ION EXCHANGE (INDIA) LTD.

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E-mail: iisl@ionexchange.co.in

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Fax: +91 22 3989 0909
E-mail: inaptn.sales@ionexchange.co.in

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Tel.: +91 40 3066 3101 / 02 / 03
Fax: +91 40 3066 3104
E-mail: hydcr@ionexchange.co.in

OFFICES

<table>
<thead>
<tr>
<th>Regional</th>
<th>Telephone</th>
<th>Fax</th>
<th>E-mail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chennai</td>
<td>+91 44 3989 0909 / 3910 2900</td>
<td>+91 44 2815 3361</td>
<td><a href="mailto:chcr@ionexchange.co.in">chcr@ionexchange.co.in</a></td>
</tr>
<tr>
<td>Delhi</td>
<td>+91 11 3989 0909 / 3054 3200</td>
<td>+91 11 2577 4837</td>
<td><a href="mailto:delcro@ionexchange.co.in">delcro@ionexchange.co.in</a></td>
</tr>
<tr>
<td>Kolkata</td>
<td>+91 33 3989 0909 / 3043 3400</td>
<td>+91 33 2400 4345</td>
<td><a href="mailto:calcro@ionexchange.co.in">calcro@ionexchange.co.in</a></td>
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<td>+91 22 3989 0909 / 3913 2300</td>
<td>+91 22 2788 9839</td>
<td><a href="mailto:mvmcr@ionexchange.co.in">mvmcr@ionexchange.co.in</a></td>
</tr>
<tr>
<td>Branch</td>
<td></td>
<td></td>
<td></td>
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<td>Bengaluru</td>
<td>+91 80 2853 2888</td>
<td>+91 80 2853 2002</td>
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<td>+91 674 225 5252 / 257 1491</td>
<td></td>
<td><a href="mailto:bbor@ionexchange.co.in">bbor@ionexchange.co.in</a></td>
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<td>+91 172 274 4594</td>
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<tr>
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<td><a href="mailto:hydcr@ionexchange.co.in">hydcr@ionexchange.co.in</a></td>
</tr>
<tr>
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<td>+91 11 2577 4837</td>
<td><a href="mailto:locgren@ionexchange.co.in">locgren@ionexchange.co.in</a></td>
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<tr>
<td>Vadodara</td>
<td>+91 265 320 7489 / 90</td>
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<td><a href="mailto:brdcr@ionexchange.co.in">brdcr@ionexchange.co.in</a></td>
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<tr>
<td>Vasai, Western</td>
<td>+91 891 274 6253</td>
<td>+91 891 257 6007</td>
<td><a href="mailto:sales.vasai@ionexchange.co.in">sales.vasai@ionexchange.co.in</a></td>
</tr>
</tbody>
</table>

Factories: Ambleshwar, Nasik, Patancheru, Ropar, Venice

All India Service and Dealer Network

www.ionindia.com

ISO 9001, 14001 and OHSAS 18001: certified manufacturing facilities.

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.

ION and INDILOC are the registered trademarks of Ion Exchange (India) Limited.

PAPER CARE
PROCESS CHEMICALS & WATER MANAGEMENT
FOR THE PAPER INDUSTRY
PAPER CARE
Innovative Solutions for the Paper Sector

Ion Exchange leverages more than five decades of pioneering specialisation in process chemicals, water and environment management.

With the most comprehensive range of technologies, best quality products, superior application knowledge and outstanding service support, we truly provide customised one-stop solutions for the paper sector’s varied needs.

- Performance and Wet End Care
- Runnability Care
- Waste Paper Treatment
- Total Water Management

Driven by our commitment to customer satisfaction, Ion Exchange puts its expertise to work, ensuring optimal production and performance for you.

