

Food and Beverage Solutions

Esmil and our Partners have conducted much research and constructed many plants gaining vast experience in the food and beverage sector. From bench scale studies right the way through to full scale plant operations we strive to offer BAT (Best Available Technology) using state of the art membrane separation and dewatering processes.

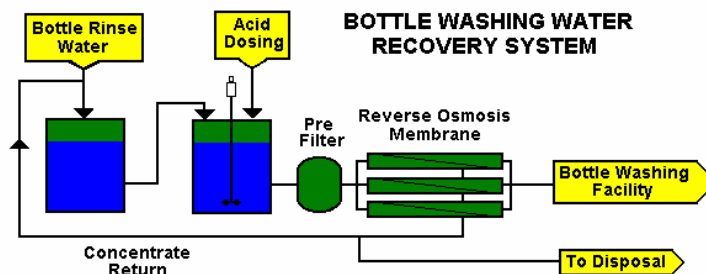
Tackled Effluents.

- Cannery Rinse Water
- Bottle Wash Effluent
- Bottled Water and Desalination Plants (VSEP)
- Distillery, Brewery and Winery Waste Streams
- **Meat Processing (DAF, MDQ – Ekoton)**
- Oils Recovery and Removal

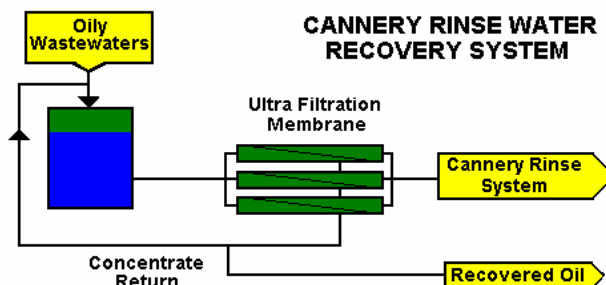
Depending on the process requirements, Esmil will explore a range of technological solutions to achieve the treatment, recovery and economical requirements

Examples

The Esmil Cannery and Bottle Washing Recovery Plants are proven state of the art systems for reducing water intake and effluent disposal thereby realising substantial savings. Both plants produce a high quality permeate, suitable for recovery in the rinsing/washing operations, thus reducing the volume of effluent for disposal by 75 – 90%. This is achieved by a combination of conventional filtration followed by membrane filtration.



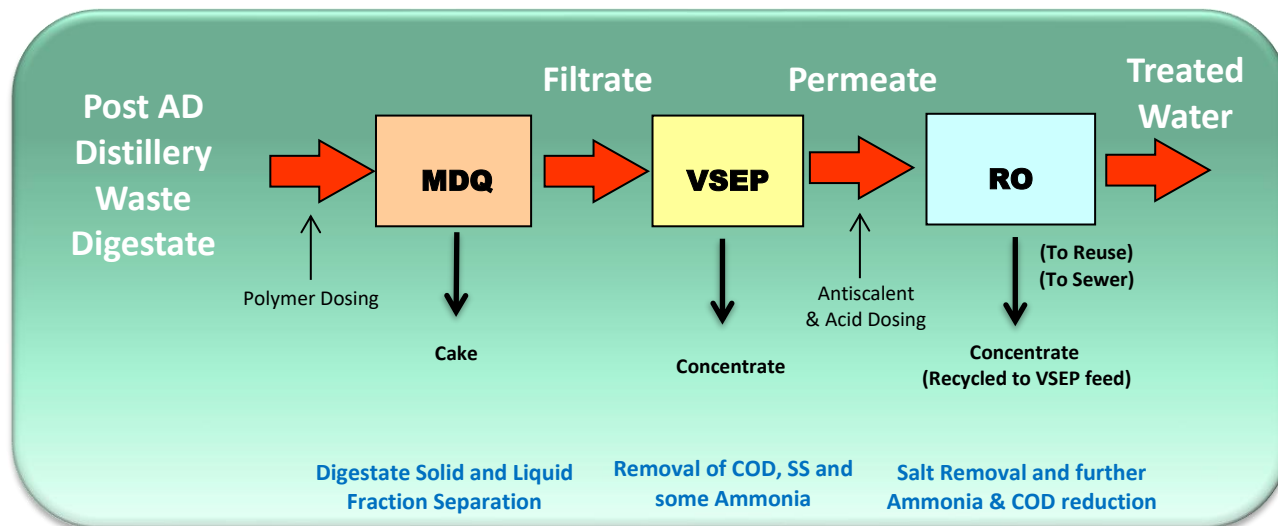
Cannery rinse water contains high levels of lubricating oil and grease which can be easily removed using Esmil ultra-filtration membranes.



