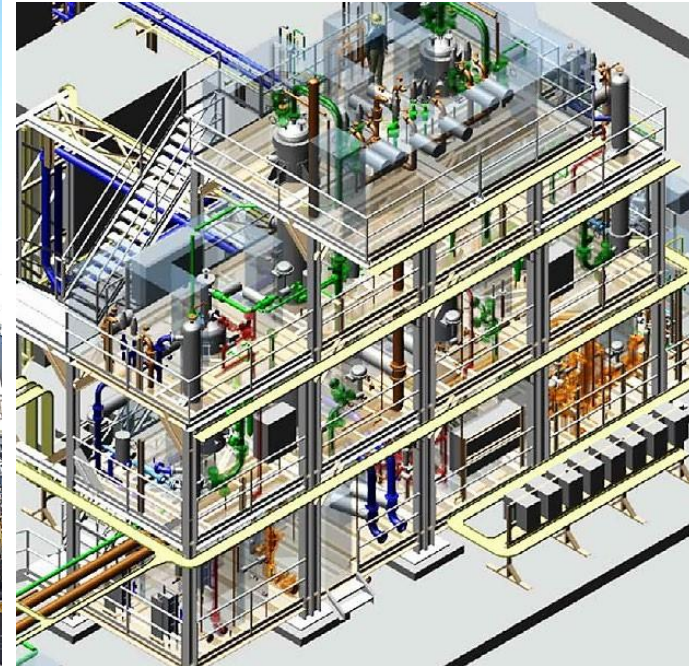
OUTLET
MEDIUM
OXIDATION
CONDITIONS

OUTLET
HIGH
OXIDATION
CONDITIONS

Wet Air Oxidation



Country: Saudi Arabia
Unit: Wet Air Oxidation
for spent caustic
Capacity: 2 trains of 1 m³/h
Year: 2017
Status: operating



Wet Air Oxidation

Country: Jebel Ali, UAE
Unit: Wet Air Oxidation for spent caustic
Capacity: 1 trains of 1.5 m³/h
Year: 2017
Status: Operating



DUAL TOP® CONCEPT



**Minimum Volume
Mostly Inorganic**

ZERO LIQUID DISCHARGE



- Thermal separation of liquid and solid fraction
- Water recovery to industrial process units
- Minimization of waste water to be disposed into environment
- Inorganic & organic salts recovery (where possible)
- Industrial sustainability achievement



INLET



CONCENTRATION



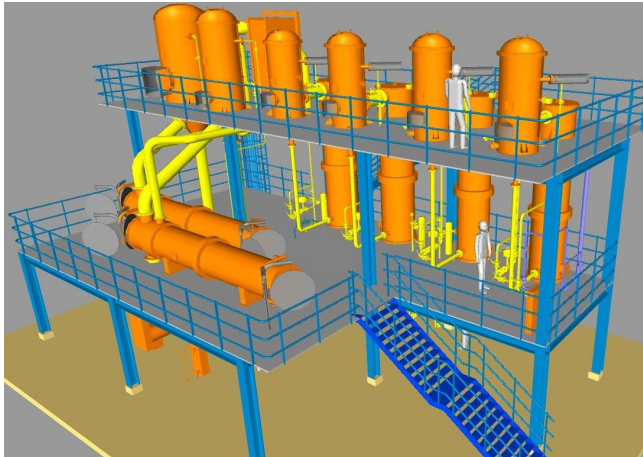
CRYSTALLIZATION



Evaporation



Project: Salty Waste Water Treatment Project
Country: Switzerland
Unit: Multiple Effects Concentration (ZLD)
Capacity: 11 m³/h
Year: 2021
Status: operating



Evaporation



Country: Riyadh, Kingdom of Saudi Arabia
Unit: Single Effect MVR Falling Film for Waste Water Concentration (ZLD)
Capacity: 50 m³/h
Year: 2008
Status: operating



