Packing for INDION® Resins

Moist Resins		Dry Resins	
HDPE liner bags	25 / 50 lts	Dry Beads	
LDPE liner bags	1 cft / 25 lts	HDPE carbouys with	
Super sack	35 cft / 40 cft / 42 cft / 1000 lts	inner double plastic liner bags	25 / 50 kgs
MS drums with liner bags	200 / 180 lts		
Fibre drums with liner bags	7 cft	Dry Powders	
PVC jars with liner bags	5 / 6 lts	HDPE carbouys with	
HDPE drums with liner bags	50 / 100 / 180 lts	inner double plastic liner bags	6 / 20 / 40 kgs
Vaccum packing with LDPE bags	1 cft / 25 lts		

Protection of Ion Exchange Resins during Storage

Ion exchange resins, supplied in dry or moist condition, require proper care at all times. Always keep the resins drums / bags closed and in shade at a temprature between 10°C and 40°C.
Moist Resins: Resins which are supplied in moist condition should not be allowed to dry. Regularly open the drums / bags and check the condition of the resins. If the resin is not moist enough, add demineralised water to keep it in completely moist condition.
Dry Resins: Resins which are supplied as dry beads or dry powders should not be allowed to come in contact with moisture.

Measurement

Moist Resins: All water treatment resins and resins supplied in moist condition are generally sold on volume basis. The volume is measured in a column after backwashing, settling and draining of water to the bed surface.
Dry Resins: All dry resins are sold on weight basis.

Warning

Strong oxidising agents such as nitric acid, degrade ion exchange resins to a considerable extent. This may result in an explosive reaction. Thus, before using strong oxidising agents, consult sources knowledgeable in handling of such material.

Our state-of-the-art manufacturing facilities are ISO 9001, ISO 14001 & ISO 45001 certified

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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Malaysia | Oman | Portugal | Saudi Arabia | Singapore
South Africa | Sri Lanka | Tanzania | Thailand | UAE | USA

Manufacturing Units
India - Ankleshwar | Hosur | Patancheru | Rabale | Verna | Wada
Overseas - Bangladesh | Indonesia | Saudi Arabia | UAE
All India Service and Dealer Network

www.ionexchangeglobal.com | www.ionresins.com

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ION EXCHANGE
Refreshing the Planet

INDION® RESINS

The Preferred Choice

Our INDION range is backed by sustained focus on customer needs, intensive product and application R&D, sound technical support and wide application knowhow. Add to this **continuous innovation, worldclass quality**, state-of-the-art **ISO 9001 & 14001** certified facilities, an **FDA approved** pharmaceutical grade resin manufacturing unit...and you get the perfect recipe that makes INDION the preferred choice across sectors for over five decades.

Wide Range. Extensive Applications.

A complete range of cation & anion resins for water and waste water treatment as well as a host of speciality applications - pharmaceutical excipients, catalysts, nuclear grade resins, chelating resins for brine softening and heavy metal removal, adsorbent grade resins, resins for removal of colour, odour, organics, nitrate & tannin, resins for purification of bio-diesel, sugar, food & beverages and many more...

- Refinery & Petrochemical
- Steel, Power & Paper
- Food & Beverages
- Pharmaceuticals
  Bio-technology & Electronics
- Textiles, Sugar, Auto & Mini-steel
- Cement & Chemicals

