Oxygen measurement in an inertisation plant

Memosens COS81D increases process safety and reduces costs

Michael De Backer

Scrubber at the Proviron plant in Oostende, Belgium

The Belgian chemical company Proviron relies on Memosens COS81D in order to measure dissolved oxygen in its inertisation plant. Reliable measured values in very low measuring ranges are crucial in this application as the presence of oxygen in the scrubber poses potential of explosion.

The results

- Calibration is effortless and only required once a year
- 2000 € cost savings per year thanks to low maintenance requirements
- Accurate and reliable measured values also in very low measuring ranges
- Space saving installation

Customer challenge

The oxygen measuring points are placed in an explosive environment with harsh measuring conditions, where temperature is only -7 °C and vacuum is applied. The measured waste gas contains a high amount of hydrogen sulfide, nitrogen, ethanol as well as residual chemicals that weren't converted in the chemical production process and therefore need to be stripped in the following scrubber. Due to safety regulations it must be ensured that the oxygen content of the waste gas is about 0-2% before it enters the scrubber. This requires reliable and stable measured values at very low oxygen contents.

Our solution

Proviron was looking for an alternative solution to renew the obsolete analyzer measuring unit they used before. Costs for the replacement by an optical oxygen sensor Memosens COS81D from Endress+Hauser are a third compared to the previous magnetic measuring unit. The components of the measuring point are:

- Dissolved oxygen sensors: 2x Memosens COS81D-BAA2UB13
- Transmitters: 2x Liquiline CM42-OEB000EAN00
- Retractable Cleanfit assembly: CPA450-2I216

proviron
chemistry between us

Proviron produces chemicals mainly for medium volume niche markets. They have 22 production units in three manufacturing plants, situated in Belgium and the US. Their chemicals are building blocks to a host of downstream products. Proviron offers sustainable solutions for polymers, waterbased paints and glues, feed, braking systems, de-icers, and lots more.

"Thanks to the oxygen measurement with Memosens COS81D we save 2000 € maintenance costs per year"

Michael De Backer
Proviron Functional Chemicals,
Oostende,
Belgium.

Endress+Hauser
People for Process Automation

COS81D in hazardous areas

At the Proviron plant explosion risk is very high due to the chemicals used for production. Therefore, all installed electrical equipment has to be certified regarding to ATEX directives.

The dissolved oxygen sensor Memosens COS81D is available with ATEX and IECEx certification.

The measuring point works well for the desired performance range. With the ATEX certification of the sensor, it meets the necessary requirements for process conditions in hazardous environments. In combination with the Liquiline CM42 transmitter and the retractable assembly Cleanfit CPA450, reliable and accurate inline measurement is ensured.

Benefits

The previously used measuring system with magnetic measuring principle and sampling and conditioning system was prone to errors and required frequent and expensive maintenance and frequent calibration by a specialized company. Due to the separate arrangement, the transport of the process gas to the measuring system wasn't safe. In addition, the several instruments such as filters, vacuum pump and analyzer were very space consuming.
The two oxygen measuring points with Memosens COS81D are quite different: They have been running precisely, reliably and without problems for already more than two years now. Calibration is now only required annually. And last but not least, maintenance costs for the low maintenance inline measurements of COS81D are less than half as high as before.

Oxygen measuring point with Memosens COS81D

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