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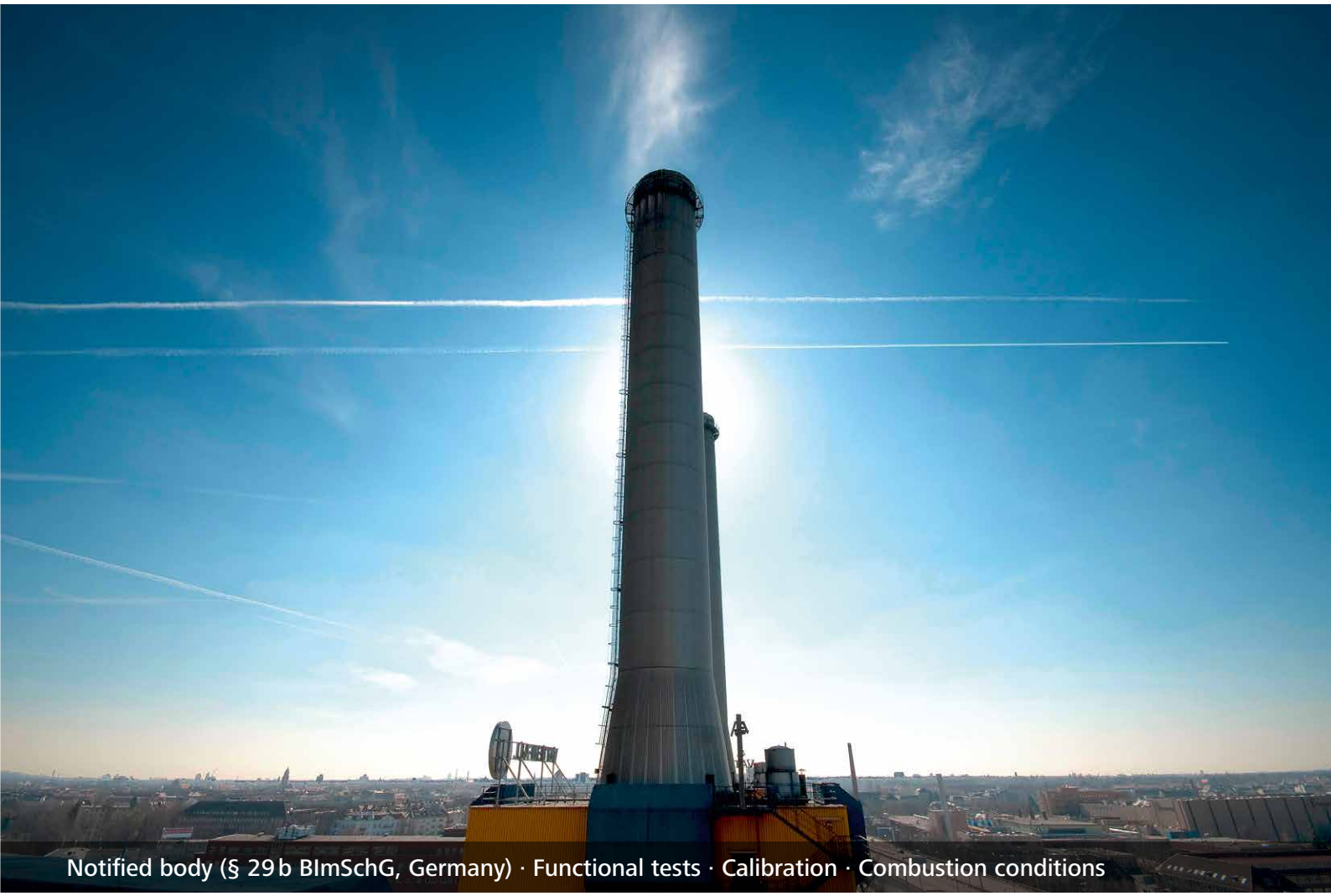

Emission measurements of air pollutants and odours

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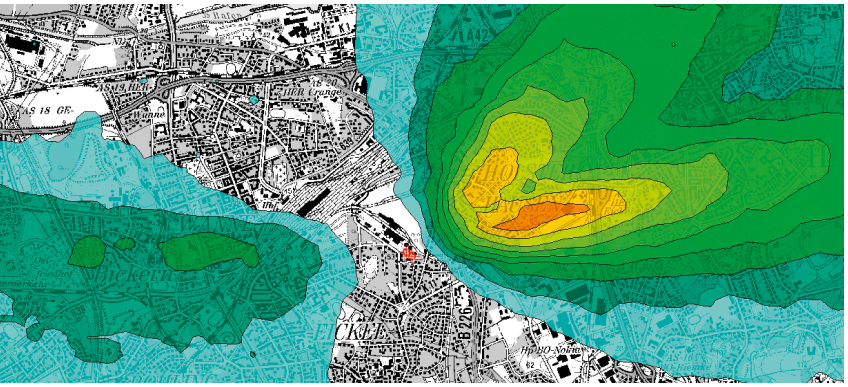
Emission measurements of air pollutants and odours



