

# ***TULSION®*** **T-42**

## STRONG ACID CATION EXCHANGE RESIN – HYDROGEN/SODIUM FORM

**TULSION® T-42** is a premium quality strong acid cation exchange resin containing nuclear sulphonic acid groups having high exchange capacity, combined with excellent physical and chemical stability and operating characteristics. It is ideally suited for use in a wide range of pH and temperature conditions.

**TULSION® T-42** is supplied in hydrogen form for two stages and mixed bed demineralization and in sodium form for softening. **TULSION® T-42** is also used for de-alkalization and chemical processing.

### TYPICAL CHARACTERISTICS – TULSION® T-42

Type	:	Strong Acid Cation Exchange Resin
Appearance	:	Amber color beads.
Functional group	:	Nuclear Sulphonic
Physical form	:	Moist Spherical Beads
Ionic form	:	Hydrogen/Sodium
Screen Size USS (wet)	:	16 to 50
Particle size (min 95%)	:	0.3 to 1.2 mm
Total Exchange Capacity (min)	:	1.8 meq/ml (H <sup>+</sup> ) & 2.0 meq/ml (Na <sup>+</sup> )
Moisture content	:	52 ± 3% (H <sup>+</sup> ) & 45 ± 3% (Na <sup>+</sup> )
Reversible Swelling (%)	:	Na <sup>+</sup> → H <sup>+</sup> 7
Backwash settled density	:	800 – 840 g/l (50-52 lbs/cft) (H <sup>+</sup> ) & 830 – 870 g/l (52 - 54 lbs/cft) (Na <sup>+</sup> )
Temperature stability (max)	:	280° F / 140° C (Na <sup>+</sup> ) 250° F / 120° C (H <sup>+</sup> )
pH range	:	0 to 14
Solubility	:	Insoluble in all common solvents

### TYPICAL OPERATING CONDITON – TULSION® T-42

Maximum operating temp.	:	120°C (250°F) in H <sup>+</sup> form 140°C (280°F) in Na <sup>+</sup> form
Resin bed depth (minimum)	:	600 mm (24")
Maximum service flow	:	120 m <sup>3</sup> /hr/m <sup>3</sup> (15 gpm /ft <sup>3</sup> )
Backwash expansion space	:	40 to 75 %
Backwash flow rate for 40 – 70 % expansion	:	9 to 25 m <sup>3</sup> /hr/m <sup>2</sup> (4 to 10 gpm/ft <sup>2</sup> )
Regenerant	:	HCL and H <sub>2</sub> SO <sub>4</sub> for 'H' form and NaCl for 'Na' form
Regeneration level	:	30 - 160 g HCl/l (1.9 to 1.0 lbs HCl/ft <sup>3</sup> ) 40 - 250 g H <sub>2</sub> SO <sub>4</sub> /l (2.5 to 15.6 lbs HCl/ft <sup>3</sup> ) 60 - 160 g NaCl/l (3.7 to 1.0 lbs HCl/ft <sup>3</sup> )
Regenerant concentration	:	1.5 to 5% for H <sub>2</sub> SO <sub>4</sub> , 3.0 to 5.0% HCl & 5.0 – 15.0% NaCl
Regenerant flow rate	:	2 to 16 m <sup>3</sup> /hr/m <sup>3</sup> (0.25 to 2 gpm/ft <sup>3</sup> )
Regeneration time	:	20 to 60 minutes
Rinse flow rate : Slow	:	At regeneration flow rate
: Fast	:	At service flow rate
Rinse Volume	:	3 to 5 m <sup>3</sup> /m <sup>3</sup> (25 to 40 gal/ft <sup>3</sup> )

## INFLUENT LIMITATION

Free chlorine	:	Not traceable
Turbidity	:	Less than 2 NTU
Iron and heavy metals	:	Less than 0.1 ppm

## HYDRAULIC CHARACTERISTICS

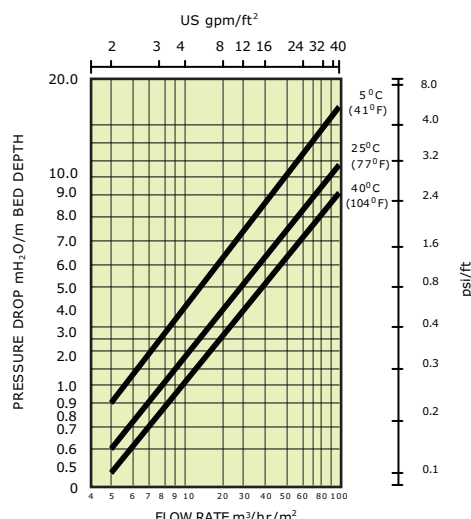


FIG. 1 PRESSURE LOSS

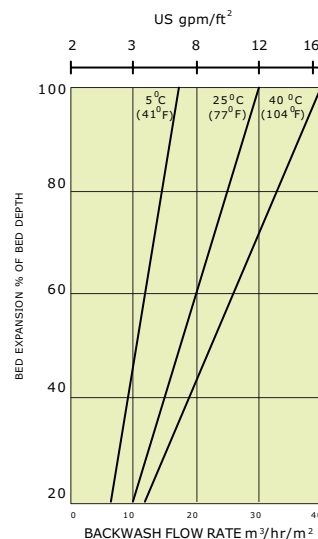


FIG. 2 BACKWASH AND BED EXPANSION

## TESTING

The sampling and testing of ion exchange resins is done as per standard testing procedures, namely ASTM-D-2187 and IS-7330, 1998.

## PACKING

Super sacks	1000 liters
MS drums	180 liters
HDPE lined bags	25 liters

Super sacks	35 cft
Fiber drums	7 cft
HDPE lined bags	1 cft

For Handling, Safety and Storage requirements please refer to the individual Material Safety Data Sheets available at our offices. The data included herein are based on test information obtained by Thermax Limited. These data are believed to be reliable, but do not imply any warranty or performance guarantee. Tolerances for characteristics are as per BIS/ASTM. We recommend that the user should determine the performance of the product by testing on own processing equipment.

For further information, please contact:



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In view of our constant endeavour to improve the quality of our products, we reserve the right to change their specifications without prior notice.