



ArsenX^{np} is a nanoparticle-based selective resin designed to remove arsenic (arsenate and arsenite) from water. **ArsenX^{np}** combines a unique chemistry based on hydrous iron oxide nanoparticles that have a very high affinity for arsenic with a durable, non-friable, spherical polymer substrate. This ideal combination of selectivity and substrate durability means that **ArsenX^{np}** can effortlessly remove arsenic by using a lead-lag design configuration.

Water treatment systems incorporating **ArsenX^{np}** are designed and operated using the same engineering guidelines as conventional ion exchange resins. Superior bead strength means fines will not be generated nor will pressure drop be a concern during long-term performance, even at well head pressures up to 115 psi (8 bars). Bead sphericity also ensures plug flow of the raw water through the bed thereby maximizing the arsenic loading per vessel and complete capacity utilization.

ArsenX^{np} is ideal for municipal water treatment plants as well as point-of-entry (POE) and point-of-use (POU) devices.

TYPICAL PHYSICAL & CHEMICAL CHARACTERISTICS

Polymer structure	Polystyrene crosslinked with DVB
Matrix structure	Macroporous impregnated with Fe nanoparticles
Physical form and appearance	Reddish-Brown spherical beads
Whole beads	95% min.
Bead size range	0.300 - 1.200 mm
Bulk density	790 - 820 g/l
Arsenic capacity	0.5 – 4 g As/l (depending on raw water composition and operating conditions)
Recommended contact time	2.5 to 3 minutes
Specific service flow rate	Typical 20 – 24 BV/h (2.5 to 3 gpm/ft ³) up to 32 BV/h(4 gpm/ft ³)
Max. operating temperature	(176°F)80°C
pH limits, operating	4.5 – 8.5



Close-up of iron-impregnated **ArsenX^{np}** resin beads

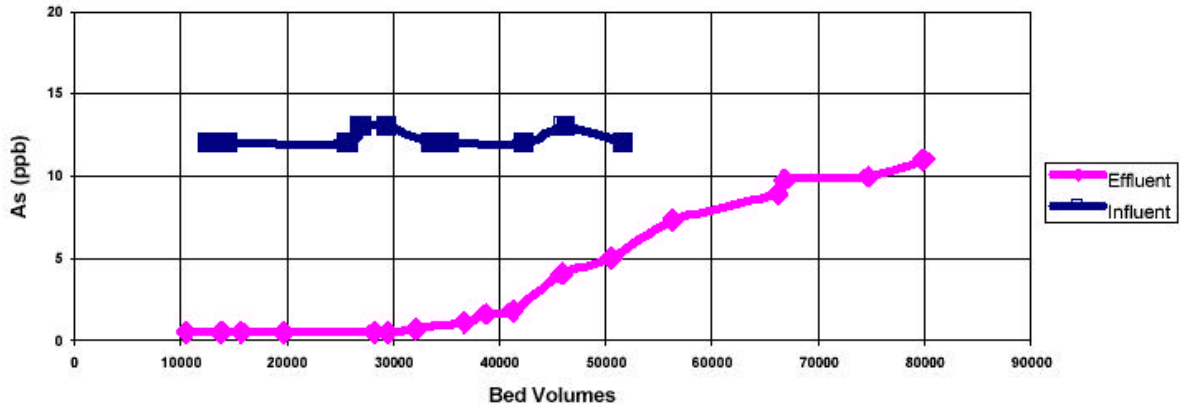
SPECIAL FEATURES:

ArsenX^{np} is an ANSI/NSF 61 certified, iron oxide based media that utilizes nanotechnology to modify the surface chemistry to produce a sorbent media with exceptional affinity and capacity for arsenic – both arsenate and arsenite.

