

## Muthoni Magua Article 6: Supplementary Material

**Would you knowingly give a child a glass of milk (or water) that was tainted with heavy metals?**



Image source: <http://www.medimanage.com/my-kids-health/more-articles/complan-or-horlicks-which-is-the-best-health-drink.aspx>

**Or would you seek healthy alternatives that would meet the child's needs?**

At present the town of Amherst is one of three towns in the four counties in western Massachusetts that add fluoride to the municipal water supply. At the April 2014 board of health meeting it was communicated that the fluoride product that is being added to the Town of Amherst water supply is sourced from China. Independent laboratory testing of the sodium fluoride powder obtained from six different chemical manufactures in China, that provide product to municipalities for the purpose of water fluoridation, were tested using Inductively Coupled Plasma-Mass Spectrometry (ICP-MS) and all found to be significantly contaminated with heavy metals. Since water quality impacts the health of every individual in the community, it is the duty of the town not to introduce any additional toxins into the water supply during the course of treatment. For the sake of completeness the relevant portion of the independent laboratory results that prompted Article 6 is reproduced below.

### **Initial Evidence**

Mike Adams, director of the Natural News Forensic Food Lab and one of the world's leading researchers into heavy metals contamination of foods, performed the study. To conduct the research, Natural News acquired "pure" sodium fluoride from six chemical manufacturers in China who export fluoride for use in municipal water supplies.

Roughly 500 grams of white crystalline fluoride powder was acquired from each of the six companies in China. From those original samples, approximately 0.5 grams of each sample was carefully weighed in laboratory vials, then digested using high purity "trace grade" acids suitable for ICP-MS analysis. Following digestion, the samples were normalized using laboratory-grade water (in an acid matrix), then dilution factors were calculated in the ICP-MS control software. Samples were then run via ICP-MS, following strict quality control procedures including the use of acid blanks, mid-range calibration checks, NIST-traceable standards and verifying the conformity of calibration concentration curves.

The results of the six sodium fluoride samples are shown here in parts per billion (ppb)

MAX aluminum: 283,218 ppb  
MAX arsenic: 137 ppb  
MAX strontium: 9417 ppb  
MAX lead: 988 ppb  
MAX uranium: 1415 ppb  
MAX tungsten: presence confirmed in 2 of 6 samples but quantitative analysis not conducted on tungsten

AVG aluminum: 69364 ppb  
AVG arsenic: 70 ppb  
AVG strontium: 1751 ppb  
AVG lead: 299 ppb  
AVG uranium: 239 ppb

As with everything tested at the Natural News Forensic Food Labs, **all samples are held in storage for future validation.**

**Link:** [Natural News Fluoride Heavy Metal Contamination Article](#)

**Please note:** We do not endorse and/or support all statements made on the [www.naturalnews.com](http://www.naturalnews.com) website our sole interest was only the test results of the sodium fluoride powder summarized above.

### **Toxicological Effects**

When heavy metals enter the body they are not simply eliminated, such as when alcohol is consumed, but instead accumulate over time; a process known as bioaccumulation. Heavy metals are implicated in various cancers, lowered IQ and/or poor reasoning capacity, dementia, and overall damage to the urinary, nervous and cardiovascular systems, to mention a few. Therefore prevention is clearly the best defense against the damaging effects of heavy metals.

A list of the known toxicological effects of each metal due to oral consumption and current drinking water regulations are provided in Tables 1 and 2. Please note that the effects of exposure to any hazardous substance depend on the dose, the duration, how an individual is exposed, personal traits and habits, and whether other chemicals or metals are present. Regulatory Limit information for each metal was taken from current EPA recommendations for drinking water ([water.epa.gov/drink/contaminants/](http://water.epa.gov/drink/contaminants/)), while toxicological information was taken from the **Agency for Toxic Substances and Disease Registry** website (<http://www.atsdr.cdc.gov/>).

Definitions for column headers in Tables 1 and 2 are given below.

**MCLG:** Maximum Contaminant Level Goal. Is a level of a contaminant in drinking water below which there is no known or expected risk to human health. MCLGs are non-enforceable public health goals.

**MCL:** Maximum Contaminant Level. The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLG as feasible using the best available analytical and treatment technologies and taking cost into consideration. MCLs are enforceable standards.

**SDWR:** Secondary Drinking Water Regulations. Non-enforceable Federal guidelines regarding cosmetic effects or aesthetic effects.