---

**Defoamers**

<table>
<thead>
<tr>
<th>Product</th>
<th>Application</th>
<th>Chemical Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDFOAM 3000</td>
<td>Defoamer and deaerator for paper machine</td>
<td>Water-based non-silicone</td>
</tr>
<tr>
<td>INDFOAM 2000</td>
<td>Defoamer for paper machines</td>
<td>Water-based non-silicone</td>
</tr>
<tr>
<td>INDFOAM 2346</td>
<td>Defoamer and deaerator for waste water</td>
<td>Water-based non-silicone</td>
</tr>
<tr>
<td>INDFOAM 1500</td>
<td>Defoamer for pulp mill and waste water</td>
<td>Water-based silicone defoamer</td>
</tr>
</tbody>
</table>

**Retention and Drainage Aids**

<table>
<thead>
<tr>
<th>Product</th>
<th>Application</th>
<th>Chemical Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDFLOC 140 PG4</td>
<td>Retention aid for paper making</td>
<td>Catatonic powder polymer</td>
</tr>
<tr>
<td>INDFLOC 240</td>
<td>Retention aid for paper making</td>
<td>Catatonic powder polymer</td>
</tr>
<tr>
<td>Polydrain 243H</td>
<td>Drainage aid for paper and board machines</td>
<td>Catatonic liquid polymer</td>
</tr>
</tbody>
</table>

**Fixing Agents**

<table>
<thead>
<tr>
<th>Product</th>
<th>Application</th>
<th>Chemical Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDFLOC 2048C</td>
<td>Fixing agent and anionic trash controller</td>
<td>Catatonic polymer</td>
</tr>
<tr>
<td>INDFLOC 2043C</td>
<td>Fixing agent</td>
<td>Catatonic polymer</td>
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</tbody>
</table>

**Slimicide Applications**

<table>
<thead>
<tr>
<th>Product</th>
<th>Application</th>
<th>Chemical Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDUSLIME 1014</td>
<td>Slimicide</td>
<td>Water-based silicone defoamer</td>
</tr>
<tr>
<td>INDUSLIME 1015</td>
<td>Slimicide</td>
<td>Non-oxidising slimicide</td>
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</table>
PAPER CARE
Innovative Solutions for the Paper Sector

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- Performance and Wet End Care
- Runnability Care
- Waste Paper Treatment
- Total Water Management

Driven by our commitment to customer satisfaction, Ion Exchange puts its expertise to work, ensuring optimal production and performance for you.

Performance/Process Chemicals

Wet End Chemicals for Paper Process

Chemicals for Pulping

- Refined Pulp
- Mixers
- Knock-out Tank
- Screener
- Brown Stock Washers
- Bleach Plant
- To stock preparation

Major Chemicals Used:
1. Coagulating Aids enhance rate of cooking
2. Washing Aids improve black liquor washing efficiency
3. Enzymes improve black liquor efficiency
4. Bleaching Stabilisers improve stability of bleach chemicals and brightness

Defoamers

- INDFOAM 3000: Defoamer and deaerator for paper machines
- INDFOAM 2000: Defoamer for paper machines
- INDFOAM 2346: Deboamer and deaerator for waste water
- INDFOAM 1500: Defoamer for pulp mill and waste water

Chemical Composition:
- Water-based non-silicone
- Water-based non-silicone
- Water-based non-silicone
- Water-based silicone deafermer

Retention and Drainage Aids

- INDFOC 140 PG4: Retention aid for paper making
- INDFOC 240: Retention aid for paper making
- Polydrain 243H: Drainage aid for paper and board machines

Chemical Composition:
- Cationic powder polymer
- Cationic powder polymer
- Cationic liquid polymer

Fixing Agents

- INDFOC 2048C: Fixing agent and anionic trash controller
- INDFOC 2043C: Fixing agent

Chemical Composition:
- Cationic polymer
- Cationic polymer

Stimuli Applications

- INOSILM 1014: Stimulus
- INOSILM 1015: Stimulus

Chemical Composition:
- Water-based silicious deafermer
- Non-silicious deafermer
**Total Water & Environment Management**

Ian Exchange pioneered water treatment in India and is today Asia’s largest water and environment solutions provider with a strong global presence. Our close association with the paper industry, technological expertise, R&D capabilities coupled with thorough understanding of customer processes, have enabled us to provide 360° solutions across the entire water circuit on supply, quantity, quality, cost, conservation, discharge and environmental fronts.

