'ONE STOP SHOP'

Environmental Solutions & Services
For Industry & Municipalities
Greater water demands and the increasing problems of environmental pollution as well as of industrial and municipal waste disposal call for an integrated approach of total environment management. Ion Exchange Waterleau Ltd., a joint venture of Ion Exchange (India) Ltd. and the Waterleau Group, Belgium offers a complete portfolio of advanced environmental solutions and services for industrial, infrastructure and municipal applications. Technology solutions encompass water, liquid & gaseous effluents, solid waste & bio-solids, and renewable energy, while services include consultancy, turnkey contracting, O&M and BOOT projects.

Ion Exchange Waterleau Ltd., is one of the few global players in the environmental sector with a complete portfolio of environmental solutions and services for industry and municipalities - a 'ONE STOP SHOP'.

We have a proven track record in the design, construction, operation & maintenance of hundreds of treatment plants. With 200 references in anaerobic waste water treatment, we belong to the TOP 3 global players.

We have more than 50000 group references from various industries such as Drugs & Pharmaceuticals, Breweries, Distilleries, Steel & Metallurgy, Food & Beverage, Infrastructure, Municipal Projects (liquid & solid waste management), Power, Fertilizers, Pulp & Paper, Textile and Sugar.

Our Solutions
- Water Conservation & Waste Management
- Process Water
- Ultra-Pure Bottled Water
- Waste Water Treatment
- Water Reuse and Effluent Recycle
- Odour Control, VOC, Flue Gas and Bio-gas Cleaning
- Renewable Energy
- Valorisation of Bio-solids, Waste and By-products

Our Services Include
- Consultancy
- Turnkey Contracting
- Operation & Maintenance
- BOOT Projects
**Process Water Treatment**

Starting from any water source, we are able to produce process water with the required quality using the following technologies:

- Clarification, Filtration
- Ozonation, Mixed Oxidant
  Disinfection, Electro Chlorination, Photo-chemical Oxidation
- Softening, Demineralisation, Electro Deionisation, Condensate Polishing
- Membrane Processes - Micro & Ultra Filtration, Reverse Osmosis, Nano Filtration

**Production of Ultra-Pure Water**

**INDION® RO-EDI Systems**

- Hot water sanitisation
- Complete pure water generation package on one skid
- Fully pre-validated to industry accepted standards
- Compliance with GAMP and ISPE design standards

**INDION® Duo Rapide Demineralisers**

- Instantaneous flow rates up to 20 m³/h
- Conductivity less than 1 μS-cm, with low running costs
- Automatic PLC control with continuous display readout of system status
- Short cycle (4 hours), rapid regeneration (30 min)
- High chemical efficiency, smaller footprint and higher flow rates than conventional plants
- Near neutral effluent reduces disposal costs

We also offer the widest range of INDION® speciality chemicals for water, waste water and process applications which includes ion exchange resins, water treatment chemicals for boilers, cooling towers, and raw water clarification, speciality antiscalants for membrane systems, and process chemicals for the sugar and paper industries.
Waste Water Treatment

Today, industries, municipalities & communities are increasingly striving towards water conservation and pollution control. The driving forces behind this are water shortages and rising water costs, new environmental regulations on consumption and discharge limits, stricter enforcement and anticipated introduction of effluent charges corresponding to defined discharge limits. As industries in general need high amounts of water in their production processes; they especially pay high effluent charges. Apart from effluent charges, discharge of raw waste water into a sewer or into surface water is completely prohibited by local governments.

Hence, for all the above sectors, it is one of the top priorities to continuously look out for solutions to lower these costs. There are two ways to achieve this:

- Water conservation: reduce the amount of water needed for each unit of production.
- Decrease the organic and inorganic loads in domestic and industrial waste water by the use of the most appropriate biological waste water treatment, including nutrient removal.

LUCAS®Anaerobic is the brand name for an anaerobic wastewater treatment system making use of UASB technology (Upflow Anaerobic Sludge Blanket) treating raw waste water. Depending on the characteristics of the waste water, a high removal efficiency of 80-90% of organic matter is achieved.

LUCAS®Aerobic with nutrient removal offers a compact and modular design. It combines the advantages of the conventional and the Sequencing Batch Reactor (SBR) technologies. Like in the conventional system, the reactor volume and the level in the tanks is always constant. It is a continuous system for both influent feed and effluent discharge. Like the fill-and-draw system, the reactor operates according to a time controlled process cycle that allows for the alteration of all essential processes in a single compartment.

