

## Volatile Organic Chemicals in Drinking Water

Volatile Organic chemicals, or VOC's, are a group of water contaminants that can be very dangerous if found in drinking water at unsafe levels. VOC's are among the most costly water contaminants to detect, and difficult and expensive for municipal water systems to remove. There are approximately 40+ known VOC's.

### What Are VOC's?

There are many thousands of organic chemicals that are volatile and turn into vapor at relatively low temperatures, but the official regulatory category of "VOC" refers only to those that are toxic and occur in drinking water often enough or in high enough concentration to justify regulation. The group includes many different chemical types, from various sources, with a variety of toxic effects, including cancer.

VOC's are usually the result of pollution and originate from areas of industrialization, such as factories and processing plants. VOC's come from industrial waste, leaking gasoline storage tanks, seepage from toxic waste dumps, agricultural runoff and accidental chemical spills.

Disinfection with chlorine is a major cause of VOC's; Trihalomethanes (THMs) were the first VOC's discovered.

Although any area is susceptible, industrialized or agricultural areas are more likely to have VOC's.

VOC's are production by-products of some foods, drugs, disinfectants, pesticides, paints, plastics, room and water deodorants, mothballs, fumigants, glues, rubber materials, dyes and perfumes. They include benzene, dichlorobenzene, styrene, toluene, vinyl chloride, chloroform and carbon tetrachloride. Industrial solvents and their degradation products, and gasoline compounds are also VOC's.

VOC's find their way into the water supply by leaking from the sources such as a factory or underground tank, through the ground into the water supply, including rivers, lakes and underground aquifers. If you live in an industrialized area or

near a factory or plant, or if your water supply is chlorinated, you should be concerned about VOC's in your drinking water.

### Government Regulation

Municipal water treatment plants are required by law to monitor levels of many VOC's in water.

The EPA has set specific standards for the maximum contaminant levels, or MCLs, of specified VOC's. However, regulations also require testing for many other VOC's that are not currently regulated.

Unfortunately, even minimal testing can over-burden the financial resources of many small municipal water systems. Therefore, it is sometimes more cost effective to completely shut down a water source when VOC's are found, than to treat the water.

### Reducing VOC's in Your Drinking Water

If you are concerned about VOC's in your water, first contact your local water utility, if you have one. Ask for a copy of the latest test report including unregulated organics. If you have a private water supply, your water is not regulated by the EPA so you will need to have the water tested yourself.

VOC's are not readily noticeable by sight or by taste, so water containing VOC's appears to be normal. Therefore, you'll need to have your water tested to know for certain whether VOC's are present at significant levels. Your local health department should be able to provide you with the name of a certified water testing laboratory in your area.

There is a way to remove VOC's from your water before you drink or cook with it. This can be done simply and cost effectively with a point-of-use (POU) water filtration system certified by NSF International for the reduction of VOC's. NSF is an independent testing agency that sets product standards and certifies the performance of POU systems.

# ISSUES OF WaterCare



Typically the size of a household fire extinguisher, POU systems designed for the consumer are installed under the kitchen sink and the filtered water is served through a dedicated drinking water faucet. As water travels through the POU system, sediment, particles, bacteria and harmful chemicals are removed by the system's main ingredient (activated carbon).

Activated carbon is an extremely porous material that attracts and holds harmful contaminants in the water through a process known as adsorption. The result is safer, better tasting water.

Depending upon the model, POU systems are capable of correcting most water problems, including VOC's, chlorine, lead, and asbestos; and the removal of parasitic cysts such as Cryptosporidium and Giardia.