

Microfiltration: Microfiltration is a type of filtration physical process where a contaminated fluid is passed through a special pore-sized membrane (around 0.1 micron) to separate micro-organisms and suspended particles from process liquid.

Microfiltration is a low pressure separation process utilizing membranes with very open pore structures. Microfiltration filters can be made with both organic materials such as polymer based membranes, as well as inorganic materials, such as ceramic or stainless steel.

Microfiltration is a pressure-driven separation process, which is widely used in concentrating, purifying or separating macromolecules, colloids and suspended particles from solution.

M.F is a physical separation process that uses porous membrane with an average pore size between 0.1 and 10  $\mu\text{m}$ . It promotes the separation of particles and dissolved components from fluid by a sieving mechanism, based on size exclusion.

~~At~~ M.F removes - Algae, Bacteria, pathogenic protozoa including Giardia Lamblia and Cryptosporidium, Sediment including sand, clay and complex metals / particles.

Characteristics of ~~main~~ <sup>M.F</sup> process, M.F is pressure-driven with suspended particles and water as

retentate and dissolved solutes plus water as permeate. The use of hydraulic pressure accelerates the separation process by increasing the flow rate (flux) of the liquid stream but ~~the~~ does not affect the chemical composition of the species in the retentate and product streams.

A major characteristic that limits the ~~perme~~ performance of ~~the~~ M.F or any membrane technology is a process known as fouling. Fouling describes the deposition and accumulation of feed components such as suspended particles, impermeable dissolved solute or even permeable solutes, on the membrane surface and or the membrane surface and within the pores of the membrane. Fouling of the membrane during the filtration processes decreases the flux and thus overall

efficiency of the operation. This is ~~a~~ indicated when the pressure drop increases to a certain point. It occurs even when operating parameters ~~and~~ are constant (pressure, flow rate, temperature, and concentration). Fouling is mostly irreversible although a portion of the fouling layer can be reversed by cleaning for short periods of time.