



***TULSION***<sup>®</sup>

**ION EXCHANGE RESINS**



Summarized Data Sheet

**Thermax**



**Quality is Our Commitment**



Chemical Division

**QUALITY POLICY**

We at Thermax Limited, Chemical Division hereby commit to develop, manufacture, deliver and apply Specialty Chemicals, Performance Chemicals in Oil Field, Fuel and Water Management to meet customer expectation.

Further, we are committed to comply with the requirements of ISO 9001 and continually improve the effectiveness of the Quality Management System by establishing and reviewing quality objectives.

We shall ensure that quality policy is communicated and understood by all our employees. This policy shall be reviewed periodically for its continuing suitability.

**QUALITY OBJECTIVES**

**Our Quality Objectives:**

- 1. To implement, maintain and continually improve Quality System as per requirements of the Quality Standard of ISO 9001.
- 2. To achieve consistent Quality.
- 3. To enhance customer satisfaction.
- 4. To improve the effectiveness of existing processes.
- 5. To innovate products & processes to meet the customer needs.

**Thermax**



**Quality is Our Commitment**



Chemical Division

ISO & OHSAS Certification



The World is Our Oyster

**WATER TREATMENT RESINS**

**DE-ALKALIZATION**

**DEMINERALIZATION**

**SOFTENING**

**SPECIALTY RESINS**

**NUCLEAR GRADE**

**CATALYSIS**

**FOOD PROCESSING**

**MINING**

**ADSORBENT**

**GLUCOSE DEASHING**

**MEG PURIFICATION**

**SUGAR DECOLOURISATION**

**BIODIESEL PURIFICATION**

**METAL RECOVERY**

**CHELATING**

**JUICE DE-BITTING**

**PICKLING**

**CONDENSATE POLISHING**

**GROUND WATER REMEDIATION**

**BIOTECH**

## SOFTENING CATION EXCHANGE RESINS

Tulsion®	Type	Matrix Structure	Functional Group	Ionic Form Supplied	Screen Size US Mesh (wet)	Particle Size mm (Min. 95%)	Stability Max Temp °F / °C	pH Range	Total Exchange Capacity meq/ml. (min)	Backwash Settled Density lbs/cft g/l	Reversible Swelling % Approx	Moisture Content % Approx	Features	Applications
T-40	Strong Acid	Polystyrene Copolymer	Nuclear Sulphonic	Sodium	16-50	0.3-1.2	280/140	0-14	1.8	50-52 800-830	Na <sup>+</sup> →H <sup>+</sup> 10	50±3	High efficiency gel cation exchange resin, specifically for softening .	Industrial and domestic water softening.
T-42	Strong Acid	Polystyrene Copolymer	Nuclear Sulphonic	Sodium	16-50	0.3-1.2	280/140	0-14	2.0	51-53 810-850	Na <sup>+</sup> →H <sup>+</sup> 7	45±3	High capacity gel cation exchange resin, with optimum operating capacities.	Industrial and domestic softening at relatively low regeneration costs .
T-52	Strong Acid	Polystyrene Copolymer	Nuclear Sulphonic	Sodium	16-50	0.3-1.2	280/140	0-14	2.1	52-54 830-860	Na <sup>+</sup> → H <sup>+</sup> 6	43±3	High capacity gel cation exchange resin, with high operating capacities.	Domestic softening for chlorinated water.