ArsenX^{np} is built on a traditional ion exchange resin matrix with the following advantages:

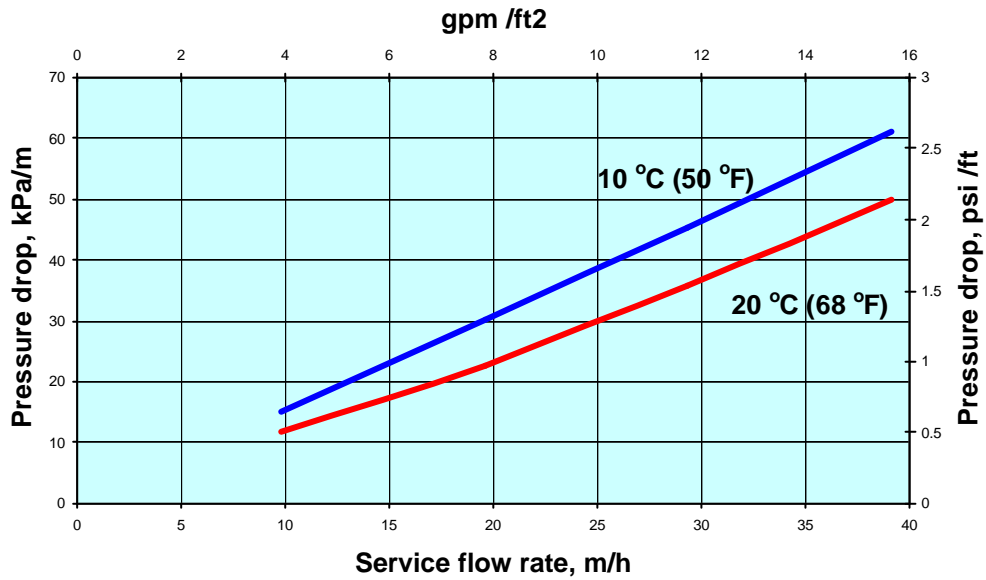
- Operates at conventional wellhead pressures (up to 115 psi or 8 bars)
- **ArsenX^{np}** beads have superior crush strength
- **ArsenX^{np}** product handles like conventional ion exchange resins
- No fines generation during service or regeneration cycles (see photo page 2)
- No need to backwash **ArsenX^{np}** during service due to pressure drop concerns provided influent turbidity, iron and manganese are below 1 NTU, 0.5 ppm and 0.025 ppm respectively. For higher values, it is recommended to pretreat and/or prefilter for best results. However, on startup of a new charge of resin, it is important to backwash and classify the bed by expanding by about 50% for up to 30 minutes to obtain best hydraulics.
- **ArsenX^{np}** offers minimal pressure drop through the resin bed
- Spherical beads facilitates “plug-flow” through the media
- High columnar efficiencies and loading
- Minimal labour needed for operation or change-outs due to very high capacity
- Ideal for municipal systems and for residential POE & POU devices
- Cost effective treatment

