

**Maintain Safety, Increase Plant Uptime
and Reduce Your Maintenance Costs**



Corrosive Application Solutions

Proven automation solutions and local expertise to help you overcome your toughest challenges.





Various sections of a plant can have different corrosion challenges depending on material and process.

Safe and certain measurement is critical for corrosive application

Corrosive fluids, like acids and bases, are used to manufacture many products that consumers use on a daily basis. They are expensive to handle and control, and can account for millions of dollars of operation expenses due to lost production and maintenance spend associated with repairing or replacing damaged equipment. Additionally, sending workers out to the field to troubleshoot can be expensive and poses a potential safety risk. All this doesn't take into account the ramifications of an accidental release of acid in the plant, and the environmental costs associated with cleaning up the spill.

“Safety cannot be compromised. How do I keep my crew safe and limit their exposure in the field?”



“I don't have time to troubleshoot each piece of equipment, let alone re-calibrate equipment that is working correctly.”



“My process is always changing. I have to reprocess product because the concentration has changed mid-batch. I need more insight into what is going on!”



What if you could...

Emerson Automation Solutions offers the largest portfolio of flow products to meet the installation needs for corrosive applications. Multiple wetted materials including tantalum, alloy C22, and platinum are available across the flow portfolio to handle even the most corrosive fluids. Emerson has more than 35 years experience and hundreds of thousands of successful installations in corrosive applications. Additionally, advanced diagnostics are offered that will ensure equipment is operating safely and correctly.



Maintain Safety

- Remotely monitor and troubleshoot equipment from the control room to keep workers out of the field
- Intuitive transmitters provide quick and easy troubleshooting if a field visit is needed
- Predict potential equipment damage before there is a breach in the process



Increase Plant Uptime

- Smart Meter Verification helps track meter health to ensure the measurement accuracy has not deviated from its original factory condition
- Wide variety of complementary, unique and well proven corrosion monitoring technologies provides proper corrosion insight to maximize availability and production
- Eliminate manual samples with an accurate flow and concentration measurement



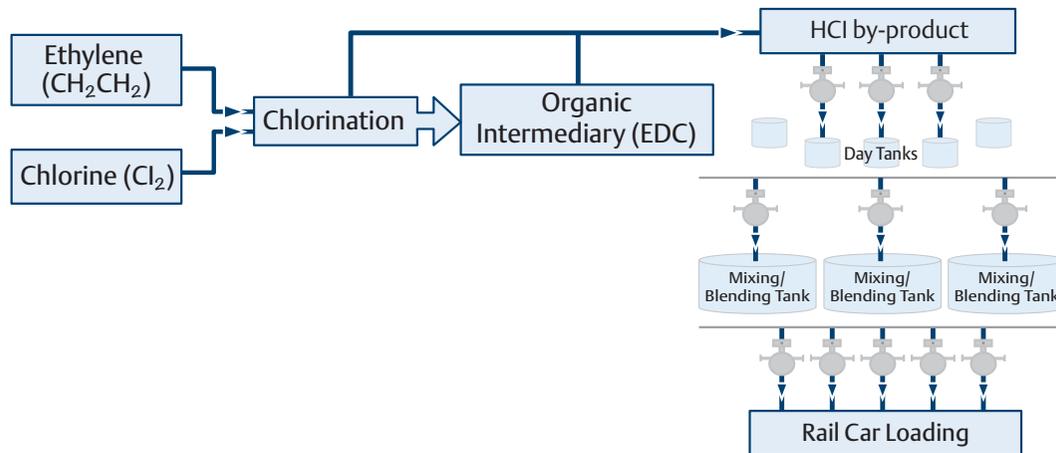
Reduce Maintenance

- Emerson Coriolis, magnetic and vortex products have no moving parts to wear out over time
- Smart Meter Verification helps extend or eliminate meter calibrations
- Real-time corrosion data delivery allows proactive maintenance planning

A trusted Partner to tailor solutions for your toughest production challenges

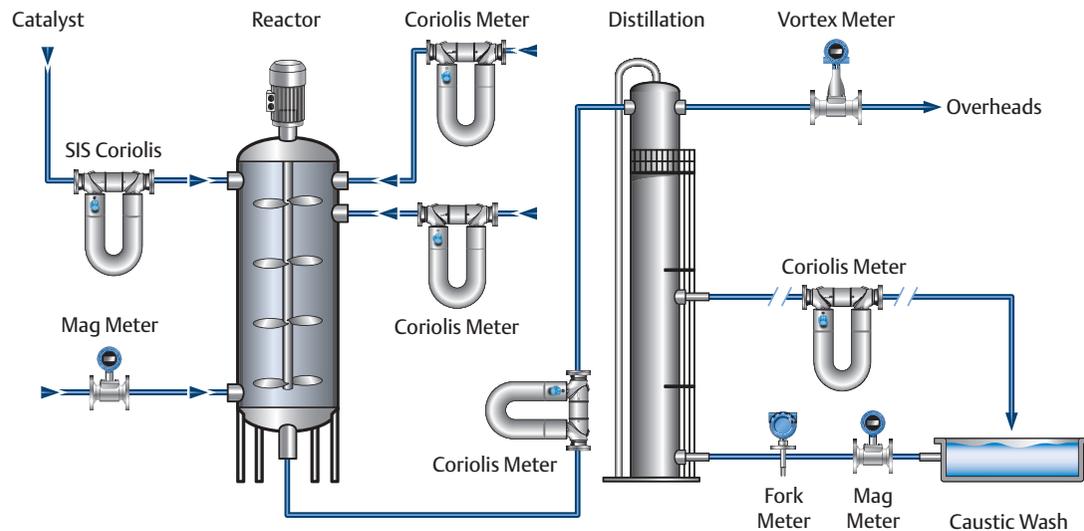
Chemical

- Product Quality and Process Control**
 Optimize cycle time while minimizing energy usage in condensers, contactors and reactors
- Blending and Concentration Control**
 Reduce waste and rework with optimal fluid quality measurement while blending acids and bases to the targeted concentration



