

Fluoride Monitoring System for Semiconductor Fabrication Wastewater Treatment

The efficient use of Fluoride is an important part of the semiconductor industry's fabrication process. Effective etching of semiconductor wafers is dependent on Hydrogen Fluoride usage. Such processes produce wastewater and effluent contaminated with Fluoride, which must be accurately analyzed for effective treatment. ECD's S10 and S17 Fluoride plon sensors combined with the C22 Controller are well suited for this task. For more info look under "latest news" on the ECD website. www.ecdi.com



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New Release- HYDRA Nitrate Sensor System Sensor System to Monitor the Nitrification Process in an Aeration Basin

The **HYDRA Nitrate Analyzer** measures the concentration of dissolved nitrate as nitrogen ($\text{NO}_3\text{-N}$) in water. The sensor uses two electrodes to determine the $\text{NO}_3\text{-N}$ concentration, a Nitrate Ion Electrode and a Chloride Ion Electrode. It is designed for use in all kinds of water. **Typical applications include monitoring environmental waters, lakes, streams and wells as well as wastewater treatment in aeration basins and effluent.** Nitrogen primarily enters a municipal wastewater treatment plant as ammonia/ ammonium compounds. Nitrification oxidizes the toxic ammonium ion into much less toxic nitrate ion using an aerobic activated sludge process. Denitrification reduces the nitrate ion (NO_3^-) to nitrogen gas (N_2) by an anoxic reaction in the same treatment basin or in a separate anaerobic digester. The $\text{NO}_3\text{-N}$ measurement can optimize the methanol being fed to the digester, minimizing cost, and also provides a trend of the total nitrogen (TN) in the effluent.

The **Nitrate Ion Electrode** provides the primary measurement. A second electrode measures the Chloride ions in the sample. The chloride ion due to its similar size and charge to the nitrate ion, cause a positive interference in the measurement. The Chloride Ion Electrode measures the amount of chloride ion present in the sample and HYDRA C22 Analyzer subtracts the appropriate amount of signal from the Nitrate Measurement.



The rugged **HYDRA-NO3** sensor has a 1 1/4" NPT rear facing thread for attaching an extension/ immersion tube for easy installation from catwalks or handrails. The HYDRA-NO3 sensor is submersible with an IP68 degree of ingress protection. A removable electrode guard facilitates easy electrode replacement when necessary. The HYDRA-NO3 sensor features internal signal conditioning that allows the sensor to be mounted up to 200 meters from the analyzer.

The **HYDRA Nitrate Analyzer** displays all measurements on the Home Screen. Provides (2) 4-20 mA outputs and two Alarm Relays. It is configured to periodically actuate a cleaning cycle using the integral spray cleaner in the sensor. This minimizes the formation of biofilms and other coatings on the electrodes, keeping maintenance to a minimum. The period and duration of the cleaning cycle is user configurable. The 4-20 mA output is held at either the last value or a preset value during the cleaning.

www.ecdi.com/products/hydra_analyzers.html



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The **New** CDA-22 Chlorine Dioxide Analyzer added to the family of ECD Analyzers - drinking water, rinse water, cooling water, & fresh water applications

The **CDA-22** is a panel mounted, ready to use Chlorine Dioxide Analyzer. It is designed to monitor chlorine dioxide in drinking water, rinse water, cooling water or other fresh water samples from 0.05 – 20 ppm ClO₂. The CDA-22 features a plug and play design that incorporates a flow control device, a chlorine dioxide sensor and the C22 analyzer/controller conveniently mounted on a PVC panel. Connect the sample and drain lines, connect the power and outputs and it is ready to use. Calibration is accomplished by DPD comparison.

Chlorine Dioxide (ClO₂) exists as a gas in solution, it does not dissolved like other chlorine compounds and is therefore not affected by the pH of the solution. ClO₂ is approximately 10 times more soluble than chlorine in water but it is extremely volatile and can be easily removed from dilute aqueous solutions with minimal aeration. Chlorine Dioxide diffuses through the PTFE membrane of the sensor and is reduced to chloride ion by the addition of electrons from the cathode. Silver from the anode is then oxidized to silver chloride. The electrons released from the gold



cathode and the electrons accepted on the silver anode result in a current flow which is proportional to the chlorine dioxide concentration in the medium. **Temperature** affects the ClO₂ permeability membrane, increasing the temperature increases the output of the sensor about 4%/°C. The chlorine flow cell includes a temperature sensor that allows the C22 analyzer to perform automatic temperature compensation of the measurement. **Amperometric chlorine sensors** are flow sensitive, the minimum required flow by the sensor is 0.5 ft/sec, above this value the output is virtually flow independent. A “Constant head” Flow control Device (CFD) maintains the optimum flow by the sensor over a wide range of incoming sample flow rates. The minimum flow required for the CFD is 10 gal/hr and the maximum flow is 80 gal/hr with the sample going to drain at atmospheric pressure.

http://www.ecdi.com/products/chlorine_analyzers.html

ECD product specifications are available as “downloadable” Word Documents On the ECD website

ECD product specifications are now available as “downloadable” word document files. To access, go to the ECD website (www.ecdi.com) click on the products menu and select a product family. When this page is opened there will be a “Support Menu” on the right side with “Engineering Specification” listed. Click on this link to access the specifications.

As an example,

[click here](#)

to access the engineering specification link.



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