20/09/2023

CODEX COMMITTEE ON CONTAMINANTS IN FOOD

EU Comments on

CL 2023/17-CF
Natural Radioactivity in Food, Feed and Drinking Water

Mixed Competence
Member States Vote

The European Union and its Member States (EUMS) welcome and appreciate the work done by FAO, IAEA and WHO to prepare the document CL 2023/17-CF related to natural radioactivity in feed, food and drinking water.

The EUMS wish to make the following comments:

General comments on the approach, structure and overall content of the document

(1) The document is foreseen to be an informative document for food safety regulators providing the state of the art of natural radioactivity in food/feed/water thereby also reflecting regional variations and should provide all relevant information related to natural radioactivity in food, feed and drinking water, in a summarized way to increase the understanding of the presence of radioactivity in feed and food (including drinking water) without having the need to consult the more detailed documents referred to in the document.

(2) Furthermore, it is very important that the document contains the information referred to in § 8 of the Background section of CL 2023/17 – CF, i.e. that no specific safety problem and no international trade issues have been identified due to the presence of naturally occurring radionuclides in food, feed or drinking water.

(3) It is important to mention that statistical analysis of measurement data on various foodstuffs does not indicate significant regional variations in activity concentrations, although differences can be distinguished in relation to the radionuclide and the food category/subcategory (in the introduction or in the section on radionuclide concentrations).

(4) The different topics in the section “Internal Radiation Dose By Ingestion” should be reworded as headings instead of questions. For example, “Key radionuclides responsible for radiation dose from ingestion of food and drinking water” instead of “What are the key radionuclides responsible for this dose?”

(5) In the document reference is mainly made to the UNSCEAR 2000 report for the mentioned ingestion doses. It is also mentioned that the UNSCEAR 2000 is the most recent report that presents representative values for nine of the most prevalent naturally occurring radionuclides generally found in food and drinking-water. However, reference is also made to UNSCEAR 2008 and the IAEA report (2021) when referring to ingestion doses and representative values in food and drinking

water. It would be appropriate to put clearer upfront in the document the relationship between these reports, the sources of this report and why in, the document mostly reference is made to UNSCEAR 2000 report and not to the more recent UNSCEAR 2008 and IAEA 2021 reports.

(6) In the document reference is made to nine most prevalent radionuclides besides ^{40}K. In these nine most prevalent radionuclides, ^{235}U is mentioned. However, it is not explained in the document why ^{235}U is mentioned as one of the most prevalent radionuclides and not ^{234}U, which is present in food at concentrations higher than ^{235}U.

(7) The concept of reference value (§ 19) should be better explained and be put in context. The International Commission for Radiological Protection (ICRP) recommends setting a reference level between 1 and 20 mSv/year for such exposures, although it might be chosen lower depending on the circumstances. The choice of the reference value of 1 mSv seems cautious as this reference value is fairly close to the typical range of worldwide annual ingestion dose from natural sources of radioactivity in the environment (0.2-0.8 mSv/year according to UNSCEAR 2000, 0.2 – 1.0 mSv/year according to UNSCEAR 2008). Experience shows that despite all precautions taken by ICRP to ensure a proper use of the reference level concept, that it is almost always handled as a health limit which it is not. Consequently, the choice of a reference level as close as possible to the environmental background level may have consequences in particular on the commitment of resources for the management of possible exceedances. In that context, it would be helpful if, besides the reference level also an indication is given from which ingestion dose onwards, possible adverse health effects cannot be excluded.
Finally, it might be considered to increase the coherence to explain the individual dose criterion (IDC) first, followed by an explanation of the reference level.

