

Meet EMACT Requirements with Siemens Analytical Product Solutions

Environmental regulations for flare emissions have become more stringent with the EPA recently releasing new Ethylene MACT (EMACT) and Miscellaneous Organic Chemical Manufacturing NESHAP (MON) regulations. These regulations target the reduction of flare emissions for many chemical and petrochemical plants with the final compliance date of mid-2023 for many plants. An important part of these regulations is the requirement to insure sufficient combustion of any organics in the flare gas. Therefore, a key compliance requirement for the affected flares is the need to confirm a minimum BTU is available in the gas being burned by the flare. But due to the dynamic range of components, fast and reliable measurement of the BTU can be a challenge.

Siemens Analytical Products and Solutions has installed hundreds of environmental monitoring systems on flares across the US for EPA compliance monitoring. Complete solutions are available to meet the specific requirements of the flare monitoring compliance. Typical features include:

- Custom engineered analytical compliance solutions
- Fast 120 second BTU analysis with optional calorimeter integration
- Speciation of Hydrogen for improved BTU compliance calculations
- Speciation of Nitrogen for flare gas density updates to ultrasonic flow meters
- Proven sample system designs for maximum measurement availability

Complete total solution system integration is available to address all aspects of the project are designed to work together. From sample extraction, transport, and conditioning to the packaging in a shelter or cabinet, all aspects are available from Siemens. This single-source responsibility ensures seamless project execution and start-up.

Siemens also offers a range of front engineering services as well as startup commissioning, training and repair service to afford worry-free operation.



Maxum GC for reliable detailed analysis

Reliable and precise measurement of the gas stream entering a flare can be challenging due to the unpredictable stream composition. But the Maxum GC has proven solutions to handle the wide measurement ranges typically seen in flare gas. In addition to updating the BTU value of the gas, the Maxum GC provides concentration information for individual compounds in the stream. This stream composition detail can assist in identifying the sources of the flare gas for improved operational efficiency.

If hydrogen has a possibility to be in the flare gas, using the actual hydrogen concentration for the BTU calculations is often more beneficial than using the default value in determining compliance with the minimum BTU requirements. And if nitrogen has a possibility to be in the flare gas, the concentration of nitrogen can be sent to ultrasonic flow meters for gas density calculation updates.

For applications where faster updates of the BTU are needed, the Maxum GC is often paired with a reliable calorimeter. This provides the best of both worlds with detailed component information along with fast BTU updates. The Maxum GC also avoids some reliability issues of calorimeters when samples contain corrosives or hydrocarbon mists. Flare applications can be particularly difficult to analytically monitor due to the possibility of entrained mists, particulates and possible corrosive compounds. Siemens has proven sample extraction and conditioning solutions for reliable and minimal maintenance operation. Designs are available to automate system calibration and validation as well as blow back systems if needed. The sample system can also be equipped with Smart Sample System sensors for continuous monitoring of sample pressure, temperature, and flow. Siemens also has full system integration capability to provide a complete design from sample extraction, sample conditioning and sample disposal. System integration designs are available from small cabinets to walk-in shelters complete with HVAC and safety systems. Siemens is also experienced in providing secure communication of the measurement results to the plant's Data Acquisition or DCS system.

Project execution is important for any process monitoring project, but it is particularly critical for measurements mandated for compliance monitoring. To help ensure seamless project execution, Siemens has the capability of providing complete project execution, taking responsibility for every step – from conception to commissioning – and eliminating the coordination and communication aggravations of dealing with multiple suppliers.



Worry-free project execution

An experienced Siemens project manager is assigned to each project and acts as the single point of communications and responsibility. A project manager oversees a team of experienced project engineers, designers, and analytical instrumentation specialists. This team creates a blend of process analytics and process plant experience providing a support team that evaluates the project from customer's point of view.

The entire project – analyzers, sample systems, shelters, subsystems, third-party equipment, and presentation of the data – is handled by the project manager through to its successful completion. The project manager then works with Siemens Customer Service for the field started-up and commissioning phase.



Comprehensive Customer Service Support

The Siemens AP Houston facility is staffed and equipped to provide support for all aspects of service support. The facility also has dedicated training facilities and spare part inventories as well as 24-hour phone technical support available at no charge.

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