

## Nanofiltration (NF)

Nanofiltration (NF) is a membrane separation process that is between Ultrafiltration (UF) and Reverse Osmosis (RO). NF filters out large molecules, salts and heavy metals in the 0.001-0.01 micron range (viruses and bacteria are about 0.01 and 1 micron in size, respectively). NF is used in industrial applications for removal of coloring agents and specific contaminants. Similar to other membrane separation processes, pressure is used to force water through a semipermeable membrane to filter out contaminants.

Essentially, NF is identical to RO except for the pore size of the semipermeable membrane, which at the nano level is more “coarse”. Therefore, unlike RO, small salts pass through the NF membrane.

NF is not common for residential water treatment systems, but it is widely used in demineralization, food and pharmaceutical applications. In the dairy industry for instance, NF is used to concentrate liquid whey.



**Industrial Nanofiltration System**