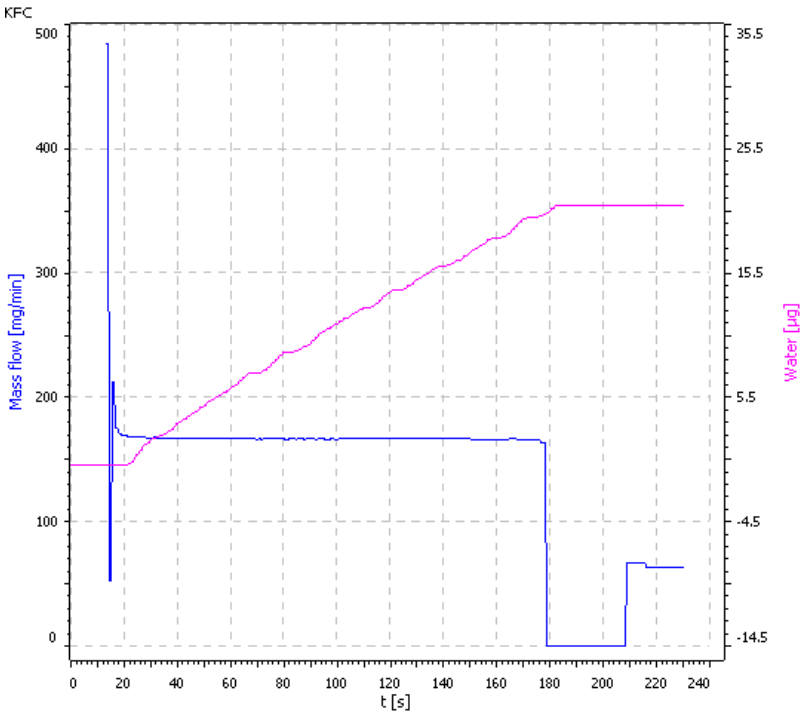
Titration Application Note K-056

Determination of water in hydrogen gas



This Application Note describes the automated determination of the water content in hydrogen gas using the 875 KF Gas Analyzer.

Metrohm

Method description

Sample

Hydrogen 5.0

Sample preparation

The sample cylinder is connected to a pressure reduction valve, which is then connected to the 875 KF Gas Analyzer using appropriate connectors. The secondary pressure of the pressure reduction valve is set to 1 bar.

Electrodes

Double Pt Electrode	6.0344.100
Generator electrode with diaphragm	6.0341.100

Reagents

HYDRANAL®-Coulomat AG-Oven	Fluka 34739
HYDRANAL®-Coulomat CG	Fluka 34840
Nitrogen 5.0 (> 99.999, < 3 ppm H_2O)	Carbagas

Instruments

875 KF Gas Analyzer	2.875.9020
Mass flow controller, calibrated to H_2	On request

Analysis

System preparation
To prepare the system, it is first flushed with sample and subsequently dried with nitrogen. As the water content of the sample might be very low, it is important to have a low start drift.

Method

To measure the sample, the method "Sample_measurement_H2.mmet" is used. The method is available on request from Metrohm international headquarters.

Sample determination

Because of the low water content and the low density of the sample, a high sample flow rate and sample sizes between 200 and 1000 mg were used.

Results

Mean / [ppm] (n = 10)	RSD / [%]
27.1	8.34

Comments

Depending on the sample, it can be necessary to adapt the method.