

INDION[®] NSSR

Description

INDION NSSR is a macroporous strongly basic anion resin which is tailor made to suit removal of nitrate ions from water for potable uses. The proper mix of physico-chemical properties gives ideal nitrate exchange kinetics to this resin making suitable for nitrate removal in the presence of sulphate ions. When used for the first time, it is necessary to give minimum 10 bed volumes of rinse with DM water.

High concentration of nitrate in water is a potential hazard for two reasons. The nitrate ions form complexes with the blood and in the long run cause oxygen depletion affecting human life. The flow of nitrate bearing water through iron pipes can cause depletion of oxygen leading to corrosion. In view of these difficulties use of an Ion Exchange resin is the preferred process for nitrate removal.

Characteristics

Appearance	:	Opaque off white to brown beads
Matrix	:	Styrene divinyl benzene copolymer
Functional Group	:	Quaternary ammonium
Ionic form as supplied	:	Chloride
Total exchange capacity	:	0.9 meq/ml, minimum
Moisture holding capacity	:	45 - 55 %
Non spherical beads	:	10 %
Shipping weight *	:	670 kg/m ³ , 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	:	0.4 to 0.5 mm
Maximum operating temperature	:	100 °C in Cl form
Operating pH range	:	0 to 14
Resistance to reducing agents	:	Good
Resistance to oxidizing agents	:	Generally good, chlorine should be absent
Osmotic stability	:	Excellent

Typical operating data

Bed Depth	:	1.0 m
Backwash	:	5 m ³ / h m ² for 5 to 10 minutes
Regenerant	:	NaCl
Regeneration level	:	125 kg of NaCl / m ³
Regenerant Concentration	:	5 - 10 % w/v
Injection flow rate	:	2 - 4 bv/h
Slow rinse volume	:	2 bv
Slow rinse flowrate	:	At injection flowrate
Fast rinse volume	:	6 bv
Fast rinse flowrate	:	At service flowrate
Minimum flow greater than or equal to	:	0.082 gpm/ft ³ of resin
	:	0.66 LPH/Ltr of resin
	:	0.66 BV/hr

* Weight of resin, as supplied, occupying 1 m³ in a unit after backwashing and draining.

Operating Capacity

Coflow regeneration :

Refer figure 1 for operating capacity for different regeneration levels.

Leakage :

The leakage of Nitrate (Coflow) at the outlet of NSSR column can be obtained from figure 3.

Countercurrent regeneration :

Refer figure 2 for operating capacity for different regeneration levels.

Leakage :

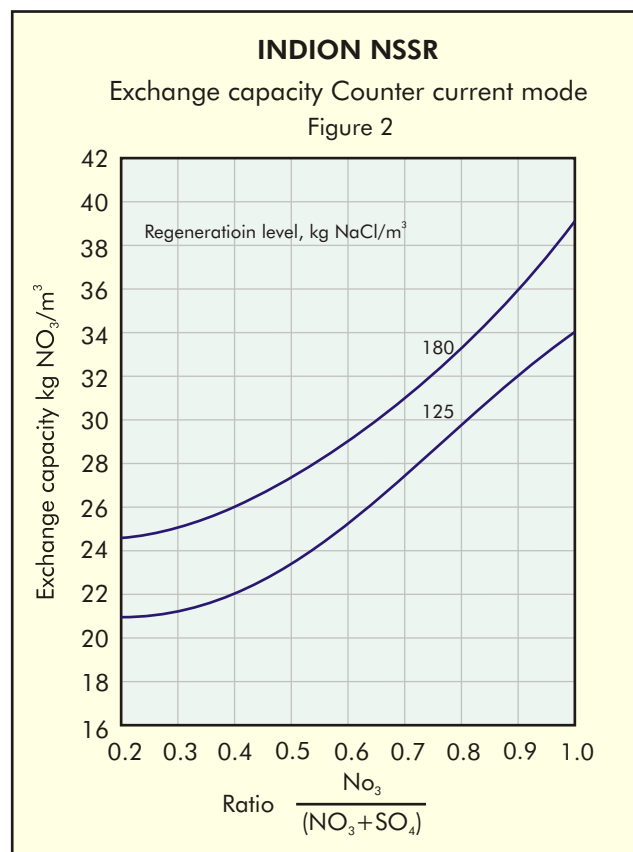
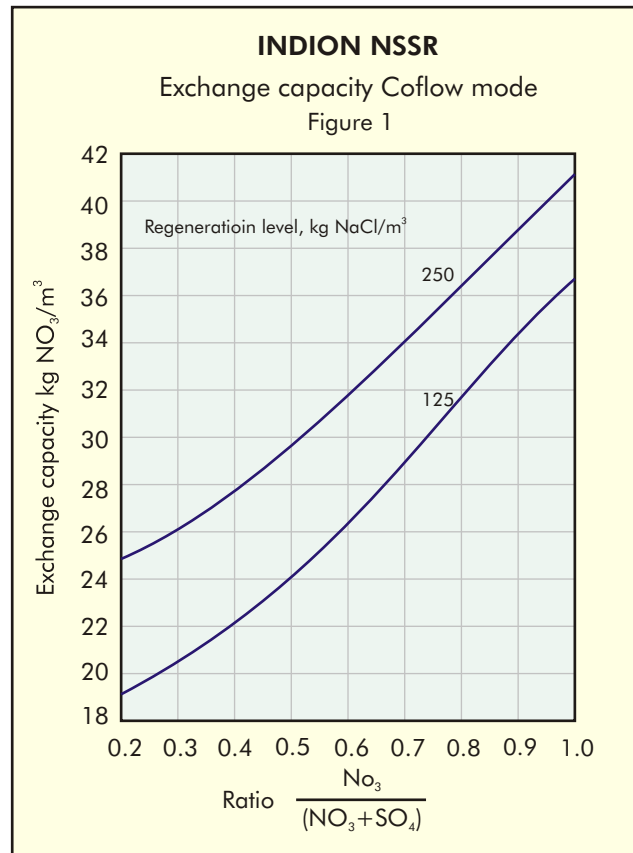
The leakage of Nitrate (CCR) at the outlet of NSSR column can be obtained from figure 4.

