



Our guideline and our mission

Safety in technology and chemistry

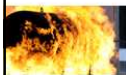
Pursuing our mission as a Federal institute for materials technology and chemical engineering, we ensure ongoing safety in technology and chemistry through

- research and development
- testing, analysis, approval and certification
- consultation, information and advice

within our objective of promoting German industrial development.



Our tasks



Statutory functions relating to technical safety,
especially as regards dangerous materials and substances



Advising the Federal Government and industry
on safety aspects of materials and chemical technology




Collaboration in developing statutory regulations;
Assisting in the development of standards and technical regulations








Development and supply
of reference materials and methods, in particular for chemical analysis and materials testing




Enhancement of safety
in technology and chemistry




General data

| | | |
|---|--|---|
|  | <p>Organisation</p> | <p>board of directors 11 departments subdivided into 53 divisions und 11 sections</p> |
|  | <p>Staff</p> | <p>1797 in total, including 1078 permanent staff and 82 trainees</p> |
|  | <p>Budget</p> | <p>128.4 million euro basic funding by the Federal Government 16.2 million euro third-party funds 6.4 million euro fees; passed to the Federal Government</p> |
|  | <p>Results</p> | <p>826 scientific and technical publications 1540 lectures, presentations, courses approx. 6000 test reports, certificates</p> |
|  | <p>Consultation and information</p> | <p>1325 national and international committees including 180 statutory and regulation committees 594 standardisation committees (e. g. ISO, CEN, DIN)</p> |


Status: Januar 2012




Locations




Branch Fabbeckstraße
Unter den Eichen 44 – 46
12203 Berlin







Branch Adlershof
Richard-Willstätter-Straße 11
12489 Berlin




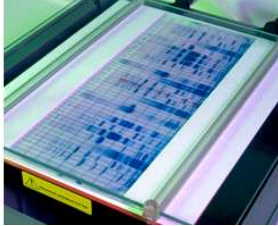

Headquarters Lichterfelde
Unter den Eichen 87
12205 Berlin



BAM Test Site Technical
Safety – BAM TTS
An der Düne 44,
15837 Baruth/Mark




Analytical chemistry

| | | |
|---|---|---|
|  <p>Isotope analysis for the elements boron, strontium and lead in foodstuff with thermal ionisation mass spectrometer: an EXIST spin off (Technology transfer)</p> |  <p>Horizontal gel electrophoresis for the separation of complex protein molecules in the electric field (improvement of analytical methods in cancer research)</p> |  <p>Characterisation of nanocrystalline fluorescence dyes (Reference material)</p> |
|---|---|---|




The CIPM MRA




The Mutual Recognition Arrangement of the International Committee for Weights and Measures (CIPM MRA) was signed in 1999 by the directors of NMIs from 38 countries. It aims at:

- establishing the degree of equivalence of national measurement standards maintained by NMIs and DIs,
- providing for the mutual recognition of calibration and measurement certificates issued by NMIs and DIs,
- thereby providing governments and other parties with a secure technical foundation for wider agreements related to international trade, commerce, and regulatory affairs.

Cited according to A. Wallard, Metrology Principles and Organisation, Springer Handbook of Metrology and Testing, 2011




The CIPM MRA




The MRA is based on the following pillars:

- the so-called key comparisons between NMIs or DIs organised by the Consultative Committees (CCs) of the CIPM or by Regional Metrology Organisations such as EURAMET,
- the database of the Calibration and Measurement Capabilities (CMCs) which are usually confirmed by key comparisons,
- the commitment of the NMIs and DIs to establish and maintain a quality system according to ISO/IEC 17025 (and ISO Guide 34, if relevant).




The German Metrology Infrastructure





Federal Ministry
of Economics
and Technology

BUSINESS.
GROWTH.
PROSPERITY.




Meterconvention







Umwelt
Bundes
Amt
Für Mensch und Umwelt



CIPM MRA



Federal Institute for
Materials Research
and Testing



Federal Office of
Consumer Protection
and Food Safety

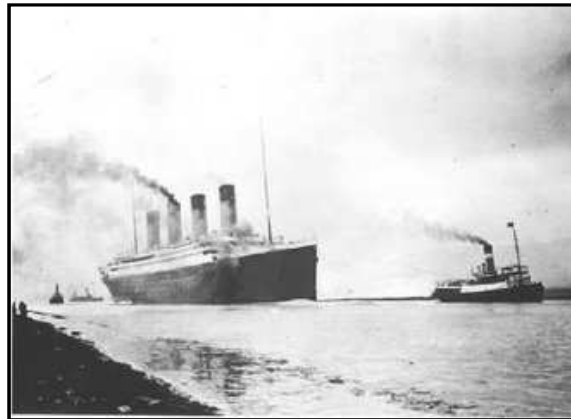
Calibration and Measurement Capabilities (CMC) in Germany

