



*CETAMA
Laboratory services*

Credit : D. Sarraute/CEA

CETAMA



Commissariat à l'Énergie Atomique et aux Énergies Alternatives
DEN/DRCP/CETAMA

Centre de Marcoule – B.P. 17171

30207 BAGNOLS-SUR-CEZE Cedex

Tel : 04 66 79 62 33 - Fax : 04 66 79 62 36

Website: www-cetama.cea.fr - E-mail : cetama@cea.fr

Missions



The Analysis method establishment Committee (CETAMA) is responsible for improving the **quality of measurement and analysis results**. Suitable **scientific and technical developments** are proposed and organized, including:

- *Associated laboratory network liveliness , for know-how improvement*
- *Fabrication, certification and marketing of certified reference materials (CRMs)*
- *Organization and interpretation of inter-laboratory comparisons*
- *Writing of methods, draft standards and reference documents*
- *Communication of scientific information through the organization of seminars and workshops*

Three main nuclear domains are concerned :

- Nuclear fuel cycle (front end and back end)
- Waste destructive and non destructive characterization
- Radionuclides measurement in the environment



The logo for CETAMA, featuring the word "CETAMA" in a stylized, handwritten font.

CETAMA particularities

- **Independance:**

CETAMA establishes solely functional links between network members

- **Working groups organization:**

A competency network based on Working Groups that share knowledge and feedback

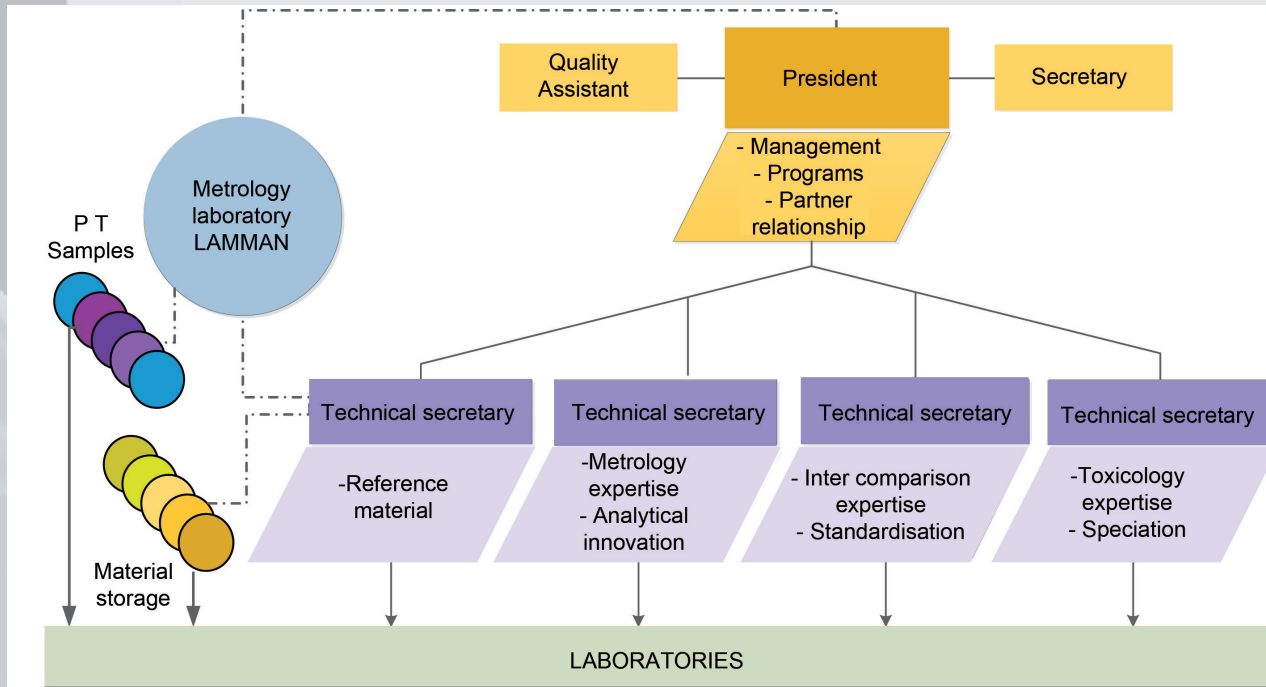
- **QSE triple certification:**

ISO9001 (quality), ISO14001 (environment),
OHSAS 18001 (Security, Heath)