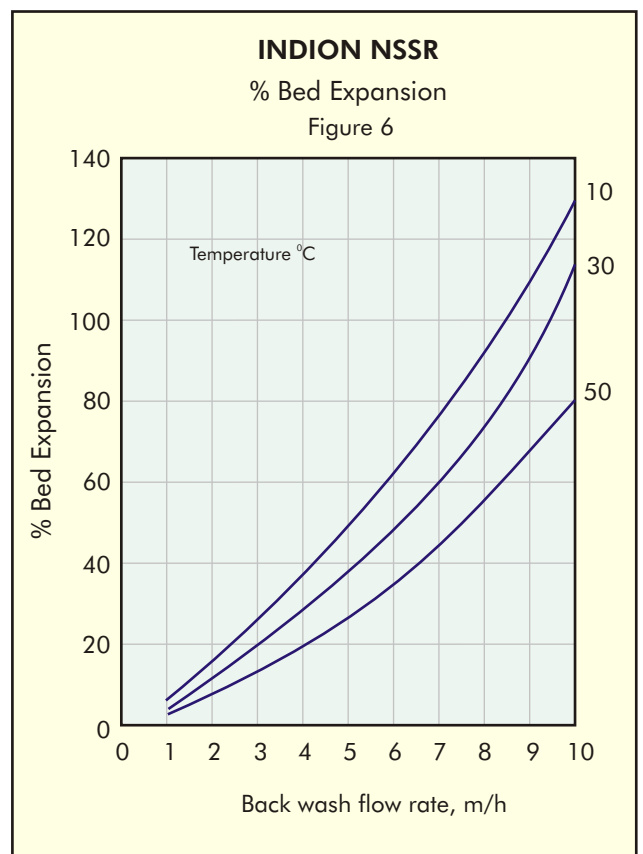
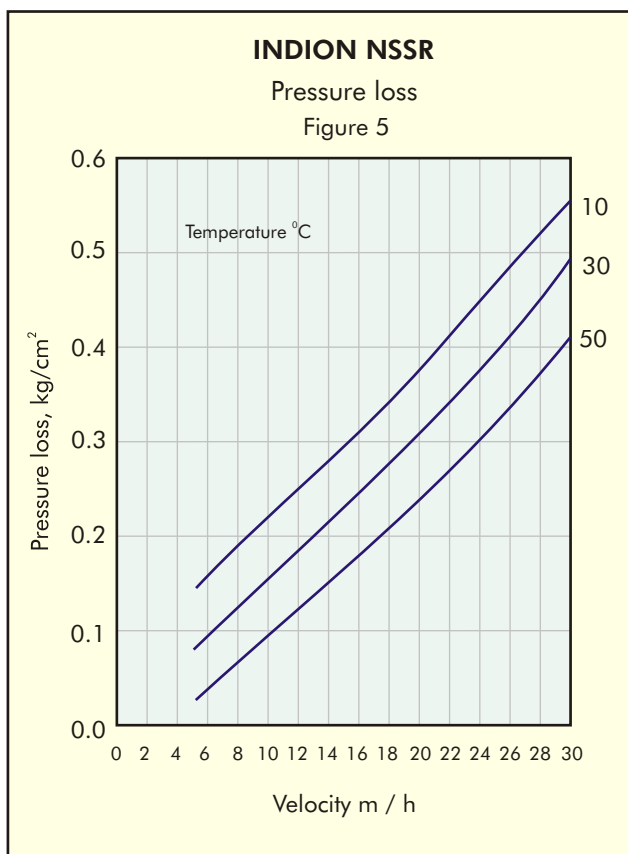
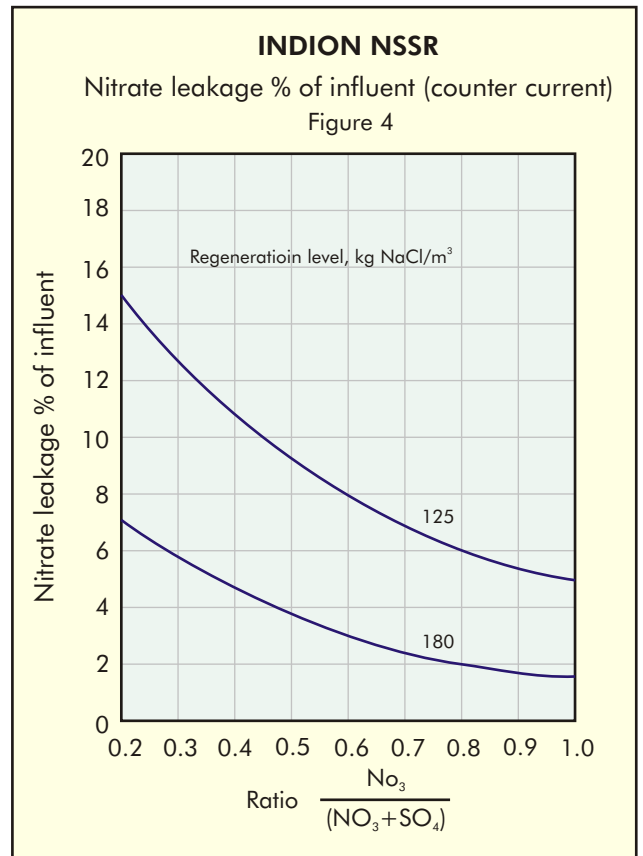
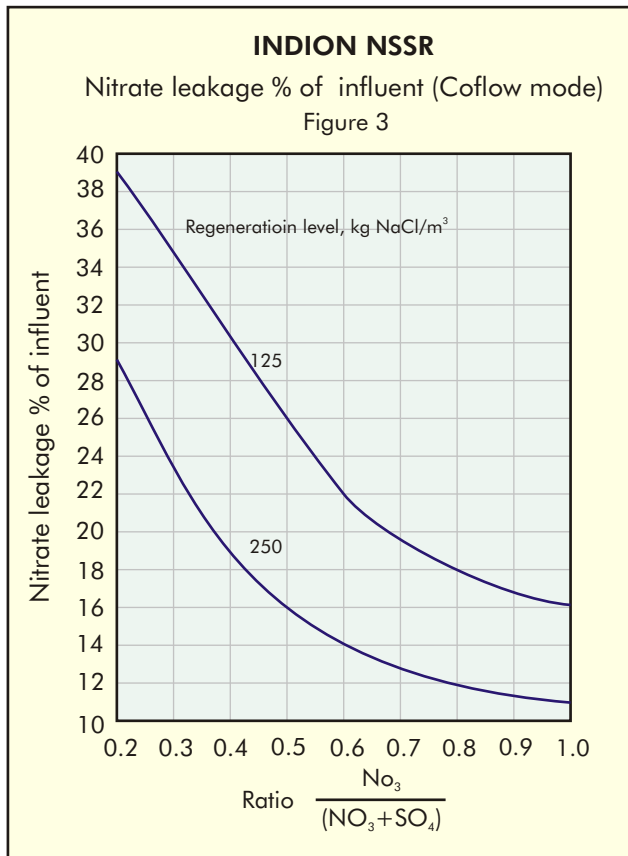
Pressure Loss :

Refer figure 5 for pressure loss across the bed for different velocities and temperatures.

Bed Expansion :

Refer figure 6 for % Bed expansion at different flow rates and temperatures.





Use of good quality regenerants

All ion exchange resins are subject to fouling and blockage of active groups by precipitated iron. Hence the iron content in the feed water should be low and the regenerant must be essentially free from iron and heavy metals. All resins are prone to oxidative attack, resulting in problems such as loss of physical strength. Therefore, the regenerant should have as low chlorine content as possible. Good quality regenerant of technically or chemically pure grade should be used to obtain best results.

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



CONFORMANCE STATEMENT:

"Tested and certified by WQA against NSF / ANSI 61. See WQA website (www.wqa.org) for use restrictions and limitations."

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.

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