IEI News

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Krafting Total Paper Care Solutions

ION EXCHANGE
Refreshing the Planet

INDEX

SPOTLIGHT

Krafting Sustainable Water Management Solutions for the Pulp & Paper Industry

Paper making is one of the largest agro-based industries, which uses a variety of raw materials viz. wood, bamboo, recycled fibre, bagasse, wheat straw, rice husk, etc. The Pulp & Paper industry is also one of the largest consumers of fresh water with consumption in the range 10-60 m^3/t of product depending on scale of operation and the type of raw material (RCF to Wood) being used. The major water consuming areas in the pulp & paper industry includes Pulp Mill, Paper Machine, Chemical Recovery and Utilities.

Large percentage of water consumed for washing & dilution purposes becomes a part of the wastewater having contaminants such as fibre, color, TDS, organic & inorganic pollutants. Nearly 14% of industrial wastewater generated by industries is attributed to the Pulp & Paper industry.

The world has been seeing continuous reduction in water availability with many regions likely to be hit by water scarcity in the near future. Further, it is also observed that most Pulp & Paper mills in countries like India, are in water scarce regions. With rising population and increasing per capita income, the demand for pulp and paper is expected to increase in the country. Therefore, paper mills will be faced with the challenge of increasing production with reduced quantities of water available. Furthermore, the regulatory frameworks are also guiding the sector to reduce freshwater consumption and wastewater discharge mandating the industry to adopt new, sustainable and efficient water and waste treatment technologies.

The industry has started evolving strategies through adoption of technologies which can help in handling challenges such as salt build-up, colour and other difficult to treat contaminants apart from odour-control in finished products.

Ion Exchange provides a two-pronged approach to meet the above goals:

- Optimizing good manufacturing practices for which Ion Exchange provides speciality process chemicals (dry and wet end chemicals) which not only improve the quality and efficiency through increased processing yields but also reduce consumption of water in the manufacturing process.
- Providing advanced water and waste treatment technologies beginning with a complete appraisal of water consumption through a comprehensive water audit which is followed by substituting conventional treatment with advanced technologies and modern integrated water management processes that ensure source reduction, product recovery, waste minimization and water reuse.

Leveraging more than five decades of experience in providing end-to-end value added products and solutions, Ion Exchange reaffirms its commitment to offer its products, services, solutions and innovations to meet the growing need for an efficient and sustainable paper-manufacturing process.

Our Complete Solutions

Pre-Treatment:

PT. Riau Andalan Pulp & Paper (RAPP), Indonesia

PT. Riau Andalan Pulp & Paper (RAPP), Indonesia is one of the largest pulp mills in the world with a total capacity of 2.8 million tonnes of pulp and 1.15 million tonnes of paper. In 1994, Ion Exchange was awarded a turnkey contract for Pretreatment and Demineralisation. Jaakko Pöyry, Finland were the clients' consultant for the project where we supplied innovative technologies such as cascade aerators, reactivator clarifier and FilterPak incorporating dual media for a capacity of 18,000 m^3/h (4 plants x 4500 m^3/h).

Pretreatment, demineralization and condensate plant for RAPP, Indonesia

In addition, we supplied DCS controlled chain of demineralization plants with total capacity of 1890 m^3/h (7 x 270 m^3/h). This was supplemented by a chain of condensate polishing plants with capacity 1800 m^3/h (5 x 360 m^3/h).

Following the successful performance of our water treatment plants, PT RAPP placed a repeat order in 2019 for additional water treatment plants for their expansion needs. This included two state-of-the-art Ultra High Rate Solids Contact Clarifiers with total capacity of 11,520 m^3/h (2 x 5760 m^3/h), demineralisation plants with capacity of 1350 m^3/h (5 chains x 270 m^3/h) and condensate polishing plants (1 plant x 360 m^3/h). On commissioning of these new streams, the total raw water clarification capacity using advanced clarifier technologies will be 32,000 m^3/h making it one of the largest pre-treatment plants in the world for the paper industry. The combined capacity of the Demineralisation plant will be 3240 m^3/h.

Process Water Treatment:

PT Indah Kiat Pulp & Paper, Indonesia

PT Indah Kiat Pulp & Paper is one of the largest integrated Pulp & Paper complexes in Indonesia under the Asia Pulp & Paper (APP) Sinar Mas group, having a capacity of 3.30 million tonnes of pulp & paper including leaf bleached Kraft pulp.

Ion Exchange was awarded a contract for Designing and Engineering of Demineralization and Condensate Polishing plants.

Following the successful execution of this project in 2002, a repeat order to meet the augmented manufacturing capacity was also placed with us. The total installed capacities for process water plants are as follows:

- Demineralization Plants – 8 plants x 150 m^3/h = 1200 m^3/h
- Condensate Polishing Plants – 6 plants x 175 m^3/h = 1050 m^3/h

Demineralization Plants

Effluent Treatment with Resource Recovery

Effluent Treatment with Resource Recovery was implemented for one of the largest Business Conglomerates in the ASEAN region with diverse business interests. As a group committed to highest standards of sustainability & environmental consciousness, they chose Ion Exchange (India) Ltd. to build an advanced wastewater treatment facility for complex paper effluent treatment with resource recovery for their paper mill in Jan 2019.

Impressed with the unique features of the External Circulation Sludge Bed (ECSB) anaerobic technology and our efficient execution of the first project with them, they placed a repeat order in Oct 2019 for a similar effluent treatment plant for their newly acquired paper mill.

Project 1

Designed to treat 11,000 m^3/day of complex effluent from the paper making process, the core treatment process employs a unique External Circulation Sludge Bed (ECSB) anaerobic process.

It includes a robust pre-treatment through Dissolved Air Floatation (DAF) system. The ECSB process is followed by activated sludge process and tertiary polishing treatment units. The sludge generated in the process is dewatered through a state-of-the-art Turbo drain thickener and Winkle Press to achieve dry solid consistency greater than 35%.

The process treatment achieves an overall COD and BOD reduction as high as 98%. Since the ECSB process allows the high rate anaerobic reactor to operate completely in pressurized conditions, foul smell and odour is eliminated thereby meeting the stringent environment norms of air emissions and liquid discharge.