INDION® Ion Exchange Resins

Properties and Applications - Summarised Data

	Resin Type	INDION Designation	Matrix Type	Functional Group	Standard Ionic Form	Particle Size mm	Moisture Content %	Maximum Operating Temperature °C	Total Exchange Capacity meq/ml	Reversible Swelling %	Applications
Industrial Water Treatment INDION Controlled Particle Size Ion Exchange Resins (CPS Resins)											
Anion Exchange Resin											
SBA	Gel	GS 3000 (Type 1)	Styrene DVB	$-N^+R_3$	Cl^-	0.42 – 1.2**	48 – 58	60 (OH^-)	1.3	Cl^- to OH^- 25 – 30	Demineralisation in co-current and countercurrent mode. Condensate polishing & caprolactum purification.
Cation Exchange Resins											
SAC	Gel	2250 Na	Styrene DVB	$-SO_3^-$	Na^+	0.42 – 1.2**	43 – 50	120	2.0	Na^+ to H^+ 8 approx.	Premium grade cation exchange resin for water softening.
		2250 H	Styrene DVB	$-SO_3^-$	H^+	0.42 – 1.2**	49 – 55	120	1.8	Na^+ to H^+ 8 approx.	Premium grade cation exchange resin for demineralisation.
Industrial Water Treatment											
Anion Exchange Resins											
SBA	Isoporous	FF–IP (Type 1)	Crosslinked Polystyrene	$-N^+R_3$	Cl^-	0.3 – 1.2	47 – 55	60 (OH^-)	1.2	Cl^- to OH^- 10 – 15	Demineralisation in co-current and countercurrent mode.
		FF–IP (MB)	Crosslinked Polystyrene	$-N^+R_3$	Cl^-	0.3 – 1.0	47 – 55	60 (OH^-)	1.2	Cl^- to OH^- 10 – 15	Used in mixed bed.
		N–IP (Type 2)	Crosslinked Polystyrene	$-N^+R_3$	Cl^-	0.3 – 1.2	45 – 53	40 (OH^-)	1.2	Cl^- to OH^- 10 – 15	Demineralisation in co-current and countercurrent mode.
	Gel	GS 300 (Type 1)	Styrene DVB	$-N^+R_3$	Cl^-	0.3 – 1.2	48 – 58	60 (OH^-)	1.3	Cl^- to OH^- 25 – 30	Demineralisation in co-current and countercurrent mode. condensate polishing & caprolactum purification.
		GS 300 (OH)	Styrene DVB	$-N^+R_3$	OH^-	0.3 – 1.2	60 – 70	60 (OH^-)	1.0	Cl^- to OH^- 25 – 30	Premium grade anion exchange resin used for demineralisation in regenerable mixed bed application.
