

Membrane Technology for
liquid/liquid and **liquid/solid** separation

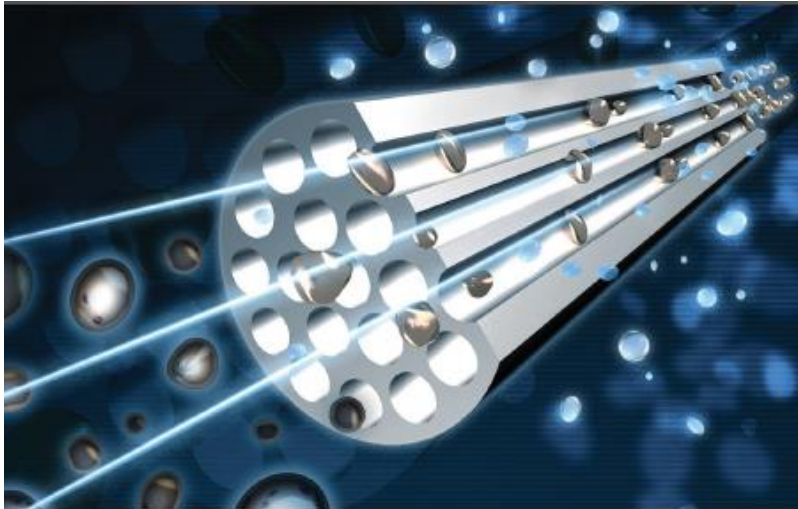


“Water Supply for Businesses in Johannesburg”

Online information session 11 July 2024

Upstream Water Saving Process Solutions

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MEMCON Total Process Solution® (MTPS®) provides customised membrane technology solutions for *liquid-liquid* and *liquid-solid* separation.

The **MEMCON** membrane systems can mechanically separate any kind of liquid into valuable and unwanted substances at the client's production process.

MEMCON's comprehensive laboratory and pilot plant equipment are used to assist in feasibility studies and project costing forecasts.



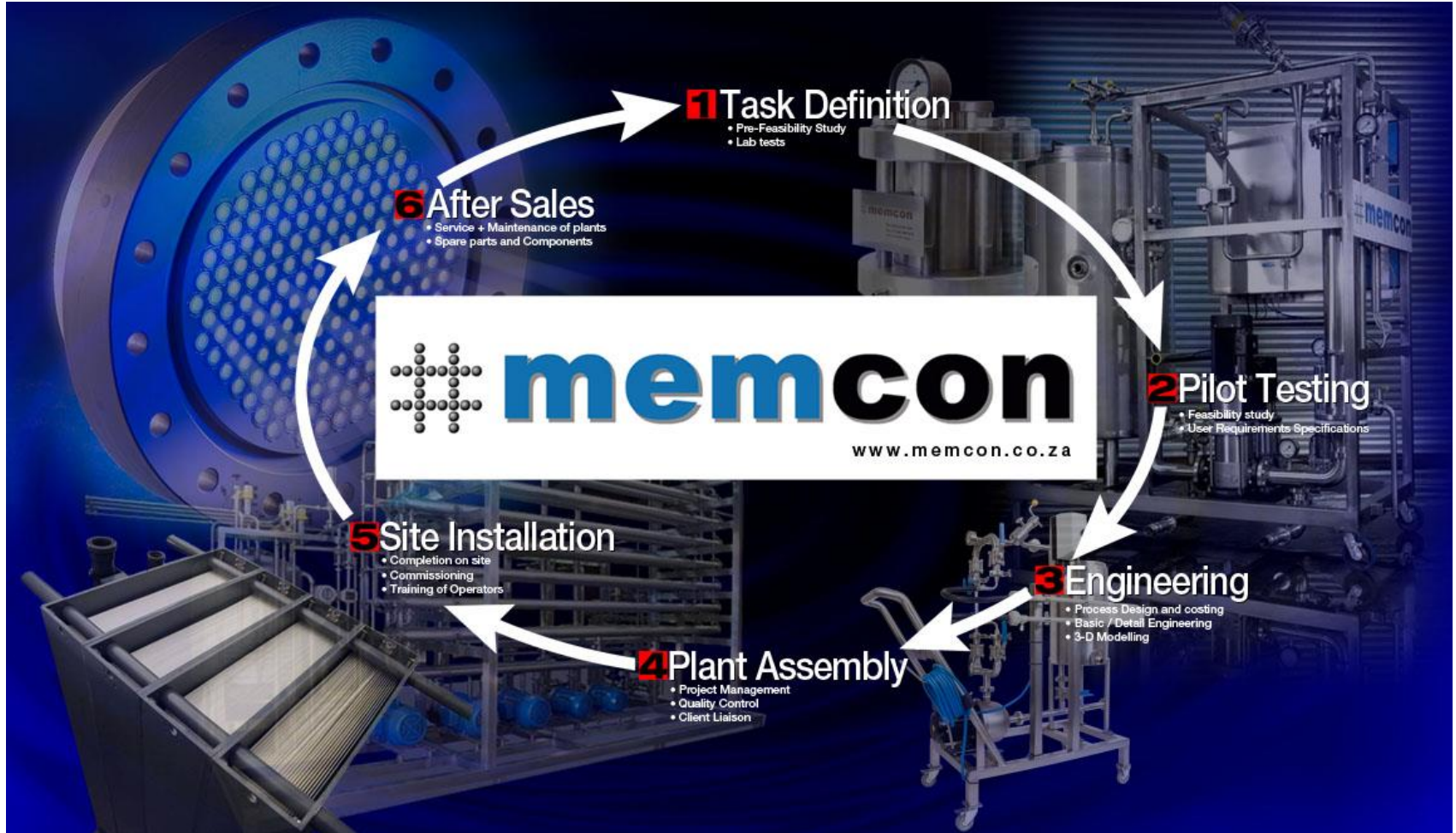
Customer Benefits:

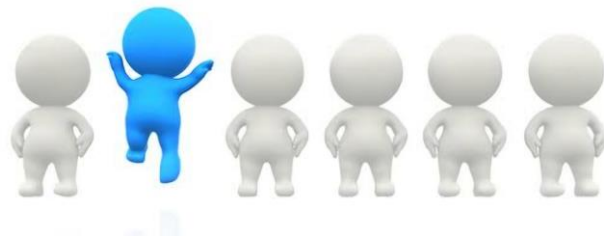
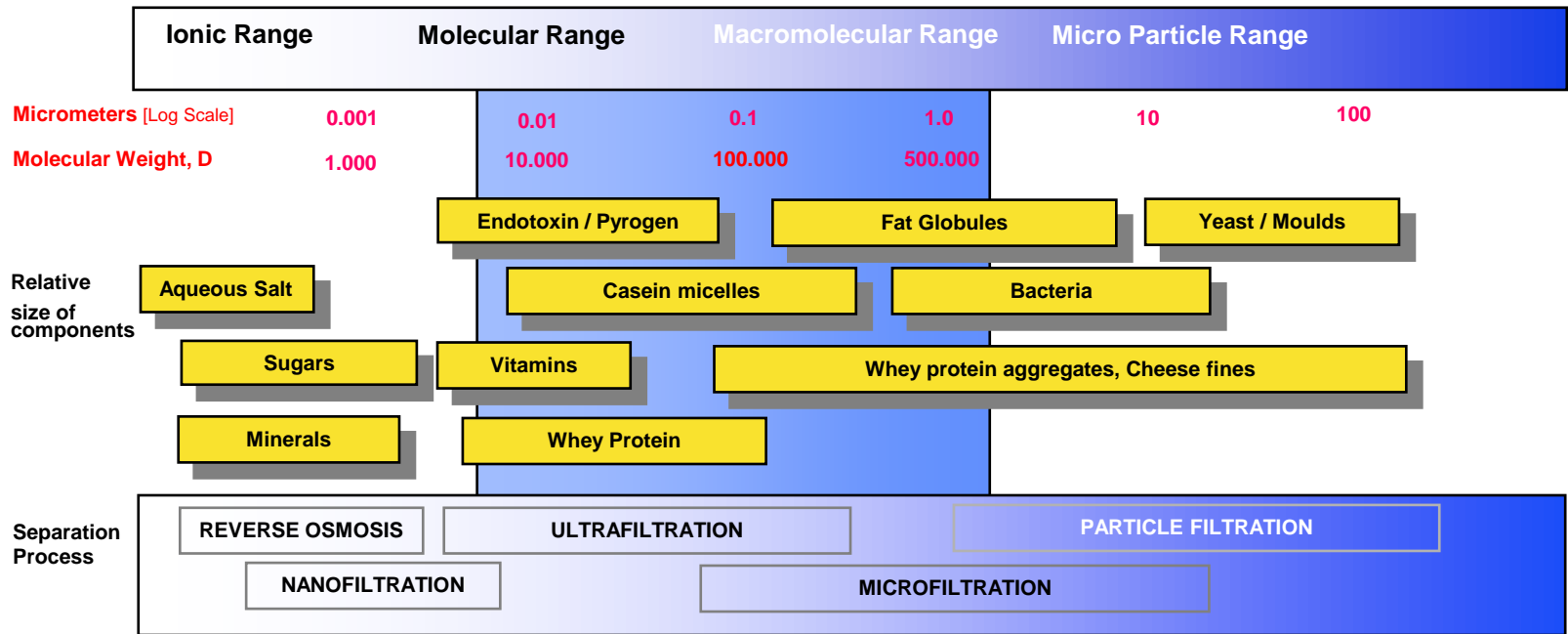
Legal environmental compliance with reduced operational expenditure by designing a technical solution that **guarantees** compliance with environmental legislation (Local and International).

