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LABORATORY MEASURING TECHNIQUES FOR RADIONUCLIDES IN NORM SAMPLES: DIFFICULTIES AND CHALLENGES

The accurate determination of the radionuclide content in NORM samples of quite different type and/or origin (raw materials, intermediate and end products, liquid and solid wastes, filters, scales, sludges...) is far to be straightforward and not easily applicable in many laboratories devoted to the determination of radionuclides in environmental samples. The laboratories devoted to radionuclide determinations in NORM samples should handle with several specific problems and peculiarities that need to be solved properly. Problems are generally associated to: a) the heterogeneity of the aliquots sent to the laboratory for analysis, b) the possible presence, in addition to the radionuclides, of other contaminants that makes difficult the treatment and handling of the samples (pesticides, hydrocarbons, mercury, carcinogenic compounds...), c) the quite refractory behaviour of a wide number of raw and waste materials which makes it difficult the isolation of some radionuclide of interest for their proper determination, and d) the non-existence of U and Th-series secular equilibrium in the great majority of the samples, something that implies on the need of a higher number of individual radionuclide determinations and makes it difficult the interpretation of the results. All these issues should be taken into consideration in the radiometric analysis of NORM samples. In this invited lecture the main difficulties and challenges for the laboratory radionuclide determination of very different NORM samples will be shown and discussed. Practical solutions and specific points to have in consideration will be highlighted in order to provide reliable results

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