Bottle wash water contains high levels of soluble organics (COD), from the washing of dirty soft drink or alcoholic beverage bottles. RO membranes remove organics, hardness and bacteria from the water enabling optimum recovery to the washing facility.

Distillery Waste

Organic waste from a distillery operation can be fed to an anaerobic digestion plant, recovering a biogas used for energy production. The by-product of this is digestate which is around 90% water with the remaining contaminants such as suspended and dissolved solids, high ammonia and COD concentrations. Esmil's treatment scheme allows recovery of the solid fraction, high quality water and a concentrated stream suitable for land application or disposal.



Other Technologies

- Dewatering – Filter press, Screw Press, Multidisc Screw Dehydrator.
- DAF – Dissolved Air Flotation
- MBR – Membrane Bio Reactors
- Polishing Units – Activated Carbon, Ion Exchange, Advanced Oxidation Processes
- And More!!!

Fruit juice and wine can be clarified using microfiltration (without the use of expensive oxidising agents) or concentrated using Nanofiltration or Reverse osmosis.

Oils and fats can be removed by ultrafiltration elements. Synthetic lubricating oils in cannery plants can be removed and the wash water recovered. Natural oils and fats (in particular olive oil) can also be removed which is essential for high protein concentration.

Starch and sugar can be concentrated at high temperature by Nanofiltration, and at ambient temperature contaminated wash waters are recovered. Evaporator condensate is also purified by Reverse Osmosis and the hot water recovered.

Food and Beverage Design Philosophy

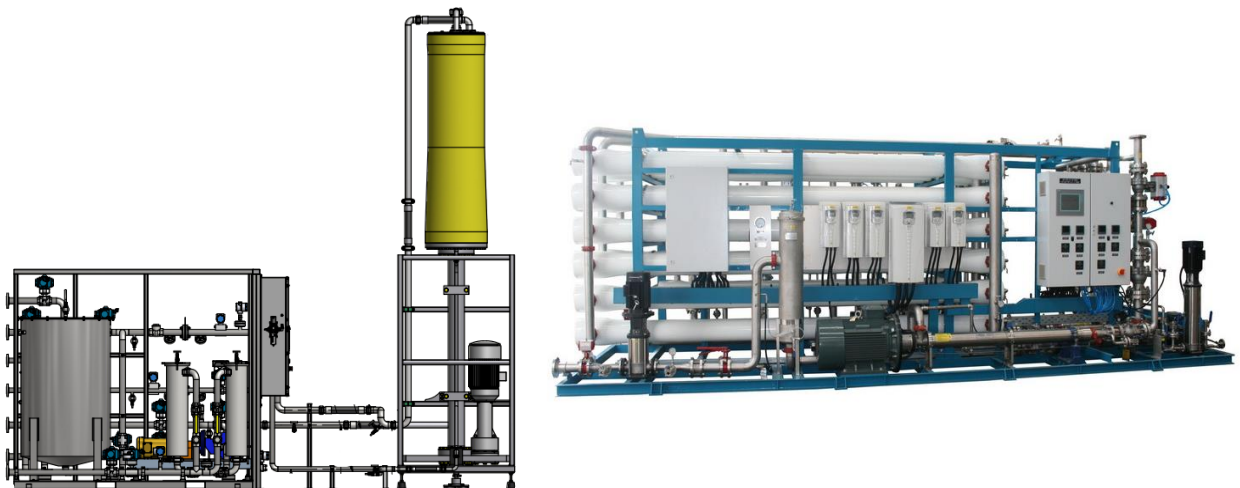
We strive to use the most appropriate solution to suit your treatment and/or recovery requirements. We are not limited to a single technology as we have a vast range of experience in the majority of treatment technologies. This includes membrane bio reactors, aerobic treatment, media filtration, ion exchange and other membrane technologies across a range of effluents and industries.

As no two processes are equal it is essential to follow a number of steps to ensure that your tailored food and beverage treatment/recovery process performs as well and economically as possible to achieve your treatment goals.

- Chemical testing to achieve best flocculation at lowest dose rate (for high solids leachates).
- Lab scale dewatering and membrane trial and selection to ensure process feasibility
- Long term site pilot trial to allow for feed variation and data gathering
- Extensive plant design and operating expense calculations
- Build, Installation and Commissioning
- Comprehensive service support including maintenance and system upgrades.

Food and Beverage Reference Plants

- Hartridges Soft Drinks UK – Bottle Wash (RO)
- Coca Cola Schweppes UK – Biothane Wastewater (Mechanical/Electrical)
- Palm Oil Operation Guatemala – Compost Leachate (VSEP)
- Olive Oil – WWTP (UF, VSEP-RO)
- Wine Lees Sonoma County – Lees and Water Recovery (VSEP)
- Ekoton Food and Bev Refs (Sausage Processing plant?)



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