## DEMINERALIZATION CATION EXCHANGE RESINS

Tulsion®	Type	Matrix Structure	Functional Group	Ionic Form Supplied	Screen Size US Mesh (wet)	Particle Size mm (Min. 95%)	Stability Max Temp °F / °C	pH Range	Total Exchange Capacity meq/ml. (min)	Backwash Settled Density lbs/cft g/l	Reversible Swelling % Approx	Moisture Content % Approx	Features	Applications
T-42	Strong Acid	Polystyrene Copolymer	Nuclear Sulphonic	Hydrogen	16-50	0.3-1.2	250/120	0-14	1.8	50-52 H <sup>+</sup> 800-840 H <sup>+</sup>	Na <sup>+</sup> →H <sup>+</sup> 7	52±3	High capacity gel cation exchange resin with excellent physical and chemical properties.	Softening, multiple and mixed bed demineralisation, dealkalization, chemical processing etc.
CX0-9	Weak Acid	Polyacrylic Copolymer	Carboxylic	Hydrogen	16-50	0.3-1.2	210/100	5-14	4.0	42-44 Na <sup>+</sup> 670-710 Na <sup>+</sup> 46-48 H <sup>+</sup> 730-770 H <sup>+</sup>	H <sup>+</sup> →Na <sup>+</sup> 100	47±3	High capacity acrylic weak acid cation exchange resin with excellent physical and chemical stability.	Water deionization, selective heavy metal removal. Softening of high salinity waters in sodium cycle.
CX0-12	Weak Acid	Polyacrylic Copolymer	Carboxylic	Hydrogen	16-50	0.3-1.2	210/100	5-14	4.2	47-49 750-790	H <sup>+</sup> →Na <sup>+</sup> 75	45±3	High capacity acrylic weak acid cation exchange resin with excellent physical and chemical stability	Water deionization, dealkalization selective heavy metal removal. Softening of high salinity waters in sodium cycle.
CX0-12 MP	Weak Acid	Polyacrylic Copolymer	Carboxylic	Hydrogen	16-50	0.3-1.2	210/100	5-14	4.1	47-49 750-790	H <sup>+</sup> →Na <sup>+</sup> 70	47±3	Macropous acrylic weak acid cation exchange resin with excellent physical and chemical stability.	Water deionization, dealkalization selective heavy metal removal. Softening of high salinity waters in sodium cycle.

## DEMINERALIZATION ANION EXCHANGE RESINS

Tulsion®	Type	Matrix Structure	Functional Group	Ionic Form Supplied	Screen Size US Mesh (wet)	Particle Size mm (Min. 95%)	Stability Max Temp °F / °C	pH Range	Total Exchange Capacity meq/ml. (min)	Backwash Settled Density lbs/cft g/l	Reversible Swelling % Approx	Moisture Content % Approx	Features	Applications
A-23	Strong Base	Polystyrene Copolymer	Quaternary Ammonium Type I	Chloride	16-50	0.3-1.2	175/80	0-14	1.3	42-44 670-710	Cl <sup>-</sup> →OH <sup>-</sup> 20	53±3	Tough gel, strong base type I anion exchange resin. Excellent physical and chemical properties.	Multiple and mixed bed deionization, silica removal. Also applied in process stream purification along with Tulsion T-42.

