



ADVANCED WATER SYSTEMS GROUP

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Frequently Asked Questions (FAQs) About Residential Water Quality

Should I Be Concerned About Fluoride?

Fluoride is any combination of elements containing the fluoride ion. In its elemental form, *fluorine* is a pale yellow, highly toxic and corrosive gas. In nature, fluorine is found combined with minerals as *fluorides*. Fluorine is the most chemically active nonmetallic element as well as the most reactive electro-negative ion. Because of this extreme reactivity, fluorine isn't found as an uncombined element in nature.

One form of fluoride, *hexafluorosilicic acid* or *hydrofluorosilicic acid* (H_2SiF_6), is the substance used to fluoridate the majority of N.C. municipal water supplies, as well as 90% of fluoridated water across the U.S.

This fluoride compound added to your water is not calcium fluoride which appears naturally in underground water sources and even sea water. H_2SiF_6 is an industrial grade hazardous waste product generated by the air pollution-control wet scrubbing systems of the superphosphate fertilizer industry (e.g. Cargill Fertilizer). It is also commonly contaminated with toxic metals such as lead and arsenic as well as trace amounts of radioactive isotopes. By law, this waste cannot be dumped into the sea. So to handle the disposal of hexafluorosilicic acid, manufacturers sell these waste products to independent distributors who then convince municipal governments, under the impression that it prevents dental cavities, to add it to the water. If it weren't used as an additive to water, these manufacturers would have to pay millions of dollars annually to dispose of it properly. Therefore the pressure to keep fluoride listed as a *healthy additive to water—and not as an environmental toxin* that requires costly disposal—is great, and political pressures to keep fluoride in the drinking water are strong. In 2012 alone, the city of Raleigh spent \$173,000 tax dollars to purchase and add fluoride to its water supply.

The EPA has set an enforceable regulation for fluoride, called a **maximum contaminant level (MCL), at 4.0 mg/L or 4.0 ppm**. Recognizing the dangers of fluoride,

they briefly note on their website, **"Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease** (including pain and tenderness of the bones). Children aged 8 years and younger exposed to excessive amounts of fluoride have an increased chance of developing pits in the tooth enamel, along with a range of cosmetic effects to teeth." They then go on to say, **"This health effects language is not intended to catalog all possible health effects for fluoride. Rather, it is intended to inform consumers of some of the possible health effects associated with fluoride in drinking water."**

This is an incredibly vague understatement. In new research scientists examined the relationship between fluoride intake and the hardening (calcification) of arteries. They found that fluoride consumption **directly stimulates the hardening of your arteries**, a condition known as atherosclerosis which is highly correlated with cardiovascular disease. Published in the January edition of the Journal of Nuclear Medicine Communications, the research highlights the fact that **mass fluoride exposure may be to blame for the cardiovascular disease epidemic** that takes more lives each year than cancer. In 2008, cardiovascular disease **killed 17 million people**.

Over 24 other studies have unanimously concluded that fluoride negatively impacts cognitive function and reduces IQ. In addition to these 24 studies focusing on cognition, **over 100 animal studies show that fluoride can damage the brain and impact learning and behavior, have linked fluoride to an increase in male infertility, diabetes, kidney and liver damage, and a whole host of other health problems.**

Independent scientific evidence repeatedly showing up over the past 50 years reveals that fluoride allegedly shortens our life span, causes hypothyroidism, promotes cancer and various mental disturbances, and accelerates osteoporosis (loss of bone density). It also accumulates



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in the human pineal gland at very high levels, reducing production of melatonin (a very important regulatory hormone), and leading to an early onset of puberty. Fluoride accumulates in our bones and makes them more brittle and prone to fracture. The weight of evidence from animal studies, clinical studies and epidemiological studies on this is overwhelming. In animal studies fluoride at 1 ppm in drinking water was shown to increase the uptake of aluminum into the brain, a major contributing factor to Alzheimer's disease. Also in human studies, the fluoridating agents most commonly used in the US not only increase the uptake of lead into children's blood but are also associated with an increase in violent behavior. Studies have also shown that fluoridating agents in combination with chlorinating agents such as chloramines increase the leaching of lead from brass fittings used in plumbing. There is no argument that lead even at very low levels lowers IQ in children.

The Clinical Toxicology of Commercial Products, gives lead a toxicity rating of 3-4 (3 = moderately toxic, 4 = very toxic). The toxicity rating for fluoride is 4, yet the maximum contaminant level for fluoride is currently set at **4000 ppb, over 250 times the permissible level for lead (15ppb)**. In 1998, EPA scientists, **whose job and legal duty it is to set MCLs, declared that this 4ppm level was fraudulently set by outside forces in a decision omitting 90 percent of the data showing the mutagenic properties of fluoride.**

The case for the fluoridation of drinking water rests simply on this one perceived benefit: systemic fluoride helps to prevent dental cavities in children up to the age of 12. Yet despite this alleged benefit, the CDC reported that in 2010 over 41% of US children suffer from dental fluorosis caused by excess fluoride. Even the CDC acknowledges that the purported benefit of fluoride is topical, while the **risks** are systemic. Youtube and watch the 5 min. clip, "Professional Perspectives: Fluoride in Tap Water."

Therefore, there is no need whatsoever to swallow fluoride to protect teeth. In young children, it merely delays the eruption of teeth, which, in one year, would eliminate the very small benefit recorded in some modern studies. Despite fluoride being added to community water

supplies for over 60 years, **there has never been a single randomized clinical trial to demonstrate fluoridation's effectiveness or safety.** Did you know that there is an enzyme in saliva that remineralizes soft spots in teeth using calcium in food? This enzyme is killed by fluoride and it cannot work even in the absence of fluoride if the teeth are covered by glycerin, a major component of toothpaste.

Nearly 98% of all Western European countries have now rejected or given up water fluoridation on the grounds that it is unsafe. Yet according to the latest numbers, over 72 percent of Americans still drink water treated with fluoride.

The bottom line is that ingesting fluoride is not good for your teeth, and, as outlined above, is **undeniably toxic to your body** in a myriad of ways. It is literally a **poison**. There is **no such thing as a "low" or "optimum" level of fluoride in drinking water. Pure drinking water should contain NO fluoride whatsoever.**

So how can you remove fluoride from your water? The only two treatment methods proven effective for removing fluoride are **distillation and reverse osmosis**. Since distillers are relatively costly (\$4-5000) and require constant maintenance, reverse osmosis is the easiest and most cost effective way to remove fluoride as well as arsenic, lead, and almost all other contaminants that are in the tap water.

The **Kinetico K5 Drinking Water Station** offers the latest and most flexible RO technology available today. These systems conveniently mount under the sink, in the crawl, garage or basement, and they feed a separate faucet at the sink and can also feed the refrigerator. The **K5** system has an exclusive five-stage water purification process, as well as additional features that make it the top-of-the-line choice for homeowners. More information on reverse osmosis and the features and benefits of the K5 system can be found on the *Drinking Water FAQ*.

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