Refining, Chemical & Petrochemical

- Product Detection and Quality**
 Optimize product uniformity and consistency while minimizing manual sampling
- Product Blending**
 Minimize cutter-stock costs for accurate multi-grade Heavy Fuel Oil (HFO) production





Emerson covers a breadth of corrosive fluids to meet the needs of your most difficult acid applications.

Technology Expertise Emerson consultants are here to help you select the right solution to handle your toughest applications.

Corrosion Monitoring Various technologies provide different timelines for alerts which allows a more precise mitigation plan. It improves understanding, confidence and allows different focus depending on the criticality of the location.

Advanced Diagnostics Use Smart Meter Verification to monitor corrosion levels, verify your instrumentation is not compromised, and ensure your equipment is working in its original factory condition.

Application Experience Thousands of Emerson flow meters are installed every year in difficult acid applications.

Commonly Measured Fluids

Acetic	Hypochlorous Acid
Ammonium Fluoride	Nitric Acid
Black Liquor	Potassium Hydroxide
Bleach	Phosphoric Acid
Boric Acid	Potassium Chloride
Bromine	Potassium Hydroxide
Caustic	Phosphoric Acid
Chlorine	Propionic Acid
Formic Acid	Sodium Hydroxide
Hydrobromic Acid	Sodium Chloride
Hydrogen Sulfide	Sulfuric Acid
Hydrochloric Acid	Urea
Hydrofluoric Acid	

Improve the Process

Controlling your process and process changes is key to optimize your production.

- Real-time data on process corrosivity and inhibitor density will bring a complete analysis to optimize your chemical effectiveness
- Early signal of presence of water will allow a more precise mitigation plan and will reduce shutdown risks
- Best-in-class technologies connected to your host system and historian, or visualized through Emerson's visualization tools, will provide unique input to take corrective actions, determine inspection routines, schedule, and identify critical corrosive location

Process Monitoring



Blending/Batching/ Dilution



Loading/Unloading/ Fiscal Transfer



Performance



Lifecycle Service

Startup & Commissioning Ensure a safe, timely startup of your plant or process

Calibration & Verification Certify that your devices are meeting performance and safety standards

Site Evaluation & Walk Down Assess the reliability, security and performance of your automation assets

Safety System Assess the performance of your safety instrumented systems

Technical Support Keeping your plant operating 24 hours a day, 365 days a year

Advanced Repair & Replace Providing repair or replacement of assets to downtime

Improvement & Optimization Get more out of your systems by increasing efficiency, maximizing uptime, and reducing risk

Scheduled Onsite Services Ensuring that your maintenance need are on a scheduled basis

Featured Corrosive Solutions

Micro Motion Coriolis Flow Meters



- A true multivariable device that provides an accurate mass flow, volume flow, density and temperature from a single device
- Coriolis meters have no moving parts which means little to no maintenance
- Available in 316L, 304L, Alloy C22, Tefzel, Titanium, Super Duplex and Tantalum
- Mass flow accuracy up to 0.05% of rate
- Density/Concentration accuracy up to 0.0002 g/cc

Micro Motion Fork Density Meters



- Ability to monitor and control the concentration of your acid streams with a high degree of accuracy
- Suitable for a wide range of line sizes, installation types, and available in multiple materials of construction to withstand a breadth of demanding process fluids
- Available in 316L, Alloy C22, Titanium, and Zirconium
- Density accuracy up to 0.001 g/cc

Rosemount Magnetic Flow Meters



- An accurate volumetric flow meter available in a wide range of line sizes
- Magnetic flow meters have no moving parts and require little to no maintenance to handle the most difficult of applications
- Volume accuracy up to 0.15%
- Available with PTFE, ETFE, and PFA liners and 316L, Alloy C-276, Platinum, Titanium, and Tantalum electrodes

Rosemount Vortex Flow Meters



- A great solution for critical gas and liquid flow measurements
- Vortex flow meters have no moving parts and provide an added level of safety in critical applications with aggressive fluids
- Available in 316L, Alloy C22, Duplex and Tantalum
- Volume accuracy up to 0.65%

Roxar & Permasense Corrosion Monitoring Instruments



- Roxar Electrical Resistance (ER) probes and Electrochemical (LPR) probes provide highest sensitivity and fastest response time for process fluid monitoring
- Roxar FSM Log provides general & localized corrosion monitoring of critical areas such as underground pipelines or high temp pipes
- Permasense UT sensors provides continuous wall thickness measurement ideally suited for real time information on your pipe health

Smart Meter Verification



- Delivers complete measurement confidence with a diagnostic tool, reporting total Coriolis meter's health without interrupting your process
- Provides actionable remedies to process instrumentation challenges - reducing downtime, lengthening proving cycles, and increasing operational certainty



For more information, visit Emerson.com

Get started



Emerson Automation Solutions delivers time-tested and innovative solutions designed to help you improve your operation's overall corrosive service needs. Contact us now for world-class technologies, and services that can maximize your operations. Getting started is easy. [Visit Emerson.com](http://www.Emerson.com)

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