COOMET activity in neutron measurements

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COOMET members, who deal with neutron measurements

PTB (Germany) and SMU (Slovakia) are at the same time EURAMET members.
Equipment and measurement capabilities of PTB are well known.
SMU has a following equipment:

- set of radionuclide sources;
- set of tissue equivalent proportional counters with related electronics;
- set of paired ionizing chambers with electrometer;
- Bonner sphere spectrometer with the spherical ^{3}He counter and electronics.

The neutron generator is next to ready.
9 CMC position are traceable to CMI primary standard.
VNIIFTRI (Russia)

- set of radionuclide sources;
- neutron generator;
- thermal neutrons standard;
- long-counter;
- collimator device;
- set of tissue equivalent proportional counters with related electronics;
- set of activation detectors and technique for spectra unfolding.

6 CMC position supported by VNIIFTRI's primary standards.
VNIIM (Russia)

- set of radionuclide sources;
- neutron generator (T-D and D-D reactions);
- three methods of measurements of radionuclide sources emission rate (supplementary - calorimeter for spontaneously fission sources);
- VNIIM's design long-counter;
- standard field of thermal neutrons ($\Phi_{th} = 6.02 \cdot 10^4$ s^{-1}cm^{-2}, Tn = 314 ± 3 K);
- beam-like thermal neutrons field (Φ_{th} (1m) ~ 10^2 s^{-1}cm^{-2}, Tn = 322 ± 3 K);
- set of comparators for transfer of neutron sources strength and neutron fluence rate.

38 CMC position supported by key-comparisons.
NNC IM (Ukraine)

- set of radionuclide sources;
- water-bath;
- collimator device;
- VNIIM's design long-counter;
- set of tissue equivalent proportional counters with related electronics.

BELGIM (BELARUS)

- set of radionuclide sources;
- collimator device;
- VNIIM's design long-counter.

Measurement capabilities are traceable to VNIIM's primary standards.
NCM (BULGARIA)

- set of radionuclide sources;
- Mn-bath;
- collimator device;
- VNIIM's design long-counter.

No last-years information about application.

Institute for Nuclear Research, Pitesti (Romania).
Thermal column of research reactor TRIGA-SSR

- fluence rate range: $2 \cdot 10^6 – 5.10^{10}$ $s^{-1}cm^{-2}$;
- cadmium ratio for gold detectors: 52.1 ± 3%.

During last year gets an official status of NMI in neutron measurements area and plans to present the CMC.

COOMET members' measurements capability

Measurement area	Laboratories
Radionuclide sources emission rate	NNC IM, NCM, PTB, VNIIM
ISO spectra fluence rate	BelGIM, NNC IM, NCM, PTB, VNIIFTRI, VNIIM
Monoenergetic neutrons fluence rate	PTB, VNIIFTRI, VNIIM
Thermal neutrons fluence rate	BelGIM, INR, PTB, VNIIFTRI, VNIIM
Ambient dose equivalent rate	NNC IM, PTB, SMU, VNIIFTRI, VNIIM
Personal dose equivalent rate	NNC IM, PTB, SMU, VNIIFTRI, VNIIM

Key- and supplementary comparisons

Only PTB and VNIIM participated in key-comparisons.
SMU participated in EURAMET.RI-S1.

According to 7th TC 1.9 Meeting resolution (November 2008, NSC IM, Ukraine) the comparison of the calibration factors neutron response/fluence for the standard neutron sources: Am-Be, Cf-252, Cf-252 in the sphere ∅30 cm filled with D_2O will be arranged.

Now we are looking for the suitable device for this purpose taking into account EURAMET.RI-S1 experience.