### Dry Strength Chemicals

<table>
<thead>
<tr>
<th>Product</th>
<th>Application</th>
<th>Chemical Composition</th>
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<tbody>
<tr>
<td>INDIFLOC 41</td>
<td>Dry strength resin</td>
<td>Catonic DSR</td>
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<tr>
<td>INDIFLOC 42</td>
<td>Dry strength resin</td>
<td>Catonic DSR</td>
</tr>
<tr>
<td>INDIFLOC 2800</td>
<td>Dry strength resin</td>
<td>Anionic DSR</td>
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<tr>
<td>INDIFLOC 3209</td>
<td>Dry strength resin &amp; Baff control</td>
<td>Anionic polymer</td>
</tr>
<tr>
<td>INDIFLOC 8315</td>
<td>Dry strength resin for size press</td>
<td>Anionic DSR</td>
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<tr>
<td>INDION AZAMYL</td>
<td>Kraft absorbency booster, strength improvement</td>
<td>Modified PAN</td>
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<tr>
<td>POLYPLUS</td>
<td>Paper conditioning agent</td>
<td>Modified PAN</td>
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### Dispersing Applications

<table>
<thead>
<tr>
<th>Product</th>
<th>Application</th>
<th>Chemical Composition</th>
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<tbody>
<tr>
<td>INDISPERS 1938</td>
<td>Coating dispersant</td>
<td>Anionic polycrylate</td>
</tr>
<tr>
<td>INDISPERS 1945</td>
<td>Clay dispersant for calcium carbonate, soap stane powder</td>
<td>Anionic polycrylate</td>
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</tbody>
</table>

### Polymers for Water & Effluent Treatment Plants

<table>
<thead>
<tr>
<th>Product</th>
<th>Application</th>
<th>Chemical Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDIFLOC 238</td>
<td>Clarification aid for raw &amp; waste water</td>
<td>Catonic coagulant</td>
</tr>
<tr>
<td>INDIFLOC 239</td>
<td>Clarification aid for raw &amp; waste water</td>
<td>Catonic coagulant</td>
</tr>
<tr>
<td>INDIFLOC 244</td>
<td>Flocculation aid</td>
<td>Anionic emulsion flocculant</td>
</tr>
<tr>
<td>INDIFLOC 245</td>
<td>Flocculation aid</td>
<td>Anionic emulsion flocculant</td>
</tr>
<tr>
<td>INDIFLOC 246</td>
<td>Flocculation aid</td>
<td>Anionic emulsion flocculant</td>
</tr>
<tr>
<td>INDIFLOC 27</td>
<td>Flocculation aid</td>
<td>Anionic flocculant</td>
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<tr>
<td>INDIFLOC 350</td>
<td>Settling and dewatering aid</td>
<td>Anionic polymer flocculant</td>
</tr>
<tr>
<td>INDIFLOC 419</td>
<td>Kraft flotation &amp; settling aid</td>
<td>Anionic polymer flocculant</td>
</tr>
<tr>
<td>INDIFLOC 424</td>
<td>Kraft flotation &amp; settling aid</td>
<td>Anionic polymer flocculant</td>
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<tr>
<td>INDIFLOC 441</td>
<td>Settling aid</td>
<td>Anionic polymer flocculant</td>
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<tr>
<td>INDIFLOC 442</td>
<td>Settling aid</td>
<td>Anionic polymer flocculant</td>
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<td>INDIFLOC 443</td>
<td>Settling aid</td>
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<tr>
<td>INDIFLOC 445</td>
<td>Dewatering aid</td>
<td>Anionic polymer flocculant</td>
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<tr>
<td>INDIFLOC 465</td>
<td>Settling aid</td>
<td>Low anionic polymer flocculant</td>
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<tr>
<td>INDIFLOC 905</td>
<td>Settling aid</td>
<td>Low anionic polymer flocculant</td>
</tr>
<tr>
<td>INDIFLOC 910</td>
<td>Settling aid</td>
<td>Anionic polymer flocculant</td>
</tr>
</tbody>
</table>

### Clarification and Colour Removal Agents

<table>
<thead>
<tr>
<th>Product</th>
<th>Application</th>
<th>Chemical Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td>INDIFLOC 85AM</td>
<td>Colour removal aid for waste water</td>
<td>Catonic liquid polymer</td>
</tr>
</tbody>
</table>

---

### Pretreatment

At the pretreatment stage, our INDION Lamella Clarifiers & INDION Ultra High Rate Clarifiers are the first choice for reducing high turbidity and suspended solids in the water source. These space saving, efficient systems reduce the high suspended solids load to acceptable levels as feed to make-up water treatment systems.

