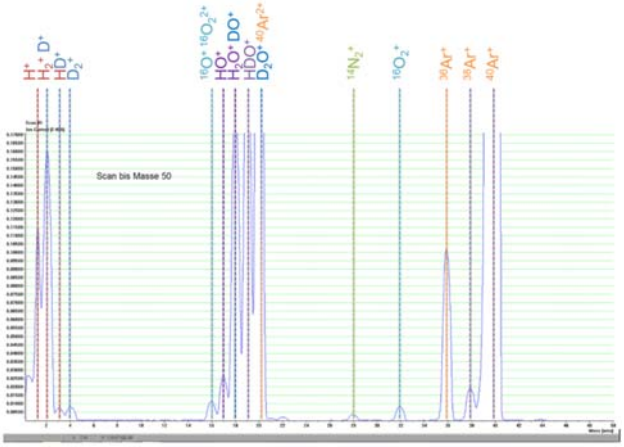
# Mass spectrometer

Mass spectrometers are used widely in a wide variety of research and application areas. Advantages of the method are the high selectivity, short measuring times, good sensitivity, wide measuring dynamics and multi-component capability. The measuring principle is based on the ionization of atoms or molecules of the analyte, which are supplied to the system in gaseous form. The ions are separated and detected on the basis of their mass-to-charge ratio, whereby both a qualitative and quantitative statement can be made about the composition of the substance mixture investigated. The mass spectrometer of CEST is specialized in masses up to 100 amu.

**Application:**

- Analysis of gas mixtures - Headspace analysis
- Composition and concentrations
- Process monitoring
- On-line analytics
- Isotope analysis
- Gaseous (corrosion) products, such as hydrogen




*Measured ion currents in a scan range of mass / charge ratio 1 to 50 during electrochemical hydrogen evolution in deuterium-containing aqueous electrolytes (Headspace gas analysis).*


**Specifications:**

- Quadrupole mass spectrometer with heated, single-stage capillary inlet
- Capillary transfer line heated up to 200 ° C, 2.2 m long, 50 µm diameter
- PrismaPlus QMG220 from Pfeiffer Vacuum for 1-100 amu
- Cross-beam ion source with 2 yttrium-doped W filaments
- Channeltron (SEV) and Faraday detector
- Pumping station with rotary vane pump, diaphragm pump and turbomolecular pump
- IPI QuadStar software

**Applications:**

- Process control and monitoring
- Gas analysis
- Product analysis
- Isotope determination

**Sample requirement**:

- gaseous samples
- liquid samples (head-space)
- analyte species: mass / charge ≤ 100

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