

Why Gas Quality Matters

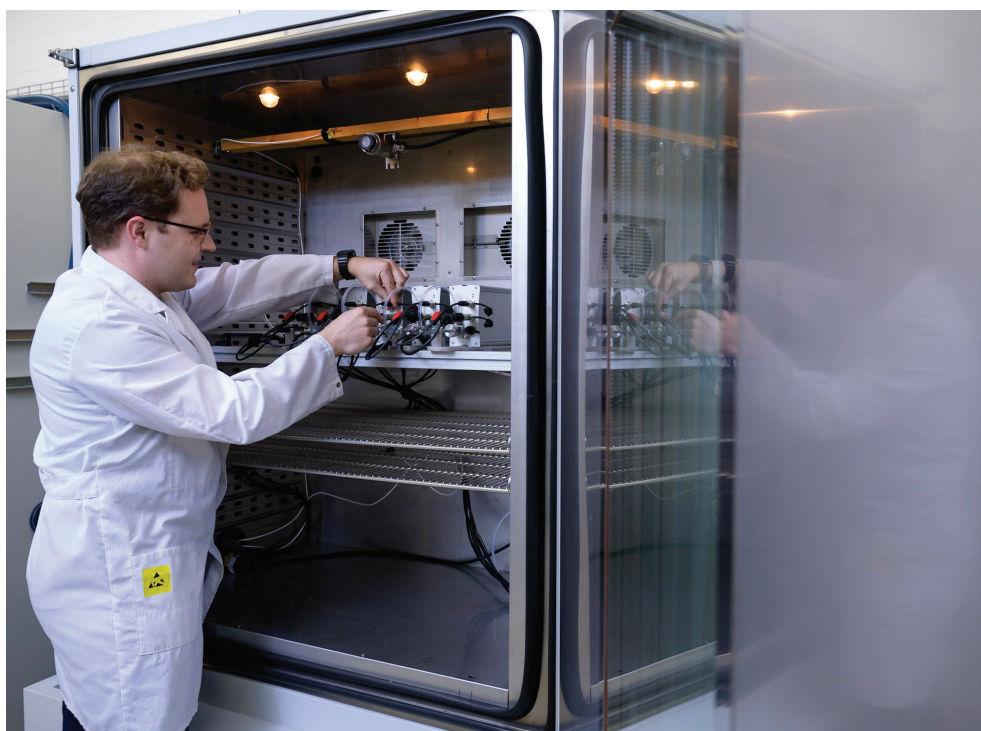
OGI sits down with Dr. Philippe Prêtre, CTO of Mems AG, to learn more about the work they do with gas measurement technology. Dr. Prêtre is here to help us understand a bit more about gases, and why gas quality matters. For example, they help companies in the oil and gas industry with “Gas Sensing” which monitors gas concentrations, that can reach dangerous levels. Mems AG are experts in the field and offer quality meters which are basically maintenance free, plus technical support and after care for their customers. We learn more below.

OGI: Could you start by explaining Mems AG's credentials and experience in terms of your products and services for the oil and gas sector? Could you tell our readers the breadth of your experience, how long the company has been active, and its reach?

Pretre: Mems AG - that means almost 20 years of experience and projects in gas measurement technology and electronics. Mems AG regularly works on behalf of ABB for projects in the field of subsea equipment (power electronics). In the field of “gas sensing” we are often asked about safety related aspects of the oil & gas industry (tightness of gas pipeline flanges, reaching dangerous gas concentrations in the environment). When using mine gas, associated petroleum gas or the like gases, our gas quality measuring instruments are in demand, because our gasQS technology is one of the only ones best suited for the measuring task for such gases.

OGI: Could you explain to our readers the different types of gases which are in use today?

Pretre: Conventional natural gas from reservoirs with moderate to high permeability for gas still accounts for the majority of global gas consumption. Unconventional natural gas comes from deposits with low permeability (shale gas, tight gas, coalbed methane (CMB)), which is more expensive to extract than conventional natural gas. In the past, natural gas for local consumers usually came from the same source (e.g., the North Sea), but natural gas is increasingly being transported in liquid form (LNG) across the globe, so that the origin of the gas on site can no longer be from just one source. In the pathway of decarbonization of fuels, gas from renewable sources will play a major role. Biogas produced from organic material (food waste, wastewater, renewable raw materials), as well as hydrogen produced from surplus electricity or methane produced from it together with carbon dioxide, will be found more and more in



Calibration at Mems.



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the already existing gas distribution networks as well as in new ones built especially for these gases.

OGI: Could you talk a bit about gas quality and why it's important?

Pretre: Due to the possible origins of the gas shown in the last question, its composition is also different. However, different composition also means different gas quality in terms of energy content, combustion and exhaust gas behavior. The former is important for fiscal accounting (custody transfer, end customer billing), the latter for safe and environmentally friendly operation of combustion plants (boilers, engines, fuel cells). If gas quality did not change over time, a one-time determination of gas quality would be sufficient to account for local conditions. However, as the origin of the gas changes more and more frequently, so does the gas quality, and without determination of the latter, this inevitably leads to process inefficiency, faster wear of machinery and increased environmental pollution.

OGI: What is gas quality sensing?

Pretre: As described above, gas quality goes hand in hand with gas composition. Therefore,



gas chromatographs (PGC) are mainly used for gas quality measurement, as they can be used to determine the gas composition. This data can then be used to calculate relevant gas qualities such as calorific value, air demand or methane number according to specified standards. However, since a PGC is a relatively complex measurement system that is expensive both to purchase and to maintain, there are also alternative technologies for determining gas quality. These include correlative measurement systems that correlate gas qualities using metrics other than gas composition. While not quite achieving the accuracy of a (perfectly calibrated) PGC, such systems are robust, low-maintenance, and can be used wherever a PGC cannot be deployed due to space or cost considerations.

OGI: What are the advantages, i.e. cost saving, time saving, with your solutions?

Pretre: Our solutions offer gas quality meters or entire systems of compact size that operate virtually maintenance-free for many years. They do not require calibration or reference gases, which allows for quick installations. In addition, they measure quickly compared to a PGC, which is a great advantage especially for process control applications. These systems are ideally equipped for future tasks: Practically applicable for all gas types, also for those with high hydrogen or inert gas content.

OGI: What are some of advantages when working with Mems AG?

Pretre: Mems AG offers competent

technical support, accompanies customer projects from the idea to the market launch and helps to lead them to technical and commercial success. Due to the broad spectrum of existing education and experience in our team, we are able to approach the tasks given to us with a technical-scientific approach and to solve them comprehensively. For our customers from the industrial and service sector, as well as for the public sector, we develop electronics and sensor technology and bring them to market maturity upon customer request. Since 2008, with the support of several distribution partners, we have been marketing the self-developed technology for gas quality measurement under the trade mark gasQS™ technology.

OGI: Finally, could you enlighten our readers of a case study where you helped a client with your solutions?

Pretre: For the network operator in the vicinity of a large German city, we are installing several dozen measurement systems to track hydrogen dispersion in a gas distribution network. In addition to sensors to determine the hydrogen content at the feed-in, the installation also includes remote reading systems of the sensors to determine the hydrogen content at different points in the network without much effort. We use Mems AG internal synergies between gas specialists and electrical engineers to set up a gas quality measurement network for the customer in the shortest possible time.

OGI: Thank you for your time. •

If you would like to know more about how Mems AG can help your company and its operations, please contact them at:

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