Project 2: Repeat Order

The unit had an existing aerobic treatment system. Due to significant increase in organic load arising from expansion of the paper unit, the existing waste water treatment process was rehabilitated and modified with the incorporation of an External Circulation Sludge Bed (ECSB) anaerobic digester.

The ECSB system has a capacity of 12,000 m^3/d as the primary biological treatment process. Achieving a reduction of more than 75% COD and BOD, the load on the existing downstream aerobic process was reduced thereby meeting the stringent discharge norms from the expanded paper mill capacity.

The biogas generated from the advanced anaerobic process will be utilised as an energy source lending additional returns and significant savings on operating costs.

Ion Exchange commissioned these projects remotely during the peak Covid pandemic period coinciding with the client's overall project completion schedule.

ITC - Tribeni Tissues Division - White Water Recycle

The unit faced problems in treating "White Water", a term for process waste water containing fine particulate matters, fibres and fillers like titanium dioxide used in the speciality paper making process.

Ion Exchange has installed a White Water Recycling system with capacity 11,000 m^3/d for recovery of water, fibres and fines and reusing them in the paper manufacturing process. The recovery process utilizes High Rate Solids Contact Clarifier and Continuous Sand Filter along with speciality coagulants and flocculants for enhancing solids recovery.

The Continuous Sand Filter provides several benefits over conventional sand filters which require frequent backwashing thereby reducing the effective operating time. This advanced but highly simplified and efficient technology when applied (along with High Rate Solids Contact Clarifier) for recycling of water from the mills can recover fibre, filler chemicals and at the same time recycle quality treated water into the process. Continuous Sand Filters deliver superior treated effluent quality and require significantly lower footprint while delivering consistency in treated water quality. Thus ITC Tribeni could achieve 98% water recovery with less than 5 PPM of suspended solids allowing the treated white water to be reused directly in the paper mill without clogging the showers. 99% fibres which are also recovered are reused in paper-making thus helping to meet the circular economy goals of the paper industry.

Continuous Sand Filter

Innovations for the Paper Industry

INDION® Ultra High Rate Solids Contact Clarifier (UHRSCC)

This state-of-the art technology combines processes like mixing, flocculation and sedimentation in a single basin.

INDION Ultra High Rate Solids Contact Clarifier (UHRSCC)

Designed at significantly high rise rates (>15m/h) as compared to conventional High Rate Solids Contact Clarifiers, the breakthrough technology provides advantages of extremely compact, efficient (power, chemical and sludge generation) with significant savings in footprint while treating surface waters and mill wastewaters.

The intimate and prolonged contact with large quantities of previously formed solids (aided by new generation synthetic polyelectrolyte used as coagulants/flocculants), significantly reduces chemical requirement for the purpose of clarification.

These modularly designed units can handle high inlet suspended solids up to 3000 mg/l while giving consistent treated water quality of less than 10 mg/l.

With sludge concentration up to 3% resulting in elimination of the downstream thickeners; it further reduces the capital, operating cost and footprint of the overall clarification processes.

INDION® High Rate Anaerobic Treatment

Whilst the Paper Industry has adapted various types of anaerobic reactors like Anaerobic Contact (AC) Reactor, Upflow Anaerobic Sludge Bed (UASB) Reactor, Anaerobic Filter (AF) and Hybrid Type of Reactors (UAC+UACF), high rate, "easy as be" anaerobic technology has merits as it operates with organic loading rates in the range of 15-35kg COD/m^3/d that are several times (3-5 times) higher than all other anaerobic reactors. The reactors use advanced engineering material for the internal phase separation of anaerobic sludge, water and biogas constructed using bolted steel plates in a tall configuration thereby further reducing the footprint whilst optimizing the bio energy generation and producing treated effluents of the highest quality reducing the footprint and life cycle cost of downstream aerobic systems.

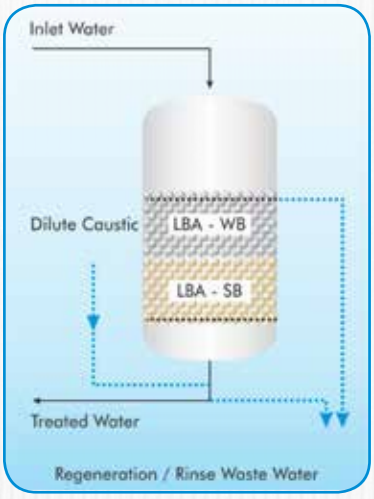
INDION High Rate Anaerobic Treatment

INDION® Layered Bed Demineraliser

For long, utility managers in the Industry were in need of Demineralisation systems with extremely high chemical efficiency, reduced sizes/units and associated costs (piping, valves, instrumentation, etc.) of Demineralisation systems. At the same time, maintaining excellent treated water quality required for steam (power) generation and critical process (formulations).

The "Layered Bed" concept developed using proprietary ion exchange resins, regenerated in counter current in single vessel configurations (for cation and anion) offers the advantages of saving in capex and opex and consequently savings in life cycle costs. These advanced technologies can also treat challenging high proportion of alkaline salts in relation to neutral salts (in layered Cation configuration) or waters having low alkalinity when the system has no degasser unit with Equivalent Mineral Acid (EMA) value greater than 60% (in layered Anion configuration).

Thus proving to be an excellent choice for water treatment utility managers' needs of reducing life cycle cost of Demineralisation (DM) system by retrofitting the Layered Bed concept in an existing DM unit or installing new units.



INDION Layered Bed Demineraliser

INDION SWIFT® Demineraliser

Short Cycle Rapid Regeneration

Ion Exchange's SWIFT Demineraliser is the latest advancement in automatic twin-bed deionisers incorporating state-of-the-art counter-flow Ion Exchange technology previously available only in large, custom designed plants.

The operational cycle of this rapid regeneration, packaged units are controlled by volume throughout, which is pre-programmed in PLC according to the type of feed water. The ion exchange resins are never fully exhausted ensuring optimum deionised water production at all times. The unit integrates a cation polishing unit (catpol) in order to produce mixed bed water quality meeting stringent international standards (Conductivity 1-10 ms/cm).

