

Application Note – Nitrates in Drinking Water

Nitrates are nitrogen compounds that occur naturally in the soil, but also enter the soil as a component of fertilizers. Intensive fertilization in today's agriculture has led to high nitrate concentrations in surface and ground water. Authorities in Europe have introduced nitrate limits for drinking water.

- EU: 50 mg/l
- CH: 25 mg/l
- AU: 50mg/l



Even a small amount of nitrate in drinking water can pose a health risk!

Nitrate and nitrite ions are also naturally occurring, with the nitrite ion being relatively unstable. Nitrate is formed from the oxidation of organic **wastes such as manure**, by the action of nitrogen-fixing bacteria in soils, or from lightning strikes through air in addition to their manufacture for use in explosives and inorganic fertilisers. **Intensification of farming practices** and sewage effluent disposal to streams have led to increasing amounts of nitrate in some waters, particularly groundwater. Food, particularly **vegetables** and cured meat, is the major source of nitrate intake for humans. Nitrite can be converted to ammonia.

How Can We Measure for Nitrate

Bypass Absorptionmeter Nitrate

Sigrist ColorPlus 3 offers an online measurement of nitrate. As a light source, a long-lived xenon flash lamp is used having a very low loss of intensity over a long time. The medium is measured with two optical path lengths from which any soiling is determined. The value measured is automatically corrected and the instrument informs the user when the measuring cell must be cleaned. The PVC cover can be removed without tools. Free access to the optics allows simple cleaning of the measuring cell. The instrument indicates any maintenance due. The control unit SICON selectively displays values, graphs, status and alarms on state-of-the-art touchscreen technology and colour display. Internal data storage allows the visualization of the measurements over the last 32 days. The instrument is used in the treatment of drinking water.



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Est 2003