## DEMINERALIZATION ANION EXCHANGE RESINS

Tulsion®	Type	Matrix Structure	Functional Group	Ionic Form Supplied	Screen Size US Mesh (wet)	Particle Size mm (Min. 95%)	Stability Max Temp °F / °C	pH Range	Total Exchange Capacity meq/ml. (min)	Backwash Settled Density lbs/cft g/l	Reversible Swelling % Approx	Moisture Content % Approx	Features	Applications
A23P	Strong Base	Polystyrene Copolymer	Quaternary Ammonium Type I	Chloride	16-50	0.3-1.2	175/80	0-14	1.25	42-44 670-710	Cl <sup>-</sup> →OH <sup>-</sup> 25	53±3	Porous strong base type I anion exchange resin. Excellent physical and chemical properties.	Multiple and mixed bed deionization, silica removal.
A-32	Strong Base	Polystyrene Copolymer	Quaternary Ammonium Type I	Chloride	16-50	0.3-1.2	140/60	0-14	1.3	43-45 690-720	Cl <sup>-</sup> →OH <sup>-</sup> 12	47±3	Tough gel, Type II strong base anion exchange resin. Excellent physical and chemical properties.	Multiple bed deionization
A-27 MP	Strong Base	Polystyrene Copolymer	Quaternary Ammonium Type I	Chloride	16-50	0.3-1.2	175/80	0-14	1.2	42-44 670-710	Cl <sup>-</sup> →OH <sup>-</sup> 9	58±3	Macroporous strong base type I anion exchange resin with excellent physical and chemical stability and resistance to organic fouling	Multiple bed deionization, delalkalization and silica removal.
A-27 Gel	Strong Base	Polystyrene Copolymer	Quaternary Ammonium Type I	Chloride	16-50	0.3-1.2	140/60	0-14	1.3	42-44 670-710	Cl <sup>-</sup> →OH <sup>-</sup> 9	50±3	Tough gel, strong base type I anion exchange resin. Excellent physical and chemical properties.	Multiple mixed bed deionization silica removal also applied in stream purification along with Tulsion T-42.
A-36 Gel	Strong Base	Polystyrene Copolymer	Quaternary Ammonium Type II	Chloride	16-50	0.3-1.2	105/40	0-14	1.3	43-45 690-720	Cl <sup>-</sup> →OH <sup>-</sup> 9	48±3	High efficient & durable type II, strong base exchange resin having excellent operating capacity & regeneration efficiency at equivalent regeneration level.	Besides its primary application in water treatment it is also used in de-alkalization process.
A-36 MP	Strong Base	Polystyrene Copolymer	Quaternary Ammonium Type II	Chloride	16-50	0.3-1.2	140/60	0-14	1.2	42-44 670-710	Cl <sup>-</sup> →OH <sup>-</sup> 9	50±3	Macroporous strong base type II anion exchange resin having high regeneration efficiency and resistance to organic fouling.	Multiple bed deionization, dealkalization.
A-2X MP	Weak Base	Polystyrene Copolymer	Tertiary Amine	Free Base	16-50	0.3-1.2	175/80	0-9	1.5	40-42 640-670	FB →Cl <sup>-</sup> 20	47±3	Macroporous weak base anion exchange resin, excellent regeneration efficiency. Resistance to organic fouling.	Deionization of high EMA waters.
A-10X MP	Weak Base	Polyacrylic Copolymer	Polyamine	Free Base	16-50	0.3-1.2	140/60	0-9	2.5	43-45 690-720	FB →Cl <sup>-</sup> 23	52±3	Macroporous acrylic weak base anion exchange resin with high organic removal efficiency.	Deacidification and deionization of high EMA, high organics water.

## MIXED BED RESINS

Tulsion®	Type	Matrix Structure	Functional Group	Ionic Form Supplied	Screen Size US Mesh (wet)	Particle Size mm (Min. 95%)	Stability Max Temp °F / °C	pH Range	Total Exchange Capacity meq/ml. (min)	Backwash Settled Density lbs/cft g/l	Reversible Swelling % Approx	Moisture Content % Approx	Features	Applications
MB-104	Strong Acid Strong Base Mixture	Polystyrene Copolymer	Nuclear Sulphonic /Quaternary Ammonium Type I	LI <sup>+</sup> /OH <sup>-</sup> form Mixture	16-50	0.3-1.2	175/80	0-14	1.8/1.0 LI <sup>+</sup> /OH <sup>-</sup>	44-47 700-750	NA	—	Intimate mixture strong acid T-46 LI <sup>+</sup> form and strong base A-33 OH <sup>-</sup> form containing in a 1:2 volume ratio.	Final polishing of circulating water in nuclear industry.
MB-106	Strong Acid Strong Base Mixture	Polystyrene Copolymer	Nuclear Sulphonic /Quaternary Ammonium Type I	H <sup>+</sup> /OH <sup>-</sup> form Mixture	16-50	0.3-1.2	175/80	0-14	1.8/1.0 H <sup>+</sup> /OH <sup>-</sup>	44-47 700-750	NA	—	Intimate mixture strong acid T-46 LI <sup>+</sup> form and strong base A-33 OH <sup>-</sup> form containing in a 1:2 volume ratio.	Final polishing of circulating water in nuclear industry
MB-108 (BG)	Strong Acid Strong Base mixture	Polystyrene Copolymer	Nuclear Sulphonic /Quaternary Ammonium Type I	H <sup>+</sup> /OH <sup>-</sup> form Mixture	16-50	0.3-1.2	175/8	0-14	1.8/1.0 H <sup>+</sup> /OH <sup>-</sup>	44-47 700-750	NA	—	High purity mixed bed resin with highly Effective separation. Volume ratio 1:2 (T-46 Black : A-33 Gold).	Used in high purity water applications.
MB-108 P	Strong Acid Strong Base mixture	Polystyrene Copolymer	Nuclear Sulphonic /Quaternary Ammonium Type I	H <sup>+</sup> /OH <sup>-</sup> form Mixture	16-50	0.3-1.2	175/80	0-14	1.8/1.0 H <sup>+</sup> /OH <sup>-</sup>	44-47 700-750	NA	—	Intimate mixture of strong acid T-46 H <sup>+</sup> form and strong base Type I (A-33) OH form in a 1:2 volume ratio.	Used in high purity water applications.
MB-115 (BG)	Strong Acid Strong Base mixture	Polystyrene Copolymer	Nuclear Sulphonic /Quaternary Ammonium Type I	H <sup>+</sup> /OH <sup>-</sup> form Mixture	16-50	0.3-1.2	175/80	0-14	1.8/1.0 H <sup>+</sup> /OH <sup>-</sup>	44-47 700-750	NA	—	Intimate mixture of strong acid T-46 H <sup>+</sup> form and strong base Type I (A-33) OH form in a 1:1:5 volume ratio.	For production of ultra pure water.