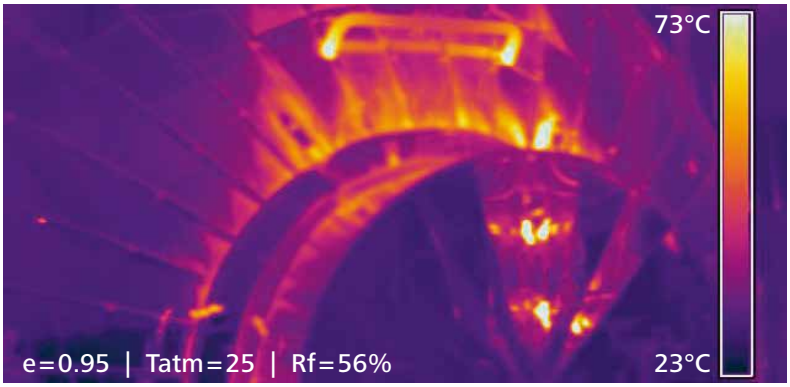
Notified body in accordance with § 29 b BImSchG

As an accredited testing laboratory according to § 29 b of the German Federal Emission Control Act (BImSchG), we perform emission measurements of air pollutants and odours for all kinds of industrial, commercial, and agricultural plants. We perform samplings, measurements, and analyses of the whole spectrum of organic and inorganic air pollutants. The permits for power stations and industrial plants involve requirements with limit values for emissions. The permit authorities of the federal states of Germany do not control the compliance with the limit values themselves but acknowledge testing laboratories based on § 29 b BImSchG. The technical equipment of our § 29 b testing laboratory meets the state-of-the-art requirements. All measurement instruments and analysis devices are subject to regular inspections and the most stringent quality demands.

The majority of our engineers and technicians do not only have a university degree or a specific technical training but can also look back on a longstanding professional experience in the field of a testing laboratory's work.

The acknowledgement of Müller-BBM GmbH according to § 29 b BImSchG is based on our accreditation according to DIN EN ISO/EC 17025 and comprises the following areas:

- Emission and ambient air measurements as well as determination of emissions, exposures, and checking the proper installation, function, and calibration of continuously operating measurement appliances for
  - inorganic gases
  - dust and dust components
  - organic compounds.
- Determination of emissions of special dust-like substances, particularly fibre-like dusts and analyses of respective emission and exposure samples
- Emission and ambient air measurements as well as determination of emissions of and exposures to highly toxic organic-chemical compounds in extremely low concentrations (dioxins and furans) and analysis by mas | münster analytical solutions gmbH, an analysis laboratory within the Müller-BBM group acknowledged according to § 29 b BImSchG
- Determination of emissions and exposures to odours
- Determination of emissions and exposures to noises and vibrations



Emission measurements of air pollutants and odours

Corresponding to the large scope of the acknowledgement according to § 29b BImSchG, Müller-BBM offers to plant operators a wide spectrum of various measurements among which are:

- classic combustion flue gases such as carbon monoxide, nitrogen oxide, sulphur dioxide, carbon dioxide and methane
- dust and substances contained in dust, e. g. antimony, arsenic, lead, cadmium, chromium, cobalt, copper, manganese, nickel, palladium, thallium, vanadium, tin, etc.
- fibrous dusts: asbestos, artificial mineral fibres
- organic compounds: benzene, toluene, xylenes, ethylbenzenes, ethylacetates, polycylcic aromatic hydrocarbons, aldehydes, phenols, amines, and many more
- highly toxic compounds: dioxins, furans, polychlorinated biphenyles, polychlorinated phenols, and many more
- inorganic compounds: hydrochloric acid, hydrocyanic acid, hydrogen sulphide, hydrofluoric acid, chlorine, etc.
- organosilicon compounds
- odours

We choose the measurement and analysis procedure which is best suitable for the respective measurement task and support you with our experience e. g. in the solution of production and process-specific problems. Furthermore, we help you optimizing your plant technology as well as adjusting flue gas treatment installations aiming at reducing emissions as much as possible.

Inspection of combustion conditions and optimization of burn-off quality

The service range of Müller-BBM also includes the examination of the minimum requirements on combustion conditions e. g. in:

- plants for the incineration and co-incineration of waste (plants for which the 17th BImSchV applies)
- plants for cremation (plants for which the 27th BImSchV applies)

among which:

- execution of system measurements with suction pyrometers and oxygen measurement devices applied simultaneously to check the minimum temperature, dwell time, and mixing conditions
- functional test and calibration of continuous emission monitoring systems (CEMS) to control the combustion conditions according to § 10 and § 11 of the 17th BImSchV as well as according to § 3 and § 7 of the 27th BImSchV
- measurement monitoring of measures to reduce emissions of nitrogen oxide (NO_x), laughing gas (N_2O) and ammoniac (NH_3) from incineration plants using selective catalytic and non-catalytic reduction procedures (SNCR/SCR)
- continuous registration of emissions of nitrogen oxides (NO/NO_2), laughing gas and ammonia slip
- determination of the temperature window to define the injection level for secondary measures to reduce nitrogen oxide by means of the SNCR-method

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Functional test and calibration of stationary measurement equipment

Müller-BBM is an acknowledged test laboratory for checking the proper installation, function, and calibration of continuous emission monitoring systems (CEMS).