		GS 400 (Type 2)	Styrene DVB	$-N^+R_3$	Cl^-	0.3 – 1.2	45 – 51	40 (OH^-)	1.2	Cl^- to OH^- 10 – 15	Demineralisation in co-current and countercurrent mode.
	Macroporous	810 (Type 1)	Styrene DVB	$-N^+R_3$	Cl^-	0.3 – 1.2	56 – 63	60 (OH^-)	1.0	Cl^- to OH^- 15 – 20	Demineralisation in co-current and countercurrent mode.
		810 HC (Type 1)	Styrene DVB	$-N^+R_3$	Cl^-	0.3 – 1.2	47 – 55	60 (OH^-)	1.2	Cl^- to OH^- 10 – 20	Premium grade anion exchange resin for demineralisation in co-current and countercurrent mode.
		810 SO_4	Styrene DVB	$-N\ R_4^+$	SO_4^{--}	0.42 – 1.2	56 – 63	60 (OH^-)	1.0 (Cl^-)	Cl^- to OH^- 15 – 20	Used in condensate polishing unit.
		830 (Type 1)	Styrene DVB	$-N^+R_3$	Cl^-	0.3 – 1.2	57 – 66	80 (Cl^-)	0.95	Cl^- to OH^- 7 – 17	Removal of organics & colour from water.
		820 (Type 2)	Styrene DVB	$-N^+R_3$	Cl^-	0.3 – 1.2	54 – 61	40 (OH^-)	1.0	Cl^- to OH^- 10 – 15	Demineralisation in co-current and countercurrent mode.
		820 HC (Type 2)	Styrene DVB	$-N^+R_3$	Cl^-	0.3 – 1.2	46 – 53	40 (OH^-)	1.2	Cl^- to OH^- 10 – 20	Premium grade anion exchange resin for demineralisation in co-current and countercurrent mode.
WBA	Macroporous	850	Styrene DVB	$-N\ R_2$ $-N^+R_3$	Free base	0.3 – 1.2	44 – 52	60 (FB)	1.5	FB to hydrochloride 25 max	Removal of strong acids from water.
Cation Exchange Resins											
SAC	Gel	220 Na	Styrene DVB	$-SO_3^-$	Na^+	0.3 – 1.2	50 – 55	120	1.8	Na^+ to H^+ 8 approx.	Standard grade cation exchange resin for water softening.
		222 Na	Styrene DVB	$-SO_3^-$	Na^+	0.3 – 1.2	47 – 53	120	1.92	Na^+ to H^+ 8 approx.	Premium grade cation exchange resin for water softening.
		223 H	Styrene DVB	$-SO_3^-$	H^+	0.3 – 1.2	49 – 55	120	1.9	Na^+ to H^+ 8 approx.	Premium grade cation exchange resin for demineralisation in regenerable mixed bed application.
		225 H	Styrene DVB	$-SO_3^-$	H^+	0.3 – 1.2	49 – 55	120	1.8	Na^+ to H^+ 8 approx.	Premium grade cation exchange resin for demineralisation.

