www.qa-group.com

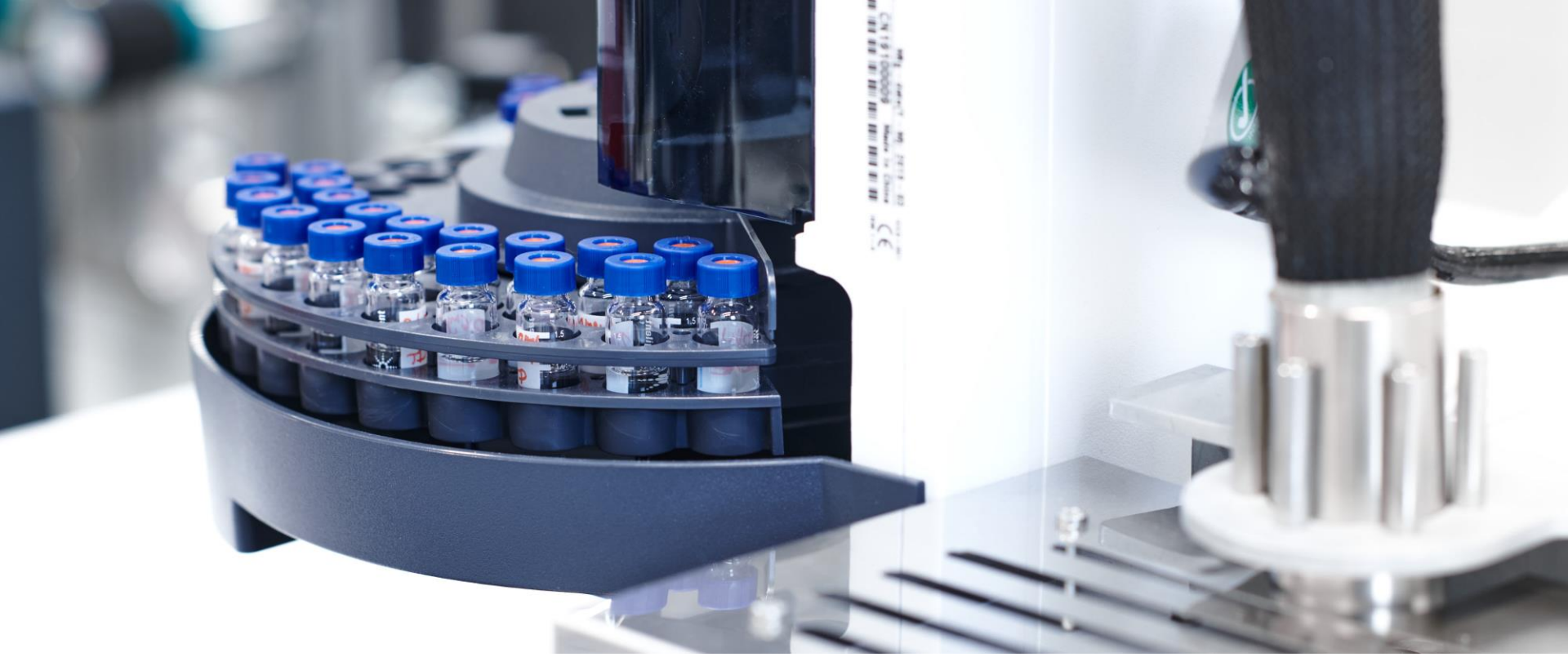
QUALITY ASSURANCE DOWN TO THE SMALLEST DETAIL.

That something special about Quality Analysis: in our organisation you will find the right experts and the right analysis methods for all materials and every requirement.

Our service areas:

- Industrial computed tomography
- Industrial metrology
- Technical cleanliness verification
- Materialography
- Chemical analytics

qa quality analysis



CHEMICAL ANALYTICS

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COMPREHENSIVE ANALYSES WITH VERSATILE APPLICATION POSSIBILITIES.

In our laboratory for analytical chemistry, we **qualify and quantify chemical substances** by means of various analytical methods of the wet chemical analysis and the instrumental analysis. We analytically accompany your production or development process and analyse plastics, filmic residues, particulate contaminations and water samples.

