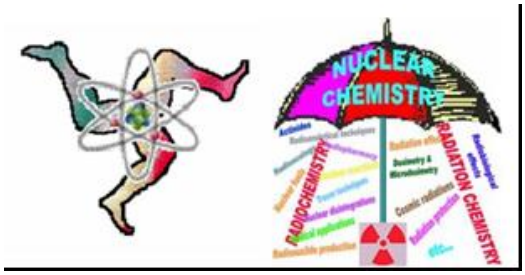

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Radiological study of transport and processing of naturally occurring radioactive materials.

Thursday 22 September 2011 12:20 (15 minutes)

Background: Recently the European Commission is recasting the Euratom Basic Safety Standards (BSS) in order to further limit the exposure of the public and workers to radioactivity. The new BSS is expected in 2015 and contains a broad list of industries, processing Naturally Occurring Radioactive Material (NORM), that will become subject to more strict regulation. The list contains, among others, zirconium-, thorium-, and titanium-mineral processing plants, phosphate-ore industries and oil and gas extraction facilities. In addition the new BSS provides additional regulation for the incorporation of residues of NORM (fly ash, phosphogypsum, phosphorus/tin/copper slag, red mud, ⋯) in building materials.

Materials&methods: A large scale radiological study of the container traffic in the port of Antwerp was conducted by means of portal monitors. Geometry corrected in-situ measurements were performed on materials in industrial processes with LaBr(Ce) and Na(Tl) probes. These results were compared with analysis of samples by means of a Ge detector.

Results: (1) A database of the NORM traffic through the port of Antwerp (2008 –2010) was constructed. (2) Though measurements in the port of Antwerp and at companies a new user-friendly method for the determination of the activity concentration was developed. The determined activity concentrations were compared with the limits set by the BSS. The results obtained with several types of probes in industrial setting are compared. (3) In case-studies dose on workers was assessed. (4) The initial results of the measurement on building materials are shown.

Outlook: A new strategy for the treatment of NORM contaminated waste will be investigated. IAF and NuTeC organize the 4th EAN-NORM workshop in Hasselt, Belgium (Nov 29th –Dec 1st 2011). The workshop focuses on transportation of NORM, measurements strategies and building materials (http://www.ean-norm.net/).

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