

Arsenic Removal Media / Technology Comparison

Adsorption* Technology	Zirconium Hydroxide	Lanthanum Oxide	Ferric (Iron) Hydroxide	Ferric (Iron) Oxide	Ferric (Iron) Hydroxide	Titanium Dioxide
Media	ISOLUX	NXT-2	FerrIX A33E	E33 / Sorb 33	GFH	MetSorb / Adsorbia As500
Description	Powder in cartridges	Granular in pressure vessels	Round bead resin in pressure vessels	Granular in pressure vessels	Granular in pressure vessels	Granular in pressure vessels
Arsenite AsIII & Arsenate AsV removal	Both, simultaneously	Yes To pH 10.0	Limited removal of Arsenic (As) III	Yes, but more effective for Arsenic (As) V		Less effective for Arsenic (As) III
Periodic Backwashing required	No	Yes	No	Yes	Yes	Yes
Reaction time (<i>empty bed contact time</i>)	27 seconds	2.5 to 3 minutes	2.5 – 5.0 minutes	Typically 3 - 5 minutes	3.5 minutes minimum	3 minutes
Media regeneration possible	No	No	Yes	No	No	No
Wastewater generation	None	Yes backwash	None	Yes backwash	Yes backwash	Yes backwash
pH Zero point-of-charge **	11.0	12.0	9.0	9.0	9.0	Unknown
pH range ***	4 – 8.5	5.5 – 10.0	4.5 – 8.5	5.5 – 8.3	5.5 – 9.0	6.5 – 8.5

* Adsorption is a process where contaminants break their bond with water molecules and chemically adhere to the surface of a filter media molecules.

** Note: pH of Zero point-of-charge (pHzpc) for metal oxy-hydroxides used in arsenic treatment (from Yoon et al. 1979)

*** Optimum pH for most arsenic removal media is less than 7.5. Higher zero point-of-charge medias can tolerate higher water pH levels without adjustment.