- Detailed, dependable analysis thanks to highly specialised experts
- Accredited test laboratory with more than 400 m²
- Highly modern, specialised analysis equipment: Renishaw, Bruker, Agilent, Netzsch, Hach

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PLASTICS ANALYSIS

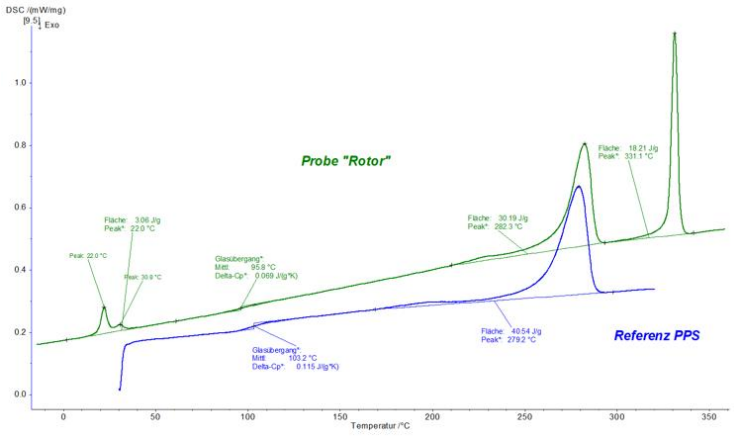
DIFFERENTIAL SCANNING CALORIMETRY (DSC).

Determination of DSC parameters for material characterization of thermal properties

- Determination of the melting temperature
- Determination of the glass transition temperature
- Determination of enthalpies (heat of melting, crystallization, transformation and reaction)
- Determination of the crystallinity
- Determination of the specific heat capacity

These parameters provide information on/for:

- Material identity and recipe components
- Modifications and additional components
- Cleanliness / contamination
- Thermal history
- Tempereffects
- Crystallinity / crystallinity degree
- State of hardening / degree of cure



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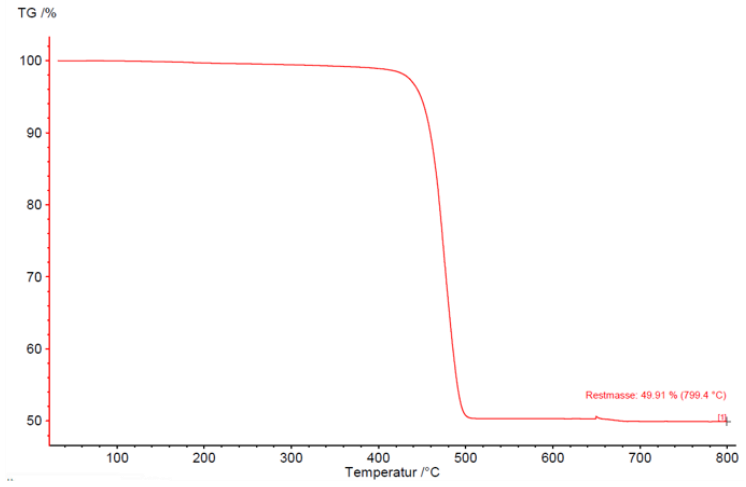
THERMOGRAVIMETRIC ANALYSIS (TGA).

TGA for measuring changes in mass of a sample in dependence on temperature or time:

- Quantification of the material composition
  - Polymer contents
  - Plasticizer contents
  - Filler contents (glass fiber, soot, chalk, other inorganic fillers)
  - Residual mass / Ashes
- Analysis of the thermal decomposition process
  - Determination of decomposition temperatures (start / middle / end)
- Do decomposition products, volatile components or substances form? We identify and quantify these by combining **TGA with FT-IR-spectroscopy and GC-MS**.



