## Chlorine and Your Shower

## **Chlorine and Your Shower Important Reference Information**

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"Sprite Industries, the only true specialists in shower filters, once again led the field with a new show filter configurations... Sprite uses a patented filtration media called KDF Chlorgon that performs well under high temperature and pH conditions." WATER CONDITIONING & PURIFICATION - March 2001

"Chlorine is used almost universally in the treatment of public drinking water because of its toxic effect on harmful bacteria and other waterborne, disease-causing organisms. But there is a growing body of scientific evidence that shows that chlorine in drinking water may actually pose greater long term dangers than those for which it was used to eliminate. These effects of chlorine may result from either ingestion or absorption through skin. Scientific studies have linked chlorine and chlorination by-products to cancer of the bladder, liver, rectum, and colon, as well as heart disease, atherosclerosis (hardening of the arteries), anemia, high blood pressure, and allergic reactions. There is also evidence that shows that chlorine can destroy protein in our body and cause adverse effects on skin and hair. The presence of chlorine in the water may also contribute to the formation of chloramines in the water, which can cause taste and odor problems." "Since chlorine is required by public health regulations to be present in all public drinking water supplies, it is up to the individual to remove it at the point-of-use in the home. The best available method of chlorine removal ,for the individual consumer is found in the Shower Master Shower Filter Unit." "The Shower Master Shower Filter Unit is of great value to those who are concerned about the adverse health effects of exposure to chlorine due to absorption through the skin or by inhalation. The Shower Master Filter will Provide superior protection form chlorine, when used in accordance with the Manufacturer's recommended operating procedures." KEMYSTS LABORATORY

"In June 1988 the US National Cancer Institute released the results of an intensive 10,000 - person study, which showed that people who drink chlorinated water for long periods of time have twice the incidence of bladder cancer as those who don't drink chlorinated water." ON THE WATER FRONT: MAKING YOUR WATER SAFE TO DRINK

"Conservative calculations indicate that taking a shower exposes you to the equivalent of consuming an additional two liters of chlorinated water each day. Inhalation and skin absorption of chloroform and chlorine by-products is greatest in the shower, where these gases are vaporized." THE WATER YOU DRINK: HOW SAFE IS IT?

"While the purity of our drinking water is of primary importance, contaminants and chlorine by-products also enter our bodies through the skin via the water in which we bathe. Also, our lungs absorb toxic fumes from the gaseous chlorine by-products that are released in a steamy shower. Chlorine in shower water can strip protein from our hair and skin causing dry, irritated eyes, itchy skin and dandruff." WATER: THE ULTIMATE CURE

"The total inhalation exposure (summation of the three scenarios; shower pre- and post cooking activities and cooking) was found to be comparable with that for direct ingestion, indicating that inhalation is an important pathway for the THM exposure from drinking water." SCI TOTAL ENVIRON - Jan 31 2000

"The use of chlorine for water treatment to reduce the risk of infectious disease may account for substantial portion of the cancer risk associated with drinking water." **ENVIRON HEALTH PERSPECT - Nov 1995** 

"Strong relationships were identified between the THM breath concentrations collected after a shower and both the THM water concentration and the THM exposure from a shower..." **ENVIRON HEALTH PERSPECT - Feb 1999** 

"Drinking tap water that is chlorinated is hazardous, if not deadly to your health."

**HEALTHY WATER FOR A LONGER LIFE** 





"Exposures to chlorination by-products (CBP) within public water supplied are multi-route in water. Cold water is primarily used for ingestion with a mixture of cold water and hot water used for showering, bathing, dish washing etc. These later two activities result in **inhalation and dermal exposure.** The overall THM exposures calculated using the THM concentration in heated water were 50% higher than those calculated using the THM concentration present in cold water."

RISK ANAL - Feb 1994

"Especially for volatile organic micro-pollutants, exposure routes from drinking water other than ingestion must be taken into account (inhalation and percutaneous uptake)."

FOOD CHEMISTRY

"Individuals are exposed to volatile compounds present in tap water by **ingestion, inhalation and dermal absorption.**"

ENVIRON HEALTH PERSPECT - Jan 1996

"As a result, entry by inhalation route is as important as entry by ingestion route when conducting exposure analyses inhalation and skin absorption exposure concentrations were found to be even higher." TOTAL IND HEALTH - Mar/Apr 1996

"However, other exposure routes, such as **dermal absorption and inhalation, may be important components of an individual's total exposure** to drinking water disinfection by-products. The results from this study indicate that household activities such as **bathing and showering are important routes for human exposure** to THMs."

EXOP ANAL ENVIRON EPIDEMIOL - Jul/Aug 2000

"Recently, **showers have been suspected to be an important source of indoor exposure** to volatile organic compounds (VOC)." "Since estimates of chloroform risk domestic water use for the three **exposure route - ingestion, inhalation and dermal** - are similar, all routes must be used to calculate the total risk when making policy decisions regarding the quality of the municipal water supply."

