

targeting market

특별강연 II

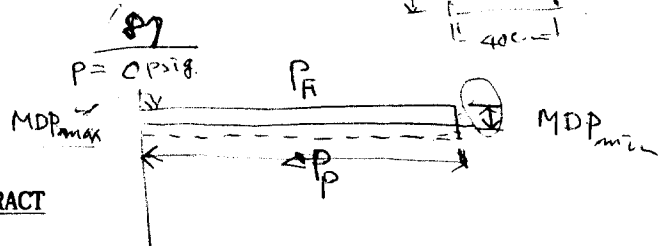
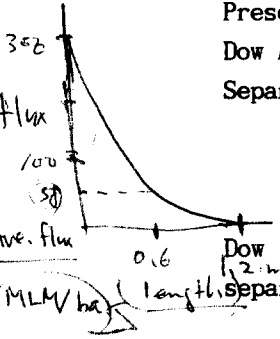
fixed flux → lower production cost

< 30 m²/cas >

The Cassette System

A NEW ULTRA- AND MICROFILTRATION SYSTEM FROM DOW CHEMICAL

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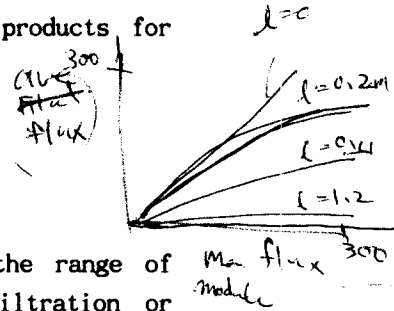


ABSTRACT

Dow Separation Systems manufactures a broad range of products for separation technologies, including:

- Dowex* ion exchange resins
- Film Tec** RO, NF and UF membranes
- RO, NF, UF and MF Membrane Filtration Systems

* delta P for feed side



The Cassette system is a newly developed member of the range of Membrane Filtration Systems, designed for the ultrafiltration or microfiltration of large volumes of fluid with main application, emphasis being on water filtration.

Historically, the use of membrane ultra- and microfiltration for the treatment of large volumes of water has been limited in part by the unfavorable economics of the process compared to conventional filtration techniques, despite the advantages with respect to product water quality. The main purpose for developing the Cassette system was to develop a product technically and economically optimum for the treatment of water.

This has been achieved by the following:

1. Designing a simple and relatively low cost configuration and assembly for large membrane area.
2. Optimising the hydraulic characteristics within the membrane, thereby optimising permeate flux and improving flux control compared to spiral wound configuration.

* PP & PVC fabrication

+ low press. application

* back-washing

* Cost comparison

The cassette system has the following characteristics:

1. It is manufactured from flat sheet membrane, thus utilizing the Thin Film Composite and surface modified flat sheet membranes available.
2. System is based on modular construction to allow building of wide range of configurations from simple elements, and giving flexibility to modify the configuration of an operating plant.
3. Cassette can be backwashed to give steady state pressure/flux characteristics on highly fouling feed waters, allowing a lower frequency of chemical cleaning.
4. The configuration allows transmembrane pressure to be controlled within vary narrow limits compared to other UF/MF systems. This is an important factor in the control of fouling.
5. The unit module contains membrane areas from 30m² to 720m².

Typical applications for the Cassette system are:

1. Filtraion of surface water for potable or industrial applications in place of traditional flocculation, sedimentation and filtration techniques.
2. Filtration of secondary effluent prior to discharge, recirculation or demineralisation.
3. Prefiltration of surface seawater prior to reverse osmosis desalination.
4. Filtration of seawater for reinjection in oil fields.
5. Separation of oil and water in offshore industries and in refinery waste water.

Various pilot trials have been conducted to establish operating parameters on a range of feed waters.