

Demineralized water.

Reverse Osmosis Systems and Electrodeionization.



We are starting from.....

 TAP WATER

Contaminants in Tap Water

- Inorganics Stuff (Salts, heavy metals, gases, Hypochloride)
- Organics Stuff (herbicides, Pesticides, Detergents, chlorides)
- Particulate (silicates, colloids)
- microorganisms (bacteria, pyrogens)

Available Technologies for water treatment

◆ Prefiltration

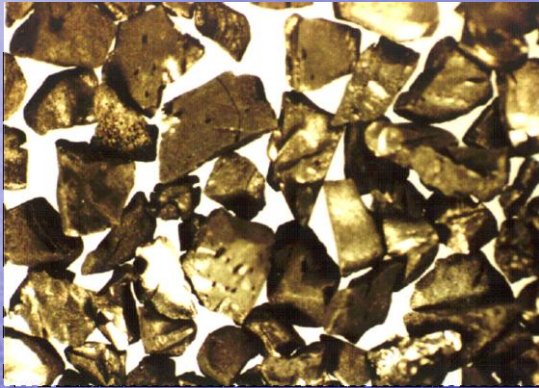
◆ Distillation

◆ Deionization

◆ Reverse Osmosis

◆ Electrodeionization (EDI)

PREFILTRATION

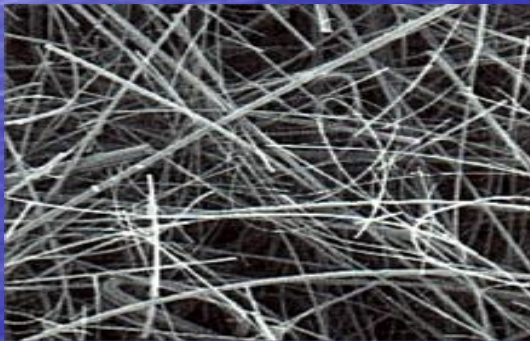


Application

Chloride compounds removal

Mold and Bacteria Removal

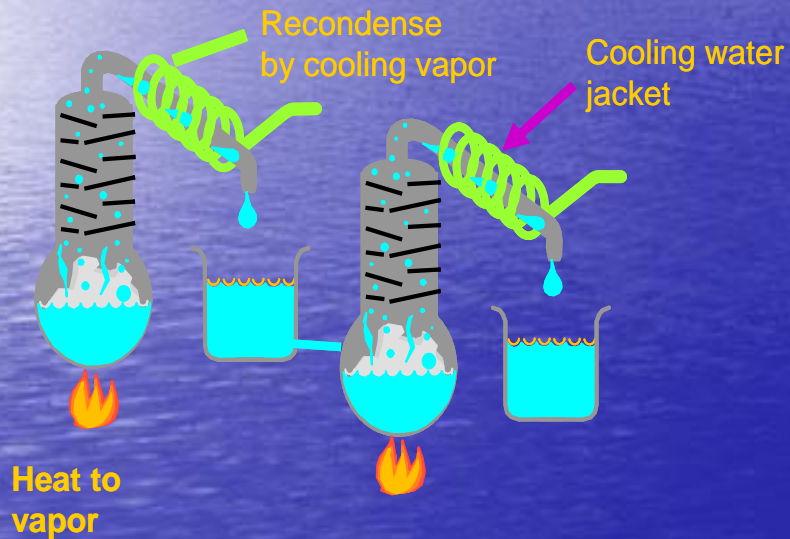
Particles removal



DISTILLATION

ADVANTAGES

- Consolidated technique
- Good contaminants removal efficiency
- Low budget investment



Disadvantages

- No or low process control
- Delicate Components
- High management cost
- Heavy and strong maintenance