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Organization



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Working means

- **Operational team:**
 - 1 president
 - 4 technical secretaries
 - 1 secretary
- **15 working groups ~ 380 members from 70 laboratories**
- **Metrology laboratories collaborations**
Reference samples for proficiency tests ex : LAMMAN* - LNHB**
- **Support laboratories for CRM storage**
In Valduc, Pierrelatte, Bessines, Marcoule, Saclay
- **Support to innovating analytical developments** (call for project in 2012)
- **CEA Network from toxicology transversal program**
(15 projects, 100 researchers, 10 post-Docs)

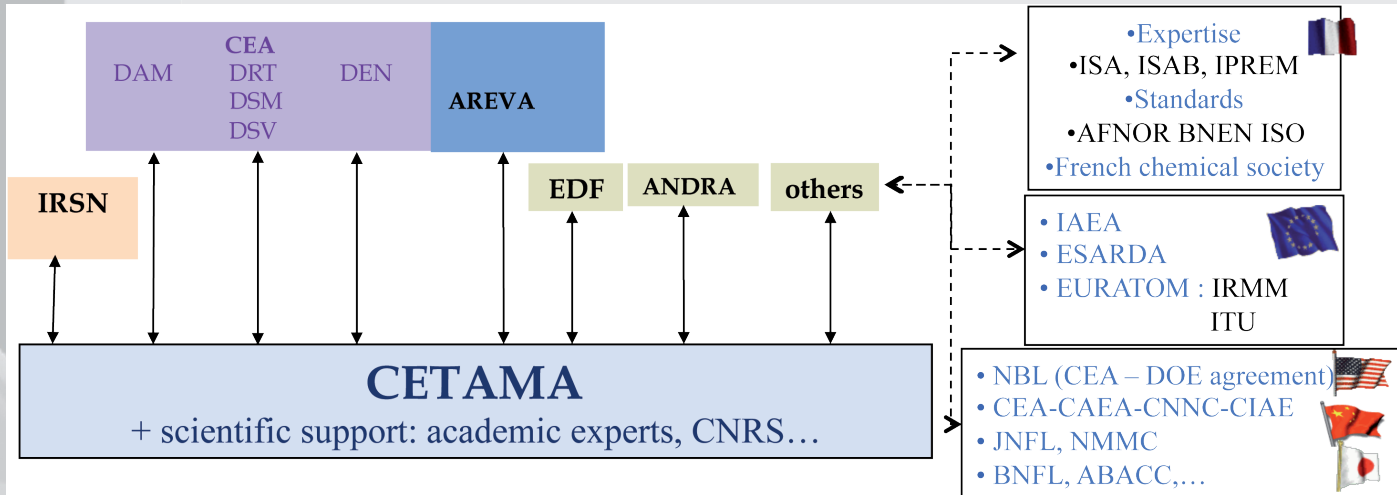
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* LAMMAN : Laboratoire de Métrologie des Matières Nucléaires

** LNHB : Laboratoire National Henri Becquerel

Stakeholders



Stakeholders: this term designates all groups and institutions having interest in CETAMA activities and production through the provision of resources and/or expertise: CEA laboratories, departments or divisions, AREVA, EDF, IRSN and international institutions (AIEA, EURATOM, IRMM, NBL...)

Customers: this term is only used for the sale or RM.



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The Working Groups

- The Working Groups are forums for exchanging information among laboratories on analytical techniques and methods.
- The Working Groups are CETAMA's lifeblood. The expertise and availability of the WG chairpersons ensure the effectiveness of their contributions:
 - Promoting application of the results of experience and pooling of information
 - Summarizing and ranking needs
 - Proposing and drafting methods and other documents
 - Proposing actions for improving the quality of the results
 - Certifying reference materials
- Some WGs are directly involved in writing draft standards (AFNOR and ISO).

