

### **381b Membrane Use for Dairy Process, Reuse - Recovery - Ethanol**

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This paper is presented on the use of membrane systems, and their specific use in the dairy industry, and covering the applications, materials of construction, advantages, core issues with the different configurations and types, how they provide the Dairy Industry with better cost effective solutions depending on the application and the membrane configurations including using membrane technology on wastewater recovery issues creating renewable energy from Dairy wastes. The paper addresses all the sanitary membrane applications including: Microfiltration – and the ability, when put into a properly configured system, to recover particulates and other valuable materials from a typical Dairy when the range of particle is 1,000 to 10,000 Angstroms. Ultrafiltration – 45 angstroms to 1,000 angstroms (8,000 to 250,000 MW) Nanofiltration – 10 angstroms to 75 angstroms (200 to 20,000 MW) Reverse Osmosis – 1 to 15 angstroms (100 MW) for the recovery of water and concentration of salts for reuse or resale Pervaporation – <5 angstroms (25 or less MW) for the cost effective recovery of waste materials from a Dairy and converting them cost effectively into Dry Ethanol