* meq/dry g

** effective size: 0.50-0.65 (mm)

SAC: Strong Acid Cation, SBA: Strong Base Anion, WBA: Weak Base Anion, WAC: Weak Acid Cation, SPL : Speciality

INDION® Ion Exchange Resins

Properties and Applications - Summarised Data

	Resin Type	INDION Designation	Matrix Type	Functional Group	Standard Ionic Form	Particle Size mm	Moisture Content %	Maximum Operating Temperature °C	Total Exchange Capacity meq/ml	Reversible Swelling %	Applications
Industrial Water Treatment											
Cation Exchange Resins											
SAC	Gel	225 Na	Styrene DVB	$-SO_3^-$	Na^+	0.3 – 1.2	43 – 50	140	2.0	Na^+ to H^+ 8 approx.	Premium grade cation exchange resin for water softening.
		525 H	Styrene DVB	$-SO_3^-$	H^+	0.3 – 1.2	44 – 49	120	1.95	Na^+ to H^+ 6 approx.	Special grade cation exchanger for use in layered bed and for mixed bed condensate polishing.
		525 Na	Styrene DVB	$-SO_3^-$	Na^+	0.3 – 1.2	38 – 44	130	2.15	Na^+ to H^+ 6 approx.	Premium grade cation exchange resin for water softening.
		225 Na F	Styrene DVB	$-SO_3^-$	Na^+	0.3 – 1.2	43 – 50	120	2.0	Na^+ to H^+ 8 approx.	In the treatment of foodstuffs, beverages, potable water and water used in the processing of food. This product conforms to NSF / ANSI / CAN 61, NSF / ANSI / CAN 372 & is certified with IAPMO R&T.
		222 Na F	Styrene DVB	$-SO_3^-$	Na^+	0.3 – 1.2	47 – 53	120	1.92	Na^+ to H^+ 8 approx.	In the treatment of foodstuffs, beverages, potable water and water used in the processing of food. This product conforms to NSF / ANSI / CAN 61, NSF / ANSI 44, NSF / ANSI / CAN 372 & is certified with IAPMO R&T.
		222 Na BL	Styrene DVB	$-SO_3^-$	Na^+	0.3 – 1.2	46 – 51	120	1.9	Na^+ to H^+ 8 approx.	Solvent free cation – in the treatment of foodstuffs, beverages, potable water and water used in the processing of food.
		303	Styrene DVB	$-SO_3^-$	H^+	0.3 – 1.2	49 – 55	120	1.8 (H^+)	Na^+ to H^+ 8 approx	Colour indicating resin. Colour changes at the time of exhaustion.
	Macroporous-SPL	730	Styrene DVB	$-SO_3^-$	H^+	0.3 – 1.2	54 – 57	120	1.6 (H^+)	Na^+ to H^+ 2 – 6	Recovery of metals from aqueous and non-aqueous streams.
		790	Styrene DVB	$-SO_3^-$	H^+	0.3 – 1.2	51 – 55	120	1.8 (H^+)	Na^+ to H^+ 2 – 6	Demineralisation in co-current, countercurrent mode and condensate water treatment.
		790 C	Styrene DVB	$-SO_3^-$	H^+	0.42 – 1.2	51 – 55	120	1.7	Na to H 6	Used in condensate polishing unit.
WAC	Gel	236	Crosslinked Polyacrylic	$-COO^-$	H^+	0.3 – 1.2	46 – 54	120	4.0	H^+ to Na^+ 80 – 120	Removal of alkaline hardness from water.
	Macroporous	662	Methacrylic DVB	$-COO^-$	H^+	0.3 – 1.2	44 – 50	100	3.8	H^+ to Na^+ 70 max	Removal of alkaline hardness from water.
Mixed Bed Resins											
		MB 6SR/ Refill Pack	Styrene DVB	$-SO_3^-$ $-N^+R_3$	H^+ OH^-	0.3 – 1.2	-	60	-	-	Super-regenerated mixture of cation and anion for producing ultrapure water.
		MB – 11	Styrene DVB	$-SO_3^-$ $-N^+R_3$	H^+ OH^-	0.3 – 1.2	-	60	-	-	1:1 volume ratio of cation in H^+ and anion in OH^- to produce high purity demineralised water.
		MB – 11 GMB	Styrene DVB	$-SO_3^-$ $-N^+R_3$	H^+ OH^-	0.3 – 1.2	-	60	-	-	Non-regenerable mixed bed application where highest quality water is required. Colour changes at the time of exhaustion.
		MB – 12	Styrene DVB	$-SO_3^-$ $-N^+R_3$	H^+ OH^-	0.3 – 1.2	-	60	-	-	1:2 stoichiometrically equivalent volume ratio of cation in H^+ and anion in OH^- to produce high purity demineralised water.
		MB – 115	Styrene DVB	$-SO_3^-$ $-N^+R_3$	H^+ OH^-	0.3 – 1.2	-	60	-	-	40:60 volume ratio of cation and anion to produce high purity demineralised water.
		MB 151	Styrene DVB	$-SO_3^-$ $-N^+R_3$	H^+ OH^-	0.3 – 1.2	-	60	-	-	Non-regenerable EDM application.
		MB 1150 HP	Styrene DVB	$-SO_3^-$ $-N^+R_3$	H^+ OH^-	0.42 – 1.2**	-	60	-	-	Production of high purity water in electronic & pharma industry.
Oil Removal Resin											
SPL		Oleophilic Resin	Styrene DVB	$-SO_3^-$	Na^+	0.3 – 1.2	35 – 41	120	1.6 to 1.7	-	Oil removal from steam condensate of petroleum refineries, petroleum products & water contaminated with hydrocarbon.