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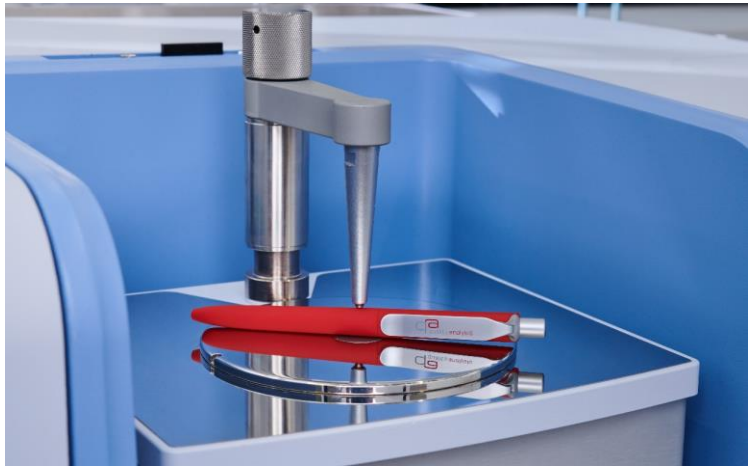
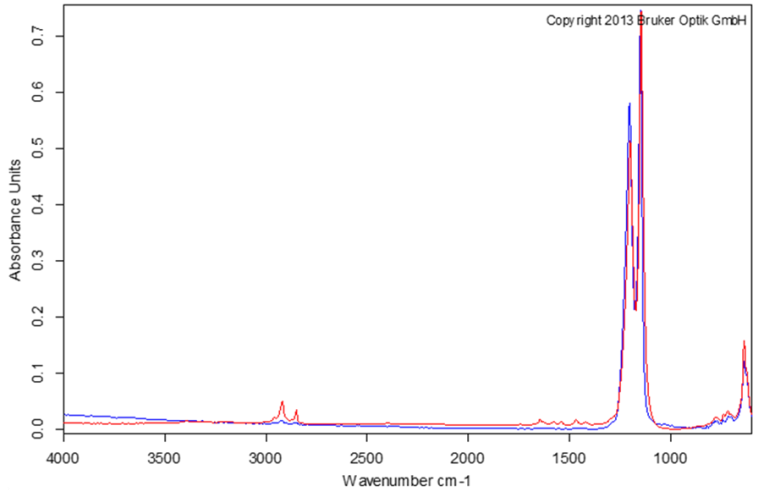
SPECTROSCOPIC ANALYSIS.

With **RAMAN and FT-IR spectroscopy,** we characterize materials easy and quickly. Both methods provide a spectrum which is characteristic for the specific vibrations of a molecule, a „molecular fingerprint“ so to speak.



Analysis options:

- Identification of plastics, fibres and smallest particles (from 1µm)
- Detection of contaminations
- Quantitative determination of known substances



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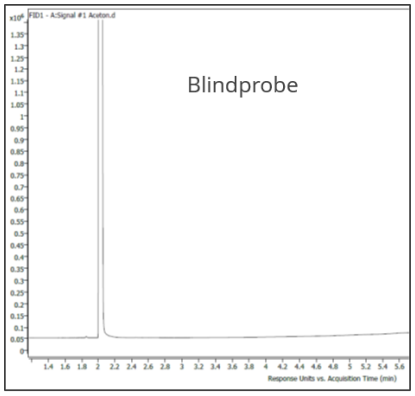
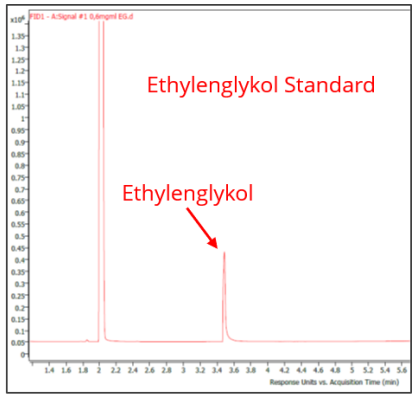
GAS CHROMATOGRAPHY WITH MASS SPECTROMETRY (GC-MS).

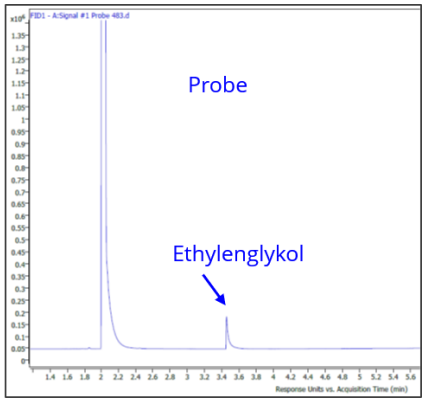
With the **GC-MS** analysis, we analyse plastic samples for volatile organic compounds. We separate the mixture of substances chromatographically into the individual substances and then identify and quantify them using the mass spectrometer (MS).

