

Case Studies (ISE)

Sensor Case Studies – Ion Selective Process Measurement & Control Systems



Case Study #6 pH & Fluoride Measurement in Acid Etching

A system to determine and control the acid etching strength of a given process solution

- High HF and High Acid (Low pH) resistant pH and Fluoride Element
- Custom Engineered reference system for acid etching media
- Menu driven Ion Selective Industrial transmitter and controller for ion sensor calibration and process control outputs and alarms (all values controlled in ppm)

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Case Study # 7 **Total Ammonia Monitoring**

Total Ammonia Determination through online ammonium ion and pH monitoring

- Industrial grade ammonium ion selective membrane and application engineered solid state conductive polymer reference can withstand the rigors of industrial process lines
- Ammonium calibration system has been optimized to yield reproducible results in a variety of wastewater systems
- Ammonia gas resistant pH sensor delivers the accuracy needed for total ammonia computation via a PLC or DCS from the ammonium ion and pH input values

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Case Study # 8 **Total Cyanide Monitoring**

Rugged pH and Cyanide Ion Selective Mining Sensors for Gold Leach Applications

- Cyanide Sensor has been engineered for gold mining to optimized stability and lifetime
- Custom pH sensor with solid state triple junction reference system and thick wall rugged pH glass element can withstand continuous use in agitated slurries
- Unique Dual Channel pH/CN- Analyzer and automatically output total (pH compensated) cyanide using only a pH and cyanide ion selective sensor

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Case Study #13

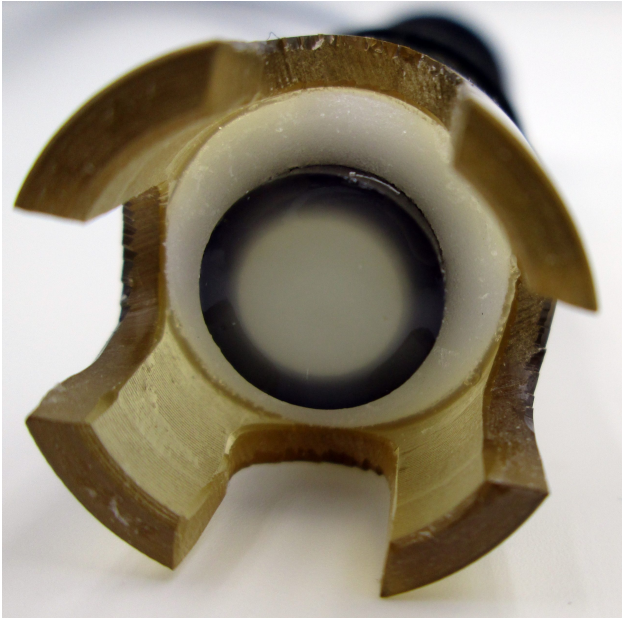
Fluoride Ion Monitoring

Online Fluoride Ion Monitoring for Water Districts and other Water Authorities

- Simple to use inline fluoride ion monitoring system operates just as easily as any inline low flow pH system
- Reliable menu driven Industrial Ion Selective Analyzer calibrates, displays, outputs and controls all in fluoride ppm units
- Inline fluoride ion sensor is completely sealed from both sides and requires no chemical addition – unlike many popular competing sampling fluoride analyzers

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Case Study #15

Water Softener Analysis

Inline Calcium (Ca^{++}) Ion Analysis

Before and After Water Softener to determine Water Quality Feed to Boilers

- Industrial grade calcium ion selective membrane and application engineered solid state conductive polymer reference can withstand the rigors of industrial process lines
- Calcium calibration system has been optimized to yield reproducible results in a variety of boiler water systems

