



## SHELL DANSK USES MICRO MOTION SPECIFIC GRAVITY METER TO MONITOR CO2 EMISSIONS



Micro Motion Specific Gravity Meter with Sample Conditioning System

### 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 therefore 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 processes.



### Solution

Due to good experiences in the past with Micro Motion, Shell Dansk approached Micro Motion for a solution. Shell chose to install a Micro Motion Gas 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 chose to install two systems operating side-by-side to provide dual redundancy.