

# INDION® MSR

## Mercury Specific Resin

### Description

INDION MSR is a crosslinked macroporous ion exchanger having thiol as functional groups. It has been specifically developed for the selective adsorption of mercury and noble metals. INDION MSR is completely insoluble in water and all common solvents. It is stable in acidic as well as alkaline pH range. INDION MSR has excellent physical stability due to its macroporous structure. It is unaffected by reducing agents. However, INDION MSR can get decrosslinked in the presence of oxidising agents such as chlorine, peroxides, permanganates etc. It is therefore essential to remove all the oxidants from the process stream, before it comes in contact with INDION MSR.

### Applications

INDION MSR is specifically desired for removing mercury from the waste water, where mercury exists in either ionic or elemental forms. Mercury can be brought down to 0.005 ppm from 20 ppm using INDION MSR. INDION MSR can also be used as a polisher for removing the last traces of mercury, where a major quantity has already been removed by

earlier processes. INDION MSR's efficiency in removing mercury in monovalent or elemental form is relatively low. Hence, oxidising mercury to the divalent state may be necessary. It is essential that any oxidising agent in this process be removed before passing through the resin column. INDION MSR should be preferably used in the acidic or neutral pH range. INDION MSR's capacity for removal of mercury is influenced by many factors. These include,

- Concentration of mercury in the feed stream
- Whether mercury exists as organic or inorganic compounds
- The valency of mercury
- pH of the solution
- Temperature of influent
- Permitted leakage of mercury in the effluent
- Service flow rate
- Regeneration level

INDION MSR's mercury removal capacity is not affected by common constituents of natural water such as hardness, alkalinity or inorganic salts.

However, mercury removal from cyanide solutions is not recommended.

### Characteristics

Appearance	:	Opaque pale yellow to brown beads
Matrix	:	Crosslinked polystyrene
Functional Group	:	Thiol
Ionic form as supplied	:	Hydrogen
Weight capacity in H form	:	3.6 meq/dry g, minimum
Moisture holding capacity	:	38 - 43 %
Shipping weight *	:	710 kg/m <sup>3</sup> , approximately
Particle size range	:	0.3 to 1.2 mm
> 1.2 mm	:	5.0 %, maximum
< 0.3 mm	:	1.0 %, maximum
Uniformity co-efficient	:	1.7, maximum
Effective size	:	0.40 to 0.50 mm
Maximum operating temperature	:	60° C
Operating pH range	:	1 to 10
Resistance to reducing agents	:	Good
Resistance to oxidizing agents	:	Generally good, chlorine should be absent

\* Weight of resin, as supplied, occupying 1 m<sup>3</sup> in a unit after backwashing and draining.

## Elution of mercury

30% HCl has been proved to be an efficient regenerant to elute the mercury adsorbed on INDION MSR. This helps the chlor-alkali industry to recycle the expensive mercury to the cell house thereby totally eliminating the problem of mercury disposal.

## Packing

HDPE Lined bags	25/ 50 lts	LDPE bags	1 cft / 25 lts
Super sack	1000 lts	Super sack	35 cft
MS drums		Fiber drums	
with liner bags	180 lts	with liner bags	7 cft

## Storage

Ion exchange resins require a proper care at all times. The resins must never be allowed to become dry. The plastic bags must be opened regularly and the condition of the resin checked, when in storage. If dry add enough clean water to keep it in complete moist condition. The resin drum must always be kept in shade.

## Safety

Acid and alkali solutions used for regeneration are corrosive and should be handled in a manner that will prevent eye and skin contact. If any oxidising agents are used, necessary safety precautions should be observed to avoid accidents and damage to the resin.

INDION range of Ion Exchange resins are produced in a state-of-the-art ISO 9001 and ISO 14001 certified manufacturing facilities at Ankleshwar, in the state of Gujarat in India.

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.

**INDION** is the registered trademark of Ion Exchange (India) Ltd.



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