Ultrafiltration

Lecture-15
Use of Membrane Technology

• Membrane technologies provide an important and useful solution to textile waste water treatment

• Membranes help in reduction of pollution

• As well as in recycling of valuable compounds from the waste streams,

• Help in reuse of waste water
Treatment of Textile effluent by Ultrafiltration

• The textile effluent treatment by membrane process presents some limitation due to membrane fouling which causes rapid flux decline

• Pretreatment of the textile effluent by Ultrafiltration

• UF is effective as single step treatment of secondary textile effluent
Main constituents of textile wastewater

The main pollutant in textile waste water are:

1. Organics
2. Colored dyes
3. Toxicants
4. Inhibitory compounds
5. Surfactants
6. pH
7. Salts
Ultrafiltration Systems

• Micro- and Ultrafiltration Systems can be offered for the Treatment of the efficiencies of Biological Water Treatment Systems as a secondary System for clear filtration for removing viruses and germs.

• They are also used for biomass concentration enhancing so the effectivity of biological systems.

• Extending operation time for degreasing bath, phosphate bath, galvanic bath

• Recycling and Treatment of polishing waters, bore and cutting emulsions, washing liquids, cleaner emulsions, car wash applications, textile waste water

• Concentrating of oil-water-emulsions, compressor condensate

• Pre filtration of industrial or public waste water in front of a Nanofiltration or Reverse Osmosis System
Why Ultrafiltration is preferred

Poly-ether-sulphone membranes are widely in use for ultrafiltration. They have:

• Wide temperature limits
• Wide pH tolerance
• Fairly good chlorine resistance
• Wide range of pore sizes
Comparison with traditional methods

- Ultrafiltration can be chosen in place of traditional coagulation and sand filtration methods for the decolorization of the residual dye effluents
- Ultrafiltration was an appropriate method for the COD removal and decolorization of reactive dyes and acid dyes in the dye effluent
- The economic assessment showed that in a reasonable investment the payback period is less than 6 years
Fig. 1 Experimental set-up for ultrafiltration system