Analysis options:

- Plasticizers
- Vulcanising agents
- Solvents
- Flame retardants
- Oils







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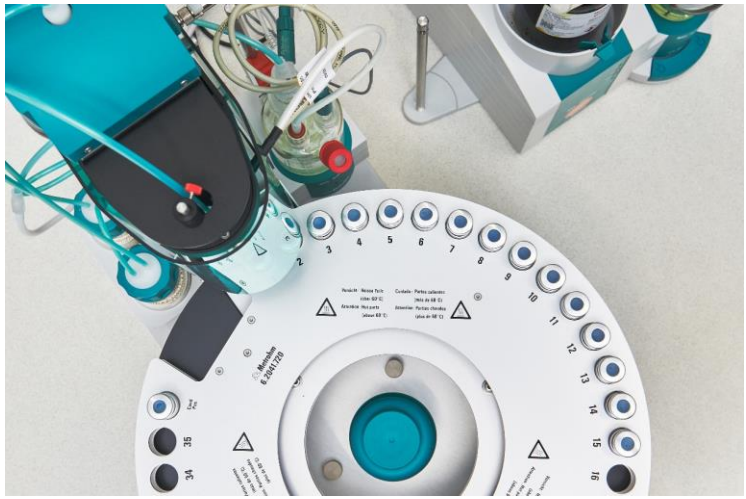
KARL-FISCHER-TITRATION (KFT).

We use **Karl Fischer titration** to determine the exact water content in plastic samples. The results of this method are independent of the type of sample as well as the presence of other volatile components and are available within a very short time.



Analysis options:

- Coulometric and volumetric method with oven technology
- Determination from 0.001% to 100%

Analysis system:

- Metrohm Titrando 852
- Metrohm 874 Oven Sample Processor

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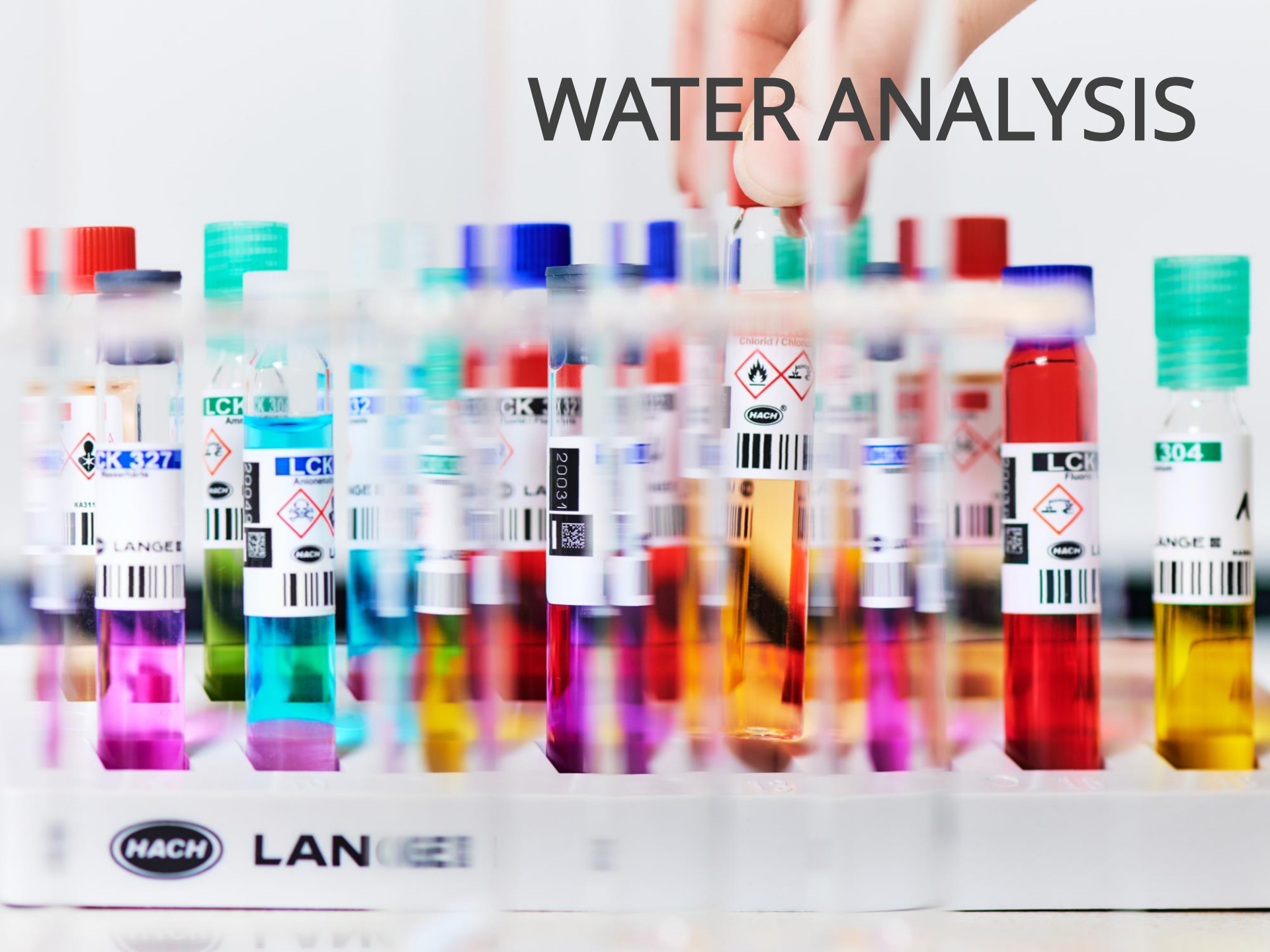
WATER ANALYSIS



