

FLUORIDE

Fluorine is a chemical element. It is the most reactive of all elements and therefore does not occur in nature as free fluorine. Fluorine most commonly occurs in nature as the mineral fluorspar, or calcium fluoride (CaF). Fluoride is a compound consisting of fluorine and one or more other elements or other chemical compound. Fluoride in the form added to drinking water is not a prepared medicine or drug.

Travis County Water Control and Improvement District No.17 (WCID 17) adds fluoride to treated drinking water as a public health initiative for the prevention of dental caries (cavities). Tooth decay is an infectious disease costing families hundreds of dollars per year until fluoridation of drinking water was adopted as a common public health practice. Today, dental decay is almost unheard of in areas receiving municipal grade drinking water. If you are under the age of 50 years, you have probably never had a tooth cavity. Older people may well remember the common occurrence of cavities as a child or teen. The reduction of dental caries in the U.S. national population is considered one of the ten most important public health achievements of the twentieth century.

WCID 17 has fluoridated its treated water since 1987, and upgraded facilities in 2005 with a grant from the Texas Department of Health. The District adds fluoride to its treated water in the form of fluorosilicic acid (H_2SiF_6 , sometimes called hydrofluoric acid). While fluorosilicic acid is a toxic and hazardous material, District personnel are trained and licensed to handle it in accordance with Texas state law and regulations. Plant operators regularly receive training that includes all aspects of handling and use of H_2SiF_6 and other such hazardous materials (chlorine, ammonia, chlorine dioxide, etc.). All safety facilities required by the Occupational Safety and Health Administration (OSHA) including emergency shower/wash down/ eye-flushing stations are present at all District treatment plants.

Public health officials now recommend maintaining a fluoride concentration of 0.7 parts per million, and WCID 17 will adjust its fluoridation to this level. In August 2010 WCID 17 received an Excellence of Service Award from the Texas Department of Health and the U.S. Centers for Disease Control (CDC) for maintaining a consistent fluoride level in treated drinking water. Excessive fluoride intake, such as resulting from use of highly mineralized well water may result in a condition called dental fluoridosis, recognized by the appearance of white spotting of dental enamel. Because of infants' high fluid intake in proportion to their body weight, infants may exceed recommended intake levels if tap water is used to prepare formula. CDC recommends use of distilled, deionized or demineralized water in preparing infant formula. If you have questions in this regard you should consult your family pediatrician.

Institutions recommending the fluoridation of drinking water for prevention of dental caries (tooth decay) include.

U. S. Public Health Service

U. S. Department of Health and Human Services

U.S. Centers for Disease Control

U. S. Environmental Protection Agency

American Medical Association

American Dental Association

National Academy of Physicians and Surgeons

National Research Council

Texas Department of Health

Travis County Health Department

American Water Works Association recommends drinking water fluoridation as a best management practice.

– For more comprehensive information WCID 17 recommends visiting

http://www.cdc.gov/fluoridation/fact_sheets/cwf_qa.htm

Fluoridation and Drinking Water

Why fluoridate the water?

According to the U.S. Centers for Disease Control (CDC), more than 84 percent of U.S. children, 96 percent of U.S. adults, and 99.5 percent of Americans 65 years of age and older have experienced tooth decay. Fluoride works by stopping or even reversing the tooth decay process. North American water systems have added fluoride to their water supplies since 1945. Since that time, tooth decay has been reduced by 20-40% where fluoridation has been implemented.

The CDC has proclaimed water fluoridation to be one of the top ten greatest public health achievements of the past century. It is an effective, safe, and inexpensive way to prevent tooth decay and benefits Americans of all ages and socioeconomic status. Research indicates that frequent exposure to small amounts of fluoride is the best way to prevent tooth decay, and this is best gained by drinking fluoridated water and using fluoride toothpaste twice daily.

What is water fluoridation? How does it prevent tooth decay?

Fluoride is a naturally occurring element that is present in water. Utilities add fluoride to adjust the natural concentration of the water supply to the level recommended for optimal dental health. The three primary agents used in drinking water fluoridation are sodium fluoride, sodium fluorosilicate and fluorosilicic acid.

Fluoride's effect is topical. When small amounts of fluoride are maintained in the mouth in saliva and dental plaque (the film that adheres to tooth enamel), it keeps the tooth enamel strong by preventing the loss of important minerals.

Is fluoridation safe?

Extensive research conducted over the past 50 years has demonstrated that fluoridation of public water supplies at the appropriate level is a safe and effective way to reduce the incidence of tooth decay in a community.

Exposure to HIGH levels of fluoride over a long time can cause dental fluorosis, a condition which leads to mottled tooth enamel, discoloration, and in some cases, erosion of the gum line. Drinking water's fluoride content is limited under federal law. The maximum level of fluoride deemed acceptable the US Environmental Protection Agency (USEPA or EPA) is 4 milligrams per liter (mg/L). UPEPA requested a second review completed in 2006, which found children exposed to fluoride at this level, which comes from naturally occurring fluoride, risk severe tooth enamel fluorosis. A majority of the committee also concluded that people who consume water containing that much fluoride over a lifetime are likely at increased risk for bone fracture. Less than 1 percent of the U.S. population is served by water systems with this level of fluoride.

In 2001, the CDC established a new "optimal level" for fluoride content in drinking water to be in the range of 0.7 mg/L to 1.2 mg/L. Community water systems that fluoridate their water usually fall within this range.

The American Dental Association (ADA), the American Medical Association, the Centers for Disease Control and Prevention (CDC), the U.S. Public Health Service (USPHS), the World Health Organization (WHO), and many other public health and professional organizations recognize the public health benefits of drinking water fluoridation. These policies are based on the overwhelming weight of credible scientific evidence.

American Water Works Association (AWWA) supports fluoridation of water supplies in a safe, effective and reliable manner within the limits prescribed by health officials subject to community and local decision-making processes.

How popular is fluoridated tap water?

Fluoridation of drinking water has been used successfully in the United States for more than 50 years. In 2000, the CDC estimated that 66 percent of residents using community water systems, or 162 million people, had access to fluoridated tap water. Of the 50 largest cities in the United States, 43 have community water fluoridation.

As part of its “Healthy People 2010” campaign, the U.S. Department of Health and Human Services set a goal of increasing the proportion of the American population served by community water systems with optimally fluoridated water to 75 percent by the year 2010.

Now in early 2011, the EPA announced a new recommended level for optimal fluoridation of 0.7 ppm. In addition, EPA also announced they are considering lowering the Maximum Contaminant Level (MCL) down from 4.0 ppm.

WCID 17 has dialed down the amount of fluoridation in its water from a range of 0.7 – 1.2 parts per million to the newly “recommended” 0.7 parts per million.

For more information on fluoride and fluoridation, visit:

[Centers for Disease Control and Prevention](#)

[American Dental Association](#)

[American Water Works Association](#)