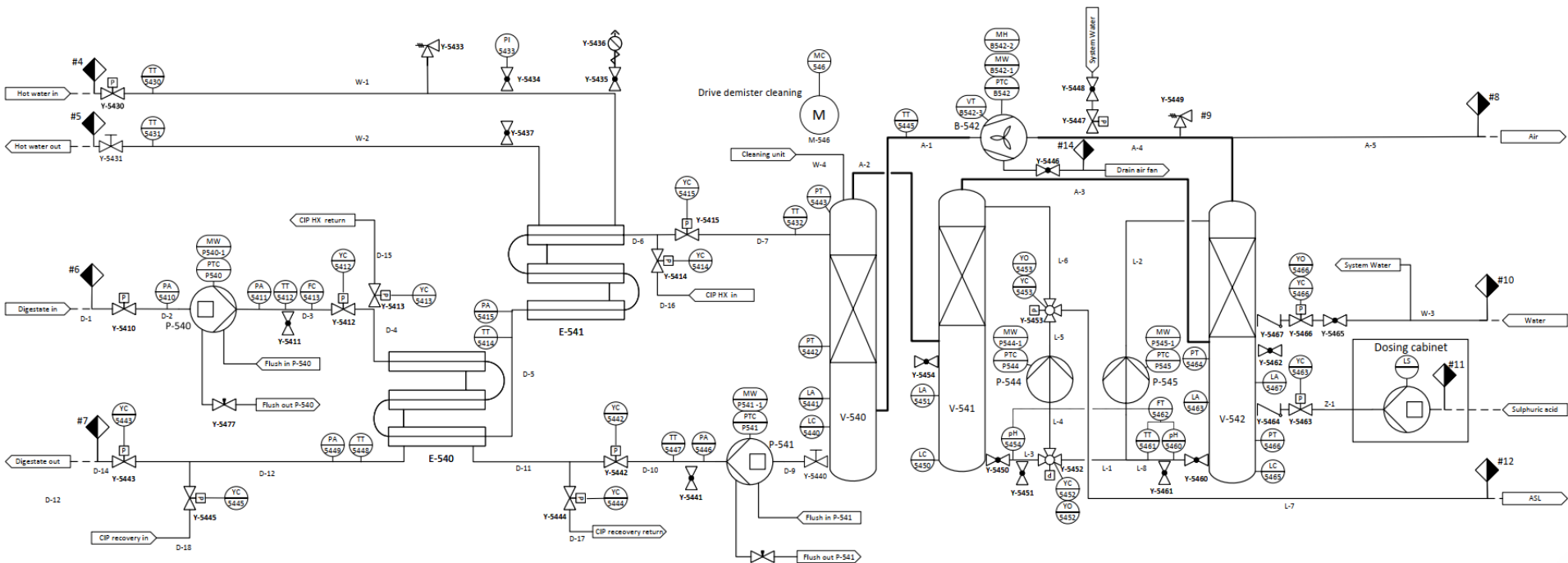
Stripping



Project: Solvent Recovery
Country: Singapore
Unit: Light organics stripping
Capacity: 200 kg/h
Year: 2010
Status: operating



Stripping



Stripping

Project: Biofuel Purification Plant
Country: Italy
Unit: Ammonia stripper + acid scrubber
Capacity: 15 m³/h
Year: 2014
Status: operating



Advanced Oxidation Process



Location: Italy

Industry: Port

Application:

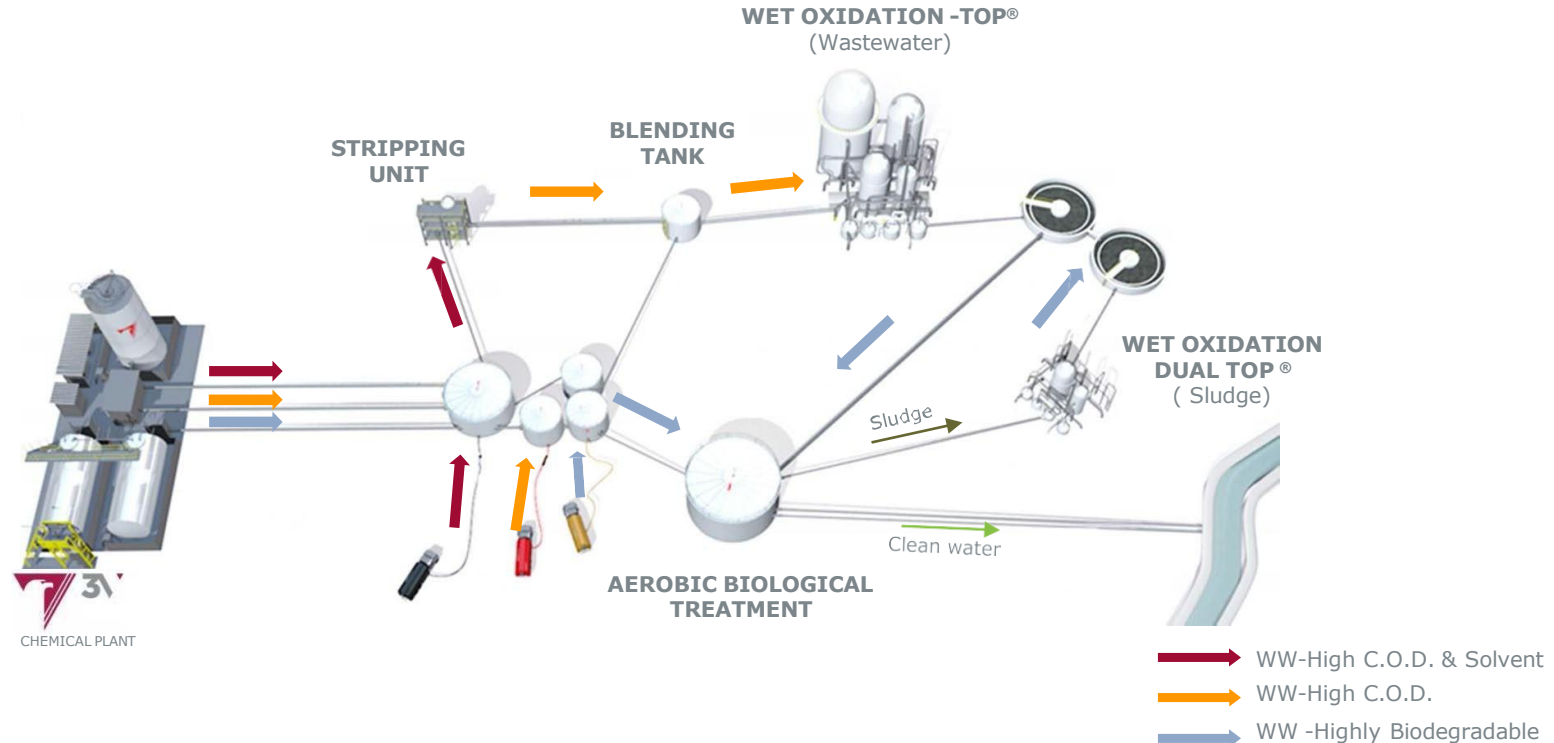
Advanced oxidation for “sediment washing water” purge
(neutralization, oxidation, solids removal, GAC filters)

Year: 2014

Capacity: 10 m³/h



We also offer an **outside service for wastewater collection and treatment**, operated by our sister Company **3V Green Eagle**, for who doesn't want to invest in its own treatment plant



3V Green Eagle: the **largest industrial wastewater and sludge treatment** center in Italy, from **20 years in the field**



Production Plant Capacity

- Authorized to treat up to **400,000 m3 /year** of liquid waste as per AIA (autorizzazione ambientale integrata)
- Over **295 different codes EWC** (European Waste Catalogue)
- **250 CER** Codes
- **6,000-8000 tons** of COD/year
- **200 customers** from different industries
- 24hday for 365 days/year



Analytical Laboratory

- Characterisation of water, wastewater, sludge
- Process control
- Traditional & Instrumental Chemical Analysis
- 50,000 analysis per year
- 20,000 waste sample per year



Want to know more?

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