RISK ANAL - Dec 1990

"A new statistical analysis indicates that people who drink chlorinated water run a **21**% **greater risk of bladder cancer and 38**% **greater risk of rectal cancer** than people who drink water with little or no chlorine." "I am quite convinced, based on this study, that there is an **association between cancer and chlorinated water**." SCIENCE NEWS - **11** July **1992** 

"People who regularly drink water containing chlorine have been found to have a higher risk of bladder cancer by some researchers."

PREVENTION - Aug 1994

"It's time for government and industry to act on the knowledge that **chlorine is a profound threat to human health**" "and the evidence has shown that the time to start is now."

CHEMICAL WEEK - 21 Dec 1994

"Taking long hot showers is a health risk, according to research presented last week in Anaheim California, at a meeting of the American Chemical Society. Showers, and to a lesser extent baths-lead to a greater exposure to toxic chemicals contained in water supplies than does drinking the water. The chemicals evaporate out of the water and are inhaled. They can also spread through the house and be inhaled by others. House holders can receive 6 to 100 times more of the chemical by breathing the air around showers and bath than they would by drinking the water."

NEW SCIENTIST - 18 September 1986

"Studies indicates the suspect to **chemicals can also be inhaled and absorbed through the skin during showering** and bathing." "Ironically, even the chlorine widely used to disinfect water produces Carcinogenic traces." "Though 7 out of 10 Americans drink chlorinated water, its safety over long term is uncertain." "**Drinking chlorinated water may as much as double the risk of Bladder Cancer, which strikes 40,000 people a year**."

U.S. NEWS &WORLD REPORT - July 29 1991

"A long hot shower can be dangerous. The toxic chemicals are inhaled in high concentrations." BOTTOM LINE - Aug 1987

"On one hand, chlorination has freed civilization form the constant dangers of waterborne epidemics. On the other hand in the mid-70's scientists discovered that **chlorination could create carcinogens in water**." "80% of the population drinks chlorinated water." "There was a higher incidence of cancer of the esophagus, rectum, breast, and larynx and of Hodgkin's Disease among those drinking chlorinated surface waters." "Volatile organics can evaporate from water in a shower or bath." "Conservative calculations indicate that inhalation exposure can be as significant as exposure from drinking the water, that is, one can be exposed to just as much by inhalation during a shower as by drinking 2 liters of water a day. People who shower frequently could be exposed through ingestion, inhalation and/or dermal absorption."

IS YOUR WATER SAFE TO DRINK?

"Skin absorption of contaminant has been underestimated and ingestion may not constitute the sole or even primary route of exposure."

AMERICAN JOURNAL OF PUBLIC HEALTH

"Showering is suspected as the primary cause of elevated levels of chloroform in nearly every home because of the chlorine in the water."

ENVIRONMENTAL PROTECTION AGENCY

"A Professor of Water Chemistry at the University of Pittsburgh claims that **exposure to vaporized chemicals in the water supplies through showering, bathing, and inhalation is 100 times greater than through drinking water.**" "As chlorine is added to kill pathogenic microorganisms, the highly reactive chlorine combines with fatty acids and carbon fragments to form a variety of toxic compounds, which comprise about 30% of the chlorination by--products."

THE NADER REPORT - TROUBLED WATERS ON TAP

"The National Academy of Science estimate that 200 to 1000 people die in the United States each year from cancers caused by ingesting the contaminants in the water. The major health threat posed by these pollutants is far more likely to be from their inhalations as air pollutants. The reason that emissions are high is that because water droplets dispersed by the shower head have a larger surface—to--value ratio than water streaming into the bath." SCIENCE NEWS, VOL. 130

"The cause of atherosclerosis and resulting heart attacks and strokes is none other than the ubiquitous chlorine in our drinking water."

CORONARIES/CHOLESTEROL/CHLORINE

"In the vast majority of causes where germ-free water is required whether for public supply or in the swimming pool, the process of **disinfection will involve the use of chlorine in one form or another**."

CHEMISTRY AND CONTROL OF MODERN CHLORINATION

"Chlorine gas was despicably used during WWI. When the war war was over, the use of chlorine was diverted to poisoning germs in our drinking water. All water supplies throughout the country were chlorinated. **The combination of chlorine (when in drinking water) and animal fats results in atherosclerosis, heart attacks, and death.**"

WATER CAN UNDERMINE YOUR HEALTH

"Chlorine is the greatest crippler and killer of modern times. While it prevented epidemics of one disease, it was creating another. Two decades ago, after the start of chlorinating our drinking water in 1904. The present epidemic of the heart trouble, cancer and senility began."

SAGINAW HOSPITAL

"Cancer risk among people drinking chlorinated water is 93% higher than among those whose water does not contain chlorine."

U.S. COUNCIL OF ENVIRONMENTAL QUALITY

"Known carcinogens are found in drinking water as a direct consequences of the practice of chlorination. A long established public health practice for the disinfection of drinking water." MUNICIPAL ENVIRONMENTAL RESEARCH LABORATORY