Advantages

LUCAS®anaerobic-aerobic with nutrient removal
- High COD removal efficiency (up to 90%) in UASB reactor
- High biogas production which can be converted into heat and/or electricity (0,3-4,4 Nm³ biogas/kg COD)
- Low sludge production (0,02 kg SS/kg COD converted)
- Robust and proven technology
- Very compact design
- Cost effective technology (ROI between 2 and 5 years)
- High effluent quality with complete nutrient (N&P) removal.
Waste Reuse and Effluent Recycle

Our recycle solutions integrate physico-chemical, biological and membrane separation processes for optimum water recovery. They include advanced effluent treatment processes, micro filtration, ultra filtration, nano filtration and reverse osmosis systems, membrane bio-reactors and advanced photo-chemical oxidation.

To produce an effluent that is extremely pure and appropriate for immediate reuse, we offer two different membrane bio-reactor (MBR) concepts. The INDION Submerged MBR is a technology to treat waste water in a very compact bio-reactor. With this concept, the higher biomass concentrations can be kept in the reactor causing a decrease of the bio-reactor volume with a 3-4 factor compared to a conventional sludge system. Furthermore, the energy consumption is kept to a minimum by placing the flat sheet membranes inside the reactor. In the X-TRACTOR® Cross Flow MBR, tubular membranes are placed outside in an external loop of the bioreactor. Due to the higher energy consumption caused by the high speed circulation, this Cross Flow MBR is used to treat smaller but more difficult waste water flows.
Odour Control, VOC, Fluegas & Biogas

Our Technologies
- BEL-AIR® biofilter and BIOTON® biofilter
- BIOWAVE® bioscrubber
- CALVERT® collision scrubber for flue gas cleaning (wet scrubbing)
- DYNACYCLE® VOC® oxidation
- BEL-GAS® gas cleaning with biological scrubber system

Renewable Energy
Production of heat and electricity out of liquid & solid wastes through anaerobic digestion & combustion-incineration processes respectively:
- Anaerobic digestors & biogas engines to produce electricity
- The TURNOVER® rotary furnace with heat recovery boiler for a wide range of wastes and capacities ranging from 500 kg/h to 3 t/h.
- The HELIOSOLIDS® fluidised bed reactor with integrated boiler for thermal valorisation of sludge, liquids, gases, fine solids with low emissions (CO₂, NOx, SOx, C₆H₄).
- The ENERGIZE® multi-stage waste to energy grate for solid industrial, domestic waste, RDF, packaging waste.
- DYNAFLUID® multifluid thermal oxidiser with recovery boiler.

Valorisation of Bio-solids, Waste and By-Products
- dot.comPOST® bio-solids treatment
- HYDROGONE® disk dryer
- PUTT-ART® dryer-granulator
Services

Comprehensive, multi-disciplinary services eliminate split of responsibilities and ensure projects deliver agreed solutions on time and within budget.

Vast Experience
Proprietary Technologies
Standardised Project Management Process

Research & Development
Audits & Consultancy
Pilot Testing and Demonstration Tests
Feasibility Studies
Technology Selection

Process Design
Mechanical Design
E&I Design
Basic Engineering
Detailed Engineering

Start-up and Commissioning
Training
Operation and Maintenance
Project Development
Financing
BO(O)T Projects

Procurement
Equipment Supply
Site Supervision
General Contracting
Construction & Erection
Electricity, Instrumentation & Controls
More Than 50,000 Group References

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<th>References</th>
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Also more than 1,00,000 references in domestic water treatment annually.

Monsanto USA, Hercules USA, Binder Austria, Heineken (Netherlands, Spain, Vietnam, China, Indonesia, Nigeria), Thames Water UK, Unilever, Eastman-Kodak, GE Plastics Holland, Shell Netherlands, Bayer, Chrysler, Ford, General Motors, Philips, Toshiba, Zenerco Singapore, Cargill China, Formosa Plastics Taiwan, UCB, Coca Cola, DSM France, Diageo (Uganda, Kenya, Nigeria, Jamaica), Heinz, Goodyear China, Danone, Lactalis France, Miller Brewery USA, E.I.D. Parry India, INBEV (Belgium, UK, Hungary, Russia), Pepsi UK, Jubilant Organosys India, Amit Alcohol India, Mohan Breweries India, GPT Steel India, Ranbaxy Laboratories India, Wockhardt Ltd. India, USV Ltd. India, Pepsico India, Hindalco India, Jindal India, Mitsubishi India, TISCO India, BHIL India, NTPC India, Nicholas Piramal India, Alkem Labs, Cipla India, Tata Chemicals, HLL India, GHLL India, ACC India, Maruti Udyog India.