REVERSE OSMOSIS

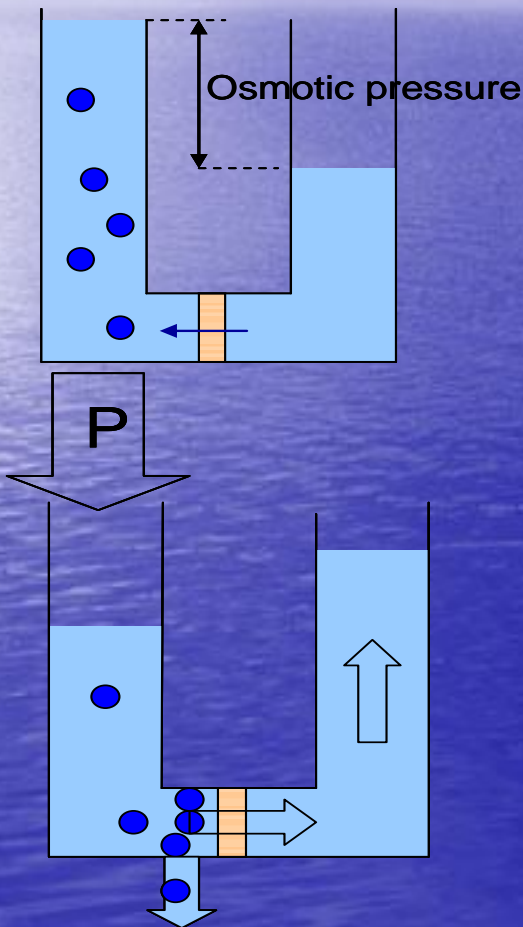
Advantages

96/98% salts removal efficiency

99% bacteria removal efficiency

Can be controlled and monitored

Easy maintenance



DEIONIZATION

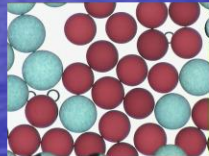
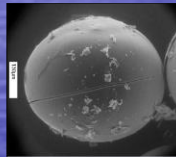
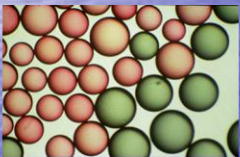
ADVANTAGES

- Easy to use
- Total ions removal
- Can be controlled and monitored
- Easy maintenances

DISADVANTAGES

- No Bacteria removal
- Short Resins life with high flow

Cation Exchange Resin



H₂O



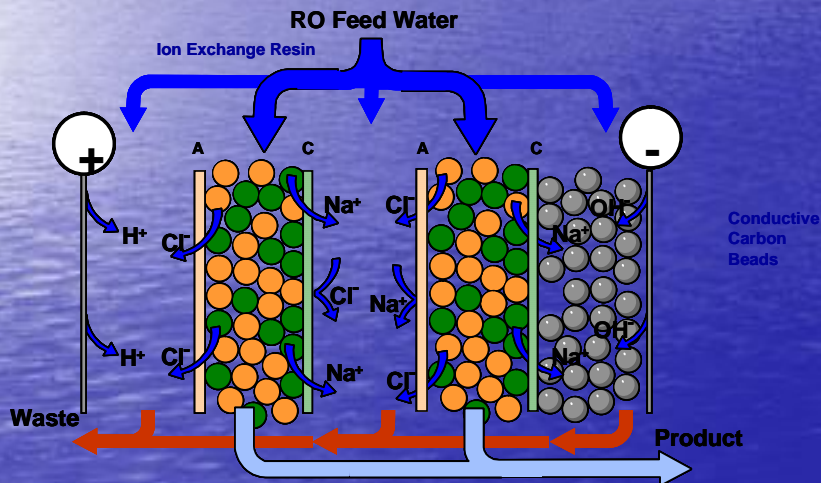
Anion Exchange Resin



ELECTRODEIONIZATION

ADVANTAGES

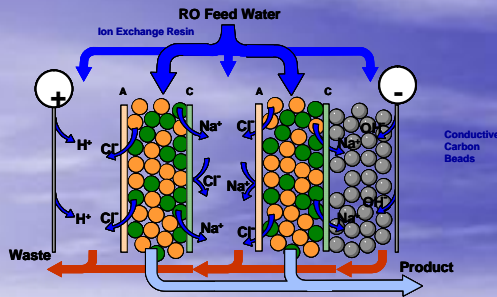
- High Ion removal efficiency
- No or Very Low maintenances
- High productivity
- Very low management costs
- No bacteria contamination



