TOTAL NITROGEN

EZ Series: Continuous Monitoring of Total Nitrogen

Key Applications: Monitoring of surface water, wastewater treatment

One of the main purposes of wastewater treatment is Nitrogen removal to prevent or minimize nitrogenous compounds passing to receiving waters, where they may be responsible for pollution and eutrophication. Nitrogen is a component of all proteins, and high levels exist in plants and animals and their waste as well as in decomposing organic matter and nitrate fertilizers. Nitrogen-driven algal and bacterial growth is a problem in natural waters because it depletes dissolved oxygen to levels which cannot support higher organisms. Eutrophication also harms water resources for drinking and recreation activities.

Watch the Video

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More Resources

Features EZ Series Analyzers

- **Continuously monitor Total Nitrogen to detect trends, peaks, and gain insights for process optimization**
- **Accurate at low levels starting at 100 µg/L**
- **Multiple stream analysis (1-8 streams)**
- **In-line sample digestion capability**
- **Alternative models available to also monitor Total Phosphorus**

Explore the full range of parameters and technologies.
Call your Hach representative today,
or visit hach.com/ez-series

HACH®
Be Right™

The Why, Where and How of Total Nitrogen Monitoring

About

The Earth's atmosphere is 78% N_2, and Nitrogen is a key compound of amino acids. Important processes in the Nitrogen cycle include fixation, ammonification, nitrification, and denitrification. However, these processes have been negatively impacted by human activity, resulting, for example, in raised levels of nitrogenous compounds in natural waters. The most important Nitrogen species are Ammonia (NH_3), Nitrate (NO_3), Nitrite (NO_2) and organic Nitrogen; all of which play important roles in biological wastewater treatment.

TN in Surface Waters

Nitrogen enters surface water from atmospheric deposition, wastewater treatment plants and in runoff, especially in agricultural areas where manure and Nitrate fertilizers are present. In 2011, the US Environmental Protection Agency (EPA) stated: "Nitrogen and phosphorus pollution has the potential to become one of the costliest and most challenging environmental problems we face." Nutrients Policy is one of five key focus areas for the Association of Clean Water Administrators, which seeks to achieve nutrient reduction *in the nation's waters, and publishes States' progress in the Nutrients Reduction Progress Tracker – see www.acwa-us.org.

TN in Wastewater

Wastewater treatment plants are point sources of nutrient pollution. Depending on the population equivalent and the sensitivity of the receiving water, the environmental permits of wastewater treatment plants may therefore require the monitoring of Total Nitrogen (TN), by manual sampling or continuous monitoring.

The US Clean Water Act section 402 and Code of Federal Regulations establish the framework for the National Pollutant Discharge Elimination System (NPDES), requiring permits for any point source discharge of pollutants to US waters. This includes municipal and industrial wastewater treatment plants, animal feeding operations, storm sewers etc. Standards for total nitrogen in discharges are set and monitored by state and federal organisations. In addition, State Regulatory Programs for Water Reuse frequently require the monitoring of Total Nitrogen in reclaimed water.

In Europe, the WFD is supported by the Urban Waste Water Treatment Directive (UWWTD) which requires member states to control emissions of nitrogen from point sources.

Sampling for lab analysis can be time-consuming, costly, and incurs a delay, whereas continuous monitoring of Total Nitrogen helps plant operators understand the process conditions that affect nutrient levels so that they can optimize treatment and improve environmental performance.

TN Monitoring Solutions

EZ Series online analyzers are available in several models:

EZ76xx	Total Nitrogen & Total Phosphorus
EZ770x	Total Nitrogen
EZ7750	Total Nitrogen & Nitrate & Nitrite

Options

- Selection of measuring ranges to match your application
- Monitoring of up to 8 sample streams per analyzer, reducing cost per sampling point
- Analog and digital communication outputs
- Self-cleaning sample preconditioning panel

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