

Alumina Refining Made Better



Total Process and Water Solutions for the Alumina Industry

Significant water resources are required for the production of alumina. Water is used at various stages during its production.

Ion Exchange (India) Limited, specialists in water and environment management for over five decades, offers the alumina industry advanced solutions for the entire process, water & waste water circuit. We provide product and technical expertise to the alumina processing industry.

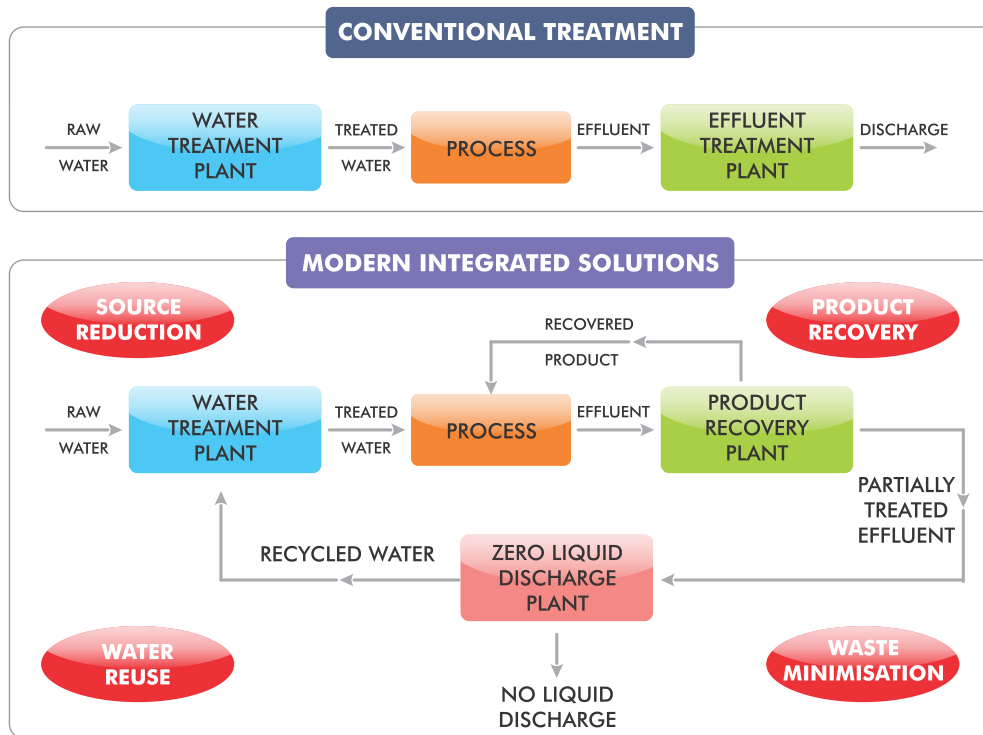
With our comprehensive range of technological solutions for process, water and waste water treatment, quality products, superior application knowledge and outstanding service support, we have the ability to help you make better alumina. This is proven by the numerous projects we have undertaken worldwide – extending from survey, consultancy and audit of total water circuits for water balancing and optimisation of water consumption in each plant, design and engineering of water and effluent treatment plants to operation, maintenance and management of the entire water circuit.



Modern Integrated Solutions

Waste water recycle helps provide significant economical and environmental benefits to the alumina industry by conserving large quantities of fresh water, reducing cost of water, enabling compliance with pollution control regulations and protecting the environment.

Our advanced, cost-effective recycle technologies integrate physico-chemical, biological and membrane separation processes for optimum water recovery, enabling up to 90% reduction in raw water requirements.



The benefits of our modern integrated solutions, as compared to the conventional treatment are many. Requirement of source water is reduced as the water is reused, products are recovered, waste is reduced drastically and zero liquid discharge (ZLD) plant recycles water for reuse; thereby ensuring zero discharge into the environment.



Reverse Osmosis Plant



Multi-effect Evaporator



Ultra Filtration Plant

INDION® Solutions for Treating Effluent Generated by the Alumina Industry

Fluoride is one of the major contaminants in the effluent generated by the alumina industry apart from organic suspended solids, total dissolved solids (TDS), oil & grease.

INDION RS-F resin based fluoride removal technology for the treatment of waste water generated by alumina industry has the following advantages:

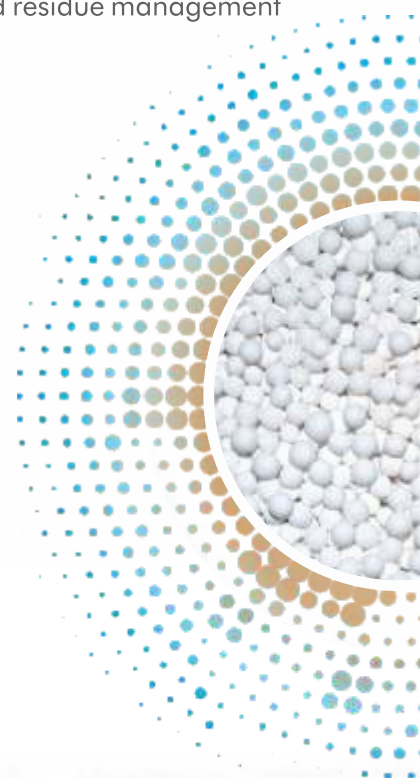
- INDION fluoride removal system is designed for 10 ppm of fluoride levels. It can tolerate 25 ppm of fluoride in presence of commonly available anions such as chloride (<2000 ppm), sulphates (<500 ppm) & total alkalinity (350 ppm)
- Regeneration is through a low cost, easily available regenerant (poly aluminium chloride). In specific cases, INDION RS-F resin can be regenerated at a significantly lower cost by using alum
- INDION RS-F resin has a minimum life of 2-3 years

Once fluoride is reduced from effluent streams, a combination of membrane process and downstream evaporation process can be used to recover water and also achieve the objective of zero liquid discharge. The recovered water can be used for high end applications including all processes, cooling water make-up, etc.