## MIXED BED RESINS

Tulsion®	Type	Matrix Structure	Functional Group	Ionic Form Supplied	Screen Size US Mesh (wet)	Particle Size mm (Min. 95%)	Stability Max Temp °F / °C	pH Range	Total Exchange Capacity meq/ml. (min)	Backwash Settled Density lbs/cft g/l	Reversible Swelling % Approx	Moisture Content % Approx	Features	Applications
MB-115	Strong Acid Strong base mixture	Polystyrene Copolymer	Nuclear Sulphonic /Quaternary Ammonium Type I	H <sup>+</sup> /OH <sup>-</sup> form Mixture	16-50	0.3-1.2	175/80	0-14	1.8/1.0 H <sup>+</sup> /OH <sup>-</sup>	44-47 700-750	NA	—	Intimate mixture of strong acid T-46 H <sup>+</sup> form and strong base Type I (A-33) OH <sup>-</sup> form in a 1:1.5 volume ratio.	For production of ultra pure water.
MB-114	Strong Acid Strong Base mixture	Polystyrene Copolymer	Nuclear Sulphonic /Quaternary Ammonium Type II	H <sup>+</sup> /OH <sup>-</sup> form Mixture	16-50	0.3-1.2	175/80	0-14	1.8/1.0 H <sup>+</sup> /OH <sup>-</sup>	44-47 700-750	NA	—	Intimate mixture of strong acid T-46 H <sup>+</sup> form and strong base Type II (A-32) OH <sup>-</sup> form in a 1:2 volume ratio.	For production of ultra pure water.

