

Shell Dansk uses Micro Motion 3098 Specific Gravity meter to monitor CO₂ emissions

RESULTS

- Enabled calculation of CO₂ emissions in-line with EU directive
- Accurate emissions measurement improved CO₂ quota taxing
- Sample Conditioning System provided convenient solution
- Dual redundancy for increased reliability



APPLICATION

The Shell refinery at Fredericia Denmark takes in crude oil from North Sea platforms and produces Jet fuel, fuel oil, petrol, gas oil & LPG. The refinery processes approximately 10,000 tons of crude oil per day. Fuel gases are created as by-products which are then used to fire combustion furnaces within the refinery.

CHALLENGE

When fuel gases are burned they emit CO₂. European Union (EU) directives allow some emissions, but if a predefined level is exceeded a refinery must buy CO₂ quotas. An accurate measurement of a fuel gas's specific gravity is necessary in order to understand the CO₂ emissions. Only then can a refinery start to control emissions and reduce the need for costly CO₂ quotas. Shell Dansk were measuring line density, pressure and temperature in order to calculate energy and CO₂. This gave unnecessary complexity and greater opportunity for introducing errors. Shell needed a more direct means of measuring gas quality to derive energy and CO₂ emissions for tax purposes. A more accurate measurement would also enable them to better control the combustion process.

SOLUTION

Due to good experiences in the past with Micro Motion®, Shell Dansk approached Emerson for a solution. Shell chose to install a Micro Motion 3098 Specific Gravity meter with an integral Sample Conditioning System. This system pre-conditions the fuel gas to be measured so that its flow rate, pressure and temperature are controlled and particulates are filtered out. The meter is highly accurate and reacts faster than alternative technologies. This measurement was evaluated by Shell as being critical to their refining process, and as a result the company chose to install two systems operating side-by-side to provide dual redundancy.

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Micro Motion 3098 Specific Gravity Analyzer and Integral Sample Conditioning System



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