Speciality Chemical Treatment

We offer a complete range of customised INDION boiler/cooling water and fireside treatment programmes to complement engineered water treatment for optimum performance. Highly trained engineers conducting in-depth surveys of your plant and system requirements closely monitor the treatment programmes and regularly evaluate results to make required adjustments for optimum benefits.

The alumina industry faces many challenges and issues relating to the use of water and zero liquid discharge along with other aspects such as impact of exploration, extraction and residue management on the environment.



INDFLOC® & IONEX Range of Products for Alumina Industry

Our INDFLOC & IONEX range of products includes flocculants, coagulants and dewatering aids for thickening, clarification and centrifugation. Our flocculants are used in pressure decanter, high rate decanter (HRD) / high rate thickener (HRT) and deep cone washer (DCW). They are also effective for conventional thickeners / washers.

Ion Exchange offers wide range of speciality chemicals and technologies to improve process efficiencies in the alumina industry. The focus is on applications such as solid-liquid separation, crystal growth, solvent extraction, tailings management, flotation and material handling.

DCW/Washers: Effective at low dosages, increase settling rates, high underflow densities, improve soda recovery, effective at wide range of caustic concentration and improve washing efficiencies across the washers.

Antifoam: Single point addition, better operation control, improves yield, eliminates safety hazard, effective at wide range of temperatures, better performance at even high organic loads, easy to operate and considerable reduction of surface foam on secondary thickeners.

Crystal Growth Modifier (CGM): Enhances the agglomeration of hydrate particles, reduces generation of hydrate fines, allows operation at lower fill temperatures and higher seed charges and improves yield while maintaining quality parameters.

Hydrate Flocculant: Improves production, reduces tertiary overflow solids, maintains lower levels of hydrates in spent liquor, improves rheology of hydrate and is effective even in presence of oxalate.

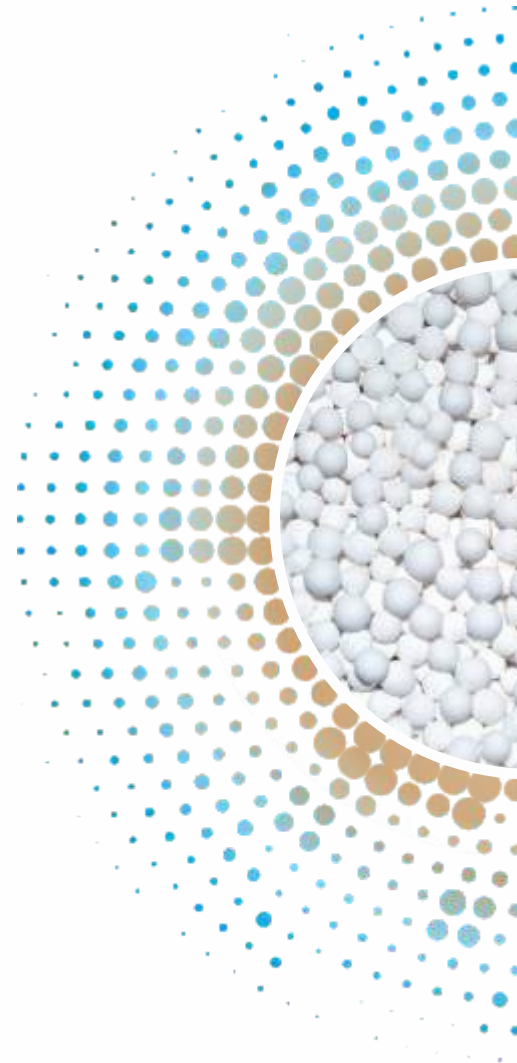
Dewatering Aid: Reduces leachable soda, increases throughput, improves filter cake handling, effective at low dosages and improves filter performance & longevity of filter cloth / wire through reduced caustic retention and with cloth hardening.

Dust Control: Effective at low dosages, excellent binding property even in sunlight, stabilises surface particles and prevents erosion by wind.

Our products minimise / optimise chemical consumption and maximise recovery by improving the rate and degree to which solid-liquid separation takes place in thickening applications.

Our aim is to provide innovative, sustainable solutions to ensure your operations run more efficiently by delivering operational, economic and environment benefits.

We also manufacture tailor-made equipments / systems for preparation and dosing of synfloc, both emulsion and powder. Scope includes storage, mixing, dosing and process control for a wide range of applications.



Services

Our integrated services cover every aspect of your water & waste water treatment plants' performance along with the performance of chemical treatment system to give you a complete package of benefits. Under our single window service, you gain:

- Service / O&M contracts for raw water & waste water treatment plants
- Round the clock services for process monitoring
- Equipment modification as per capacity enhancement
- Supply of consumables & spares
- Water audits
- In-house or onsite training

Thus, our 360° total water and environmental management solutions, along with supply & monitoring of speciality process chemicals, enable us to manage waste and add value across the entire process cycle of alumina plants. Our comprehensive service support ensures high performance continuity.

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.

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