## CONDENSATE POLISHING RESINS

Tulsion®	Type	Matrix Structure	Functional Group	Ionic Form Supplied	Screen Size US Mesh (wet)	Particle Size mm (Min. 95%)	Stability Max Temp °F / °C	pH Range	Total Exchange Capacity meq/ml. (min)	Backwash Settled Density lbs/cft g/l	Reversible Swelling % Approx	Moisture Content % Approx	Features	Applications
T-48	Strong acid	Polystyrene Copolymer	Nuclear Sulphonic	Hydrogen	100-400 +100=nil	0.03-0.15	320/160	0-14	4.5 meq/gm	NA	NA	60 ±5	Strong acid cation exchange resin supplied in powder form	Condensate polishing deploying precoat filter process
T-50	Strong acid	Polystyrene Copolymer	Nuclear Sulphonic	Hydrogen	20-40	0.42-0.85 (85%)	250/120	0-14	1.8	51-53 800-840	Na <sup>+</sup> → H <sup>+</sup> 7	52 ±3	Strong acid cation exchange resin having controlled particle size cut.	High flow, deep bed condensate polishing
T-52	Strong acid	Polystyrene Copolymer	Nuclear Sulphonic	Hydrogen	16-50	0.3-1.2	250/120	0-14	1.9	52-54 830-860	Na <sup>+</sup> → H <sup>+</sup> 6	48 ±3	Higher cross-linked strong acid cation exchange resin having excellent resistance to oxidizing agents and temperature	Multiple & mixed bed demineralization operating under rigorous conditions
T-42 MP	Strong acid	Polystyrene Copolymer	Nuclear Sulphonic	Hydrogen Sodium	16-50	0.3-1.2	250/120 H <sup>+</sup> 280/140 Na <sup>+</sup>	0-14	1.7 Na 1.63H	50-52 H <sup>+</sup> 800-830 H <sup>+</sup> 52-54 Na <sup>+</sup> 830-870 Na <sup>+</sup>	Na <sup>+</sup> → H <sup>+</sup> 6	56 ±3H <sup>+</sup> 53 ±3 Na <sup>-</sup>	Macroporous strong acid cation exchange resin with excellent physical and chemical characteristics	High flow condensate polishing, continuous ion exchange systems and chemical processing
A-21	Strong Base	Polystyrene Copolymer	Quaternary Ammonium Type I	Chloride	20-40	0.42-0.85 (82%)	175/80	0-14	1.3	42-44 670-710	Cl <sup>-</sup> → OH <sup>-</sup> 20	53 ±3	Strong base gel Type I anion exchange resin with excellent bead strength and controlled particle size	High flow, deep bed condensate polishing
A-21 MP	Strong Base	Polystyrene Copolymer	Quaternary Ammonium Type I	Chloride Carbonate	20-40	0.42-0.85 (82%)	175/80 Cl <sup>-</sup>	0-14	1.2	42-44 670-710	Cl <sup>-</sup> → OH <sup>-</sup> 10	58 ±3	Macroporous strong base Type I anion exchange resin with superior bead strength and controlled particle size.	High flow, deep bed condensate polishing

## NUCLEAR GRADE ION EXCHANGE RESINS

Tulsion®	Type	Matrix Structure	Functional Group	Ionic Form Supplied	Screen Size US Mesh (wet)	Particle Size mm (Min. 95%)	Stability Max Temp °F / °C	pH Range	Total Exchange Capacity meq/ml. (min)	Backwash Settled Density lbs/cft g/l	Reversible Swelling % Approx	Moisture Content % Approx	Features	Applications
T-46	Strong acid	Polystyrene Copolymer	Nuclear Sulphonic	Lithium Hydrogen	16-50	0.3-1.2	250/120	0-14	1.8	50-52 800-840	Na <sup>+</sup> → H <sup>+</sup> 7	50 ±3 52 ±3	Strong acid cation exchange resin having a minimum of 99% of its exchange sites in H <sup>+</sup> /Li <sup>+</sup> form with high bead strength.	Treatment of circulating water in nuclear industry
A-33	Strong Base	Polystyrene Copolymer	Quaternary Ammonium Type I	Hydroxide	16-50	0.3-1.2	175/80	0-14	1.0	42-44 670-710	Cl <sup>-</sup> → OH <sup>-</sup> 20	70 ±3	Strong base gel Type I anion exchange resin having minimum 90% of its exchange sites in OH <sup>-</sup> form and less than 1% sites in Cl <sup>-</sup> form with high bead strength.	Treatment of circulating water in nuclear industry

