LARGEST PETROCHEMICAL COMPLEX IN CHINA CHOOSES ROSEMOUNT OCX88C COMBUSTION ANALYZERS TO MANAGE ENERGY EFFICIENCY

Customer

One of the largest petrochemical complex in China wanted to significantly reduce energy costs. They chose to use Rosemount™ OCX88C, a combined O_2 and COe measurement combustion analyzer.

Application

To improve plant energy efficiency by measurement of excess oxygen (O_2) and combustibles (COe) from combustion processes.

Challenge

A typical industrial plant spends up to 50% of its budget on energy, and being a mega petrochemical complex, our customer's key priority is to manage its energy bills consistently.

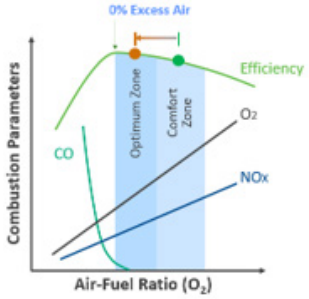
Further, with over 60% of greenhouse gas emissions from a refinery emitted from combustion processes and around 60 –70% of fuel used by heaters.

Traditional oxygen measurements alone are not sufficient to maximize energy efficiency. COe measurements are needed for process optimization by helping operators reduce excess air from comfort zone into the optimal zone.

However, our customer had past experiences of getting unreliable and poor repeatability performance of COe measurement from other suppliers, and they needed a more reliable and consistent analyzer to help them make key operating decisions without jeopardizing safety and quality results. Operating in high O_2 conditions was the only way, but the energy costs were extremely high, and it also led to high NOx emissions, both of which are not sustainable.

Results

- Customer saves $20K per annum per process heater.
- Customer has found a reliable COe measurement solution in Rosemount OCX88C.
- Customer is now certain it is operating at an optimal excess 0_2 range.
- Customer is able to fine tune air intake for its heaters by monitoring excess O_2 and COe measurements in the Rosemount OCX88C.
- With less fuel required, and subsequently less NOx emissions, ZPC is able operate more sustainably.



Figure/Table/Image #. *Combustibles (COe) Measurement Is Essential For Safety Monitoring And Managing Energy Costs*

EMERSON™

LARGEST PETROCHEMICAL COMPLEX IN CHINA CHOOSES ROSEMOUNT OCX88C COMBUSTION ANALYZERS TO MANAGE ENERGY EFFICIENCY

Solution

Knowing that the Rosemount OCX88C has a reliable reputation of O_2 and COe measurements, Emerson China strongly pursued this project starting in 2017, and helped installed over 300 units of OCX88C in the site from 2018 till now.

In 2022, Emerson then supported this customer with energy efficiency studies on using COe measurements to reduce cut energy bills. The goal was to find the range of COe range that was acceptable to operate at a consistent minimal excess O2 level.

During the evaluation, the team managed to test various scenarios and variables, and managed to benchmark an acceptable and consistent range of 2,000 to 5,000 ppm of COe at excess O2 levels to between 1% and 1.5%.

With this benchmark, the operations team is now able to adjust the amount of air intake knowing that between of range of 2,000 to 5,000ppm COe, the plant is operating at optimal excess O_2 levels.

For maximum efficiency, it is important that the correct balance of fuel and combustion air is achieved. With reduced requirement of air intake, less fuel is need for combustion. Our customer estimated a cost-saving of about $20K per annum per process heater with this new approach.

Less hydrocarbon fuels and with less NOx emissions, this approach is not only a great win for cost-savings, but overall, a great sustainability solution for our customer.

> *With the help of OCX8800, there is over $20K of fuel cost saving annually per heater.*
>
> *Executive Equipment Director*
>
> *The O_2 level in CDU heaters was reduced from 2.2% to 1.2% and from 2.0% to 1.5% in VDU heaters after OCX88C tested, all other heaters and furnaces could be adjusted based on the experience got by testing.*
>
> *Chief instrument operation manager*

For more information,visit
Emerson.com/RosemountProductPage

00830-0100-4880 Rev AA

ROSEMOUNT™

EMERSON™