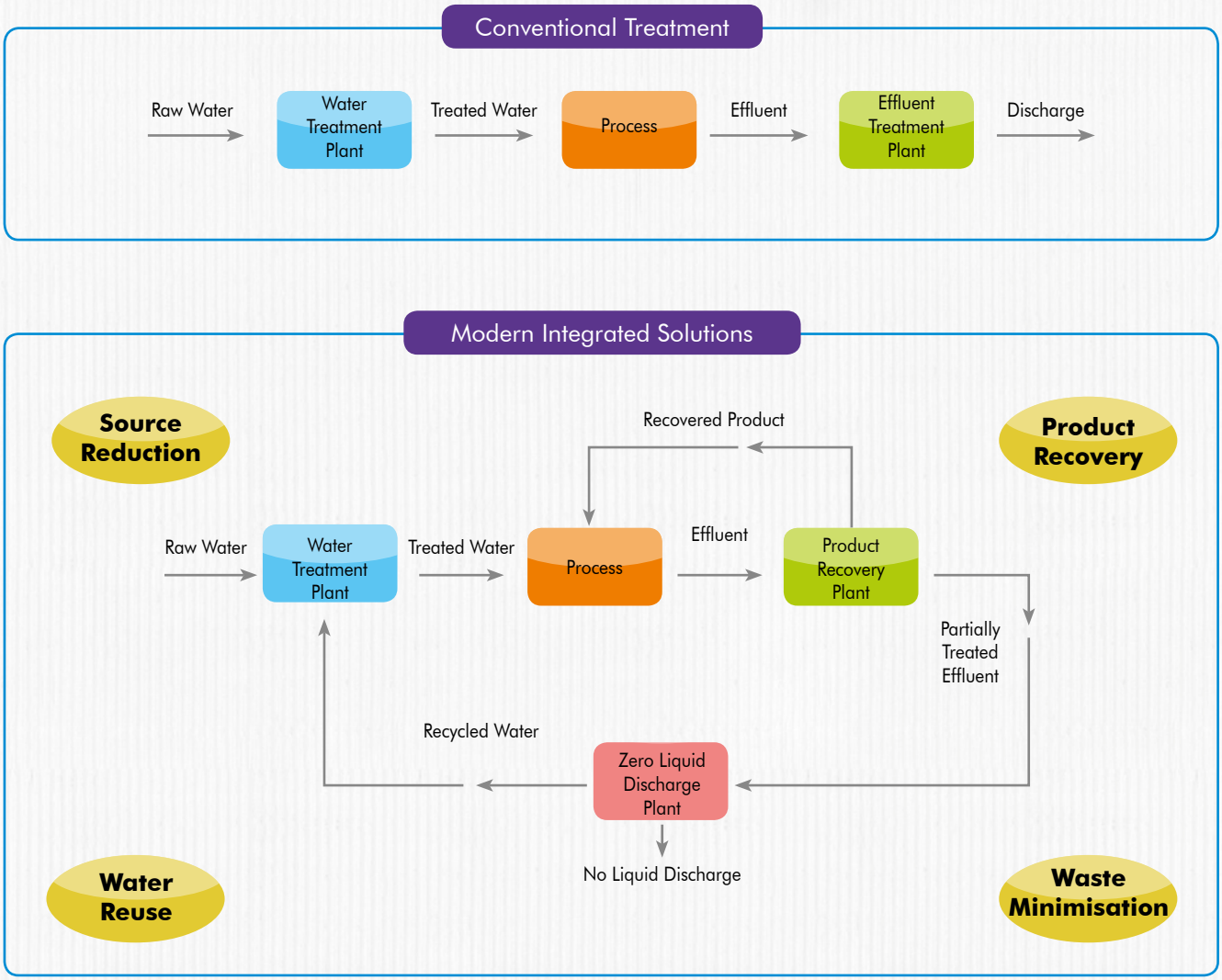
Regeneration takes just 35 minutes – after a minimum service cycle of four hours – minimizing the need for both, a standby plant and the storage of large volumes of water. As regeneration of the cation and anion beds is simultaneous, the effluent streams are largely self-neutralising, reducing waste disposal costs and environmental impact.

The New Generation Swift Demineralisation units are modular skid-mounted, automatic with PLC control, HMI panel displays for all unit processes and audible alarm and `no flow' alarm circuits, making them ideal for high purity water requirements, particularly for power generation in Paper mills and for critical process applications requiring ultra pure water.

INDION SWIFT Demineraliser

Membrane Technologies – Affordable ZLD's

Ion Exchange provides advanced water and waste treatment technologies with modern integrated water management processes.



Advances in membrane technologies like Ultra filtration/Microfiltration followed by Reverse Osmosis and low pressure brine concentrators ensures standards for Total Dissolved Solids (TDS) reduction as specified by Pollution Control Boards (PCB) are also met and nearly 90-95% water is recovered in the membrane process itself. Thus, use of membrane technologies ensures source reduction of raw water consumption; product recovery (fibres, chemicals, emulsions, etc.) reduced effluent quantity and quality through recycle and reuse of treated paper effluents.

The low pressure or membrane brine concentration technology for affordable Zero Liquid Discharge enables recovery of more than 95% of wastewater of the highest quality for use directly as process water or make-up water for utilities after conditioning with speciality chemicals. As a result, the size and operating costs of downstream Multi Effect Evaporators is reduced making the concept of Zero Liquid Discharge truly affordable.

Process Chemicals:

Optimizing good manufacturing practices for which Ion Exchange provides speciality process chemicals (dry and wet end chemicals)

Pulping

Cooking Aids
Enhance rate of cooking

Washing Aids
Improve black liquor washing efficiency

Bleaching Stabilizers
Improve stability of bleach chemicals and brightness

Defoamers
Effective in destroying the foam formed in the system and also in controlling regeneration of foam

Machine Runability

Fixing Agents
Effective in reducing or avoiding tackiness and fluff problems

Drainage Aids & Anionic Trash Removers
Eliminate deposition of trash / fluff on to the surface of press rolls / cylinders / dryers

Thickeners
Influence the paper's colour viscosity, water retention, sizing, and gloss

Dry Strength Resins
Improve the strength charactistics of paper

Wet End

Retention Aids
Useful for retaining fines fillers and other papermaking furnish components

Biocides & Slimicides
Effective in controlling the growth of bacteria and algae in the paper making process

Defoamers
Effective in destroying the foam formed in the system and also in controlling regeneration of foam

Performance Specialities

Dispersing Agents (Coated boards)
Provide uniform stock by separating fiber or particles to prevent clumping and setting

Colour Removal Agents
Effective in removing colour from waste water

Surface Sizing Specialities

Surface Sizing Agents
Improves the water resistance of paper

Speciality Water Treatment Chemicals

INDION Boiler
Water Treatment Programme

Powered by
INDION Autochem Ultima

For Remote
Monitoring • Analysis • Control

INDION Cooling
Water Treatment Programme

INDION® Boiler & Cooling Water Treatment Programmes

Our wide range of boiler water treatment chemicals consist of multipurpose formulations containing hardness treatment chemicals, instant oxygen scavengers, corrosion control agents, polymeric sludge conditioners and sequestrants that provide trouble-free operation and clean boilers.