## CATALYTIC GRADE ION EXCHANGE RESINS

Tulsion®	Type	Matrix Structure	Functional Group	Ionic Form Supplied	Screen Size US Mesh (wet)	Particle Size mm (Min. 95%)	Stability Max Temp °F / °C	pH Range	Total Exchange Capacity meq/ml. (min)	Backwash Settled Density lbs/cft g/l	Reversible Swelling % Approx	Moisture Content % Approx	Features	Applications
<b>T-56 MP</b>	Strong acid	Polystyrene Copolymer	Nuclear Sulphonic	Hydrogen	16-50	0.3-1.2	250/120	0-14	1.63	52-54 830-870	Na <sup>+</sup> →H <sup>+</sup> 7	56±3	Macroporous catalytic grade strong acid cation exchange resin supplied in wet form. Also supplied in dry form containing moisture less than 2%	Catalysis of organic reactions in aqueous and non-aqueous media
<b>T-38</b>	Strong acid	Polystyrene Copolymer	Nuclear Sulphonic	Hydrogen	16-50	0.3-1.2	250/120	0-14	1.4	47-49 750-790	Na <sup>+</sup> →H <sup>+</sup> 11	65±3	High purity, low cross linked strong acid cation exchange	Catalyst for Bisphenol A reactions.
<b>T-3825</b>	Strong acid	Polystyrene Copolymer	Nuclear Sulphonic	Hydrogen	16-50	0.3-1.2 (98%)	250/120	0-14	0.675	43-45 690-720	Na <sup>+</sup> →H <sup>+</sup> 15	79±3	High purity, low cross linked strong acid cation exchange	Catalyst for Bisphenol A reactions.
<b>T-62MP</b>	Strong acid	Polystyrene Copolymer	Nuclear Sulphonic	Hydrogen	16-40	0.3-1.2 0.42-1.2 (97%)	265/130	—	4.8 (meq / dry gm)	—	NA	1	Specially developed resin for phenol alkylation	Phenol Alkayation, Isoboryl acetate synthesis. Reaction of non-polar media.
<b>T-63 MP</b>	Strong acid	Polystyrene Copolymer	Nuclear Sulphonic	Hydrogen	16-40	0.3-1.2 0.42-1.2 (96%)	265/130	—	4.8 (meq / dry gm)	—	NA	1	High Porosity resin	Phenol Alkayation, Isoboryl acetate synthesis. Reaction of non-polar media.
<b>T-66MP</b>	Strong acid	Polystyrene Copolymer	Nuclear Sulphonic	Hydrogen	16-40	0.3-1.2 0.42-1.2 (97%)	265/130	—	5.0 (meq / dry gm)	—	NA	1	Resin with low porosity and high surface area	phenol Alkayation, for reaction of relatively polar reactants.
<b>T 3830</b>	Strong acid	Polystyrene Copolymer	Nuclear Sulphonic	Hydrogen	16-50	0.3-1.2	265/130	0-14	3.5	47-49 750-790	Na→H 11	65±3	Promoted catalyst supplied in wet form	Bisphenol-A synthesis.
<b>A-74 MP</b>	Strong Base	Polystyrene Copolymer	Quaternary Ammonium Type I	Hydroxide	16-50	0.3-1.2	175/80	0-14	1.0	42-45 670-720	Cl→OH 21	60±3	Macroporous catalytic grade type I strong base anion.	Condensation type of reaction.
<b>A-3003</b>	Strong Base	Polystyrene Copolymer	Quaternary Ammonium Type I	Hydroxide	16-50	0.3-1.2	140/60	0-14	1.0	42-44 670-710	Cl→OH 20	70±3	Catalytic grade type I strong base anion.	Aldol condensation type reactions
<b>A-8X MP</b>	Weak Base	Polystyrene Copolymer	Tertiary Amine	Free Base	16-50	0.3-1.2	175/80	0-14	1.3	40-42 640-680	FB→Cl <sup>-</sup> 18	55±3	Macroporous catalytic grade weak base anion exchange resin.	MEG purification and deacidification of aqueous and non-aqueous media
<b>T-6812 MP (Dry)</b>	Strong acid	Polystyrene copolymer	Nuclear sulphonic	Hydrogen	16 - 40	0.425 - 1.2	265/130	0 - 14	5.2	—	—	2	High Porosity resin	Phenol alkylation, esterification reactions