METHODS AND APPLICATION.

Testing of water-mixed cooling lubricants, cooling water, process water and cleaning baths

- pH measurement
- Conductivity measurement
- Determination of water hardness
- Determination of the biochemical oxygen demand (BOD) in accordance with DIN-EN 1899-1
- Determination of the chemical oxygen demand (COD) in accordance with DIN-ISO 15705
- Determination of the total organic carbon (TOC) in accordance with DIN-EN 1484
- Turbidity measurement in accordance with DIN EN ISO 7025
- Colour measurement (photometric) in accordance with DIN EN ISO 7887 (colour index, hazen, iodine, gardner, yellowness)
- Quantitative determination of organic and inorganic ingredients (e.g. nitrites, nitrates, sulphates, ammonia and many more)

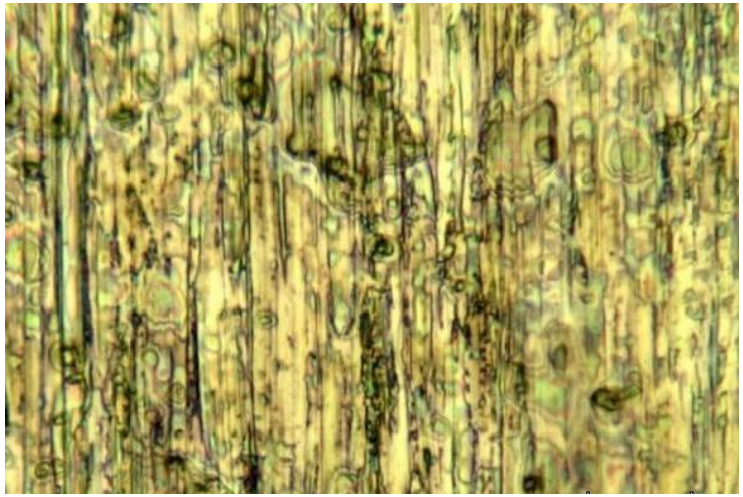

CONTAMINATING FILMS

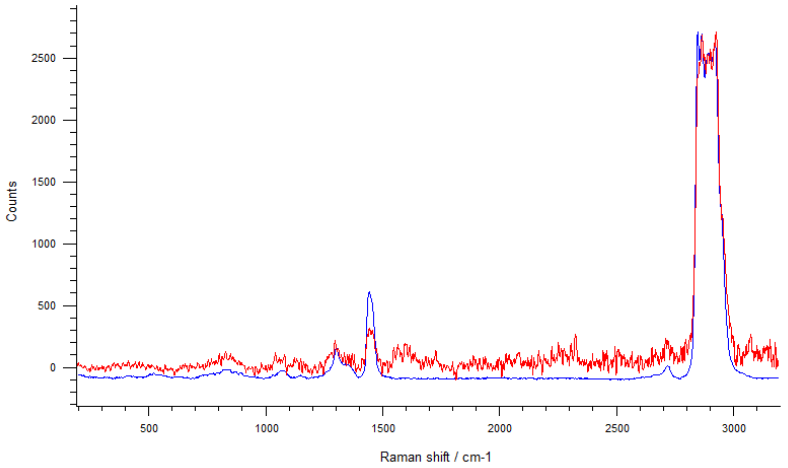
CONTAMINATING FILMS.

Chemical-filmic contaminations on surfaces can interfere with or hinder subsequent manufacturing steps such as bonding, welding, printing or assembly. Using chemical analytics, we identify manufacturing and cleaning residues such as grease, oil, coolants, cleaning media, etc. –both quantitatively and qualitatively.

Analysis methods:

- Determination of the surface tension by means of test ink
- Gravimetric determination
- Detection of filmic contamination by fluorescence measurement
- Quantification by gas chromatography (GC) with flame ionization detector (FID)
- Identification and quantification by gas chromatography (GC) coupled with mass spectrometry (MS)
- Detection and material identification by RAMAN and FT-IR spectroscopy