Reduced total cost of process operation (lowering operational expenses, recovering valuable substances back to process, i.e. fresh water).

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Application Examples 1

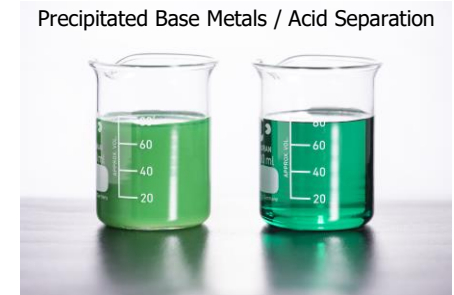
Dairy Waste Water recycling



Dissolved Metals / Acid Separation



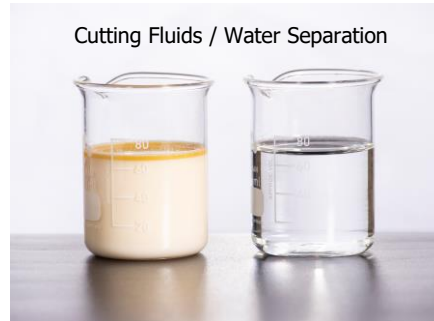
Precipitated Base Metals / Acid Separation



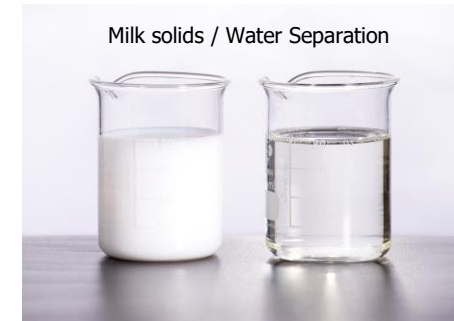
Paint / Water Separation



Cutting Fluids / Water Separation

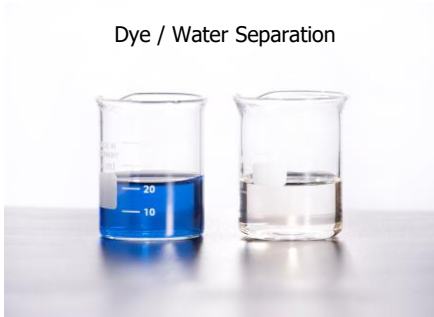


Milk solids / Water Separation



Application Examples 2

Dye / Water Separation



Tannery Waste Water Treatment



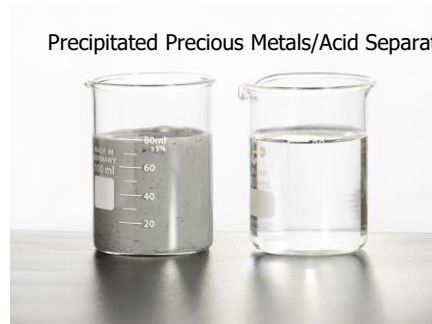
Oily Waste Water Treatment



Landfill Leachate Treatment



Precipitated Precious Metals/Acid Separation



Cosmetic oils purification

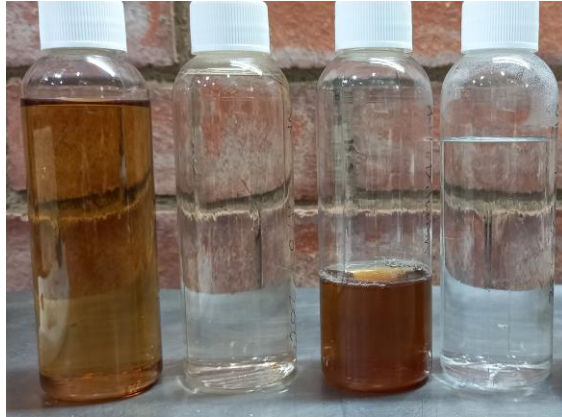


1 – Water Recovery through Waste Beneficiation

Process Membrane Technology



Examples – Water Recovery through Waste Beneficiation



Expired Beer; fractionation into „Nutrients“, „Alcohol“ and „Water“



Soft Drink Sugar concentration from 3 % to 20 % Brix by extracting water