## ADSORBENT RESINS

Tulsion®	Type	Matrix structure	Functional group	Ionic form	Screen Size US Mesh (wet)	Paricle size mm (Min. 95%)	Stability Max Temp °F / °C	pH range	Specific Surface Area m <sup>2</sup> /gm(min.)	Backwash settle density	Reversible Swelling % Approx	Moisture content	Features	Applications
<b>ADS-400</b>	Polyacrylic adsorbent	Polyacrylic Copolymer	NIL	NA	18-50 18-40 (90%)	0.3-1.0	205/95	0-14	375	43-47 700-750	NA	62±3	High organic removal capacity	Removal of hydrophilic chemicals from Industrial waters
<b>ADS-600</b>	Polystyrenic adsorbent	Polystyrenic Copolymer	NIL	NA	18-50 18-40 (85%)	0.4-1.0	300/150	0-14	550	43-47 700-750	NA	55-60	High organic removal capacity	Removal of hydrophilic chemicals from Industrial waters
<b>ADS-800</b>	Polystyrenic adsorbent	Polystyrenic Copolymer	NIL	NA	18-50	0.3-1.0	300/150	0-14	750	40-44 640-710	NA	53-58	Polystyrene resin with high organic removal capacity	Removal of hydrophilic chemicals from Industrial waters
<b>ADS 800 EP</b>	Polystyrenic adsorbent	Polystyrenic copolymer	NIL	NA	18-50	0.3-1.0	300/150	0-14	750	40-44 640-710	NA	53-58	Polystyrene resin with high organic removal capacity	Removal of hydrophilic chemicals from Industrial waters

## SPECIAL GRADE ION EXCHANGE RESINS

Tulsion®	Type	Matrix structure	Functional group	Ionic form	Screen Size US Mesh (wet)	Paricle size mm (Min. 95%)	Stability Max Temp °F / °C	pH range	Total exchange capacity (meg/ml.min)	Backwash settle density	Reversible swelling	Moisture content	Features	Applications
<b>A-62MP</b>	Strong Base	Cross linked polystyrene	Quarternary Ammonium	Chloride	16-50	0.3-1.2	195/90	0-14	1.0	43-47 700-750	—	52±3	Premium grade resin for nitrate removal food grade version for potable water treatment is also available	Selective removal of nitrate from industrial water and domestic drinking water
<b>A-23P (Sulphite)</b>	Strong Base	Polystyrene Copolymer	Quarternary Ammonium	Sulfite	16-50	0.3-1.2	140/60	0-14	0.8	42-44 670-710	—	—	For dissolved oxygen removal	Dissolved oxygen removed for very low conductivity water requirements.
<b>A-30 MP</b>	Strong Base	Cross linked Polyacrylic	Quarternary Ammonium	Chloride	16-50	0.3-1.2	140/60	0-14	0.7	43-47 700-750	—	67±3	Acrylic resin with high organic removal capacity	Decolorization of aqueous solution, sugar melt Decolorization
<b>A-72 MP</b>	Strong Base	Polystyrene Copolymer	Quarternary Ammonium Type I	Chloride	16-50	0.3-1.2	175/80	0-14	1.0	42-45 670-720	Cl→OH 20	60±3	Macroporous strong base Type I anion exchange resin with controlled pore size	Tanin removal from ground water used for color removal from sugar syrup.
<b>CH-87</b>	Chelating	Cross linked polystyrene	Flouride selective	—	16-50	0.3-1.2	140/60	7-11	0.0	52-54 830-860	NA	45±3	Selective removal of flouride from water	removal of flouride from domestic drinking water.
<b>CH-90</b>	Chelating	Polystyrene Copolymer	Imminodiacetic acid	Sodium	16-50	0.3-1.2	175/80	0-14	2.0	45-50 720-790	H→Na 30 +/- 5%	48±3	Special resin for selective removal of transition metals	Brine purification in chloro alkali industry.
<b>CH-93</b>	Chelating	Cross linked polystyrene	Amino methyl phosphoric	Sodium	16-50	0.3-1.2	175/80	0-14	2.0	45-50 720-760	H→Na 35-40%	50±3	Special resin having more pronounced affinity for Ca+& Mg than IDA type resin	Brine decalcification in chloro alkali industries.
<b>CH-95</b>	Chelating	Polystyrene Copolymer	Isothiouronium	Chloride	16-50	0.3-1.2	175/80	0-7	1.25 meq/ml	47-50 760-800	—	50±3	Special resin for selective removal of mercury	Used for mercury removal from effluent in Chloro -alkali industry.
<b>CH-97</b>	Chelating	Cross linked polystyrene	Methylene thiol	Chloride	16-50	0.3-1.2	140/60	0-14	150 mg Hg/l	42-45 670-720	NA	40±3	Selective removal of mercury, regenerable resin	Removal of mercury in Chloro -alkali industry.
<b>CH-99</b>	Chelating	Cross linked polystyrene	Polyhydroxy amine	Chloride	16-50	0.3-1.2	175/80	7-11	0.8	43-47 700-750	NA	45±2	Selective removal of Boron	Removal of Boron from industrial water.
<b>A 72 MP (HP)</b>	Strong Base	Polystyrene Copolymer	Quaternary Ammonium type I	Chloride	16-50	0.3-1.2	175/80	0-14	0.6	42-45 670-720	Cl→OH 20	70-75	High porosity / High mechanical strength macroporous strong base anion exchange resin	Removal of colloidal silica. Used in semiconductor, medical & pharmaceutical field
<b>T-IRR</b>		Polystyrene Copolymer	N/A	N/A	16-50	0.3-1.2	175/80	0-14	N/A	42-45 680-720	—	50±5	it is premium grade resin media designed to provide greater matrix porosity & excellent catalytic properties to remove iron from ground water.	Removal of dissolved iron (Fe II) from potable water / ground water.
<b>T-4213 MP</b>	Strong acid	Polystyrene copolymer	Sulphonic	Hydrogen	16-40	0.4 - 1.2	250/120	0-14	1.7	51-53 810-850	H →Na 10% max.	50 +/- 3	Macroporous cation exchange resin	sugar de-ashing
<b>A-2X MP R</b>	Weak base anion	Cross linked polystyrene	Tertiary amine	Free base form	16-40	0.4 - 1.2	175/80	0-9	1.6	40-44 640-710	FB to Cl -- 20%	47 +/- 3	High capacity macroporous weak base anion exchange resin.	Deionization of high EMA waters