| Quantity | PTB | BAM | UBA | BVL |
|--------------|-------------|------------|-----------|----------|
| AUV | 76 | - | - | - |
| EM | 263 | - | - | - |
| L | 91 | - | - | - |
| M | 209 | - | - | - |
| PR | 76 | - | - | - |
| QM | 60 | 436 | 16 | - |
| IR | 266 | - | - | - |
| T | 71 | - | - | - |
| TF | 25 | - | - | - |
| Total | 1137 | 436 | 16 | 0 |

total: 1589 as of February 2012



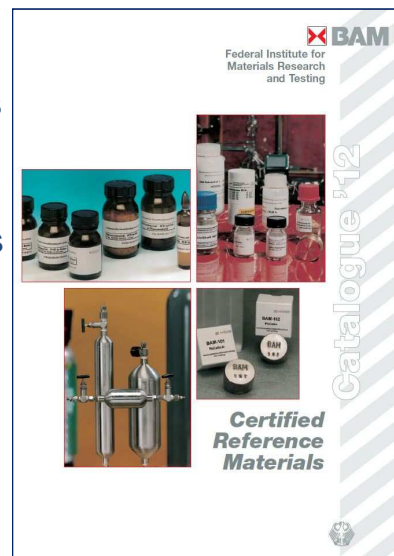
The history of RM production at BAM, respectively at its precursors, traces back to **1912**, when the Prussian Royal Materials Testing Office released a steel reference material (with certified element content)



Today BAM offers RMs for

- Iron and steel products
- Non ferrous metals and alloys
- Special materials
- Primary pure substances
- Environmental measurements
- Gas mixtures
- Elastomeric materials
- Optical properties
- Porous materials
- Layer and surface RMs
- Polymer materials
- Isotopic reference materials

About 300 different reference materials



European Reference Materials (ERM)



- Considerable part of new BAM CRMs are marketed as ERM
- **IRMM, LGC and BAM** have combined forces to produce a new standard in reference materials
- **European Reference Materials** are certified materials, which undergo uncompromising peer evaluation and offer highest quality and reliability





International database for certified reference materials



COMAR



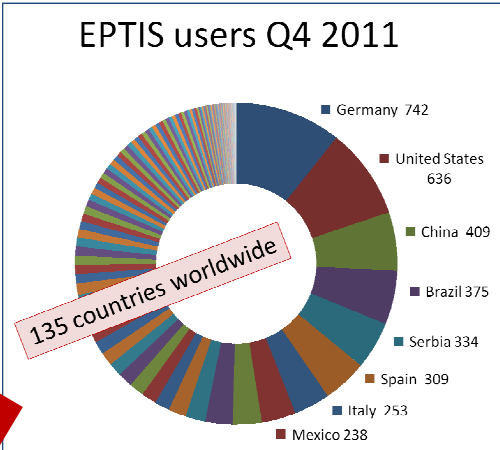
- In the late 1970's Laboratoire National d'Essais (LNE) proposed an computerized index **CO** de l'Indexation des **MA** tériaux de **R**éférence (hence **COMAR**)
- At this time the **COMAR** database contained about 10.000 CRMs
- **COMAR** is free of charge available for users via the internet and is funded by BAM

www.eptis.bam.de

- A PT database
- listing **detailed info**
- of **1500** PT schemes
- from **31** countries.
- Operated by BAM
- with **40** partners and
- used **everywhere** !

EPTIS users Q4 2011



| Country | Number of Users |
|---------------|-----------------|
| Germany | 742 |
| United States | 636 |
| China | 409 |
| Brazil | 375 |
| Serbia | 334 |
| Spain | 309 |
| Italy | 253 |
| Mexico | 238 |





A focus for analytical chemistry in Europe

EURACHEM WORKSHOP ON
Validation /Traceability /Measurement Uncertainty
Challenges for the 21st Century's analysts

The basis for producing reliable results in the laboratory



Bundesanstalt für Materialprüfung (BAM), Berlin – May 21 – 22, 2012
(in connection with Eurachem General Assembly 2012)

SUPPORTED BY