Our Cooling water treatment program consists of scale control additives, corrosion inhibitors, dispersants to control fouling by suspended solids and metal oxides, silica scale inhibitor, high-stress scale retardants, bio dispersants, oxidizing biocides, non-oxidizing biocides, scale and corrosion inhibitors for closed system & resin defoliants.

INDION® AutoChem Ultima-Automatic dosing systems

Our cooling and boiler water treatment chemical solutions are supported by INDION Autochem Ultima system for real-time monitoring, analysis and control of the treatment program leading to greater performance efficiency, cost optimization and environment, health & safety compliances.

Our speciality chemicals for the Pulp & Paper industry include:

- Clarification & Colour Removal Agents
- Polymers for Water & Effluent Treatment
  - Flocculation Aids
  - Krofta Flotation & Settling Aids
  - Settling Aids
  - Dewatering Aids

Our Product Specialities

INDION® Resins

INDION Ion Exchange resins manufactured in an advanced & automated facility are characterized by exceptional physical stability and exchange capacities. These are available as Gaussian and Uniform Particle Size beads in dry and moist forms with varying surface areas, porosity and matrix as suitable for different applications. INDION resins are widely used by leading paper mills to treat water for process, utility and waste treatment applications like water softening, demineralization, condensate polishing, colour & odour removal, separation & purification and catalysis.

HYDRAMEM® HIGH PERFORMANCE MEMBRANES Membranes

Hydramem high performance Reverse Osmosis (RO), Nano filtration (NF) and Ultra filtration (UF) membranes are manufactured in a state-of-the-art, completely integrated and automated membrane manufacturing plant and belong to the latest generation of membrane technology.

Hydramem RO and NF membranes complement INDION Ion Exchange resins for removal of ionic contaminants from source waters. Hydramem UF membranes available in different configurations and molecular weight cut-offs, produce treated water free from particulate colloidal and microbiological contaminants making them suitable for requirements that need lower footprint and high flow rates as compared to conventional processes.

Complementing its range of manufactured products, Ion Exchange also offers Ion Exchange membranes sourced from world leaders like Astom Corporation, ceramic membranes from Liqtech, high-performance process application membranes from Microdyn Nadir, Plate Frame DT/PF RO system from Rochem Germany and fully back washable IPC flat sheet membranes from Bluefoot Membranes.

Membrane Speciality Applications

Coatings Recovery

Chemicals and pigments are processed together and then sent to the coating application line for paper coating. Conventional methods feed the washings of the coating process to the Effluent Treatment Plant (ETP) and in turn incur huge capital and operational costs for waste management systems. Ion Exchange's advanced INDION UltraFiltration Specialty Membrane System removes suspended solids and also recovers the coatings which can be re-used in the paper making process. It also causes significant reduction of COD (up to 90%) in the washing solution which is then sent to the ETP. The system reduces load on the ETP resulting in savings on ETP cost to treat high TDS & High COD discharge.

Colour Removal from Paper Waste Streams

The Paper industry generates vast volumes of coloured effluents from washings of various process lines and equipments. Ion Exchange's modular and compact INDION Nanofiltration (NF) Membrane System offers a cost effective way to remove colour while causing a greater than 90% COD reduction, reducing load on the ETP and in the process recovering water which can be reused for various plant processes.

Adsorbents, RO Antiscalants, Cleaners, Chemicals & Critical spares

INDION antiscalants are available in a wide range of product formulations for enhancing the performance of reverse osmosis and multi-effect evaporator systems against soluble and insoluble impurities that cause excessive scaling, fouling resulting in rapidly and in many cases irreversibly deteriorating the performance of the system.

INDION range of multi-formulation cleaners enhance the performance of membrane and evaporator systems with efficient and cost-effective cleaning of fouled surfaces thereby maintaining the system's performance.

Operation and Maintenance

Our 24 X 7 Comprehensive Services help to maximize production and performance levels by ensuring continuous, optimum performance of your paper plants. Our services include:

- Total paper care management consultancy
- Total water management consultancy
- R&D, feasibility & pilot plant studies
- O&M contracts
- Water audits
- Membrane cleaning service contracts & emergency services

24/7 service

Operation & Maintenance of Softener Plant with capacity 950 m^3/h for leading paper manufacturer

Operation & Maintenance of Water Treatment Plant with capacity 30 m^3/h for leading paper manufacturer

SAFETY HEALTH ENVIRONMENT (SHE)

Safety, Health and Environment (SHE) at Ion Exchange

Safety, Health and Environment (SHE) are vital to any organization as they encourage and ensure that business is conducted in a safe and environmentally responsible manner. SHE has always been a priority at Ion Exchange. We take our responsibility towards our employees, customers, communities and the environment very seriously. With our continually refreshed line of products and technologies, not only do we create a positive impact externally, we comply with and adhere to the vast array of environmental laws within our premises surpassing the established safety standards. We ensure safety of our employees and subcontractors and have in place strictly executed government mandated health protocols and procedures at all our manufacturing sites and office locations in India and globally.

Safety
Health
Environment

We are committed to upgrade our safety standards every day and inculcate SHE in our core values. It is our passion to foster a culture of 'Goal Zero' where there is zero compromise towards safety. Periodic safety perception survey's carried out within Ion Exchange, help to evaluate the safety culture, assess the level of employee involvement and gauge perception regarding existing safety management. Multi-channel, theme-led safety communication across the organization reinforces the importance of and priority given to safety, health and environment in Ion Exchange.

Supporting our efforts to achieve the SHE goals, our 'Safety Standard' guideline manuals establish high risk standards, identify gaps and provide a structured and systematic approach to enhance and align existing safety management processes and systems to achieving 'Zero Harm' Goals.