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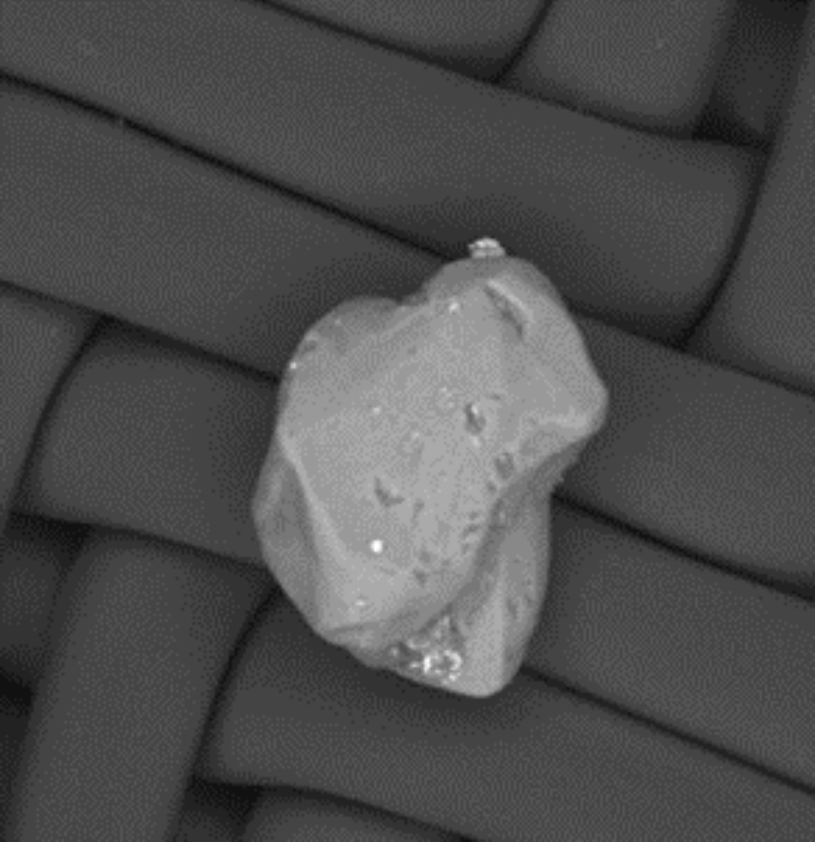