Examples – Water Recovery through Waste Beneficiation



Polymer manufacturing rinse water



Paper & Pulp effluent



Corn steep & rinse water

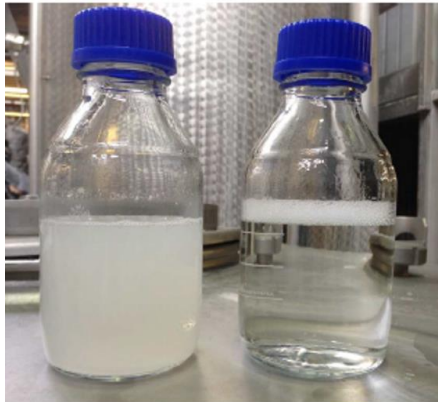


Oily waste water

2 – Water Recovery through Utilities Recycling

Process Utility Streams

- Cleaning solutions (i.e. caustic, acid)
- Rinse waters
- Cooling water
- Cooling tower blowdown water
- Boiler blowdown water
- Steam condensate
- Push / carrier water
-



Caustic Soda solution

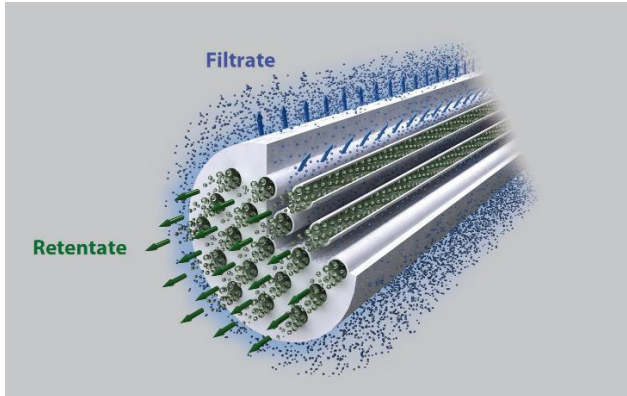


Rinse water after chem. cleaning



Cooling tower blowdown water

Example - CIP Caustic Soda solution recycling



Ceramic UF membrane process:

Crossflow filtration along an ultra-fine active membrane surface at app. 5 bar system pressure. Clean Filtrate (Permeate) gets returned to the CIP Caustic tank, while the Concentrate (Retentate) gets returned in loop function back to membrane module inlet for maximum concentration.



Typical ceramic UF membrane plant for treating 25 t/day spent caustic

Example - CIP Caustic Soda solution recycling



Recycled Caustic (return to plant)

Spent Caustic (from plant)

Final Concentrate (< 5 % of total volume; disposal)