* meq/dry g

** effective size: 0.50-0.65 (mm)

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INDION® Ion Exchange Resins

Properties and Applications - Summarised Data

	Resin Type	INDION Designation	Matrix Type	Functional Group	Standard Ionic Form	Particle Size mm	Moisture Content %	Maximum Operating Temperature °C	Total Exchange Capacity meq/ml	Reversible Swelling %	Applications
Potable Water Treatment											
Polyiodide Resin											
SPL		SRCD I	Crosslinked Polymer impregnated with iodine	$-N^+R_3$	I_3^-	0.3 – 1.2	-	15 – 35	-	-	Disinfection of potable water.
Arsenic and Iron Removal Resin											
SPL		ASM	Crosslinked Polystyrene	-	-	0.3 – 1.2	47 – 54	60	0.5 - 2.0 g As/l	-	Removal of Arsenic from potable water. This product conforms to NSF / ANSI / CAN 61, NSF / ANSI / CAN 372 & is certified with IAPMO R&T.
		ISR	Crosslinked Polystyrene	-	-	0.3 – 1.2	45 – 55	45	-	-	Removal of dissolved Iron from water. This product conforms to NSF / ANSI / CAN 61,NSF / ANSI / CAN 372 & is certified with IAPMO R&T.
Fluoride Removal Resin											
SPL		RS–F	Styrene DVB	NA	-	0.3 – 1.2	50 – 60	60	-	-	Removal of fluoride from water.
Perchlorate Removal Resin											
SPL		PCR	Crosslinked Polystyrene	$-NR_4^+$	Cl^-	0.3 – 1.2	35 – 45	90 (Cl^-)	0.8	-	Selective removal of perchlorate from ground water.
Cation Exchange Resins											
SAC	Gel	225 Na F	Styrene DVB	$-SO_3^-$	Na^+	0.3 – 1.2	43 – 50	140	2.0	Na^+ to H^+ 8 approx.	High purity food grade resin for treatment of potable water and food stuff. This product conforms to NSF / ANSI / CAN 61, NSF / ANSI / CAN 372 & is certified with IAPMO R&T.
		2250 Na F	Styrene DVB	$-SO_3^-$	Na^+	0.42 – 1.2**	43 – 50	140	2.0	Na^+ to H^+ 8 approx.	High purity food grade resin for treatment of potable water and food stuff. This product conforms to NSF / ANSI / CAN 61, NSF / ANSI / CAN 372 & is certified with IAPMO R&T.
		222 Na NS	Crosslinked Polystyrene	$-SO_3^-$	Na^+	0.3 – 1.2	43 – 49	120	1.9	Na^+ to H^+ 8 approx.	Water softening application. This product conforms to NSF /ANSI / CAN 61, NSF / ANSI / CAN 372 & is certified with IAPMO R&T. The product is manufactured by a non solvent process.
WAC	Microporous	266	Crosslinked Polyacrylic	$-COO^-$	H^+	0.3 – 1.2	46 – 54	120	4.2	H^+ to Na^+ 65 max	Removal of alkaline hardness from water.
Anion Exchange Resin											
SBA	Macroporous	NSSR (Type 1)	Styrene DVB	$-N^+R_3$	Cl^-	0.3 – 1.2	45 – 55	100 (Cl^-)	0.9	Cl^- to NO_3^- Negligible	Selective removal of Nitrates from water. This product conforms to NSF / ANSI / CAN 61, NSF / ANSI / CAN 372 & is certified with IAPMO R&T.
Oxidation, Reduction Catalyst											
SPL		ORC	-	-	-	0.3 – 1.2	45 – 55	-	-	-	Removal of halogens and oxidising agents.
Nuclear Grade Resins											
Cation Exchange Resins											
SAC	Gel	223 H NG	Styrene DVB	$-SO_3^-$	H^+	0.3 – 1.2	49– 55	120	1.9	-	High purity ion exchange resin (in hydrogen form) for use in nuclear power plants.
		2230 H NG	Styrene DVB	$-SO_3^-$	H^+	0.42 – 1.2**	49 – 55	120	1.9	-	High purity CPS ion exchange resin (in hydrogen form) for use in nuclear power plants.
		223 Li	Styrene DVB	$-SO_3^-$	Li^+	0.3 – 1.2	47 – 53	120	1.9	-	High purity ion exchange resin (in lithium form) for use in nuclear power plants.
Anion Exchange Resins											
SBA	Gel	ARU 104	Crosslinked Polystyrene	N^+R_3	Cl^-	0.3 – 1.2	38 – 42	80	1.6	-	Recovery of Uranium from leach liquors.
		GS 300 NG	Styrene DVB	$-N^+R_3$	OH^-	0.3 – 1.2	60 max	60(OH^-)	1.1	-	High strength strong base anion resin (Type I) for use in nuclear power plants.

