



A great many substances can be found in water. However, only a few of these commonly occur in concentrations high enough to be of concern to domestic water users. The most important substances to measure are those that often occur in concentrations high enough to cause health, aesthetic or other problems.

The following substances may be important, depending on the nearby pollution sources. Pollution can occur when the following activities take place in the nearby environment.

Pesticide and herbicide pollution

Pesticides:

- Insecticides to control insects.
- Nematocides to control certain worms.
- Fungicides to control mildews, rusts, etc. in orchards and crops.

Herbicides:

To control weed growth.



Intensive **malaria control** can cause pesticide pollution.

Intensive **agriculture** can cause pesticide and herbicide pollution.

Pesticides and herbicides are also used in home gardens, on golf courses and parks.

- Pesticides and herbicides can contaminate drinking water due to surface runoff, which can 'transport' pesticides from farms and small-holdings (orchards and crops), golf courses, parks and homes to rivers and dams.
- When unused pesticides and herbicides are not properly disposed of, it can enter the soil with subsequent contamination of groundwater.

Trace metal and organic pollution

Typical sources of trace metals are:

Extensive **mining** and **industrial activities** can cause trace metal pollution. However, certain trace metals can originate within water systems, for example lead due to corrosion of lead and galvanized pipes and pipe fittings and zinc due to the corrosion of galvanized pipes.

"Trace metals may occur naturally in ground water in very small amounts and may include arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver and zinc. In small amounts these are harmless and in some cases even beneficial to health." Health and Environmental Testing Laboratory, State of Maine, US. (<http://www.maine.gov/dhhs/etl/mission.htm>)

However, concentrations exceeding drinking water standards may have serious health effects.

Industrial activities can cause both trace metal and organic pollution.

"Organic pollution caused by animal or plant material derived from living and dead organisms that may contain pathogenic bacteria and negatively influences the environment".

U.S. Environmental Protection Agency (USEPA).

(http://iaspub.epa.gov/trs/trs_proc_qry.navigate_term?p_term_id=27535&p_term_cd=TERMDIS)



Expert advice on what substances should be monitored is necessary if these activities may be polluting the water supply.

References:

DWAF (1998). Quality of domestic water supplies. Vol. 1: Treatment Guide. WRC No. TT 101/98.