



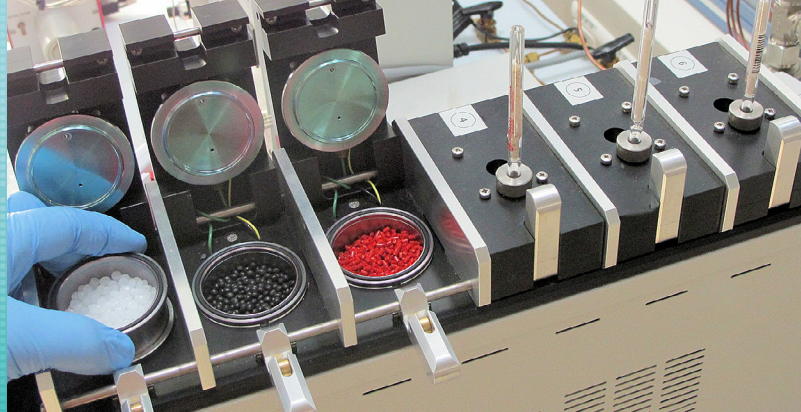
Fraunhofer Institute for Building
Physics IBP

Our services at a glance

Chemical Analysis



Numerous issues concerning damage management, process development, functional testing and durability, as well as compatibility with human health and the environment, call for detailed knowledge of individual substances and substance collectives. With our wide range of trace analysis methods, we obtain the information you need to make a well-founded assessment.”



Chemical analysis

Our extensive range of measuring equipment, from online analyzers to highly specific and selective analytical instruments, allows us to reliably detect even the smallest traces or, as the saying goes, the needle in the haystack. The analytical techniques identify a broad spectrum of organic and inorganic substances as well as cumulative parameters.

We can search specifically for single known substances as well as perform so-called “general unknown” analyses. Online analyzers for continuously monitoring airborne substances round off our portfolio.

Quality standards and production control

In addition to national (DIN, VDI) and international standards (EN, ISO, ASTM, EPA), we apply company-specific standards and help manufacturers develop their own quality standards for incoming goods inspection and factory production control.



Analysis

We can conduct analyses in the following matrices:

- Indoor air in rooms and means of transport (motor vehicles, rail vehicles, aircraft cabins)
- Material emissions in test chamber air (e.g. emission test chamber, microchamber, climate chambers)
- Solvent extracts
- Drinking water, groundwater and surface water
- Runoff water from roofs and façade coatings
- Eluates from solids
- Acid extracts and digests of solids

Target substances

We can reliably determine the following:

- Volatile organic compounds (VOC) in air
- Plasticizers and flame retardants in air
- Volatile and halogenated hydrocarbons in water
- Formaldehyde in air and in water
- Aldehydes and ketones in air
- Gaseous macro components such as CO/CO₂, NO_x
- Odor-active compounds in air or solvent extracts
- Heavy metals and trace elements in eluates and digests
- Mercury in air
- Inorganic salts and short-chain organic acids in aqueous solutions
- Pesticides and biocides in aqueous solutions or eluates
- pH value, electrical conductivity, redox potential and turbidity of aqueous solutions
- Organic carbon in aqueous solutions
- Volatile amines and amino alcohols in air
- Amines in aqueous solutions
- Particles and aerosols in air



Test methods

We apply the following common test methods:

- Gas chromatography-mass spectrometry (GC-MS) for samples containing solvents
- Thermodesorption coupled with gas chromatography-mass spectrometry (TD-GC-MS) for air samples
- Headspace-gas chromatography-mass spectrometry (HS-GC-MS) for water or solid samples
- Gas chromatography-mass spectrometry coupled with olfactory detection (GC-MS-OLF) for air samples or extracts of odorous substances
- Online sensors for indoor and outdoor air
- High performance liquid chromatography (HPLC-DAD) for air samples
- Ultra-high performance liquid chromatography-tandem mass spectrometry (UPLC-MS-MS) for water and air samples
- Inductively coupled plasma mass spectrometry (ICP-MS) for aqueous solutions and acid extracts
- (FT-)IR spectrometry for solids or liquids
- UV/VIS spectrometry for liquids



We can also adapt our existing test procedures to a specific case or develop customized procedures"

Standardized procedures



We apply the following standardized procedures:

- **Volatile organic compounds in air**
DIN EN 16516 | DIN ISO 12219-3 | DIN ISO 16000-3 |
DIN ISO 16000-6 | DIN ISO 16000-31 | EPA TO-15 |
EPA TO-17
- **Amines in air**
DIN ISO 16000-38 | DIN ISO 16000-39
- **Odor evaluation**
DIN ISO 16000-28 | DIN ISO 16000-30 | VDA 270 |
VDI 4302 Part 1
- **Preparation of eluates for chemical analysis**
DIN EN 12457-1 to -4 | DIN EN 16105 |
DIN EN 16637-2
- **Sum parameters in water and aqueous solutions**
DIN EN 1484 | DIN EN 27888 | DIN EN ISO 10523 |
DIN ISO 7027-1
- **Volatile and halogenated hydrocarbons in water**
DIN EN ISO 20595
- **Biocides in water and eluates**
DIN 38407-35 | DIN 38407-36
- **Amines in water and eluates**
In-house procedure based on DIN ISO 16000-39
- **Inorganic anions and cations in water and aqueous extracts**
DIN EN ISO 10304-1 | DIN EN ISO 10304-3 |
DIN EN ISO 14911
- **Heavy metals and trace elements in water, eluates and acid digests**
DIN EN ISO 17294-1 | DIN EN ISO 17294-2

We place great value in giving expert advice before, during and after a measurement: thus, we first clarify your particular issues with you before implementing our analytics. With standardized as well as customized laboratory experiments or realistic test setups on our field test site, we obtain samples that we analyze for you.

After the analysis, we do not leave you alone with the results:

Our experts in analytical chemistry, odor analysis, sensor technology, materials science and polymer chemistry are on hand to advise you how to interpret the measurement results. Together with you, we devise optimization or minimization strategies and search for causes or sources.

If you have further questions that go beyond chemical analysis, we can consult colleagues from microbiology and other areas or from other technical institutions. As an interdisciplinary team of chemists, microbiologists, material scientists, mineralogists and physicists, we will find a solution for your problem! And, after the analysis, we do not leave you alone with the results!



We do not leave you alone with the results!"

Contact

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