

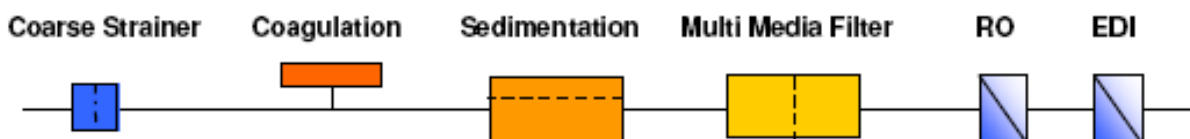
## ULTRAFILTRATION MEMBRANES

### TECHNICAL INFORMATION 1

#### CONVENTIONAL PRETREATMENT vs ULTRAFILTRATION

##### REVERSE OSMOSIS PLANT PRETREATMENT

##### Conventional pretreatment



Coarse strainer – Coagulation – Sedimentation – Multi media filter – Reverse osmosis – possible electrodeionization

Also, it is necessary to remove bacteria with chlorination and operate de-chlorination with Sodium Bisulphate or carbon filter.

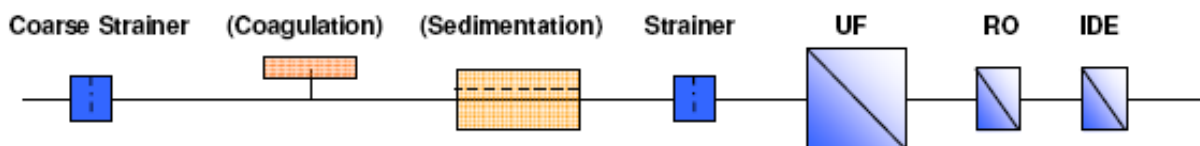
Reverse osmosis, infact, needs a high quality of feed water in order to avoid clogging by:

- **Organic fouling**
- **Biofilm**
- **Scaling**
- **Particulates**

Using sand filters has the following disadvantages:

- **Limited capabilities to remove small particles (<30-40 micron)**
- **Breakthrough possible**
- **Operation difficult to adapt to varying feed water quality and capacity**

### Pretreatment with ultrafiltration membranes



Coarse strainer – Coagulation – Sedimentation – Filblue 2000 – Ultrafiltration membranes – Reverse osmosis – possible Electrodeionization

Ultrafiltration advantages:

- **Filtration by membranes:** breakthrough not possible
- **Defined pore sizes:** complete rejection of the particles bigger than the pore size
- **Pore size of 0,02 micron:** very high rejection of virus and bacteria
- **Automated control:** more flexible operation, the system is able to adapt to varying feed water quality and capacity
- **More compact system:** elimination of the chlorination system and in most cases also of the sedimentation

Ultrafiltration membranes allow to obtain a higher permeate quality, SDI between 0,5 and 3, Turbidity <0,1, which allows the construction of a smaller reverse osmosis plant.

#### **Warning**

All the informations above indicated are the result of the resarch and the experience of Everblue

The informations here attached cannot be used to raise any claim for liability or warranty.

All the warranties on performances must be written confirmed by Everblue on a specific request of the client.

For each order, we invite you to ask to Everblue the written confirmation of the performance warranties. It is the manufacturer of the plant or the user responsibility to verify the efficiency and the result of the application also with the use of pilot plants.