Taking another step forward towards realizing our SHE goals, Ion Exchange recently unveiled the 'Behaviour Based Safety (BBS)' initiative which was launched by our Chairman & Managing Director, Mr. Rajesh Sharma. Our BBS initiative fosters a proactive approach and promotes interventions that engage, motivate, assist, reinforce and sustain safe behaviours. This was followed by four full days of BBS training programs which included role-play and group discussions at Ion Exchange's Goa, Patancheru, Hosur and Ankleshwar manufacturing locations. In addition, led by a unit senior, our Ankleshwar and Patancheru facilities have six different safety sub-committees that drive workplace safety; overseeing safety rules and procedures, BBS observations, incident investigation, safety capability development, safety in transport and contractor safety management.

Safety Message from CMD

"At Ion Exchange, safety is one of our core values and integrated seamlessly into our way of life. It is a mindset - not an activity or assigned job. With a passion to strive towards 'Goal-Zero' incidents, we take ownership and shared accountability towards safety not only within our premises but also when we operate beyond the fence, in our customers' premises."

Rajesh Sharma
Chairman & Managing Director,
Ion Exchange (India) Ltd.

Firefighting drill at Ion Exchange's Manufacturing facility

Electrical Safety Training at Ion Exchange's O&M site

ONSTREAM

Creating Chemistry..... ....Enriching Lives

Aarti industries is a leading manufacturer of speciality chemicals and pharmaceuticals in India. Ion Exchange successfully installed a 70 m^3/h Water Treatment Plant (WTP) consisting of Ultra Filtration (UF), two stages Reverse Osmosis (RO) & Demineralization Plant (DM) at their production facility in Dahej, Gujarat. The plant will ensure improved water quality & cost saving.

Mettlesome Solutions

Steel Authority of India Ltd. (SAIL) is one of the largest steel producers in India. It manufactures & sells the widest range of steel products. Ion Exchange supplied an integrated water supply system for New CRM III complex SAIL in Bokaro, Jharkhand, consisting of:

- 5400 m^3/h circulating Indirect Cooling Water (ICW) system along with Reinforced Cement Concrete (RCC) cooling towers
- 350 m^3/h industrial water filtration system for makeup & potable water with 700 m^3 over head tank
- 250 m^3/h side stream filtration system
- 2 x 100 m^3/h DM plant with 800 m^3 DM water storage tank
- 2 x 50 m^3/h cooling water blow down recycle plant based on UF & RO systems
- Water conditioning/Chemical Dosing System (CDS) for the ICW circuit
- 3 x 100 m^3/h softening plant
- Water-based firefighting system and spray system

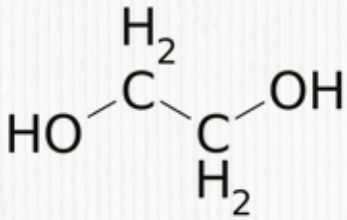
With this, we have successfully supported SAIL in reducing consumption of water, minimizing waste water & recycling water for reuse in operations & low end applications.

Cheers to Success

United Breweries Ltd., is one of the leading manufacturers of beer with several well-established brands in India. Ion Exchange installed an 84 m^3/d Zero Liquid Discharge (ZLD) plant and upgraded their Effluent Treatment Plant (ETP) from 750 m^3/d to 1000 m^3/d for their manufacturing unit in Shahjahanpur, Rajasthan. This facility has helped United Breweries to adhere to the environment pollution control guidelines, recover maximum water and reuse it for their manufacturing process.

Creating Chemistry

Akry Organics Pvt. Ltd., has over three decades of core competence in manufacturing & marketing of Ethylene Glycols. Ion Exchange supplied a 15 m^3/h process application system for glycol purification for their unit in Tarapur, Maharashtra.



Strengthening Bonds

One of the largest business conglomerates in the ASEAN region awarded a repeat contract to Ion Exchange, this time, for their newly acquired paper mill. Ion Exchange installed a 12000 m^3/d Waste Water Treatment Plant (WWTP) to take care of the problems faced by them in terms of rising Soluble Chemical Oxygen Demand (SCOD) & Soluble Biological Oxygen Demand (SBOD).

The Plant was erected and commissioned successfully by the Ion Exchange team amidst the Covid-19 pandemic and travel related restrict.

Partners in Development

Central Public Works Department (CPWD) of India is a central government authority which builds and maintains public buildings under the Ministry of Urban Development India. Ion Exchange bagged an order for installing a 500 m^3/d Fluidized Media Reactor (FMR) at their facility in Jodhpur, Rajasthan.

Luxury with Sustainable Hospitality

ITC Hotels is one of India's leading luxury hotel chains. It is part of ITC group; one of India's foremost private sector companies. ITC Green Centre is the World's Largest Platinum Rated Green Office Building. It houses offices of all its varied businesses. Ion Exchange provided 24 units of INDION Quencher at their ITC Green Centre Building at Gurgaon, Haryana. The Quencher unit serves as an in-house facility for bottling of drinking water using recyclable glass bottles and is a great replacement for plastic for the hospitality industry. It also comes with a bottle sanitizer cabinet which ensures hygienic storage and UV disinfection of rinsed bottles. One INDION Quencher unit dispenses 150 drinking water bottles of 500ml per hour. Our initiative will support ITC in its efforts towards enhancing their environmental sustainability quotient.

Weaving Threads of Success

Grasim Industries Ltd., a leading global producer of Viscose Staple fibre and the largest chemicals (Chlor-Alkali) player in India. Ion Exchange bagged an order for installing a 3000 m^3/d WTP, 1400 m^3/d DM plant, 300 m^3/d Softener with 125 m^3/d Multi-Effect Evaporator (MEE), 1500 m^3/d Recycle, ZLD plant & 40 m^3/d Drinking Water unit at their plant in the East Godavari district of Andhra Pradesh. The plants will help Grasim to recover water for reuse in their manufacturing process. Thus, helping them to save on fresh water intake & operational cost.

Delivering Robust Defenses

Military Engineer Services (MES) is one of the oldest and largest government defense infrastructure development and maintenance agencies in India. Ion Exchange has been engaged by them in a project to provide a 1040 m^3/d FMR based Sewage Treatment Plant (STP) at Panagarh, West Bengal. The installation will help MES to recover maximum water through recycling & reuse it for other applications. Thus, reducing their freshwater consumption.

