MONTEREY BAY ANALYTICAL SERVICES
CELEBRATING 25 YEARS | 1999-2024
4 Justin Court, Suite D Monterey, CA 93940
Phone: 831-375-MBAS (6227) info@mbasinc.com

Nitrates

Purpose

Nitrate is an inorganic chemical regulated by the Safe Drinking Water Act. Nitrate is normally present in water at low levels. Elevated levels of nitrates are caused by contamination from sources such as improper sewage disposal, septic systems, feed lots, animal and human wastes, and perhaps the single greatest source – nitrogen fertilizers. Fertilizers applied in excess of a crop's needs or soil capacity to process the nitrogen is eventually transported below the root zone of the plant. There, nitrifying soil bacteria in the presence of oxygen convert the nitrogenous compounds into nitrate. This nitrate is soluble in water and readily percolates into the ground water table or enters nearby rivers and streams with rainwater runoff.

In excessive amounts, nitrate has adverse health effects. Infants are particularly vulnerable to nitrates, which cause a disease known as methemoglobinemia or blue baby syndrome. Other health effects, which have been attributed to excessive exposure to nitrates, include birth defects and certain cancers. Generally, the amount of nitrates consumed in foods far exceeds the amount contributed by drinking water.

Sample Collection

Water samples taken for nitrate Testing must be collected and handled properly in order to insure reliability of laboratory results. The following procedures will help.

1. Select a tap as close to the well as possible. When you have found a suitable faucet, open it and allow water to flow for a few minutes before collecting sample.
2. Carefully fill the 250-ml plastic bottle provided by the laboratory.
3. Label the sample with sample identification, date and time of collection.
4. Complete the Chain-of-Custody form including mailing address, name of sample collector, well number, description of sample point, date and time of collection, and test ordered (i.e., "Nitrates").

Care of Sample

Nitrate samples must be tested within 48 hours of collection. To assure that this time limit is met, Monterey Bay Analytical Services should receive the sample the day it is collected.

Interpretation of Results

The Environmental Protection Agency and the State Department of Health consider 10 mg/L Nitrate as Nitrogen (NO3 N) to be the maximum allowable level of Nitrate in drinking water. Individuals connected to a water system, which exceeds the maximum contamination level for Nitrate should be promptly notified. Effective treatment methods are available for reducing the level of Nitrate in drinking water. The most effective of these is reverse osmosis (RO) which uses semipermeable membranes to filter the water. These membranes trap large molecules such as nitrate but allow water (along with smaller molecules) to pass through. Further information on drinking water requirements and treatment can be obtained from Monterey Bay Analytical Services.