* meq/dry g

** effective size: 0.50-0.65 (mm)

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INDION® Ion Exchange Resins

Properties and Applications - Summarised Data

	Resin Type	INDION Designation	Matrix Type	Functional Group	Standard Ionic Form	Particle Size mm	Moisture Content %	Maximum Operating Temperature °C	Total Exchange Capacity meq/ml	Reversible Swelling %	Applications
Nuclear Grade Resins											
Anion Exchange Resins											
SBA	Gel	GS 3000 NG	Styrene DVB	$-N^+R_3$	OH^-	0.42 – 1.2**	60 max	60 (OH^-)	1.1	-	High strength CPS strong base anion resin (Type I) for use in nuclear power plants.
		GS 80	Crosslinked Polystyrene	$-N^+R_3$	$-SO_3^-$	0.3 – 1.2	47 – 55	-	0.8	-	Oxygen scavenging.
Mixed Bed Resins											
	Mixed Resins	CAM – 14	Styrene DVB	$-SO_3^-$ $-N^+R_3$	H^+ OH^-	0.3 – 1.2	-	60	-	-	1:4 volume mixture of cation and anion to produce high purity alkaline water for use in nuclear power plants.
		CAM – 19	Styrene DVB	$-SO_3^-$ $-N^+R_3$	Li^+ OH^-	0.3 – 1.2	-	60	-	-	1:9 volume mixture of cation and anion. Used in nuclear power plants.
Catalyst Grade Resins											
Cation Exchange Resins											
SAC	Macroporous	140	Styrene DVB	$-SO_3^-$	H^+	0.42 – 1.2	<3	130	4.8*	-	Catalyst for organic reactions like esterification etc.
		130	Styrene DVB	$-SO_3^-$	H^+	0.42 – 1.2	<3	130	4.8*	-	Catalyst grade resin for esterification and alkylation reactions.
		190	Styrene DVB	$-SO_3^-$	H^+	0.42 – 1.2	<3	130	4.7*	-	Premium catalyst for specialised applications such as esterification, alkylation etc.
	Gel	770	Styrene DVB	$-SO_3^-$	H^+	0.3 – 1.2	63 – 66	120	1.3	-	Catalyst for manufacture of butyl acetate, ethylacetate, olefin hydration & bisphenol A.
Anion Exchange Resin											
WBA	Macroporous	860	Styrene DVB	$-NR_2$ $-N^+R_3$	Free base	0.3 – 1.2	48 – 54 (FB)	60 (FB)	1.4	FB to hydrochloride 25 max	As catalyst in aldolization reactions.
Hydrometallurgy											
Chelating Resins											
		MSR	Styrene DVB	Thiol	H^+	0.3 – 1.2	38 – 43	60	3.6*	-	Selective adsorption of bivalent mercury from industrial effluents.
		TCR	Styrene DVB	Thio-Uronium	–	0.3 – 1.2	41 – 47	80	1.4	-	Selective recovery of mercury and precious metals.
		BSR	Styrene DVB	Amino Phosphonic	Na^+	0.42 – 1.2	60 – 70	80	2.0 (H^+)	$H^+$to Na^+<45 $H^+$to Ca^{++}<20	Decalcification of secondary brine in chloralkali industry.
		BSRM	Styrene DVB	Amino Phoshonic & Iminodiacetic	Na^+	0.4 – 1.2	60 – 67	80	2.1 (H^+)	$H^+$to Na^+<45 $H^+$to Ca^{++}<20	Brine softening in chloroalkali industry
		SIR	Styrene DVB	Iminodiacetic	Na^+	0.3 – 1.2	52 – 58	90	2.2 (H^+)	$H^+$to Na^+ 40 max	Extraction and recovery of metals, removal of heavy metals from various organic or inorganic chemical products.
Cation Exchange Resins											
SAC	Macroporous	790	Styrene DVB	$-SO_3^-$	H^+	0.3 – 1.2	51 – 55	120	1.8 (H^+)	Na^+ to H^+ 2 – 6	Recovery of metals from aqueous and non-aqueous streams.
		730	Styrene DVB	$-SO_3^-$	H^+	0.3 – 1.2	54 – 57	120	1.6 (H^+)	Na^+ to H^+ 2 – 6	Recovery of metals from aqueous and non-aqueous streams.
		740	Styrene DVB	$-SO_3^-$	H^+	0.3 – 1.2	64 – 68	120	1.2 (H^+)	Na^+ to H^+ 2 – 6	Recovery of metals from aqueous and non-aqueous streams.
WAC	Gel	236	Crosslinked Polyacrylic	$-COO^-$	H^+	0.3 – 1.2	46 – 54	120	4.0	H^+ to Na^+ 80 – 120	Recovery of metals from aqueous and non-aqueous streams.