Energizing the Future

HPCL-Mittal Energy Ltd. (HMEL) located in Bhatinda, Punjab is in the business of providing superior products in the field of petroleum and petrochemicals. Ion Exchange has been awarded a contract which includes design, engineering, supervision, erection & commissioning of an advanced waste water treatment system that will enable HMEL to reuse a significant part of the waste water generated in the refinery. The waste water treatment system will use the best in class INDION Membrane Bio-Reactor (MBR) that will process 500 m^3//h of waste water with several tangible benefits to HMEL.

Powering Excellence

NTPC Ltd., formerly known as National Thermal Power Corporation Ltd is one of India's largest energy conglomerate engaged in the generation of electricity & allied activities. It is a statutory corporation under the ownership of the Ministry of Power, Government of India. Ion Exchange bagged an order for an integrated water supply system consisting of 3 x 2000 m^3/h Pre-treatment plants, 2 x 60 m^3/h DM Plant, 3 x 150 kg/h Cooling Water Chlorination units, 200 m^3/h Liquid Effluent Treatment (LET) plant, 3 x 1000 m^3/h Coal Slurry Settling Pond (CSSP) and 15 m^3/h N-Pit Recycling System & Chemical dosing system for their facility in Gadarwara, Madhya Pradesh.

Casting Strong Solutions

Bhushan Power & Steel Ltd., (now part of one of India's largest multinational conglomerate the JSW Group under its flagship business JSW Steel) specializes in the manufacture of steel, pig iron, DRI, coils, tubes, pipes, cable, tapes, carbon & special alloy steel wire rods. For their manufacturing facility in Rengali, Odisha, Ion Exchange commissioned a 700 m^3/h Effluent Recycle system consisting of pre-treatment with Dual Media Filters & state-of-the-art Hydramem membrane systems for Ultrafiltration and Reverse Osmosis.

GLOBAL ORDERS

With a legacy spanning over 55 years, Ion Exchange offers Total Water and Environment Management Solutions, with sales, production and service footprints across the world. We meet the industry's need for quality supply of goods and services through certified manufacturing facilities and modern assembly centers strategically located close to our markets in India and across the globe. Out international fabrication and assembly units are located in Sharjah - UAE, Saudi Arabia, Indonesia and Bangladesh. The company continues to grow its exports to Africa, the Middle East, Japan, Russia, South East Asia, Europe, UK, USA and Canada to name a few.

- 144 m^3/d effluent treatment plant & 192 m^3/d brackish water RO plant from a major player in Construction Materials, Kenya.
- 120 m^3/d effluent treatment plant + 192 m^3/h water treatment plant from Kenya.
- 192 m^3/d effluent treatment plant from a cement manufacturing company, Kenya.
- 144 m^3/d effluent treatment plant from a pharmaceutical company, Kenya.
- 50 m^3/d effluent treatment plant from Miscellaneous Durable Goods Merchant, Kenya.
- 120 m^3/d x 3 units & 240 m^3/h x 1 unit of fluoride removal units from a leading water & process treatment company, Kenya.
- 3 units of sewage treatment plant from Larsen & Toubro, L&T Hydrocarbon Engineering Ltd., Algeria.
- 480 m^3/d waste water treatment plant from a contracting and general maintenance company, UAE.
- 180 m^3/d sewage treatment plant from a civil construction contracting company, UAE.
- 20 m^3/d effluent treatment plant from a well-known perfume manufacturing company, UAE.
- 200,000 gallon/d centralized brackish water reverse osmosis unit from Abu Dhabi, UAE.
- 2887.2 m^3/d clarifier with pretreatment plant + 840 m^3/d RO plant & 264 m^3/d mix bed plant from Bangladesh.
- 72 m^3/d zero liquid discharge with multi-effect evaporator from a steel company, Bangladesh.
- 90 m^3/d sewage treatment plant from a major player in water equipment sector, Kuwait.
- 20 m^3/d sewage treatment plant, 480 m^3/d & 240 m^3/d chemical & oil waste water treatment plants from an EPC company, Korea.
- 21000 m^3/d waste water treatment plant from a gardening material manufacturing company, Thailand.

RURAL REACH

Providing communities safe drinking water

Safe drinking water is the backbone of a healthy economy. However over 50% of the population in India lacks access to safely managed drinking water. This issue is exacerbated in rural areas where contamination of ground water, mainly through fluoride, nitrate, arsenic, iron, brackishness and pathogens is prevalent.

Ion Exchange provides cost- effective, innovative & low maintenance technologies to overcome issues related to ground and surface water contamination. In addition to this, sewage treatment, faecal sludge management, recycle systems and disaster management solutions help us in providing a better quality of life to millions in rural areas of India and other developing countries.

Solutions to treat Ground Water Contaminants

Excess fluoride (>1.5 mg/l) in drinking water can cause severe health issues such as dental and skeletal fluorosis. To manage fluoride content in water, Ion Exchange provided 10 m^3/h Fluoride Removal Tube Well Attachment (FRTWA) to Public Health Engineering Department (PHED), Mandla, Madhya Pradesh as part of Jal Jeevan Mission, a Government of India initiative under the Ministry of Jal Shakti.

INDION® Fluoride Removal Tube Well Attachment (FRTWA), Madhya Pradesh

INDION® Disaster Management Unit (DMU), Truck- Mounted

Solutions to treat Drinking Water Contaminants

Disasters such as floods, drought, cyclones and earthquakes result in high contamination of water supply sources, leading to widespread waterborne diseases and epidemics in addition to impacting drinking water supply. Ion Exchange provided, 2 m^3/h x 8 nos. of our INDION Disaster Management Unit (DMU) to Rural Water Supply & Sanitation (RWSS), Odisha. The INDION DMU is a state-of-the-art containerized water treatment system specially designed to cater to emergency requirements of drinking water during natural calamities.

Community Level Solutions for Surface Water Contaminants

Rapid industrialization, improper agricultural practices etc have resulted in increased contamination of water bodies making them unfit for use. Ion Exchange provides various solutions to address community level issues related to growing surface water contamination. Ion Exchange provided a 15 m^3/h Lamella Clarifier to Rural Water Supply & Sanitation Department (RWSS), Jagatsinghpur, Odisha and 10 m^3/h x 5 units of Lampak to Public Health Engineering Departments (PHEDs) at the Jabalpur & Chhindwara districts of Madhya Pradesh.

