

# **INDION® 225 H**

## **Hydrochloric acid Regeneration**

### **Description**

INDION 225 H is a premium grade strong acid cation exchange resin containing sulphonic acid groups. It is based on cross-linked polystyrene and has a gel structure. The resin has high capacity and excellent kinetics.

### **Applications**

#### **De-ionising**

INDION 225 H in hydrogen form is used as a first step in de-ionising. Technical data for co-flow and counter current regeneration is given in this literature.

### **Characteristics**

✓ Appearance	:	Golden yellow to brown beads
✓ Matrix	:	Styrene divinylbenzene copolymer
✓ Functional Group	:	Sulphonic acid
Ionic form as supplied	:	Hydrogen, H <sup>+</sup>
✓ Total exchange capacity	:	1.8 meq/ml, minimum
Moisture holding capacity	:	49-55 %
Shipping weight *	:	700 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	:	0.45 to 0.55 mm
Maximum operating temperature	:	120°C
Operating pH range	:	0 to 14
Volume change	:	Na to H, 8 % approximately
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 & draining.

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## Two stage de-ionising

This technical literature describes typical operating data and operating exchange capacities of INDION GS 400 when used:

- Two stage de-ionising (Co-flow and countercurrent regeneration technique.)

### Typical operating data

Two stage/multiple stage de-ionising	Co-flow regeneration	Counter current regeneration (CCR)
Bed depth .....	0.75 - 1.50 m	1.0 m, minimum
Treatment flowrate.....	60m <sup>3</sup> /h m <sup>2</sup> , maximum	60m <sup>3</sup> /h m <sup>2</sup> , maximum
Pressure loss.....	Refer Figure 9	Refer Figure 9
Bed expansion .....	Refer Figure 10	Refer Figure 10
Backwash.....	3 m <sup>3</sup> /h m <sup>2</sup> for 5 min or till effluent is clear.	3 m <sup>3</sup> /h m <sup>2</sup> till effluent is clear *
Regenerant .....	Sodium hydroxide (2 - 4% w/v)	Sodium hydroxide (2 - 4% w/v)
Regenerant flowrate .....	4.5 - 18 m <sup>3</sup> /h m <sup>2</sup>	4.5 - 18 m <sup>3</sup> /h m <sup>2</sup>
Regenerant injection time .....	30 minutes	30 minutes
Slow rinse .....	2.5 to 3 bv at regenerant flow rate	2 to 3 bv at regenerant flow rate
Final rinse.....	6 bv at service flow rate	5 bv at service flow rate

\* After set number of regeneration 1bv (bed volume) = 1 m<sup>3</sup> fluid/m<sup>3</sup> of resin