Disadvantages

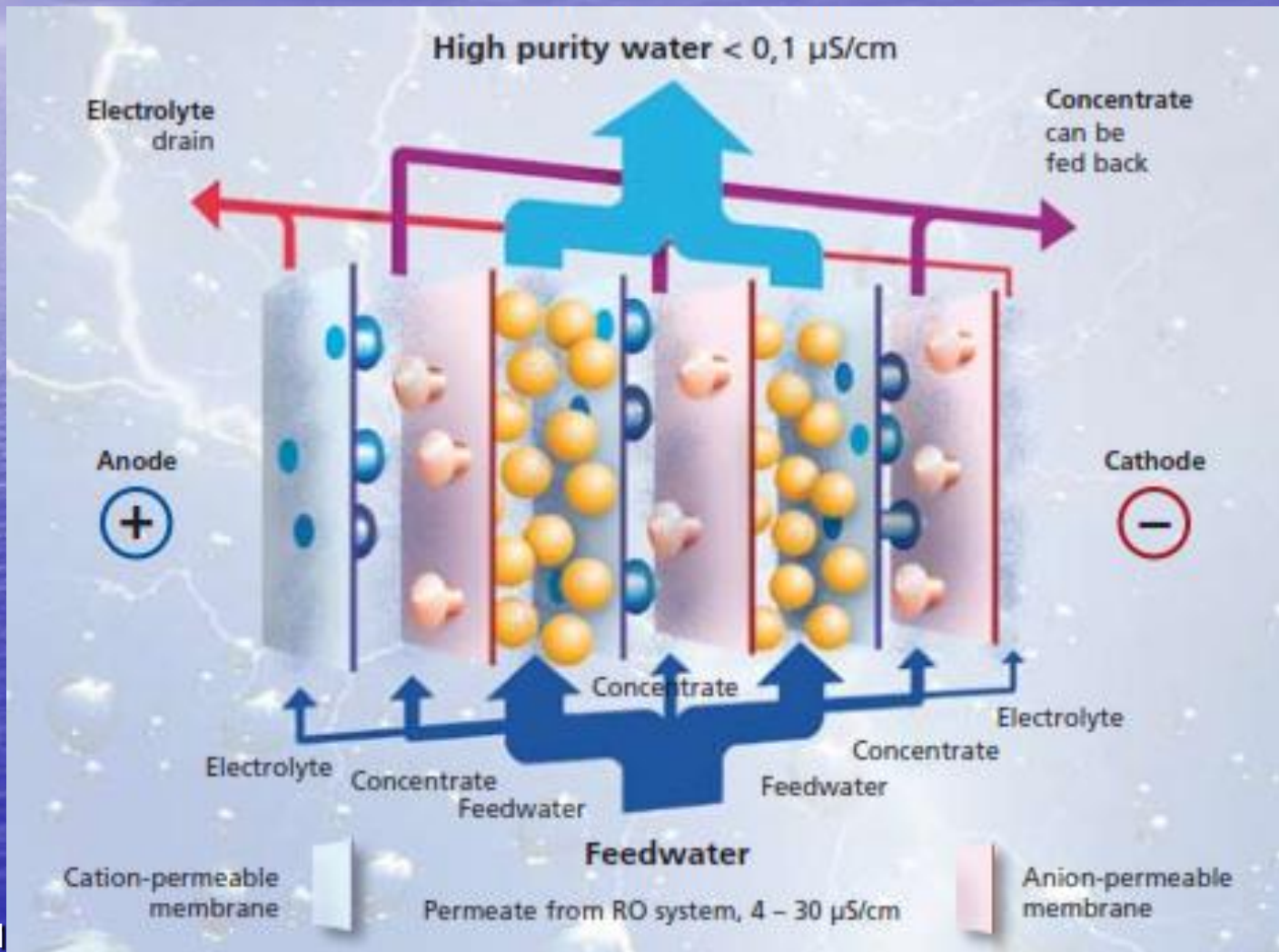
- Sensible to CO₂

Electrodeionization Process: how it works



- Electrodeionization (**EDI**) is a water treatment process that removes ionizable species from liquids using electrically active media and an electrical potential to effect ion transport. It differs from other water purification technologies such as conventional ion exchange in that it does not require the use of chemicals such as acid and caustic soda. In traditional ion exchange units, after the contaminants are trapped onto the resin sites, the resin continues to exhaust and lost capacity. In ED, the contaminants are continuously removed as they are attracted to one of the two electrical charges, and they migrate through the resin bed, through ion exchange membranes and into the concentrate stream where they are removed from the device. **EDI is a polishing technology and requires reverse osmosis (RO) as pretreatment.** The combination of RO-EDI provides the customer with a continuous, chemical-free system with less costs and less maintenance compared to classic deionization systems

Electrodeionization Process: how it works



Kinds of purified water (ASTM classification)

■ Type "I"

- Reagent grade, ultrapure 18.2 M/ Ω for analytical uses such as HPLC/AA/ICP/IC....

■ Type "II"




- Analytical grade for pharmaceutical and clinical uses 1...10 M/ Ω (0.1...1 microS)

■ Type "III"

- Laboratory grade for general use (washer machine, cleaning, ph and so on)

THE RIGHT SEQUENCE:

PRETREATMENT

-  Softener (needed for water with hardness more than 15°F)
-  10..1 micron Filtration
-  Activated Carbon Filter for Chloride removal


REVERSE OSMOSIS (RO)

-  With efficiency up to 98-99%

THE RIGHT SEQUENCE:

 EDI module

 Water production from 3
lt up to ... m³/h

 quality up to 10 MΩ/cm
(0.1 microS)

 For pyrogen free water
production

 UV LAMP
(option)

 TANK STORAGE

 DELIVERY PUMP

The Fulltech Solution:

+ prefiltration module



+ Rephile RO/EDI
module 5,10,30....120
LT/HR



+ TANK STORAGE

+ DELIVERY PUMP



The Fulltech Solution:

- + Low cost
- + Low maintenances
- + High and constant efficiency and performances
- + Low service cost