Table 1: Current EPA Drinking Water Regulatory Limits and Potential Health Effects

	MCLG (mg/L)	MCL (mg/L)	SDWR (mg/L)	Potential Health Effects From Long-Term Exposure
Aluminum	----	----	0.05 to 0.2	<p><b>Affected Organ/Systems:</b> Musculoskeletal (Muscles and Skeleton) and Neurological (Nervous System)</p> <p><b>Cancer Effects:</b> Unknown at this time.</p> <p><b>Health Effects:</b> Some People with kidney disease store a lot of aluminum in their bodies and sometimes develop bone or brain diseases which may be caused by the excess aluminum. Studies in animals show that the nervous system is a sensitive target of aluminum toxicity. Children with kidney problems who were given aluminum in their medical treatments developed bone diseases.</p>
Arsenic	<b>zero</b>	0.01	---	<p><b>Affected Organ/Systems:</b> Dermal(Skin), Gastrointestinal (Digestive), Hepatic(Liver), and Neurological(Nervous System)</p> <p><b>Cancer Effects:</b> Known to be a Human Carcinogen.</p> <p><b>Health Effects:</b> Decreased production of red and white blood cells, which may cause fatigue, abnormal heart rhythm, blood-vessel damage resulting in bruising, and impaired nerve function causing a "pins and needles" sensation in your hands and feet. Swallowing arsenic has also been reported to increase the risk of cancer in the liver, bladder, and lungs.</p>
Lead	<b>zero</b>	0.015	---	<p><b>Affected Organ/Systems:</b> Cardiovascular (Heart and Blood Vessels), Developmental (effects during periods when organs are developing), Gastrointestinal (Digestive), Hematological (Blood Forming), Musculoskeletal (Muscles and Skeleton), Neurological (Nervous System), Ocular (Eyes), Renal (Urinary System or Kidneys), Reproductive (Producing Children)</p> <p><b>Cancer Effects:</b> The Department of Health and Human Services (DHHS) has determined that lead and lead compounds are reasonably anticipated to be human carcinogens and the EPA has determined that lead is a probable human carcinogen.</p> <p><b>Health Effects:</b> The main target for lead toxicity is the nervous system, both in adults and children. Long-term exposure of adults can result in decreased performance in some tests that measure functions of the nervous system. It may also cause weakness in fingers, wrists, or ankles. Lead exposure also causes small increases in blood pressure, particularly in middle-aged and older people and can cause anemia. Exposure to high lead levels can severely damage the brain and kidneys in adults or children and ultimately cause death. In pregnant women, high levels of exposure to lead may Cause miscarriage. High-level exposure in men can damage the organs responsible for sperm production.</p>

Table 2: Current EPA Drinking Water Regulatory Limits and Potential Health Effects

	MCLG (mg/L)	MCL (mg/L)	SDWR (mg/L)	Potential Health Effects From Long-Term Exposure
Mercury	0.002	0.002	---	<p><b>Affected Organ/Systems:</b> Developmental (effects during periods when organs are developing), Gastrointestinal (Digestive), Neurological(Nervous System), Ocular(Eyes), Renal(Urinary System or Kidneys)</p> <p><b>Cancer Effects:</b> Inadequate human cancer data available for all forms of mercury. The EPA has determined that mercuric chloride and methylmercury are possible human carcinogens.</p> <p><b>Health Effects:</b> Exposure to high levels of metallic, inorganic, or organic mercury can permanently damage the brain, kidneys, and developing fetus. Effects on brain functioning may result in irritability, shyness, tremors, changes in vision or hearing, and memory problems. Short-term exposure to high levels of metallic mercury vapors may cause effects including lung damage, nausea, vomiting, diarrhea, increases in blood pressure or heart rate, skin rashes, and eye irritation. Very young children are more sensitive to mercury than adults. Mercury in the mother's body passes to the fetus and may accumulate there. It can also can pass to a nursing infant through breast milk. However, the benefits of breast feeding may be greater than the possible adverse effects of mercury in breast milk. Mercury's harmful effects that may be passed from the mother to the fetus include brain damage, mental retardation, in-coordination, blindness, seizures, and inability to speak. Children poisoned by mercury may develop problems of their nervous and digestive systems, and kidney damage.</p>
Uranium (radionuclide)	zero	0.03	---	<p><b>Affected Organ/Systems:</b> Renal (Urinary System or Kidneys)</p> <p><b>Cancer Effects:</b> Increased risk of cancer.</p> <p><b>Health Effects:</b> Kidney damage has been observed in humans and animals.</p>
Strontium	---	4	---	<p><b>Affected Organ/Systems:</b> Musculoskeletal (Muscles and Skeleton)</p> <p><b>Cancer Effects:</b> The only compound that may cause cancer is strontium chromate.</p> <p><b>Health Effects:</b> Exposure to high levels of stable strontium can result in impaired bone growth in children.</p>
Tungsten	---	---	---	<p><b>Affected Organs/System:</b> Neurological (Nervous System)</p> <p><b>Cancer Effects:</b> Unknown</p> <p><b>Health Effects:</b> Increased risk of neurological problems.</p>

## **Analytical Testing**

In order to ensure the testing requested in the motion can be conducted at a modest cost we have obtained a quote from a independent EPA certified lab capable of performing the required analytical testing of the undiluted sodium fluoride powder. The full contact information of the laboratory and its director of operations is provided below:

Alliance Technologies, LLC  
9 Deer Park Drive, Suite B  
Monmouth Junction, NJ 08852

Anatoly (Tony) Nemzer  
Dir. Of Operations / Principal  
anemzer@alliancetechnology.com  
(732) 355-1234



Alliance Technologies, LLC  
 9 Deer Park Drive, Suite B  
 Monmouth Junction, NJ 08852

