



Phosphate Water Treatment Chemicals and NSF/ANSI Standard 60: Drinking Water Treatment Chemicals – Health Effects.

The practice of adding blended phosphates to the treated drinking water to prevent corrosion and the release of lead is a common practice by water utilities. How do we know if these phosphate chemicals are safe?

The US EPA has addressed this. *NSF/ANSI Standard 60: Drinking Water Treatment Chemicals – Health Effects* was created at the request of the US EPA in 1988 to ensure that products used in public drinking water systems would not contribute chemical contaminants to drinking water at levels that could cause adverse human health effects.

NSF/ANSI Standard 60 (NSF 60) is the American National Standard addressing the human health effects of drinking water treatment chemicals. As an approved standard of the American National Standards Institute, NSF 60 is the legally recognized national standard in the United States for public health protection through control of the health effects of drinking water treatment chemicals. This standard forms the basis of the regulatory framework for the use of drinking water treatment chemicals across the USA and Canada. 47 US States, including Colorado, currently require municipal drinking water treatment chemicals to comply with the requirements of the NSF 60 standard. 9 of the 13 Canadian Provinces/Territories have similar requirements. The standard has also been used a specification by many other water utilities around the world.

NSF Standard 60 requires a complete analysis for any chemical or contaminant, of a health effects significance, that may be added to drinking water. It also requires a toxicological evaluation of chemical concentrations to ensure that they are below levels which may cause potential adverse human health effects. The toxicological evaluation criteria are based on life time exposure to the concentration of chemicals in drinking water, at the treatment chemical's certified maximum use level.

A few organizations test and certify drinking water treatment chemicals to NSF 60 requirements. These organizations are also inspected and accredited by the American National Standards Institute. This includes NSF International which has listings of chemicals they have tested and certified to NSF 60 at www.nsf.org.

The reason that public water systems add phosphates to the drinking water is to prevent the leaching of lead and copper from the distribution system and plumbing systems. Various types of phosphate chemicals such as phosphoric acid, zinc phosphate, sodium phosphate, and polyphosphates can be added to the water to create orthophosphate, which forms a protective coating on the inside of piping systems. This coating prevents corrosion of the pipe and the release of metals like lead and copper into the drinking water.

The US EPA even reports on their website that the typical phosphate levels found in a liter of drinking water are about one hundred times lower than the phosphate levels found in the average American diet. For example, a person would have to drink 10 to 15 liters of water to equal the amount of phosphates in just one can of soda.

Water utilities and the public can rely on the fact that products which are certified to NSF/ANSI Standard 60 have been tested to assess that they will not contribute unsafe levels of chemical contaminants to the drinking water. The certification process involves annual unannounced inspections of the product manufacturing facility where product samples are collected and retested each year to ensure that they continue to comply with the standard.