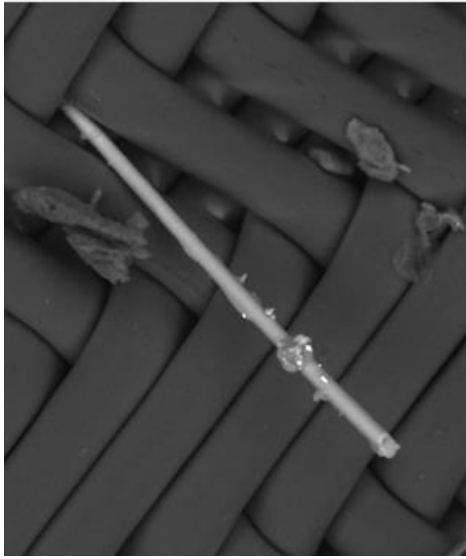
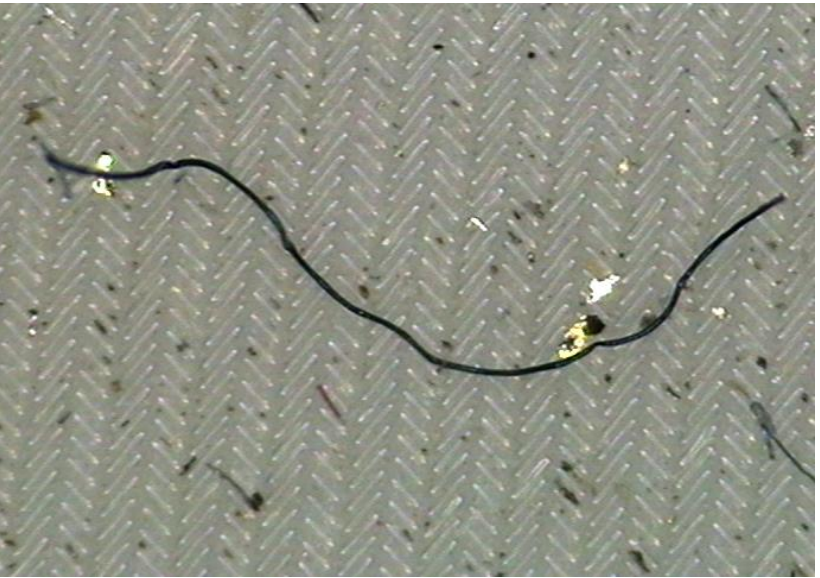
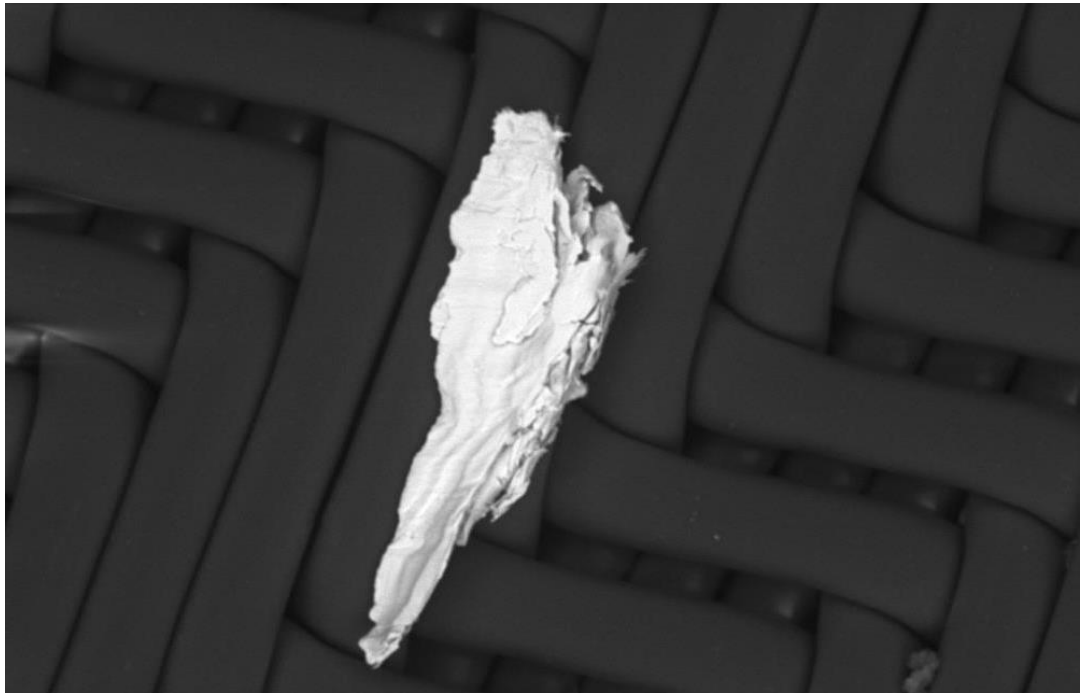