INDION®
Lamella Clarifier, Odisha

INDION®
Lampak, Madhya Pradesh

PRODUCT LAUNCH

INDION® New Generation Packaged Sewage Treatment Plant- Nitrogen Removal (NGPSTP- NR)

INDION NGPSTP NR is a unique combination of fixed film reactor and Lamella clarification. It works on the principle of rotating biological contactor; the main aeration bio-zone which is a combined fixed film and active aeration system (drums) mounted on a horizontal shaft. With the additional anoxic tank and internal recirculation pump, the system is designed in such a way that it can treat ammoniacal nitrogen present in the sewage along with the BOD/COD degradation. It requires minimum area, is easy to install & operate without skilled labour, has low maintenance & operating cost.

INDION® Rice Mill Effluent Treatment Plant (ETP)

INDION Rice Mill ETP is a reliable, compact system designed with a wide range of capacities; 25, 50, 100, 150, 200, 250 KLD and can handle a 15-20% shock load. The influent first passes through an equalization tank in which inlet flow characteristics and flow are equalized. This equalized effluent then passes through primary treatment for removal of suspended / floatable solids followed by organics removal by a set of biological reactors. It finally undergoes tertiary polishing treatment with chlorination and filtration, thereby producing consistent treated effluent quality. It requires less chemical consumption & maintenance, produces low quantity of digested sludge, consumes less power & helps in saving operational cost. It ensures easy up-gradation and extension of existing wastewater treatment plants.

ZERO B PURE WATER SOLUTIONS SECURE-Automatic Hand Sanitizer & Dispenser

The Zero B Secure Automatic Hand Dispenser offers a touchless and safe experience for hand sanitization. It has an inbuilt ultrasonic based sensor technology that easily senses the human bio print at a distance ranging from 0 to 15 cms and dispenses the sanitizer in no time for hand hygiene use. The product design is compact, sleek and reliable for residential as well as commercial use.

ZERO B PURE WATER SOLUTIONS Auto Carbon Filter

ZeroB Auto Carbon Filter is useful and effective in removing colour, odour and chlorine from raw water. The product is unique with its enhanced performance, automatic backwashing capability and programmed backwashing without any user interference. It is to be used for bathing, laundry and washing purposes only. Its automatic technology & striking innovation ensures a user-friendly experience for our customers.

EVENTS

The Economic Times SDG's Impact Summit- Recognizing Excellence

Ion Exchange was invited to be a part of "The Economic Times SDGs Impact Summit" where we were also felicitated as "Champions of Sustainable Solutions". Mr. Rajesh Sharma, Chairman & Managing Director, Ion Exchange (India) Ltd. received this honour from Ms. Meenakshi Lekhi, Member of Parliament, Lok Sabha.

The event was co-conceptualized by The Times of India Group, India's largest media conglomerate together with 'The World We Want', a global social impact enterprise.

Mr. Sharma was also one of the key panellist at the summit together with other eminent representatives. He shared his insights on the crucial topic of clean water and sanitation, focussing on increasing the availability of freshwater and re-using wastewater by adopting best wastewater treatment & Zero Liquid Discharge technologies.

The summit offered a truly global platform for change-makers committed to achieving the Sustainable Development Goals (SDGs).

CNBC Awaaz "Pahela Kadam"- Helping Employees Make the Best Investment Decisions

Finance is a very crucial part of our lives, which is interlinked with almost every aspect of our lives. We make minor financial decisions on a daily basis however for financial growth, it is imperative to understand the larger aspect of investment. To address the investment concerns of working professionals, Ion Exchange organized an interactive session in association with CNBC Awaaz called "Pahela Kadam" for its employees from all three offices in Mumbai - Mahalaxmi, Rabale and Vashi.

The panel discussion included two important panellists Mr. Feroze Azeez and Mr. Rajat Chattopadhyay both stalwarts in areas of capital markets, wealth management, financial engineering & mutual funds. The event was hosted by Ms. Kavita Thapliyal - Journalist and Anchor specialising in Personal Finance. The event addressed the investment concerns and queries raised by employees & provided information crucial for making well-informed and intelligent financial decisions.

CSR INITIATIVES

ION FOUNDATION
Initiate · Organise · Nurture

Spreading Happiness. Gaining Trust

Ion Exchange's Corporate Social Responsibility (CSR) initiatives are aimed at bringing about a positive social impact by extending a helping hand to the needy and underprivileged sections. CSR has been a longstanding commitment in our company under the aegis of Ion Foundation – our CSR arm. Our initiatives through the years have focused on sectors such as Education, Drinking Water, Sanitation, Health & Hygiene, Skilling, Livelihoods and Environment.

Some of our CSR Initiatives

Ion Exchange employees supporting SMILE foundation's 'Mission Education' at the TATA Mumbai Marathon

Paint your future & storytelling initiatives for Chitkul Primary School, Patancheru, Telangana

Supporting Snehalaya Education Society for children with Multiple Disabilities, Maharashtra

Installation of Demo plant for vocational training, Shishu Mandir, Karnataka

Our Chairman and Managing Director, Mr. Rajesh Sharma along with the Board of Directors addressing 640 girl students beneficiaries of our Ion Foundation, at New Gurukul Girls High School, Telangana

MEDIA OUTREACH

Campaigning for Valuing Water

Following the highly successful media campaign in 2019, on the occasion of World Water Day 2021, Ion Exchange once again partnered with NDTV 24X7 to participate in a Corporate Awareness Campaign in the very popular show 'We The People'. The campaign was aimed at sensitizing people on the value of water and highlighted corporate leadership efforts targeted towards achieving water sustainability in India.

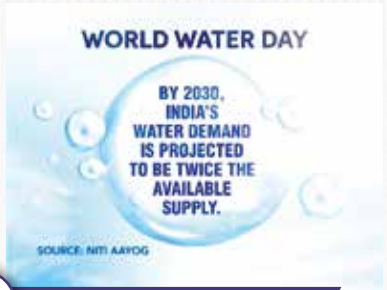
This was a high intensity two-week engagement. The highlight of the campaign was a panel discussion by eminent personalities from the political, social and industrial sector including our Chairman & Managing Director, Mr. Rajesh Sharma.