**INDION Ultra High Rate Clarifier**

- Combines technology of solids contact clarifier and plate type clarifier

---

**INDION Ultra Filtration**

- Removal of virtually all particulate matter, suspended solids, colloids and organics

**Pretreatment for reverse osmosis plant for reduction in Silt Density Index (SDI)**

---

**Ultra high rate clarifier**
Total Water & Environment Management

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**Pretreatment**

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**INDION Ultra High Rate Clarifier**

- Combines technology of solids contact clarifier and plate type clarifier
- Reaction, flocculation, separation, sludge removal and clarification occur in a single treatment basin
- Smallest footprint among comparable clarifiers

**INDION Ultra Filtration**

- Removal of virtually all particulate matter, suspended solids, colloids and organics
- Pretreatment for reverse osmosis plant for reduction in Silt Density Index (SDI)
**Boiler Feed Water Treatment**

**Deminalisation**

Choice of processes using ion exchange columns and membrane processes.

**Advanced Technologies in Demineralisation Plants**

The layered bed anion unit is a single vessel system with layers of two resins, weak base anion on top of strong base anion with downflow service. The layered bed system provides high chemical efficiency of a two-bed weak base anion and strong base anion system in a single vessel, saving considerable initial as well as recurring cost.

**Advantages**

- Single vessel
- Excellent treated water quality with respect to silica
- Highest chemical efficiency
- Easy to retrofit in existing systems
- Lowest cost of production of demineralised water

**INDION® Reverse Osmosis**

Modular systems are designed to treat brackish water and make it suitable for ion exchange demineralisation polishing which enable paper mills to substantially reduce their operational costs.

**INDION® Ion Exchange Resins**

ION Exchange’s INDION brand of resins is a market leader with a strong global presence. INDION resins are manufactured as per international standards of quality.

- Complete range of gel, porous & macroporous cation and anion exchange resins for water treatment as well as specialty applications in paper mills
- ISO 9001 & 14001 certified fully automated manufacturing facility at Ankleshwar, Gujarat

**INDION® Boiler Water Treatment Chemicals**

Specially developed for paper plant boilers, these boiler water treatment chemicals with multipurpose formulations containing hardness treatment chemicals, instant oxygen scavenger, corrosion control agents, polymeric sludge conditioners and sequestant, to provide trouble-free operation and clean boilers.

**Benefits**

- Economical and easy to handle
- Prevention and removal of deposits
- Protection of system from corrosion

**INDION® Cooling Water Treatment Chemicals**

Cooling towers should run at maximum efficiency with low operating costs. Ion Exchange is a specialist in providing state-of-the-art cooling water treatment chemicals.

**Benefits**

- Prevention of cooling water related problems such as corrosion, scale fouling and microbial growth in cooling water systems
- Our cooling water programmes ensure consistency in heat transfer at the metal surface

**Waste Water Treatment, Recycling and Zero Liquid Discharge**

Process effluent recovery systems for black condensate, coating slurry and white water using a combination of innovative technologies including membrane bio-reactor, continuous sand filter, ultra high rate clarifier & ultra filtration.

Our recycle & zero liquid discharge systems integrate physico-chemical, biological, including high rate anaerobic reactors, and membrane separation processes for optimum water recovery. These are integrated with our state-of-the art zero liquid discharge systems to ensure total compliance.

INDION High Rate Anaerobic Reactors for waste treatment and for waste to energy can be built to occupy less floor area and offer excellent reduction efficiencies as compared to common reactors.

**Services**

Our complete service support system which includes paper care and water/waste management, helps maximise overall 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
- Upgradation & automation

**24/7 Service**

Through O&M contracts we undertake total responsibility for operation and maintenance, and supply of required water quality and quantity on a continuous basis. We carry out technical audits, study operation & design parameters and provide solutions for improving costs and treated water quality.
Boiler Feed Water Treatment

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Choice of processes using ion exchange columns and membrane processes.

Advanced Technologies in Demineralisation Plants

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Multi-effect Evaporator

O&M for O&M