(8) As this is an informative document for food safety regulators and also in relation with the above comment on putting the concept of reference level into context (and also in relation with the first comment that essential information should be included in the document without having the need to consult the more detailed documents referred to), it would be appropriate to summarise or explain the methodology/approach for managing exposures to radionuclides in food and drinking water in response to requirement 51 of Part 3 of the GSR regarding the establishment of reference levels as proposed in the summary of the IAEA Technical Guidance Document TECDOC-2011 (point 9 of this publication).
The explanation would clarify that it is not sufficient to simply list the estimated guidance levels for each food-radionuclide combination or to define the dose criteria to be applied. It is necessary to emphasise that the application of these guidance levels and dose criteria must comply with the ICRP principles of justification and optimisation, taking into account the prevailing environmental conditions. For example, in particularly vulnerable areas, either because the radioactive background is higher than average, or because it is enhanced by human practices, or because they have been affected by a nuclear or radiological accident, food control campaigns would be justified and an optimisation plan could be drawn up to reduce activity concentrations exceeding the guidance levels. In other cases, it would probably be sufficient to carry out environmental monitoring campaigns and to estimate the concentration in food from transfer factors to the food chain.
The proposed rewording of the new §23 would address this (see below).

Specific comments on paragraphs 1-23 of the document presented in the Appendix

§1: it would be appropriate to explain in this paragraph the relationship between UNSCEAR 2000, UNSCEAR 2008 and IAEA 2021 reports (see point (5) above).

§4, 7, 15, Table 2 and table 7: see point (6) above: to be verified and explained why ^{235}U is referred to instead of ^{234}U.

§20. The word "not" has to deleted in the following sentence "The international food standards of the CODEX Alimentarius provide guidance for the radiological safety of food in terms of international trade with areas ~~not~~ directly affected by a nuclear accident".

§ 21 and 22 The two paragraphs refer essentially to the same thing and are confusing. It is therefore to reorganise the two paragraphs whereby the information referring to reference [1] is put in a paragraph (§22) separate from the information referring to reference [8] put in §23. In addition, in §23 a summary of the TECDOC 2011 approach is proposed (see point (8) above)

"*§21. More general international guidance [1, 8] has recently been developed to assist national authorities in establishing reference levels for radionuclides in food in non-emergency situations. As a first step, the FAO, IAEA and WHO have produced Safety Report No. 114 [1] with technical information that can be used to assess and manage radionuclides in food in existing exposure situations. Together, these two documents [1, 8] establish a scientific and technical foundation for implementing Requirement 51 of reference [4] as it relates to radionuclides in food.*

§22. Safety Report No. 114 [1] includes information on the observed distributions of concentrations of natural radionuclides in various food products, the use of 'total diet' and other studies to assess ingestion doses from radionuclides in general. It also reviews and analyses studies of radionuclides in aquaculture, food collected from the wild, and natural mineral waters sold as foods. The technical information is consistent with that used for drinking-water [5] and also for foods in international trade affected by a nuclear or radiological emergency [7].

§23. In addition, another joint FAO, IAEA, WHO document [8] puts forward an approach for managing radionuclides in food that considers an annual reference level of about 1 mSv from all radionuclides in the food supply, consistent with international radiation safety standards (Requirement 51 of reference [4]). This involves using dietary surveys to monitor the food ingestion dose due to radionuclides in the food supply. Part of guidance also addresses the issue of assessing individual food products using guidance levels of activity concentrations for different radionuclides in food products (rather than the annual food supply as a whole). With some foods where natural levels of ^{210}Po, ^{210}Pb, ^{226}Ra or ^{228}Ra may be enhanced, the approach recommends using guidance levels based on the upper 95th percentile activity concentration values given in reference [1] and reproduced in Tables 3–6. For foods where these four radionuclides are not expected to be naturally enhanced, and for all other radionuclides (except ^{40}K) these guidance level activity concentrations are based on an 'individual dose criterion' (IDC) per radionuclide of 0.1 mSv/year.

TECDOC-2011 [8] is intended to support regulatory bodies, policy makers and others with responsibilities relating to the management of exposures where radionuclides are, or could be, present in food, but it excludes nuclear or radiological emergencies. In particular, this publication provides a proposed approach for the management of radionuclides in food for consideration in implementing Requirement 51 in GSR Part 3. The publication will be of practical value to all those with roles in food safety or radiation protection. The point 9 of the publication summarise this approach, emphasizing the next: the importance of the application of principles of justification and optimisation to the implementation of monitoring of radionuclides and actions to reduce the dose; to take into account the prevailing circumstances in the environment to apply the reference level , as well as the specific or actual consumption at local, regional or national level, other radionuclides and the different population groups; consider a graded approach, according the prevailing circumstances for the monitoring and actions."