

Pall filtration technology verified to remove arsenic from drinking water

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Municipal and community water providers are racing to meet the U.S. Environmental Protection Agency's (EPA) January 23, 2006 deadline for reducing arsenic in drinking water. The new ruling reduces the maximum allowable level of arsenic in drinking water to 10 parts per billion (ppb). Pall Corporation announced today that its membrane filtration technology was granted verification by NSF International Drinking Water Systems Center, a partner of the EPA's Environmental Technology Verification Program, to remove arsenic from drinking water.

Results of the independent performance testing showed that the Pall Aria™ Microfiltration System reduces arsenic to undetectable levels (below 2 ppb), exceeding the EPA standard for the maximum level of contaminants allowed in drinking water. It is the first microfiltration technology verified to remove arsenic under the new EPA regulation.

"There are many communities throughout the nation that are underserved in their ability to meet the new drinking water standards, oftentimes due to cost," says Jeff Seibert, President of Pall Water Processing. "The Pall Aria System provides them with a proven, cost-efficient solution to be compliant with these regulations for the benefit of the public health."

The Pall Aria System was tested in several areas of the country with high arsenic levels in water. In Fallon, Nevada, where arsenic was found at 160 ppb, the system removed arsenic to undetectable levels, less than 2

ppb. Based on these results, the Fallon Paiute-Shoshone Tribe is using the Pall Aria System to comply with the new EPA standard and protect its residents from arsenic toxicity.

There are about 4,100 small and community drinking water systems in the U.S., most serving less than 10,000 people, where arsenic levels exceed the new standard. According to the latest EPA report, about 3,000 (5.5%) of the nation's 54,000 community water systems and another 1,300 non-community water systems will need to take measures to lower arsenic in their drinking water.

Membrane filtration technology is emerging as the technology of choice for safe drinking water. Large and small communities around the world currently use the Pall Aria System to remove parasites, including cryptosporidia and giardia cysts and oocysts that can contaminate drinking water and adversely affect public health. The new verification enables these communities to remove both arsenic and parasites cost efficiently. The Pall system is also employed by a wide range of industries to clean up wastewater to prevent additional arsenic from entering the drinking water supply.

Unlike other methods of arsenic removal, such as reverse osmosis and adsorption media, membrane filtration offers a less costly and long-term solution. It does not require a major upfront capital investment, high costs to operate or frequent regeneration and purchase of media. The Pall Aria System works by the addition of an iron-based coagulant, such as ferric chloride, to the water. The contaminating arsenic is adsorbed onto positively charged ferric hydroxide particles, which are then removed by microfiltration.

"The arsenic removal verification opens up a whole new market for Pall Water Processing, which is currently one of the fastest growing businesses of Pall Corporation. This past year our sales to municipal and

community water systems have grown over 26 percent," adds Mr. Seibert.

Arsenic Hot Spots and Public Health Implications

Arsenic levels across the U.S. can vary greatly. Although there are some geographic hot spots, the highest arsenic levels in the U.S. are found mostly in states west of the continental divide. However, several New England states such as New Hampshire and Maine have reported that as many as 30% and 14%, respectively, of their public water systems have arsenic levels above the new standard.

Arsenic occurs naturally in most water sources and is odorless, colorless and tasteless. Some manmade sources of arsenic can also occur from wood treatment, pesticide use, pharmaceutical manufacturing and miscellaneous industrial facilities. No matter what the source of the arsenic, it needs to be removed to eliminate health risks.

According to the National Academy of Science (NAS), arsenic in drinking water can cause bladder, lung and skin cancers and has also been linked to kidney and liver cancers. NAS studies have also found that arsenic harms the central and peripheral nervous systems as well as heart and blood vessels and may also cause birth defects and reproductive problems.

The new EPA arsenic standard, which became effective in February 2002, was developed in response to these public health and safety concerns. The ruling requires water systems to be in compliance by January 23, 2006, reducing the maximum acceptable level of arsenic in drinking water to 10 ppb (10 micrograms per liter) from 50 ppb (50 micrograms per liter). Some states, such as California and New Jersey, have legislated more stringent standards than the federal regulation, allowing a maximum arsenic level of only 4 ppb and 5 ppb, respectively.

NSF International, in cooperation with the EPA, operates the Drinking Water Systems Center as part of the Environmental Technology Verification (ETV) Program. The NSF Drinking Water System Laboratory provides independent performance evaluations of drinking water technologies.

Source: Pall Corporation

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