* meq/dry g

** effective size: 0.50-0.65 (mm)

SAC: Strong Acid Cation, SBA: Strong Base Anion, WBA: Weak Base Anion, WAC: Weak Acid Cation, SPL : Speciality

INDION® Ion Exchange Resins

Properties and Applications - Summarised Data

	Resin Type	INDION Designation	Matrix Type	Functional Group	Standard Ionic Form	Particle Size mm	Moisture Content %	Maximum Operating Temperature °C	Total Exchange Capacity meq/ml	Reversible Swelling %	Applications
Chemical Process Application											
Anion Exchange Resins											
SBA	Gel	GS 300 (OH) (Type I)	Styrene DVB	$-N^+R_3$	OH^-	0.3 – 1.2	60 – 70	60 (OH^-)	1.0	Cl^- to OH^- 25 – 30	Removal and recovery from process streams.
		950 (Type I)	Cross linked Polyacrylic	$-N^+R_3$	Cl^-	0.4 – 1.2	54 – 64	80 (Cl^-)	1.2	Cl^- to OH^- 25 – 30	Removal of high level of colour bodies from sugar syrup.
	Macroporous	830 S (Type 1)	Styrene DVB	$-N^+R_3$	Cl^-	0.3 – 1.2	57 – 66	80 (Cl^-)	0.95	Cl^- to OH^- 7 – 17	Removal of colour bodies from sugar syrup and other process streams. This product conforms to NSF / ANSI / CAN 61 & is certified with GOLD SEAL from WQA.
		930 A (Type 1)	Crosslinked Polyacrylic	$-N^+R_3$	Cl^-	0.3 – 1.2	65 – 72	80 (Cl^-)	0.8	Cl^- to OH^- 10 – 15	Removal of high level of colour bodies from sugar syrup.
WBA	Macroporous	845 (Type 1)	Styrene DVB	$-N^+R_2$ $-N^+R_3$	-	0.3 – 1.2	52 – 58	60	1.1	Cl^- to OH^- 20 max	Treatment of non-aqueous solution such as deashing of glucose, dextrose, sorbitol, gelatin & purification of MSG.
		860 S	Styrene DVB	$-N^+R_2$ $-N^+R_3$	Free base	0.3 – 1.2	47 – 55 (FB)	60	1.3	FB to hydrochloride 25 max	Treatment of non-aqueous solution such as deashing of glucose, dextrose, sorbitol, gelatin & purification of MSG.
		870	Styrene DVB	$-N^+R_2$	Free base	0.3 – 1.2	48 – 58 (FB)	60	1.6	FB to hydrochloride 25 max	Deacidification of process streams.
		880	Styrene DVB	$-N^+R_2$ $-N^+R_3$	Free base	0.3 – 1.2	52 – 58 (FB)	60	1.2	FB to hydrochloride 25 max	Colour removal from textile effluent.
		890	Styrene DVB	$-N^+R_2$ $-N^+R_3$	Free base	0.3 – 1.2	48 – 54 (FB)	60	1.4	FB to hydrochloride 25 max	Removal of strong acids in non water, pharma & speciality applications.
Cation Exchange Resins											
SAC	Macroporous	790	Styrene DVB	$-SO_3^-$	H^+	0.3 – 1.2	51 – 55	120	1.8 (H^+)	Na^+ to H^+ 2 – 6	Special grade cation exchanger for applications demanding higher oxidation stability such as gelatin purification, heavy metal removal etc.
WAC	Macroporous	652	Methaacrylic acid DVB	COO^-	H^+	0.3 – 1.2	47 – 55	100	3.5	H^+ to Na^+ 75 min	Ideal for the uptake of toxic / undesirable heavy metals, temporary hardness from process liquor and industrial water.
	Gel	236 P	Crosslinked Polyacrylic	$-COO^-$	H^+	0.3 – 1.2	46 – 54	120	4	H^+ to Na^+ 80 – 120	Removal of alkaline hardness from water in Beverage Industry.
Mixed Bed Resin											
		GMW 11 (GVI)	Crosslinked Polystyrene	$-SO_3^-$ $-N^+R_2$	H^+ OH^-	0.3 – 1.2	-	60	-	-	Specially developed mix of resins for use in electroplating applications. Colour changes at the time of exhaustion.

