

Technical protocol

APMP supplementary international comparison of activity measurement of Cs - 134 and Cs - 137 in brown rice

Background information

After the accident of Fukushima Daiichi nuclear power plant, the NMIJ and National Food Research Institute (NFRI) have developed a certified reference material (CRM) of Cesium-134 and Cesium-137 in brown rice. The NMIJ plans to conduct a domestic comparison of activity measurement of the CRM in Japan. According to a result of discussion in a TCRI workshop held in 24th December last year, the NMIJ has prepared samples for APMP supplementary international comparison.

Sample description

The sample is brown rice grain that was contaminated by the accident of Fukushima nuclear power plant.

- It is packaged in a polypropylene vessel of approximately 100 cm³.
- Its amount is approximately 80 g/package.
- Its activity concentration is around 10 Bq/package.
- Three empty vessels for efficiency calibration will be distributed simultaneously.
- Density of the rice grain is approximately 0.8 g/cm³.

Measurement

Participants will be required to report activities [in Bq] of Cs - 134 and Cs - 137 in the sample, respectively. Report form will be sent to participants later. Uncertainty estimation shall be performed according to GUM. Participants can adjust their calibration factor by using the empty vessels which will be sent to the participants. A reference date of the measurement is set at July 1st, 2013.

Time schedule

Distribution of the sample will be in June. Deadline of a report will be August 23rd, 2013. The NMIJ will prepare a draft A report until the end of November. After circulation of the draft A report among participants, it will become a draft B report. The final report will be published in 2014. Work flow of the comparison will be to Appendix 3 of CIPM MRA-D-05 "Measurement comparisons in the context of the CIPM MRA".

Participants

The participants of this comparison are according to table 1.

Table 1: Participants list

1	country	India
	institute	B-48, Environmental Radiation Measurement Section, Health Physics Division, Bhabha Atomic Research Centre Hospital
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6	country	Thailand
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Note) IRMM, NPL and NIST will participate in the comparison.

Pilot Laboratory

The NMIJ will serve as a pilot laboratory.

Contact person will be Dr. Akira Yunoki.

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