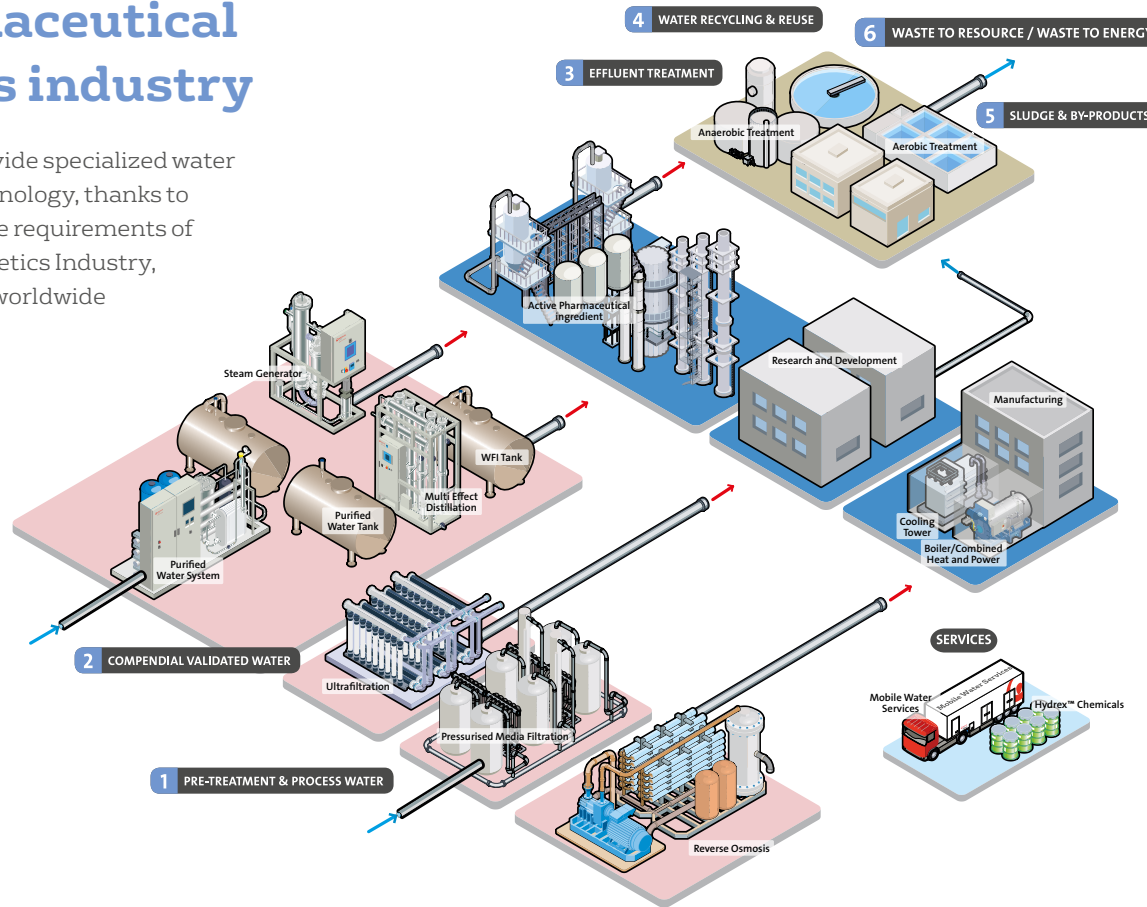


# Turnkey solution for the pharmaceutical and cosmetics industry

Veolia Water Technologies provide specialized water and wastewater treatment technology, thanks to our understanding of the unique requirements of the Pharmaceuticals and Cosmetics Industry, decades of experience and our worldwide expertise in water issues.



## 1 PRE-TREATMENT & PROCESS WATER

- Screen, drum & disc filtrations
- Ultrafiltration
- Multi media filtration: sand, activated carbon
- Reverse osmosis
- Photo oxidation Ultraviolet
- Water treatment chemical

## 2 COMPENDIAL VALIDATED WATER

- > **Critical and validated water production, storage and distribution**
- > **Pyrogen-free water**
- > **Pharmacopoeia compliant**
  - Reverse Osmosis and Continuous electro-deionisation
  - Distillation:
    - Multi effect distillation
    - Vapour compression
    - Clean steam
  - Distribution and sanitisation skid:
    - Thermal and ozonation

## 3 EFFLUENT TREATMENT

- > **Meet strengthened local discharge regulations**
- > **COD, BOD, TSS, toxicity, chemical removal**
- > **Endocrine (EDCs) and pharmaceuticals (PPCPs) removal**

## 4 WATER RECYCLING & REUSE

- > **Preserve natural resources**
  - Tertiary filtration
  - Multimedia filtration
  - Evaporation and crystallisation
  - Membranes: nanofiltration, reverse osmosis

## 5 SLUDGE & BY-PRODUCTS

- > **Residuals management**
- > **Energy recovery**
- > **Product reuse (land disposal, composting, storage)**
  - Drainage, centrifugation, filtration
  - Anaerobic digestion (biogas recovery)
  - Drying
  - Fluidised bed incineration

## 6 WASTE TO RESOURCE / WASTE TO ENERGY

- > **Biogas generation for CHP, boiler**
- > **Nutrients recovery**
- > **Solvents recovery (phenol, ethanol, benzene, methanol)**
  - Anaerobic treatment
  - Liquid / Liquid extraction
  - Macro porous polymer
  - Biopolymer
  - Electrodialysis

### PHARMACEUTICAL WASTEWATER SOLUTIONS

Veolia Water Technologies is the world leader in wastewater solutions, we have developed a unique portfolio of treatment technologies that fit the industrial market. We design and build turnkey plants for treating complex pharmaceutical wastewaters from API, biotech facilities or either galenic processes.