* meq/dry g

SAC: Strong Acid Cation, SBA: Strong Base Anion, WBA: Weak Base Anion, WAC: Weak Acid Cation, SPL : Speciality

INDION® Ion Exchange Resins

Properties and Applications - Summarised Data

	Resin Type	INDION Designation	Matrix Type	Functional Group	Standard Ionic Form	Particle Size mm	Moisture Content %	Maximum Operating Temperature °C	Total Exchange Capacity meq/ml	Reversible Swelling %	Applications
	Pharmaceutical Grade Resins										
	Active Pharmaceutical Ingredients (API's)	254	Styrene DVB	$-SO_3^-$	Na^+	< 0.15	≤10	-	-	-	Sustained release agent in drug formulations.
		404	Styrene DVB	$-SO_3^-$	Ca^{++}	< 0.15	≤8	-	-	-	Treatment of Hyperkalaemia.
		454	Styrene DVB	$-N^+R_3$	Cl^-	>0.075 – 45% <0.15 – 1%	≤12	-	1.8 – 2.2***	-	Cholestyramine resin – used for lowering serum cholesterol levels. Taste masking, drug stabilisation, controlled release & active ingredient.
	Speciality Excipient Resins	204	Crosslinked Polyacrylic	$-COO^-$	H^+	< 0.15	≤5	-	10.0*	-	Taste masking of bitter drugs such as Norfloxacin, Ofloxacin, Roxithromycin, Dicyclomine Hydrochloride, Famotidine and B_{12} stabilisation etc.
		214	Crosslinked Polyacrylic	$-COO^-$	H^+	< 0.15	≤5	-	10.0*	-	Taste masking of bitter drugs such as Azithromycin
		234	Crosslinked Polyacrylic	$-COO^-$	K^+	< 0.15	≤10	-	-	-	Taste masking of bitter drugs such as Ciprofloxacin, Chloroquine Phosphate etc. as well as tablet disintegration.
		254	Styrene DVB	$-SO_3^-$	Na^+	< 0.15	≤10	-	-	-	Sustained release agent in drug formulations.
		264	Crosslinked Polyacrylic	$-COO^-$	H^+	< 0.15	≤5	-	10.0*	-	Stabilisation of Vitamin B_{12}
		294	Crosslinked Polymethacrylic	$-COO^-$	K^+	< 0.15	≤10	-	-	-	Tablet disintegrant/taste masking. Product meets specifications of Polacrilin Potassium, USP.
		464	Crosslinked Polymethacrylic	$-COO^-$	H^+	< 0.15	≤5	-	10*	-	Nicotine taste masking and sustained release.

SPL : Speciality

* meq/dry g
*** sodium glycocholate exchange capacity

INDION® Ion Exchange Resins

Properties and Applications - Summarised Data

	Resin Type	INDION Designation	Matrix Type	Functional Group	Standard Ionic Form	Particle Size mm	Moisture Content %	Maximum Operating Temperature °C	Total Exchange Capacity meq/ml	Reversible Swelling %	Applications
Adsorbent Grade Resins											
	SPL	PA 500	Styrene DVB	-	-	0.3 – 1.2	63 – 67	150	-	-	Purification of Aloe Vera juice and Methi extract.
		PA 600	Styrene DVB	-	-	0.3 – 1.2	55 – 65	130	-	-	High surface area polymers for recovering non-polar substances from aqueous and non aqueous streams.
		PA 800	Styrene DVB	-	-	0.3 – 1.2	54 – 60	150	-	-	Phenol removal from HCl and effluent.
		PA 1200	Styrene DVB	-	-	0.4 – 1.2	52 – 62	120	-	-	High surface area polymers for recovering non-polar substances from aqueous and non aqueous streams.
Biodiesel Manufacture & Purification											
	SPL	190	Styrene DVB	$-SO_3^-$	H^+	0.42 – 1.2	<3	150	4.7*	-	Esterification of FFA.
		BF 100	Styrene DVB	$-N^+R_3$	OH^-	0.3 – 1.2	63 – 75	-	0.8	-	Purification of raw bio-diesel to remove residual FFA from 0.5 - 1.0% to less than 0.1%.
		BF 170	Styrene DVB	Acidic	-	0.3 – 1.2	≤3	-	-	-	Purification of raw bio-diesel for removal of glycerine, soap, moisture etc.

* meq/dry g

SPL : Speciality

We offer several other speciality resins for a wide variety of applications. These include fine mesh resins for chromatographic separations; dessicant grade resins for moisture removal from sovlents & resins for peptide synthesis.