

Radium Removal

Radium is a naturally occurring radioactive element that is present in varying amounts within the earth's crust and can be found in drinking water sources. Radium can be present in several forms, called isotopes. In 2000, the USEPA established the Radioactive Rule, which regulates the combined levels of radium 226/228 to a maximum contaminant level (MCL) of 5 picoCuries per liter (pCi/L). Radium can be removed from water by multiple methods including ion exchange, co-precipitation, adsorption, and reverse osmosis. Loprest treatment systems are available using the most prevalent processes available of either ion exchange through softening or co-precipitation with hydrous manganese oxide (HMO). Water softening is effective because radium is present as a divalent cation (Ra^{2+}) such as the hardness ions calcium (Ca^{2+}) and Magnesium (Mg^{2+}). However, waters with a high hardness ratio are challenging because of the competing ions and resultant volume of waste brine produced from the regeneration process. The HMO approach is effective because the radium present has a high affinity to be adsorbed onto manganese oxides which can be effectively filtered to achieve treatment objectives. Wastewater generated during backwashing of the filter can be reduced with the application of the Loprest Syncro-Cleanse[®] process. All Loprest treatment systems are of the highest quality and meet ASME, NSF61, EPA, DEQ, DDW and Ten States Standards.