CONTAMINATING PARTICLES



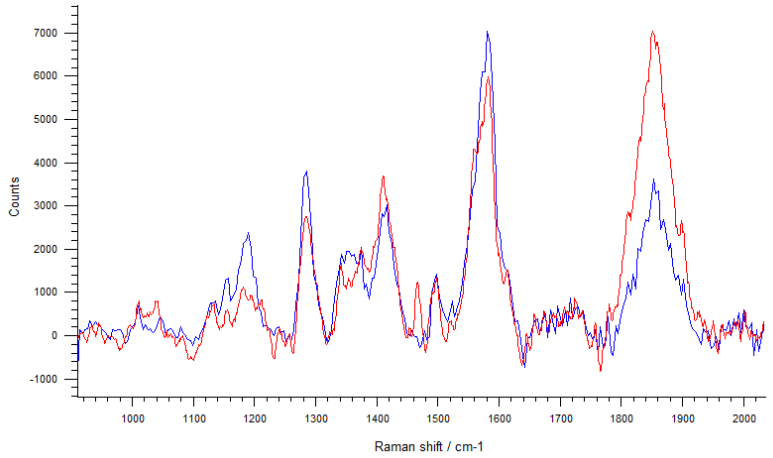


CONTAMINATING PARTICLES.

Organic and inorganic particles and fibres can lead to long-term functional limitation up to system damage. By means of **RAMAN and FT-IR spectroscopy** we identify organic and inorganic particles and fibres on relevant surfaces within the scope of technical cleanliness.

Fully automatic analysis of the particles by spectrum comparison provides information about:

- Type of particle
  - Fibres
  - Plastics/elastomers
  - Salts
- Quantity and size classes of the particles
- Material assignment
- Definition of the defectiveness



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TECHNICAL EQUIPMENT.

Chemical analytics

High-performance systems for the qualitative and quantitative analysis of organic and inorganic substances, such as plastics, contaminating films and particles.

NETZSCH DSC
204 F1 Phoenix

Bruker
Invenio-S

NETZSCH TG 209
F1 Libra

Agilent 8890 GC
(MS & FID)

Bruker
LUMOS

RENISHAW
inVia Qontor

Metrohm Titrando 852

Metrohm 874 Oven
Sample Processor

TG-FT-IR-Kopplung

TG-GC-MS-Kopplung

Quelle: Erich NETZSCH GmbH & Co. Holding KG, Agilent Technologies Inc. Bruker Corporation, Renishaw GmbH, Deutsche METROHM GmbH & Co. KG

Water analysis

We use the following analytical equipment to test water-mixed cooling lubricants, process water and cleaning baths:

Hach Lange
DR 6000 UV-VIS

Hach
TL2310

Hach
HQ40D

Quelle: Hach Lange GmbH

quality analysis

STANDARDISED TEST METHODS. ACCLAIMED QUALITY ASSURANCE.

Accredited test laboratory in accordance with DIN EN ISO/IEC 17025:2018

Our accreditation means for you one thing above all else: certainty. You can rely on high standards, excellent services and guaranteed quality standards. As your partner, we accompany you during product development, innovations and safeguard product quality together with you.

Advantages of our accreditation:

- Impartiality and confidentiality
- International validity (ILAC)
- Dependability due to conformity assessment
- Reproducibility and comparability
- Standardised measurement and analysis methods
- Highest requirements on the technical standard
- Monitoring of the management system and the competence of the specialist personnel

ilac-MRA DAkkS Deutsche Akkreditierungsstelle D-PL-11108-01-00

* Refer to our accreditation certificate for the scope of our accreditation. You will find this certificate on our homepage.

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QUALITY ASSURANCE IN NUERTINGEN AND SWITZERLAND.

It is possible to implement your projects worldwide from our sites.

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