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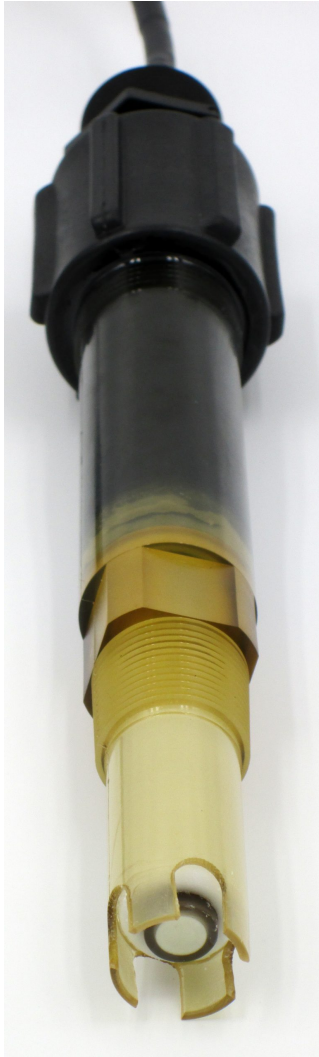


Case Study #17 Ammonia and Nitrate Measurement in Municipal Wastewater Applications

Advantages of the Advanced Sensor Technology real-time continuous online measurement systems for ammonia and nitrate

- Low Initial Procurement Cost compared to competing technologies and offerings
- No need for chemical feed and rebuilding of sensors
- Lower Cost of Ownership due to very long sensor lifetime, low maintenance & cleaning requirements for inline, immersion & submersion ion selective sensors
- Intuitive and easy to use Rosemount 1056 and 1057 analyzer programmed and configured for ammonia and nitrate ion selective analysis
- All new systems come preconfigured, precalibrated and fully qualified to install, plug-in and immediately place into service especially for compliance purposes
- Only periodic 1-point grab sample offsetting is required – this “Standardize” calibration can be performed WITHOUT removing sensor from service!

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Case Study #18
Free Ammonia NH₃-N (Total Nitrogen)
Measurement in Municipal Water Districts

Real-time continuous online measurement system for ammonia

- Low Initial Procurement Cost compared to competing technologies and offerings
- No need for chemical feed and rebuilding of sensors
- Lower Cost of Ownership due to very long sensor lifetime, low maintenance & cleaning requirements for inline, immersion & submersion ion selective sensors
- Intuitive and easy to use Rosemount 1056 and 1057 analyzer programmed and configured for ammonia and nitrate ion selective analysis
- All new systems come preconfigured, precalibrated and fully qualified to install, plug-in and immediately place into service especially for compliance purposes
- Only periodic 1-point grab sample offsetting is required – this “Standardize”

calibration can be performed WITHOUT removing sensor from service!

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Case Study # 19

Ammonia Sensor and Nitrate Sensor with Significantly Improved. Selectivity Over Respective Interfering Ions Potassium & Chloride

Ammonia Sensor and Nitrate Sensor with Significantly Improved Selectivity Over Respective Interfering Ions Potassium & Chloride

- Capability to measure below 1ppm ammonium (total ammonia or $\text{NH}_3\text{-N}$) in presence of common levels of potassium for secondary WWTP
- Capability to measure nitrate ($\text{NO}_3\text{-N}$) even in the presence of high levels of chloride or nitrite ions without loss of linearity or stability
- Ammonia and nitrate measurements can be performed using just one analyzer
- Support for dual ammonia/ammonia, nitrate/nitrate configurations and ammonium/nitrate configurations to minimize cost per channel as well as triple channel ISE, pH and ORP measurement configurations
- No potassium ion “compensation” required for ammonium ion selective sensors and no chloride ion “compensation” required for nitrate ion selective sensors for most common WWTP applications, due to substantial improvements using novel proprietary technology developed from ASTI research and extensive field trials to ensure performance in actual measurement conditions of interest

- Support for dual ammonium/pH systems to determine total ammonia at any given pH for any given temperature within the permissible range

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Case Study # 21
Total Fluoride Measurement Systems for HF
Acid/Etching & Wastewater Treatment Systems

AB 6100 Fluoride Ion Selective Sensor for High HF & Low pH Service – THE ONLY FLUORIDE SENSOR CAN BE USED CONTINUOUSLY IN STRONG ACID ENVIRONMENTS AND UNDERGO STRONG ACID CLEANING

PNHF 6431 pH Sensor for High HF & Low pH Service – THE MOST HIGH HF RESISTANT pH SENSOR AVAILABLE ON THE MARKET

Dual Channel 56 Analyzer, Transmitter & Controller that computes the Total Fluoride from Fluoride ISE & pH sensor inputs

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