Laboratory of Radioactivity Standards
Radioisotope Centre POLATOM
05-400 Otwock-Świerk, Poland

Review of activity (2003-2005)
Contribution to the 18th meeting of Section II of CCRI

A new structure of RC POLATOM

Radioisotope Centre POLATOM in Świerk, the main Polish supplier of high quality radiopharmaceuticals and diagnostic kits for nuclear medicine and important manufacturer of radiochemical products for customers all over the world, is a state institution supervised by the Ministry of Economic Affairs and Labour. In January 2005, the Centre has separated from its structure the Polatom Co. Ltd., entirely owned by RC POLATOM.

The main goal of the Polatom Co. Ltd. (104 persons) is the production and trading of radiopharmaceuticals, radiochemical preparations and sealed sources. RC POLATOM (43 persons) retains its research and development unit structure with activity in the field of radiochemistry, biochemistry, radiopharmacy, immunology and radionuclide metrology.

The Laboratory of Radioactivity Standards (LRS) is located in the structure of RC POLATOM. Main tasks of the LRS (5 persons) are:

- Measurement of radionuclides activity applying an absolute and indirect LSC-methods,
- Manufacturing of radioactive standard solutions and many kinds of reference sources of various α-, β- and γ-emitters,
- Determination of radionuclidic purity of radioactive solutions applying γ- and β-spectrometry methods,
- Applying and keeping of the National Standard Unit of Radionuclides Activity,
- Participation in the international comparisons of radionuclides activity measurements,
- Scientific activity in the field of Ionizing Radiation Metrology,
- Service and calibration of instruments for measurement of radionuclides activity,
- Application for the laboratory accreditation to the Polish Center for Accreditation in 2005.

The LRS is equipped with the following instruments:

- 4π(LS)-γ coincidence and anticoincidence system,
- triple-to-double coincidence (TDCR) system,
- x-γ coincidence system,
- LS-spectrometer beta WALLAC 1411,
- gamma spectrometer with the HPGe detector,
- 4π and 2π gas-flow proportional counters,
- MAD2000 dose calibrator.

International activities

- Participation in the 17th Meeting of CCRI(II), Sèvres (May 2003),
- Participation in the 14th ICRM Conference, Dublin (June 2003),

- Participation in the International Conference on Isotopic and Nuclear Analytical Techniques for Health and Environment, Vienna (June 2003),
- Contracts: Standardising of radionuclides by the TDCR method (November 2003), Improving of the TDCR system (April 2004), European Commission Center of Excelence „Interdisciplinary Research and Applications Based on Nuclear and Atomic Physics" (IDRANAP), IFIN-HH, Bucharest,
- Participation in the BIPM Workshop on CCRI(II) Activity Comparisons, Sèvres (November 2004),
- IAEA fellowship on radiopharmacy (Pavia University, Italy, 2004-2005).
- Participation in the 12th Meeting of QS-Forum, Bucharest (February 2005),
- Participation in the ^{54}Mn, ^{60}Co, ^{192}Ir, ^{241}Am, ^{55}Fe and ^{125}I intercomparisons.

Publications

R. Broda, A. Jęczmieniowski, (2004). Statistics of the LS-detector in the case of low counting efficiency. Appl. Radiat. Isot., 60, pp. 453-458.

G. Ratel, C. Michote, R. Broda, A. Listkowska, (2003). Activity measurements of the radionuclide ^{60}Co for the RC, Poland in the ongoing comparison BIPM.RI(II)-K1.Co-60. BIPM, Report-Co-60 (3), 2003/09/09.

A. Chyliński, R. Broda, T. Radoszewski, (2003). The National Standard Unit of Radionuclide Activity and the related standards in Poland. NUKLEONIKA, No.48 (1), pp. 51-55.

R. Broda, (2003). A review of the triple-to-double coincidence ratio (TDCR) method for standardizing radionuclides. Appl. Radiat. Isot., No. 58, pp. 585-594.

R. Broda, (2003). The national standard of radionuclide activity unit, (in Polish), Pomiary Automatyka Robotyka, No. 7-8, pp. 51-55.

In preparation

R. Broda, A. Listkowska, K. Małetka, A. Muklanowicz. Metrological laboratory in RC POLATOM. (Paper for the National Conference on Nuclear technique in industry, medicine, agriculture and environmental protection, Poland, 2005).

A. C. Razdolescu, R. Broda, P. Cassette, B. Simpson. The IFIN-HH triple coincidence liquid scintillation counter. (Paper for the ICRM'05).

Interlaboratory comparison of ^{63}Ni measurements using the TDCR method. (Participation of LNHB, RC POLATOM, IFIN-HH, CSIR-NML).

Contact: Dr. R. Broda
e-mail: r.broda@polatom.pl tel: (48 22) 718 07 21 fax: (48 22) 718 03 50