# Quotation

Date	Estimate #
10/24/2014	2014-1024

Name / Address
Yusef Awad 188 Pine Street Amherst, MA 01002

Project

Description	Qty	Cost	Total
ICP-MS ANALYSIS OF A FLUORIDE SALT SAMPLE FOR ALUMINUM, LEAD, ARSENIC, STRONTIUM, TUNGSTEN, MERCURY AND URANIUM	1	600.00	600.00
SAMPLE PREPARATION/DIGESTION	1	250.00	250.00
		<b>Total</b>	\$850.00

## Questions and Answers

**Q:** Would you classify the fluoride added to the municipal water supply as a medication?

**A:** The Nuremberg Code is a set of research ethics principles for human experimentation set as a result of the subsequent Nuremberg Trials at the end of the Second World War. Thus **by adding fluoride to the municipal water supply for the dental health of the community without the expressed consent of every citizen in the community is forced medication and is a violation of the Nuremberg code.** Additionally, while citizens are forced to take this medication they are also being poisoned with heavy metals.

**Q:** Is the fluoride used in municipal water supplies tested?

**A:** In the state of Massachusetts any fluoridation chemical must meet **both** the National Sanitation Foundation (NSF)/American National Standards Institute (ANSI) Standard 60 and the American Water Works Association (AWWA) standards. The NSF sets the standards for product purity while the ANSI determines standards for product consistency. The AWWA states that it shall contain no minerals or organic substances in quantities capable of producing deleterious or injurious effects on the health of those consuming water that has been properly treated. While it may be comforting to know that the fluoride purchased by the town has met both these standards it should be noted that the EPA relinquished their oversight of drinking water additives on April 7, 1990. At which time the oversight of drinking water additives was turned over to the water additives industry so it could self-regulate.

Furthermore, the NSF does not provide any toxicological studies supporting the safety of the chemicals used in water fluoridation, nor does it accept any liability for the use of its standard, as is made clear in the disclaimer for the document titled "[Drinking Water Treatment Chemicals Health Effects](#)":

“NSF International (NSF), in performing its function in accordance with its objectives, does not assume or undertake to discharge any responsibility of the manufacturer or any other party. The opinions and findings of the NSF represent its professional judgment. NSF shall not be responsible to anyone for the use of or reliance upon this Standard by anyone. NSF shall not incur any obligation or liability for damages, including consequential damages, arising out of or in connection with the use, interpretation of, or reliance upon this Standard.”

While the NSF Standard 60 established a standard for pollutants that is 10 percent of the maximum contaminant level. Unfortunately, the NSF ignores this requirement for the chemicals used in water fluoridation and allows heavy metals like arsenic and lead, for which the EPA has assigned an MCLG of zero.

**Q:** Why does purchasing fluoride from China pose a potential problem?

**A:** China has no regulatory body that acts in the interest of the consumer. In recent years a number of stories in the New York Times and Forbes have reported tainted products exported from China into the US. This casts doubt on whether their exports are safe for human consumption. When you consider the fact that China is now the world's leading industrial producer without environmental controls in place, it is obvious that we must be well informed regarding purchases of their products.

**Q:** What to do with the approximately \$18,000 we would save if fluoridation is ended since that money cannot be used for anything outside the water enterprise system?

**A:** We could use that money saved on fluoridation to invest in new disinfection technology to kill microorganisms in potable water supplies, such as ultraviolet (UV) light which would reduce our dependence on chemical additives. Link: [World's Largest Ultraviolet System is Now Purifying New York City's Water](#)

**Q:** Is the fluoride added to municipal water supplies pharmaceutical grade?

**A:** No. The fluoride added to municipal water supplies is industrial-grade which is not subjected to the same regulations as fluoride used to make prescription drugs.

**Q:** How effective is ingestion of fluoride versus a topical application at preventing cavities?

**A:** In 1999, the CDC states in their report that **Fluoride's predominant mechanism of action was topical not systemic for both adults and children.**

From the CDC report titled:

[Achievements in Public Health, 1900-1999: Fluoridation of drinking water to prevent dental caries.](#)

Mortality and Morbidity Weekly Review. (MMWR). 48(41): 933-940 October 22, 1999.

NOTE: The authors of this report were Scott Tomar and Susan Griffin.

For the sake of completeness a short excerpt from the CDC report referenced above is provided.

### **Biologic Mechanism**

Fluoride's caries-preventive properties initially were attributed to changes in enamel during tooth development because of the association between fluoride and cosmetic changes in enamel and a belief that fluoride incorporated into enamel during tooth development would result in a more acid-resistant mineral. However, **laboratory and epidemiologic research suggests that fluoride prevents dental caries predominately after eruption of the tooth into the mouth, and its actions primarily are topical for both adults and children<sup>1</sup>.**

### **Reference**

1. Featherstone JD. Prevention and reversal of dental caries: role of low level fluoride. Community Dentistry and Oral Epidemiology 1999; 27:31-40.

Furthermore, the [abstract](#) of the paper by Featherstone states that **“The level of fluoride incorporated into dental mineral by systemic ingestion is insufficient to play a significant role in caries prevention”**. This finding, published in a peer-reviewed journal article, is in direct opposition to statements made by the town boards that claim that fluoride works most effective when it is ingested.