The acknowledgement refers to the following provisions and administrative regulations:

- No. 5.3 of the TA Luft (technical instructions for the prevention of air pollution)
- 1. BImSchV (small and medium firing systems)
- 2. BImSchV (emission limit of highly volatile halogenated organic compounds)
- 13. BImSchV (large scale firing plant and gas turbine plants)
- 17. BImSchV (plants for the incineration and co-incineration of wastes)
- 27. BImSchV (plants for cremation)
- 30. BImSchV (plants for biologic treatment of wastes)
- 31. BImSchV (emission limit of volatile organic compounds when using organic solvents in certain plants)

The operators of the above mentioned plants must continuously monitor and register their pollutant emission by means of stationary measurement equipment if the plant output or the pollutant-specific emissions exceed pre-defined thresholds.

Depending on the type of plant (e. g. power plants, chemical or waste incineration plants), it is necessary to continuously monitor and register the concentrations of carbon monoxide, nitrogen oxides, sulphur dioxides, dust, hydrochloric acid, ammoniac, mercury, or the sum of organic compounds as well as the flue gas boundary parameters (temperature, volume flow rate etc.) using calculation programme for the evaluation of the emission data.

We provide you with our advice when choosing the appropriate measurement equipment and installation sites and execute the required controlling of the correct installation of the measurement equipment within the scope of our acknowledgement. This includes the Annual Surveillance Test (AST) as well as the calibrations prescribed in a three or five-year interval (QAL2).

Rely on our competence and our comprehensive experience in measurements in numerous sectors

Experience in measurements, for example in the following branches:

- Coal-fired power stations
- Biomass power plants
- Waste incineration plants
- Boiler and combustion engine plants
- Refineries
- Biogas plants
- Chemical industries
- Paper mills
- Cement mills and brick manufactures
- Cremation and animal body cremation plants
- Asphalt mixing plants
- Gravel plants and quarries
- Forage drying plants
- Waste dumps and sewage treatment plants
- Foundries
- Galvanizing plants
- Printing plants
- Drying plants
- Painting plants
- Smoke houses
- Automobile production and automotive suppliers
- Ceramics and porcelain industry
- Semiconductor production and grinding disk fabrication

Müller-BBM offers you measurements, analyses and support in the interpretation of the results as well as continuing consultancy from one source, furthermore a variety of interdisciplinary services for complex missions and problems.

Comprehensive competence

Not only do we perform emission measurements in plants of all kinds, but within the scope of our measuring activities we also offer you other extensive testing and consulting services, such as:

- exposure measurements
- workplace measurements of hazardous substances
- environmental analytics

Our focus here is set on the emissions and exposure to noises and vibrations, odours and air pollutants, germs, light and electromagnetic fields.

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Consulting and Assessment
for Industry, Infrastructure and Trade

Emission Protection for Air and Noise
Environmental Compatibility
Industrial and plant acoustics
Meteorology – Climate
Noise Protection for Infrastructure and Trade

Measuring and Testing
Immission control and environmental protection

Function testing and calibration
Laboratory analytics
Measuring of emissions, ambient air and hazardous substances
Olfactometry

Optimizing and Developing
Technical Expertise in acoustics and structural dynamics

Building dynamics
Calibration Laboratory for Acceleration and Acoustic Measurement Quantities
Electromagnetic fields & light
Product testing
Rail and Vehicle Acoustics
Ship and offshore acoustics
Structural Dynamics and Numerical Analysis
Traffic – Technology
Vibration and Shock Protection
Vibrations in Rail and Vehicle Acoustics

Comprehensive solutions from a single source

Consulting · Planning · Measuring
Expert Opinion · Research

Müller-BBM Industry Solutions GmbH is a subsidiary of Müller-BBM AG, with headquarters in Planegg near Munich. Since 1962 Müller-BBM has been advising clients nationally and internationally and is now one of the world's leading engineering firms. More than 350 highly qualified employees form an interdisciplinary team of scientists and engineers in the most diverse specialist fields. The company currently has twelve offices in Germany as well as a branch office in Austria.

Notifications
Müller-BBM Industry Solutions GmbH is notified as an expert authority in accordance with § 29b of the German Federal Pollution Control Act (BImSchG).

The notification comprises
- determining emissions and immissions of air pollutants, noise and vibration
- verifying the correct installation and function in addition to the calibration of continuous emission measurement systems (CEMS)
- checking combustion conditions

Accreditations
Our testing and calibration laboratories are accredited according to DIN EN ISO/IEC 17025:
- Test laboratory for sound and vibration, electromagnetic fields and light, air pollution control, measurement of hazardous sustances
- Calibration laboratory for acceleration and acoustical quantities

Müller-BBM Industry Solutions GmbH has a significant number of employees with competency certificates that were awarded to them on an individual basis. They include publicly appointed and sworn experts, state-recognised experts and otherwise appointed and notified experts.

Detailed information on the scope of our accreditation, its international validity and the corresponding certificates can be found on http://www.mbbm-ind.com/about-us/quality

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