

HIX-Nano™ 100+

HIX-Nano100+ is a hybrid anion exchange resin doped with a mixture of hydrated iron and zirconium oxide nanoparticles irreversibly inside resin beads. WIST Water Solutions Pvt. Ltd. Kolkata, India (brand-name “drinkwell”), currently is engaged in commercial-scale production of different HIX-Nano media suitable for removal of a variety of trace contaminants (e.g. Arsenic, Fluoride, iron, phosphate etc) from water. HIX-Nano100+ resin is suitable for selective removal of dissolved arsenic (both arsenate and arsenite) present in contaminated waters from the background other ionic species usually present in much higher concentrations. The parent resin has macroporous structure with polystyrene matrix and divinylbenzene crosslinking. HIX-Nano100+ is a robust, durable, high capacity sorbent media that efficiently reduces arsenic in treated water to levels recommended by World Health Organization (WHO). The media is regenerable, can be used for multiple cycles without losing its performance and thereby greatly reducing the cost of treated water.

Physical & Chemical characteristics:

Appearance	Spherical beads, dark brown/ reddish
Structure	Macroporous polystyrene beads
Particle size	0.3 – 1.2 mm
Shipping weight (approx.)	700 – 760 g/L
Ionic form as shipped	Cl ⁻
Operating capacity (Arsenic)*	3-12 gm/kg

** Operating equilibrium capacity depends on influent contaminant concentration; type of contaminant, operation pH, presence of interfering species & other background species, process chemistry & kinetics, etc. References of peer-reviewed publications are available at <http://drinkwellsystems.com/resources?category=Journal+Articles>*

Application (site installation) and Bed features:

Recommended application of HIX-Nano100+ is for removal of dissolved arsenic species from contaminated water supplies. It needs occasional/ periodic backwash and does not generate any arsenic contaminated fines or wastes. The media is stable over a wide range of pH (2.5 –

13). It is Amenable to regeneration reduces operating and maintenance cost significantly and reduces volume of waste by an order of magnitude.

Recommended contact time [#]	2 - 4 min
Recommended bed depth [#]	around 900 mm or more
Service flow	Intermittent / Continuous
Backwash	Periodic/ occasional
Operating pH (recommended)	4 – 8
Operating temperature limit	50°C
Operating pressure	20 – 75 psia
Pressure drop	Low due to porous structure of beads

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To be selected carefully for design purpose based on detail water quality, provision of pre-treatment, process flow etc in consideration with physical structure & properties of media, media kinetics & related intrinsic process features.

Storage:

HIX media is packed in HDPE lined bag. It should be kept under proper cover or storage shade. This resin is never recommended for keeping in open condition or under sun-light.

Regeneration & Safety:

HIX-Nano100+ offers a very high capacity for arsenic sorption. The regeneration interval for the media is recommended to be a year or more based on influent quality, water production & good O&M practices with proper design. Drinkwell as a part of its service program strongly recommends replacement of exhausted media by fresh/ regenerated media (provided by Drinkwell) for safe, environment friendly handling and disposal of arsenic laden waste.



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