



As⁺TEC

A cost-effective process for the removal of arsenic that meets or exceeds USEPA, Canadian and Ten States Standards

Arsenic Removal

The Tonka As⁺TEC process for arsenic removal incorporates the EPA approved “Best Available Technology” (BAT) of arsenic co-precipitation with iron.

Arsenic is a naturally occurring, primary contaminant found in many groundwater sources across the United States. The USEPA Arsenic Rule, taking effect January 2006, requires all potable water systems to provide water with an arsenic concentration of 0.010 mg/L or less. In many cases the best-suited, most cost-effective technology for the removal of arsenic is the complexing of arsenic with oxidized iron.



Iron removal systems remove arsenic as a by-product of iron removal

Arsenic commonly occurs in groundwater as two forms—arsenite and arsenate. The As⁺TEC co-precipitation process requires the oxidation of arsenite (As⁺³) to arsenate (As⁺⁵). In the case of water sources with naturally occurring iron, the chlorine addition used to chemically oxidize the iron will also facilitate the oxidation of arsenic. This oxidized arsenic has a high affinity for the oxidized iron and will combine with it to form an easily filterable particulate. In fact, there are many Tonka iron removal systems that have been in service for years that are removing arsenic simply as a by-product of the iron removal.

In some areas of the country, naturally occurring iron is not found in the groundwater. In these waters, the As⁺TEC process requires small doses of ferric chloride to be added to the water at a ratio of approximately 20:1, as ferric to arsenic. The ferric chloride provides the source of iron to complex with the arsenic to form an easily filterable particulate.



TONKA EQUIPMENT COMPANY

Since 1956 Tonka has completed over 1500 successful installations in the United States, Canada, and Puerto Rico.

The As⁺TEC process prevents arsenic concentration

The particulate formed during the As⁺TEC process is a solid iron / arsenic compound. Given that these particulates are backwashed from the filter bed at regular intervals, the accumulation or concentration of arsenic does not occur. This is not true of other arsenic removal technologies. In addition, the spent backwash water is acceptable to sanitary sewers. If this is an existing well, the wastewater treatment plants are already, and have been, processing the arsenic. The As⁺TEC process simply removes the arsenic at the water treatment plant as opposed to the arsenic-laden water finding its way to the wastewater plant via the consumer.

Flexibility

Given that arsenic is a primary contaminant, when designing a water treatment plant for arsenic removal, the USEPA has mandated that the removal system include complete redundancy. The Tonka As⁺TEC process offers tremendous flexibility. The process can be used with any Tonka water treatment product and within either a gravity or pressure filter system. When using naturally occurring iron, the Tonka Dualator[®] series of products excels. The majority of iron can be oxidized with aeration, significantly reducing chlorine feed and overall O & M costs. The Dualator[®] III offers the advantage of a low profile detention tank and sludge blow-down, reducing the solids loading on the filters and extending the run time between backwashes.

Tonka's Simul-Wash[™] reduces backwash wastewater by 50%

Any Tonka product with the As⁺TEC process can be supplied with the value-added Simul-Wash[™] backwash process. This process uses air and water in combination for a limitless time interval, providing the most effective means of backwashing granular media filters. The proven Tonka Equipment Company media rejection backwash trough enables the air and water backwash cycle to continue for an unlimited period of time without media loss. This process features maximum filter cleaning efficiency, essential for the removal of iron /arsenic from the filter bed, and reduces the backwash wastewater generated by approximately 50%.

Experience Counts

Tonka has nearly 50 years of water treatment experience and many As⁺TEC systems in operation for arsenic removal. Contact Tonka Equipment Company to discuss your arsenic removal application.



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