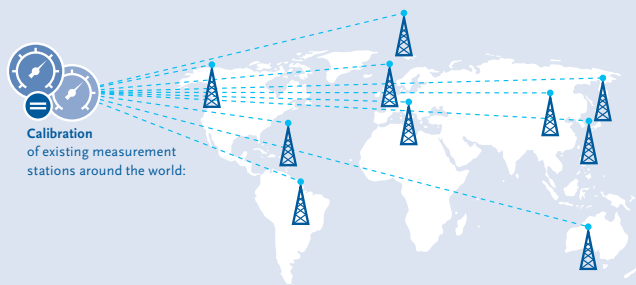


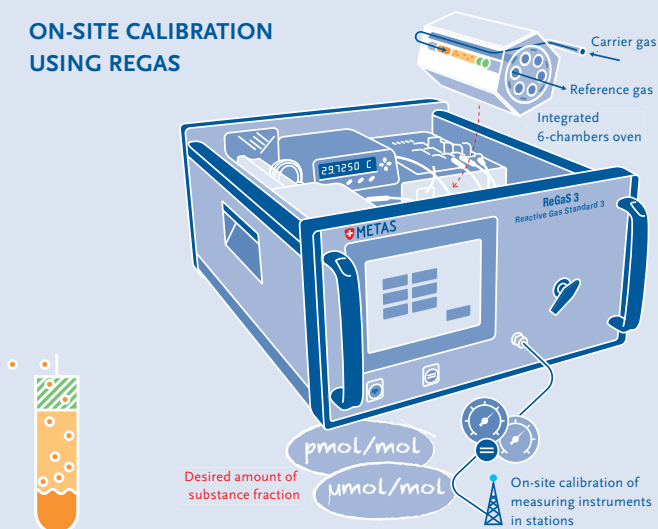
REFERENCES FOR MEASUREMENT STATIONS

Traceable references are needed to measure gases in the atmosphere (CO_2 , CH_4 , NH_3 , HFC, SF_6 , etc.) on a comparable basis worldwide, over the long term and over time.



Calibrating measurement stations around the world with stable gaseous compounds (CO_2 , CH_4 , ...) is well established: a gas cylinder is used to calibrate the analysers. For reactive gas compounds, gas mixtures can now be produced on-site, using permeation with ReGaS. The permeation rate is determined beforehand in Magnetic Suspension Balances under controlled conditions and allows to accurately generate reference gases on-site. ReGaS is available for ammonia as well as volatile organic and halogenated compounds.

ON-SITE CALIBRATION USING REGAS



Permeator containing the substance of interest

METAS: The National Metrology Institute of Switzerland

The Federal Institute of Metrology METAS is the National Metrology Institute of Switzerland. It represents the state of the art of measuring accuracy in Switzerland. Through its activities in research and development and its range of services, METAS is instrumental in ensuring that measurements can be performed in Switzerland at the level of accuracy demanded by industry, research, administration and society.

METAS realises the Swiss reference standards, ensures their international recognition and disseminates them with the requisite degree of accuracy in each case. METAS oversees the market launch process, use and control of measuring equipment in the retail trade, traffic, public safety, health and environmental protection. It makes sure that the measurements required for the protection of people and the environment can be carried out correctly and in the prescribed manner.

METAS keeps up with scientific and technological developments in order to maintain its place at the cutting edge. It is engaged in research and development with a view to improving measuring stations and metrological services. The Gas Laboratory is at the forefront of dynamic generation of reactive gas mixtures.



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Schweizerische Eidgenossenschaft
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Federal Institute of Metrology METAS

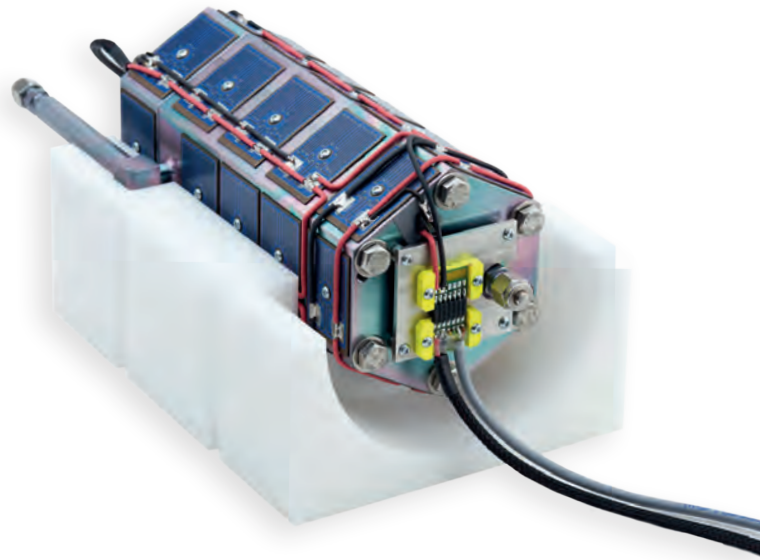
Swiss Confederation

ReGaS

TRANSPORTABLE REACTIVE GAS STANDARD



SI-traceable reference gas mixtures for reactive compounds at atmospheric levels



With its 30 heating elements, the oven can achieve a temperature up to 70 °C with a stability better than 0.01 °C. The oven is thermally insulated with a Polyoxymethylene (POM) shell.



Reference gas mixtures with up to five compounds can be generated using the multi-chamber oven developed at METAS. The individual chambers avoid contamination between the different reactive gas sources.

The SilcoNert® 2000 coating colours the metal and helps to reduce the adsorption of reactive gas molecules on the walls.



The internal temperature sensor provides an accurate measurement in the permeation chambers and therefore reduces the uncertainty (<3 %) of the gas concentration produced.

The permeator contains the reference substance in pure liquid form. It is calibrated before and after in the MSBs (magnetic suspension balances) at METAS, with an uncertainty typically <1%. Due to the permeation through the membrane, the substance is continuously added to the carrier gas circulating in the permeation chamber.



The desired concentrations – pmol/mol to μmol/mol – and gas flows from 1 L/min to 10 L/min (for example, for halogenated gases) are easily set thanks to the appropriate software and a touch screen.

METAS developed most of the components and the entire software in-house.

Interested in the application of ReGaS? Contact us for rental or purchase.

