



WORLD BREWING CONGRESS

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#ElevateBeer



Brewing and Water Treatment

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Why Water Treatment?

- Water is your primary ingredient
- Your water quality does not meet your needs
- Color, Taste and Odor
- Consistency





Overview of Topics

- Particulate Filtration
- Carbon Filtration
- Water Softening
- Ion Exchange
- Disinfection
- Membrane Technology





Particulate Filtration

- First Step in Your Process
- Easy and low cost
- Types:
 - Bag
 - Cartridge
 - Media





Carbon Filtration

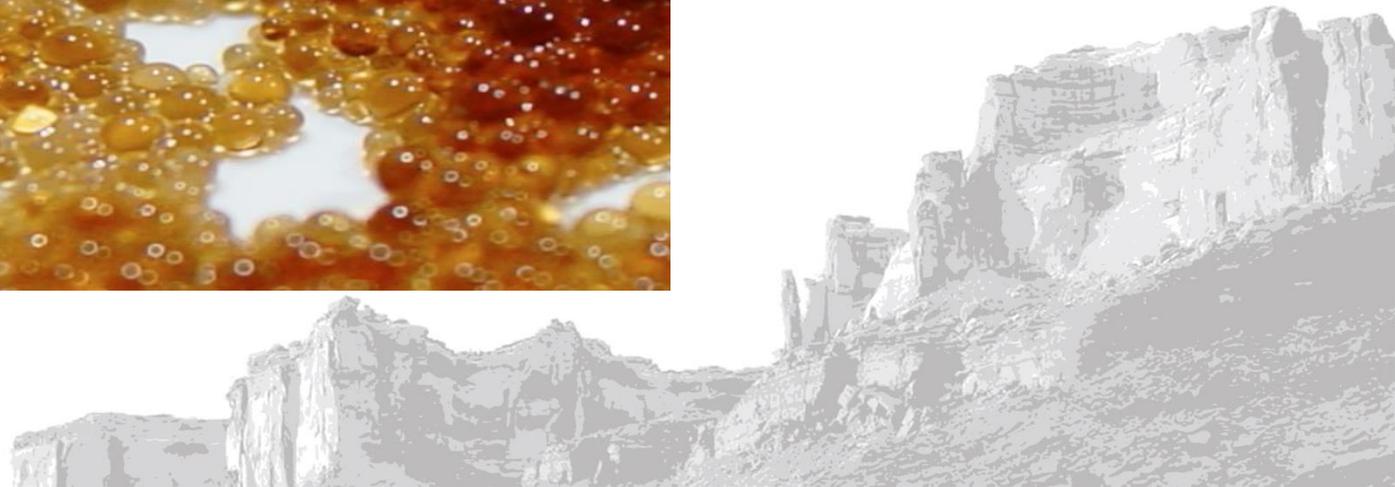
- Chlorine Removal
- Chloramine Removal
- TOC Reduction
- Color, Taste and Odor





Water Softening

- Ion exchange using sodium or potassium
- Self regenerating
- Common uses: Boiler feed and RO pretreatment





Ion Exchange

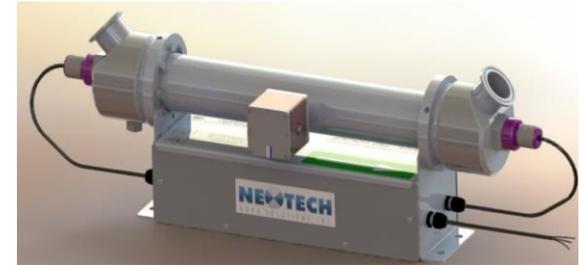
- Complete removal of dissolved solids
- No wastewater
- Small footprint
- Perfect for small flows





Disinfection

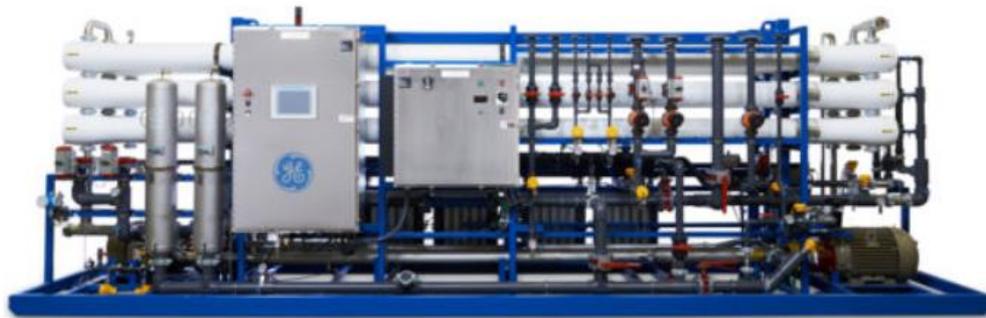
- Microbiological Inactivation
- Types:
 - UV Sterilizers
 - Also used for ozone and chlorine destruction
 - Ozone
 - Persistent Chemistry (Chlorine)





Membrane Technology

- Membrane Selection
- Chemical Selection
- Equipment Selection
- Blending





Membrane Selection

- Nano Filtration
 - Water Softening and Color Removal
 - Molecular weight cut-off
 - Very high recovery (+90%)
- Ultralow Pressure
 - 92% rejection of NaCl
 - Typical operating pressure 70 psi
- Low Energy
 - 98% rejection of NaCl
 - As low as 100 psi
- High Rejection
 - 99% rejection of NaCl
 - Average operating pressure of 200 psi





Chemical Selection

- SBS for Chlorine/Chloramine Removal
- pH Adjustment
- Antiscalant
- Membrane Cleaning



GE Betz





Equipment Selection

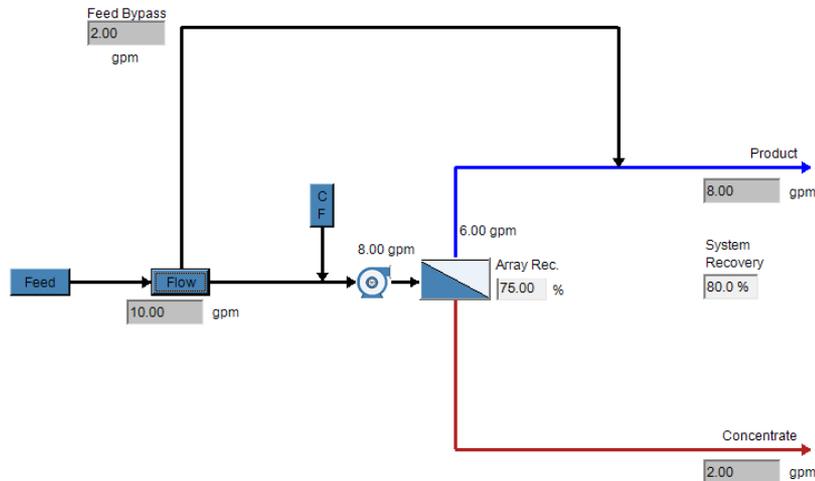
- Standard RO
 - 75% Recovery
 - Flowrates greater than 1.5 gpm
- High Recovery RO
 - +75% Recovery
 - Flowrates greater than 50 gpm
- Desalitech CCD Technology
 - +85% Recovery
 - Flowrates greater than 50 gpm





Blending

- To achieve a specific TDS
- Increases system recovery
- Manual and automated





Conclusion

- Water is your primary ingredient
- Good water makes good beer
- It is important and can be easy
- Water treatment professionals are your resource



Thank You!

