

## Industries & Treatment Processes

Industry	Wastewater Source & Brief Characteristics	Treatment Process
Oil		
Offshore Platforms	Domestic sewage	Macerator followed by disinfection
Oilfield	Produced water	CPI, Hydrocyclone IGF, DAF, Walnut Shell Filter, cartridge filtration
Oil Refining	Oily contaminated wastewater	API, CPI and flotation
	Wastewater streams containing NH <sub>3</sub> , H <sub>2</sub> S, Phenols, Benzene, Toluene, Ethyl Benzene	Biological treatment followed by tertiary filtration and disinfection
	Effluent like DM regeneration, water boiler blow down, sanitary sewer, and emergency streams	Combined with other effluents to treat through physicochemical treatment, biological treatment, followed by tertiary filtration and disinfection
	Spent caustic containing COD, Sulfide, Mercaptan	Neutralisation, oxidation and incineration
Gas		
	Oily contaminated wastewater	CPI, flotation and filtration
Petrochemical		
	Oily contaminated wastewater	API, CPI and flotation
	Methanol and Ammonia	Biological treatment followed by tertiary filtration and disinfection
Fertiliser		
	Oil, suspended solids, Ammonia, Methanol, CO <sub>2</sub> , Methylamine	CPI, flotation, biological treatment and tertiary treatment
Power		
	HRSB blow down, chemical wastewater, oily wastewater and sanitary sewer	Physicochemical treatment, oil removal system, biological and tertiary treatment

## Sustainable Solutions for the Energy and Hydrocarbon Industries





During the past decade, environmental concerns have escalated around the world more than ever before. Governments are applying pressure on industries to reduce unproductive use of chemicals and discharge of hazardous wastes. Choosing between treatment for discharge and treatment for recovery is an issue that requires a justifiable and comprehensive economic evaluation.

At Metito, water and wastewater management techniques have been put to test and polished through decades of successful operation. We work in partnership with our clients to develop industry specific water and wastewater management solutions that are both innovative and workable whilst maintaining economical advantages.



## Metito's Comprehensive Water and Wastewater Management Programme

In today's increasingly competitive and complex business environment, effective implementation of new technology is critical to the success of any project. Metito is committed to developing and maintaining the special expertise necessary to evaluate, select and implement intelligent water and wastewater management solutions. Such solutions are put to work by one or more of the group's four well-manned and equipped operational divisions; Process Engineering, Laboratory Analysis, Equipment Manufacturing, and Project Management. Complimented by Project Finance, this becomes a truly 'total' solution.

### Process Engineering

Metito's wastewater management techniques are devised through studies, supported by in-house designed and built pilot-scale treatment units. Process evaluation and cost effective system operation and monitoring of a pilot plant on the actual wastewater stream is the best evaluation method and contributing mechanism to the final wastewater management programme.



## Laboratory Analysis

The Metito laboratory is a separate operational division equipped with the most sophisticated and comprehensive apparatus for chemical, biological and organic testing of a wastewater stream. Samples collected from pilot units are brought to Metito laboratories for round the clock evaluation of performance and interpretation of results.

## Equipment Manufacturing

The stringent operational standards of certain multinational industries and their consultants have greatly influenced the status of excellence that the Metito Manufacturing Division enjoys. Systems, be they membrane based package plants, biological or chemical reactors, undergo the strictest scrutiny by Metito's QA/QC professional teams.

## Project Management

Metito's repeated involvement in installation of its M&E contracts as well as in many turn-key ones, has throughout the years enriched its project management capabilities and sharpened the skills of its teams. Metito's installation teams are some of the best in the industry, many of whom have spent years in operation and trouble-shooting of water and wastewater treatment plants.

## Project Finance

Where desired by the client, Metito's Project Finance Division will support project management to undertake installation and operation of a water or wastewater treatment plant with a limited initial capital outlay on the part of the client. Compensation can be in instalments, the value of which is determined by the financed portion of the capital cost as well as the treatment plant's operational costs.



## Intelligent Water Management Solutions

Metito designs and manufactures a complete line of water treatment products that address a wide range of applications, from desalination to demineralisation.

### Applications include:

- Process water
- Boiler feedwater
- Cooling tower make up water
- Site utilities

### Products used for these applications include:

- Reverse Osmosis Desalination - for both seawater and brackish water
- Two bed demineralisers
- Mixed bed polishers
- Condensate polishers
- Electro-deionisers



## Wastewater Treatment and Management

Through a refined knowledge of advanced treatment technologies and a constantly updated awareness of environmental regulations, Metito is able to provide the most efficient and reliable treatment processes.

Applications include:

- Oily wastewater
- Turbine condensate
- Cooling tower blow-down
- Produced water
- Process effluent

Products & processes used in this category include:

- Reactor clarifiers
- Dissolved air floatation
- Induced air/gas floatation
- Aerobic activated sludge
- Anaerobic attached media growth
- Air strippers
- Membrane separation systems
- Sludge dewatering and treatment systems



## Zero Liquid Discharge

Metito's treatment technologies go beyond treatment for discharge to include full recycling processes, ensuring zero liquid discharge through a process combining evaporation and crystallisation.