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WG thematic



15 WG = 380 members from 70 laboratories

- WG 2** Uranium analysis
- WG 3** Plutonium analysis
- WG 6** Atomic emission and absorption spectrometry
- WG 10** Sampling
- WG 11** Statistical methods
- WG 12** Mass spectrometry
- WG 14** Radionuclides analysis in effluent and waste matrices
- WG 18** Water analysis
- WG 21** Surface analysis
- WG 24** Organic compound analysis
- WG 27** Non destructive control of waste
- WG 29** On-line analysis
- WG 31** Radionuclide analysis in environment
- WG 32** Speciation
- WG 33** Chromatography



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Reference Materials

Production and certification of RM approach:

- Assessment of needs and feasibility (technical, economical, storage...)
Production schedule
- Material production by qualified stakeholder laboratory (LAMMAN, DAM Valduc...)
- Certification by qualified metrology laboratory (LNHB, IRMM*, LAMMAN),
or by interlaboratory comparison with designated expert **laboratories**
- Data processing and certificate edition

The CETAMA catalogue includes 35 available RM
(certified in amount of substance and/or isotopic composition)

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* IRMM: Institute of Reference Materials and Measurements

Interlaboratory comparisons



EQRAIN (French acronym for Quality Assessment of Analytical Results in the Nuclear Industry) Proficiency Tests:

- Proficiency Testing Scheme at regular intervals for U, Pu, multiple trace elements.
- The participating laboratories use the method of their choice, but comply with a common work schedule and presentation guidelines

Validation of analysis method:

Accuracy criterion determination

Special analysis method test:

Assessment of difficulties related to the application of an analytical method, technique or determination



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Reference Documents (1)

- **Technical documentation:**

Overviews (published by Lavoisier in the “TEC&DOC” collection).

Example: «Alpha spectrometry».

- **Instrumentation guides:**

Descriptions of CETAMA network specialist’s expertise concerning the implementation and use of instrumentation, equipment items or techniques.

Example: «Instrumentation guide nb14 – X Microanalysis : X spectrometry Analysis - Equipment and measurements ».

- **Analytical methods:**

Standardized presentation of an assay procedure that has been validated by laboratory experience or by an inter-laboratory comparison.

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Reference Documents (2)



- **Draft standards:**

BNEN , AFNOR and ISO draft standards for submission to the appropriate committee and to critical evaluation

- **Recommendations for optimizing measurements (French acronym DROP):**

- Assistance to laboratories for measurement
- Guidance for users in selecting equipment and in optimizing setup configurations
- Specification of documentary and normative references
- Available documents: DROP alpha, DROP gamma, DROP neutrons.



- **Health and environmental impact assessment:**
 - Participation in CEA Working Groups(e.g. tritium)
 - Development of a methodology for ranking LLRN* and incrementing parameters (activity, power, physical chemistry, radiotoxicity, etc.)
 - Creation of a chemical/radiochemical toxic database (DACTARI**)
 - Involvement in international organizations (AIEA, CIPR, UNSCEAR)
- **Participation in the Nuclear Toxicology Program:**
 - Program supervising, scientific project management
 - Seminar organization, publication
 - Internet Site: www.toxcea.org

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* LLRN :Long-lived radionuclides (half-life > 30 years)

** DACTARI : DATabase for Chemical Toxicity and radiotoxicity Assessment of Radlonuclides

Scientific and technical information



- **Technical seminars and informative day organization:**
 - Technical presentations (proposed by WG)
 - French and international expert lectures
 - Special Issues of international journals
 - International opening

- **Summer school:**
 - Learning, tutorial, practical work
 - Public concerned: young researchers, PhD and post-docs
 - International opening





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BP 17171, 30207 Bagnols-sur-Cèze

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