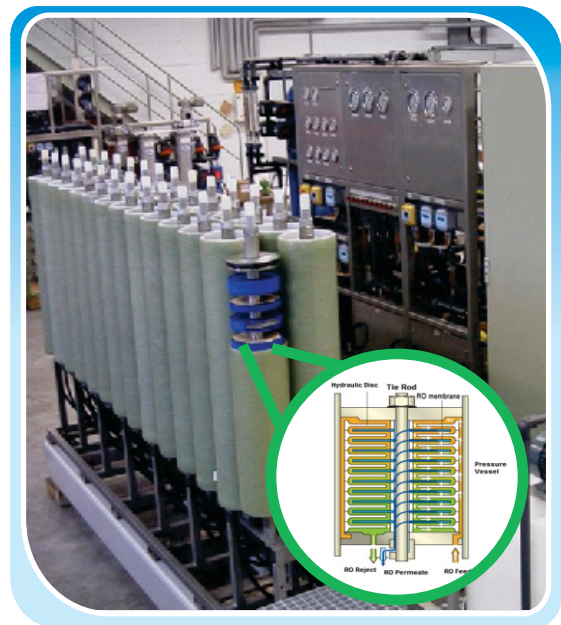


## INDION® PF/DT Reverse Osmosis System for the Distillery Industry

Industrial waste water generated from a distillery during production of alcohol is one of the most complex and difficult to treat effluents. Therefore, the pollution caused by it is a critical environmental concern.

The effluent from the distillery 'Spent Wash' is produced as a result of fermentation and distillation of molasses. Dark brown colour and high Chemical Oxygen Demand (COD) are the major pollutants in biomethanated distillery effluent and cannot be reduced by conventional treatment process. For such difficult effluents from the distillery, INDION PF/DT Reverse Osmosis System, with its flat-sheet membrane technology, offers a unique solution.

Incorporation of the INDION PF/DT Reverse Osmosis System in the effluent treatment scheme addresses critical environmental concerns of the distillery sector and at the same time produce water of reusable quality, thus reducing the need for fresh water intake.



### Features

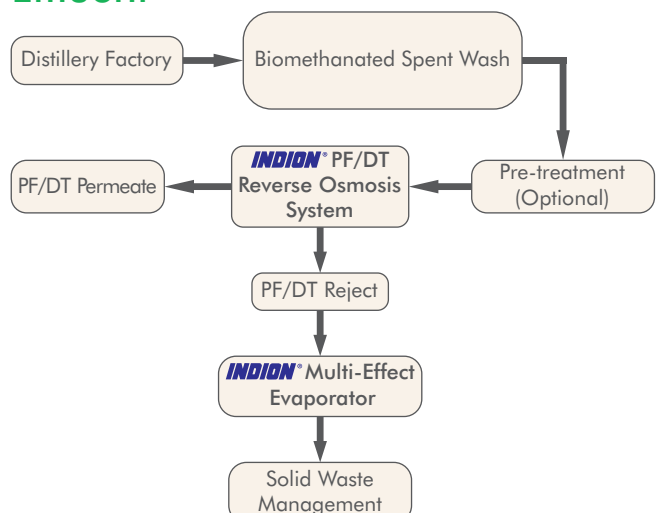
- High-pressure systems to maximise recovery
- Automatic and manual control of entire Reverse Osmosis (RO) plant
- Built-in safety features such as dry run protection, overload protection, etc. to prevent high pressure pump and membrane system from damage
- Onscreen simulation of complete operation and fault indication
- Inbuilt clean-in-place (CIP) for periodic membrane cleaning

### Advantages

- Precursor to complete Zero Liquid Discharge (ZLD) & Multi-Effect Evaporator (MEE) system to reduce life cycle cost of the system
- Minimal pre-treatment [INDION Multigrade Filter (MGF) + INDION Cartridge Filter (CF)]

- > 70% reusable permeate
- Reduced pressmud and land requirements due to smaller volume of concentrate
- Savings in power cost by elimination of aeration
- Modular system design which is upgradeable
- Saving in terms of evaporator - Capex & Opex

### Typical Process Flow of Distillery Effluent



## Typical Feed Parameters of Spent Wash

Parameters	Unit	Biomethanated Spent Wash	
		Feed	Permeate
Total Suspended Solids (TSS)	mg/l	2000	Nil
Conductivity	$\mu\text{s/cm}$	30000 - 45000	1700
Total Dissolved Solids (TDS)	mg/l	20000 - 35000	1000
Chemical Oxygen Demand (COD)	mg/l	30000 - 40000	250
Biological Oxygen Demand (BOD)	mg/l	10000 - 15000	30
Recovery	%	50 - 70	
Brix	$^{\circ}\text{Bx}$	6 - 7	Nil
Temperature	$^{\circ}\text{C}$	30 - 35	

*Note: The above parameters are typical and may change based on site conditions.*

Ion Exchange also offers packaged solution which includes INDION Effluent Treatment Plant (ETP), INDION RO & INDION Multi-Effect Evaporator (MEE) to achieve Zero Liquid Discharge (ZLD).

**Our state-of-the-art manufacturing facilities are ISO 9001, ISO 14001 & ISO 45001 certified.**

To the best of our knowledge, the information contained in this publication is accurate. Ion Exchange (India) Ltd. maintains a policy of continuous development and reserves the right to amend the information given herein without notice. Please contact our regional/branch offices for current product specifications.

**INDION** is the registered trademark of Ion Exchange (India) Ltd.



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