The campaign used various platforms such as television, websites, social media, mobile and email communication to maximize viewership and create a powerful impact. Social media was leveraged effectively to proliferate our message through promo's, thought-leadership posts and live streams. Internally, emailers were posted at regular intervals which were then cascaded to external Ion Exchange stakeholders.

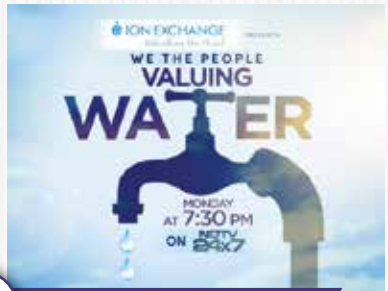
The campaign propelled conversation around the importance of water conservation and sustainability and proved to be a successful outreach initiative for Ion Exchange!

NDTV 24X7 | We The People

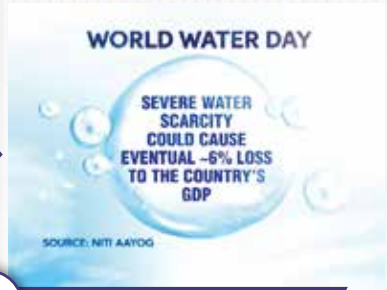
NDTV 24X7 | Valuing Water



NDTV 24X7 | World Water Day



NDTV 24X7 | World Water Day



NDTV 24X7 | World Water Day

EMPLOYEE ENGAGEMENT

Jaltarang: Celebrating Togetherness, Expressing Gratitude for Prolonged, Meritorious Service

Jaltarang is an annual employee networking & get together event organized for its employees from Headoffice, Vashi & Rabale. It is a platform where employees & their families can showcase their passion & hidden talents. Like every year, Jaltarang included many amazing events like dance performances, singing, mesmerizing skits, lucky draw & jaw-dropping instant mimicry & comedy performance by Mr. Sandeep Lokhande. The event was also aired & media partnered on 107.1 FM Rainbow with the participation of our excited & cheerful colleagues.

The highlight of the event was Mr. Rajesh Sharma, Chairman & Managing Director, being felicitated by Directors & Senior Management for completing & achieving a momentous landmark of 45 years with Ion Exchange (India) Ltd. In addition to this, our own Mr. Ajay Popat, President was also felicitated by Mr. Rajesh Sharma, Chairman & Managing Director for completing 25 glorious years.

All the employees completing 25-30-35 years of service with Ion Exchange (India) Ltd. were individually felicitated & recognized. To capture & cherish the long-lasting, pleasant memories & connections with the employees, All the long service award employees were given handmade personalized & customized sketches made by our very own ex-employee Mr. Sunil Rane. It was a very memorable day. We continue to look for many such unique ones.

IECPEL - Transforming Workplaces, Strengthening Bonds

Team building is an important activity for any business, as it helps to build relationships & leads to a more open & collaborative culture, keeping this in mind, like every year, Ion Exchange Cricket Premier League (IECPL) was organized for the employees to showcase team-building capacity, relationship building & talent. IECPL matches were played between a total of eleven (11) multiple teams from all the three offices Head office, Vashi & Rabale.

In the women's tournament, out of (3) teams, Rabale office was the winner and claimed the esteemed 'Ion Exchange Women's Cricket Trophy'. There were (8) teams who competed for the men's tournament and the finals was played between Aquanomics & Vashi A office. Aquanomics was the winner!!

The competition was entertaining, providing useful learnings with regards to discipline, tolerance, co-operation, relationship building to all. Efficient team building activities can transform any workplace.

Virtual Stand-Up Comedy- Laughter Riot

As it was a year of global pandemic & lockdowns where socializing & meeting colleagues was strongly missed amongst the working professionals. Keeping this in mind, Ion Exchange organized a unique initiative, a stand-up comedy show for its employees from all locations. The event was hosted & performed by stand-up comedian, anchor, mimicry artist and RJ, Mr. Sandeep Lokhande. The objective of the event was to reduce stress, engage employees & boost their morale & productivity. The virtual event was attended by the employees from all the locations with their families. It was a unique & dynamic event that brought employees together in difficult times..

ON DISPLAY

Exhibitions & Beyond

Ion Exchange showcased its products, technologies & integrated solutions catering to water, wastewater & environment management in some of the finest hand-picked exhibitions. Exhibitions provide a platform to promote our product & services to a group that may have little or no knowledge of our services. It's a perfect platform to network & do business with customers from all over India & abroad. We always try to delight our customers by displaying our products, innovations, technologies, creative posters & strong corporate messages.

We also bagged an ET "Acetech Grand Stand Silver" award for the best-designed Exhibition Stall at ET ACETECH Expo, Bangalore, Karnataka. We also got an opportunity to display our water dispensing unit in the Exhibition Centre which not only provided pure drinking water to the visitors but also acted as an effective magnet to attract curious customers to the stall.

Exhibitions have always allowed us to connect with our customers, gain more knowledge of our Industry, promote our brand & close some very good deals. We will continue to participate in many more such exhibitions which will add value to our business & customers.









AWARDS

Rewarding Achievements

Awards not only add credibility to but also celebrate & recognize the hard work, success & excellence of an organization. Ion Exchange continues to go the extra mile to deliver our best and is honoured to receive the following awards and recognitions.

Mann Me Bapu CSR Award

CSR initiatives undertaken by our CSR Wing - Ion Foundation in the areas of Water, Sanitation, Health & Education

The Customer Fest Awards 13th Edition

Significant contribution in Customer engagement & experience

Champions of Sustainable Solutions Award

"Championing Sustainability" at ET SDG's Impact Summit

ET Acetech Grand Stand Silver Award

Best-designed Exhibition Stall - Bengaluru

Corporate Communication Awards 2nd Edition

Best Corporate Responsibility Initiative

Water Digest Water Awards

Best Research Innovation Award

Best Water Treatment Solution Provider

ION EXCHANGE
Refreshing the Planet

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Ion Exchange (India) Ltd.

Corporate Office: Ion House, Dr. E. Moses Road, Mahalaxmi, Mumbai-400011, India

+91 22 6231 2000 ieil@ionexchange.co.in www.ionindia.com

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