Arizona Well Water

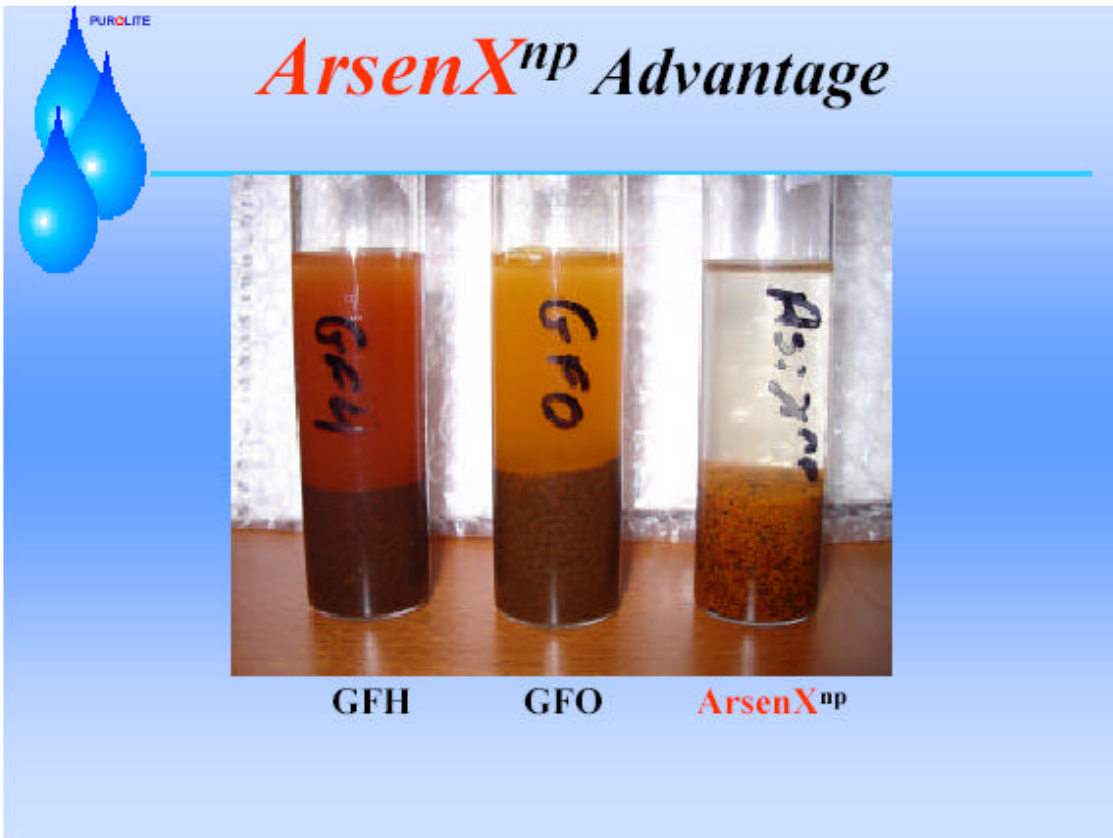
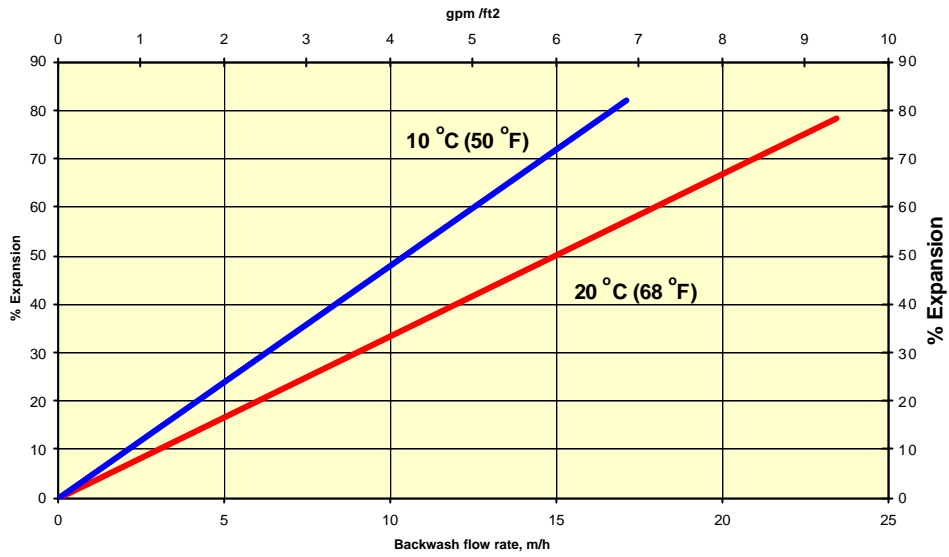


Typical Capacity for ArsenX-NP

PRESSURE DROP



BACKWASH EXPANSION



ArsenX^{np}, developed by Solmetex, Inc. is manufactured and distributed by Purolite.

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