## A COMMITMENT TO QUALITY

Every batch of Tulsion Ion Exchange resin is manufactured under carefully controlled process parameters and follows a rigorous quality assurance protocol covering every raw material, intermediate stage products and all batches of final product. All the engineers, operators and scientists take great care in processing every batch of resin to ensure that the produced lot of resin meets the high standard of quality that we specify and commit to customer.

Every Tulsion ion exchange resin product is developed by a team of experienced R&D scientists, manufactured by qualified production engineers, inspected by ever cautious QAC chemists and commissioned by expert technical services group so that the customers can use them without any hassles over a longer period of time.

We are proud to be a company that develop and supply customer specific products with tailor made specifications on exclusive basis for a variety of end applications.

We believe greatly in system oriented working style, safe working conditions as well as environmental safety. As an obvious result, Thermax's chemical division manufacturing facility is certified for ISO 9001-2008, ISO 14001-2004 and OHSAS 18001-2007.

### TULSION® ion exchange resins are available in standard packing size as follows:

Fibre Drums	: 7 cft.	The data included herein are based on test information obtained by Thermax. These data are believed to be reliable but do not imply any warranty or performance guarantee. We recommend that the users determine performance by testing on their processing equipment.
Polyethylene lined HDPE bags	: 1 cft.	
Super Sacks	: 40 cft.	
Polyethylene lined HDPE bags	: 25 ltr.	We assume no liability or responsibility for patent infringement resulting from the use of any of our product. In view of our constant endeavor to improve the quality of our products, we reserve the right to alter or change specifications without prior notice.
Super Sacks	: 1000 ltrs.	
MS Drum	: 180 ltr.	
HDPE Drum	: 200 ltr.	



**THERMAX**

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#### Thermax Limited

Environment House,  
Chemical Division, 90-92, BG Block,  
MIDC, Bhosari, Pune - 411026, India.

**Email:**

enquiry@thermaxglobal.com

**Phone:**

+91 20 6715 6000

www.thermaxglobal.com

#### Thermax Inc.

21800 Haggerty Road, Suite 112,  
Northville, MI 48167, USA

**Email:**

customerservice@thermax-usa.com

**Phone:**

+1 248 468 0541

www.thermax-usa.com

#### Registered Office:

Thermax Ltd., D-13, MIDC,  
Industrial Area, R.D. Aga Road,  
Chinchwad, Pune-411019, India.

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