

Ultrafiltration – Nanofiltration System

System Overview:

Setup a cross-flow tubular membrane testing device to demonstrate ultrafiltration and nanofiltration processes. The project aims to investigate the optimal parameters for improving conventional clarification processes and achieve the following benefits: (1) reduce production costs and waste treatment related problems; (2) improve the product clarity; (3) increase the product yield; (4) allow enzyme recovery for potential reuse; (5) improve anti-biofouling properties.

Operating Limits:

Source	Minimum	Maximum
Flow Rate	0 L/min	10 L/min
Tank Capacity	2 L	4.5 L
Temperature	0 °C	60 °C
Pressure	0 psi / 0 bar	600 psi / 41.4 bar
Manometer feed	0 psi / 0 bar	600 psi / 41.4 bar
Overpressure valve	-	580 psi / 40 bar

Chemicals and Hazards:

Name	Hazard	Mitigation	PPE
Sodium Hydroxide Sodium Chlorite	Inhalation Corrosive	Training Filtration enclosure	Safety gloves Foot protection
Leakage	Risk of injury	Operate within specified limits / Leak check Filtration enclosure	Gloves Foot protection