



“It’s challenging to uphold my environmental, safety, and social responsibilities.”

During the past 15 years, the U.S. petroleum refining industry has had more fatal or catastrophic incidents related to the release of highly hazardous chemicals than any other industry sector.

Letter to Refinery Managers, Richard E. Fairfax, Director, Directorate of Enforcement Programs, U.S. Department of Labor, 2009 http://www.osha.gov/dep/neps/refinery_nep_ltr_final.html

What if...

- You could reduce manual sampling and continuously monitor process conditions?
- You could achieve optimum blend ratios while having high confidence you remain within environmental regulations?
- You could streamline and automate your monitoring and record keeping processes?

How do you ensure employee safety and regulations compliance across your site?

Meeting your environmental, health, and safety obligations is vital to your success. You strive to operate responsibly, but maintaining this level of responsibility in the face of constantly changing global environmental regulations and the everyday hazards inherent in the petroleum industry is more difficult than ever. Social media, smartphones, and the 24-hour news cycle have intensified the scrutiny you are under. Everything you do is public—and you’re accountable. To meet this challenge, you need to navigate an increasingly complex regulatory environment while minimizing the risk to your employees, your company, and the community at large.

Refinery managers we talk to tell us about challenges like these:

“My employees work in hazardous environments, and I need to minimize their risk of exposure.”

Every day, your employees face multiple risks- overfills, leaks, exposure to hazardous process fluids, even explosions. One of your top priorities is minimizing these risks and keeping every worker safe. However, manual sampling and equipment check procedures can expose refinery personnel to hazardous conditions. Even with safety measures in place, there is still room for improvement.

“Environmental regulations are changing and becoming ever more restrictive, and compliance is cumbersome.”

Regulation compliance touches almost every part of your business, from monitoring and reporting Greenhouse Gas emissions, to meeting clean fuels requirements, to achieving optimum product blend ratios. And regulations are becoming tighter and tighter. Not only do you need to ensure you meet these increasingly restrictive regulations, but you must also comply with the reporting guidelines. This can be difficult and time consuming, a real burden on your business.

KEEP EMPLOYEES OUT OF THE FIELD

Many processes call for manual sampling of process streams, exposing employees to process fluids and providing an opportunity for a leak if valves are not properly closed after the sample is taken. In addition, samples are frequently taken once per shift, which can cause panic and over-compensation if a result is atypical. Micro Motion Coriolis meters have both flow and density outputs, and the density can be used as a quality check. Because the density output is continuous, atypical measurements are immediately recognized as either outliers or trends, allowing for gradual changes in flow control and more steady operations. Density can be output in degrees API for crude inflow measurement, or correlated to sulfuric acid strength for interstage acid measurement in the alkylation unit. At these and many other process measurement points, manual sampling can be reduced or supplemented with online density measurement, keeping refinery personnel in a safe working environment.



A refinery installed Micro Motion Coriolis meters on the sulfuric acid lines in an alkylation unit to infer acid strength. This provided real-time continuous acid strength data, an improvement on the prior 8-hour time lag between sample analyses, to ensure proper acid strength at every stage in the unit. This safeguards against acid runaway.

STAY IN COMPLIANCE

Clean fuels requirements place increased importance on hydrotreating and management of your hydrogen molecules. Micro Motion Coriolis meters accurately measure gases, even hydrogen, through a wide range of flows. Achieving the correct hydrogen to sulfur ratio across the flow range ensures impurity removal, and meeting sulfur content requirements.

When product specifications for gasoline and diesel are not met, the blends are either downgraded or reworked. Downgrading results in lost profit from product giveaway, while reworking a blend in the final tank costs time and money. Turbine meters are historically used in component measurement, but they lose their accuracy over time, causing off-spec product. Micro Motion Coriolis meters have sustained accuracy, so blends are optimized and on-spec, every time.

KNOW YOU'RE OPERATING ACCORDING TO REPORTING REQUIREMENTS

Emissions requirements are getting more stringent. This includes the actual reporting as well as documentation on measurement technology accuracy. Micro Motion Coriolis meters with in-situ Smart Meter Verification provide an immediate alarm if the meter has shifted from the factory calibration. Either on-demand or scheduled testing provides this alert well in advance of the typical yearly verification cycle. This streamlines your reporting reducing your compliance costs, and giving you confidence in your equipment health and reporting.

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