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Typical Contaminants and Problems

Pesticides and Organic Contaminants

As contaminants in our water, synthetic organic compounds are relatively new. They are products of the explosive growth, manufacture, and use of chemicals in industry, agriculture, and the home. Organics have given us lawns without weeds, throw-away containers for our coffee and hamburgers, medicines, nonwrinkle clothes, fire retardants, plastics, electronic gadgets, special solvents and cleaning agents, wood preservatives, and abundant food cultivated with pesticides and fertilizers. But all of these conveniences of modern life have come with a price—pollution of the environment by organics.

Organic compounds include a wide variety of substances all of which contain carbon. Many thousands of organic chemicals can be detected in water. Of the 2,100 different contaminants that have been found in public water systems, 1,565 were organic chemicals. At least 117 of the organics have known health effects but most occur at concentrations that pose little risk. The common types of industrial organic substances found in water are petroleum products, solvents, pesticides, and halomethanes.

Organics in water can enter the body by ingestion and through skin absorption. Volatile organics can evaporate from water in a shower or bath and from other routine operations where water is exposed to the air. These organics can then be inhaled.

For the most part we know very little about the effects on human health of long-term exposure to low doses of pesticides or organics, both naturally occurring and synthetics. Research on the toxicity of pesticides and organics has been conducted primarily on laboratory animals, although some information has been acquired from industrial and accidental human exposures. Most toxicological information is based on high-dose or acute exposures. Most pesticides and organics, especially the synthetic compounds, have been found to be toxic, acutely at high concentrations and chronically at very low concentrations. High concentration symptoms include nausea, dizziness, tremors, and blindness.

Sources Of Pesticides And Organic Contaminants

The contamination of groundwater by organics has become a widely recognized environmental hazard. Some of the major sources of groundwater pollution are industrial disposal (accidental or intentional); leaching from waste dumps and landfills; leaching of pesticides from farms, gardens, and lawns; leaking underground storage tanks; and stormwater runoff from urban areas. Instances of water pollution have also been traced to sewage or wastewater sources containing synthetic detergents.

Treatment Of Pesticides And Organic Contaminants

When To Treat. If pesticides are used or handled near your water supply and if you suspect your water supply is contaminated, have your water tested for the suspected contaminant. Testing for pesticides in drinking water is expensive but may be necessary to determine which organics are present and which treatment systems are needed. Persons on private wells are at a greater risk since their water is not routinely tested.

Public water supply standards for contaminants that pose a health threat are set by the Environmental Protection Agency. Presently the EPA is in the process of updating standards related to organics in drinking water. They are investigating the possibility of regulating certain nonvolatile organics and re-evaluating all pesticides registered before 1972 to bring them up to modern health standards. The EPA also requires testing of new pesticide products before they are marketed.

How To Treat. Activated carbon filtration is the recommended treatment for organics. Activated carbon filters will absorb limited amounts of pesticides.

Reverse osmosis and distillation can also be used to remove some pesticides and organics. However, they are not capable of removing all types of chemical compounds that can be found in water.

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Check the specification of the treatment equipment you are purchasing to assure that the contaminant which you wish to treat can be removed. Treated water should be closely monitored to determine if the treatment is effective as claimed.

Pesticides And Organic Contaminants At A Glance

Symptoms: Little effect on odor or taste at low levels; light reflecting film on water; positive test for synthetic organics or volatile organics

Causes Of The Problem: Leaching or stormwater runoff of pesticides and organics from places where they have been used, spilled, stored, or disposed of.

Suggested Treatments: Activated carbon filter, distillation, or reverse osmosis.

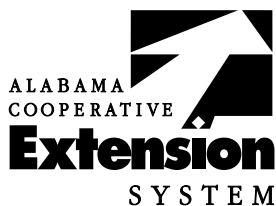
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This publication, supported in part by a grant from the Alabama Department of Environmental Management and the Tennessee Valley Authority, was prepared by **James E. Hairston**, *Extension Water Quality Scientist*, Professor, Agronomy and Soils, assisted by **Leigh Stribling**, *Technical Writer*, both at Auburn University.

For more information, call your county Extension office. Look in your telephone directory under your county's name to find the number.

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