

codex alimentarius commission

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FOOD AND AGRICULTURE
ORGANIZATION
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JOINT OFFICE: Viale delle Terme di Caracalla 00153 ROME Tel: 39 06 57051 www.codexalimentarius.net Email: codex@fao.org Facsimile: 39 06 5705 4593

Agenda Item 3

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**JOINT FAO/WHO FOOD STANDARDS PROGRAMME
CODEX COMMITTEE ON CONTAMINANTS IN FOODS**

First Session

Beijing, China, 16 - 20 April 2007

**MATTERS REFERRED TO THE COMMITTEE BY THE CODEX ALIMENTARIUS
COMMISSION AND/OR OTHER CODEX COMMITTEES / TASK FORCES**

**PROPOSED CHANGES TO THE RISK ANALYSIS PRINCIPLES APPLIED BY THE CODEX COMMITTEE ON
FOOD ADDITIVES AND CONTAMINANTS AND THE CCFAC POLICY FOR EXPOSURE ASSESSMENT OF
CONTAMINANTS AND TOXINS IN FOODS OR FOOD GROUPS**

(prepared by the Codex Secretariat)

1. Following the split of the Codex Committee on Food Additives and Contaminants (CCFAC) into the Codex Committee on Contaminants in Foods (CCCF) and the Codex Committee on Food Additives (CCFA)¹, some changes in the Procedural Manual will be necessary to reflect this decision.

2. In the Annexes to this document changes to reflect the split of the CCFAC into the two Committees are proposed for the following texts:

- Risk Analysis Principles Applied by the Codex Committee on Food Additives and Contaminants;
- CCFAC Policy for Exposure Assessment of Contaminants and Toxins in Foods or Food Groups.

Changes for deletion are in ~~striketrough format~~ and addition are underlined format.

3. The Committee is invited to consider the proposed changes for submission to the Commission through the Executive Committee and/or Codex Committee on General Principles.

¹ Decision of the 29th Session of the Codex Alimentarius Commission (ALINORM 05/29/41, para. 142).

ANNEX 1RISK ANALYSIS PRINCIPLES APPLIED BY THE ~~CODEX COMMITTEE ON FOOD ADDITIVES AND THE~~
~~CODEX COMMITTEE ON CONTAMINANTS IN FOODS~~ ~~CODEX COMMITTEE ON FOOD ADDITIVES AND~~
~~CONTAMINANTS~~**SECTION 1. SCOPE**

- 1) This document addresses the respective applications of risk analysis principles by the ~~Codex Committee on Food Additives and Contaminants (CCFAC)~~ Codex Committee on Food Additives (CCFA) and the Codex Committee on Contaminants in Foods (CCCF) and the Joint FAO/WHO Expert Committee on Food Additives (JECFA). For matters which cannot be addressed by JECFA, this document does not preclude the possible consideration of recommendations arising from other internationally recognized expert bodies, as approved by the Commission.
- 2) This document should be read in conjunction with the *Working Principles for Risk Analysis for Application in the Framework of the Codex Alimentarius*.

SECTION 2. ~~CCFAC~~ CCFA/CCCF and JECFA

- 3) ~~CCFAC~~ CCFA/CCCF and JECFA recognize that communication between risk assessors and risk managers is critical to the success of their risk analysis activities.
- 4) ~~CCFAC~~ CCFA/CCCF and JECFA should continue to develop procedures to enhance communication between the two committees.
- 5) ~~CCFAC~~ CCFA/CCCF and JECFA should ensure that their contributions to the risk analysis process involve all interested parties and are fully transparent and thoroughly documented. While respecting legitimate concerns to preserve confidentiality, documentation should be made available, upon request, in a timely manner to all interested parties.
- 6) JECFA, in consultation with ~~CCFAC~~ CCFA/CCCF, should continue to explore developing minimum quality criteria for data requirements necessary for JECFA to perform risk assessments. These criteria are used by ~~CCFAC~~ CCFA/CCCF in preparing ~~its~~ their Priority List for JECFA. The JECFA Secretariat should consider whether these minimum quality criteria for data have been met when preparing the provisional agenda for meetings of JECFA.

SECTION 3. ~~CCFAC~~ CCFA/CCCF

- 7) ~~CCFAC~~ CCFA/CCCF ~~is~~ are primarily responsible for recommending risk management proposals for adoption by the CAC.
- 8) ~~CCFAC~~ CCFA/CCCF shall base ~~its~~ their risk management recommendations to the CAC on JECFA's risk assessments, including safety assessments¹, of food additives, naturally occurring toxicants, and contaminants in food.
- 9) In cases where JECFA has performed a safety assessment and ~~CCFAC~~ CCFA/CCCF or the CAC determines that additional scientific guidance is necessary, ~~CCFAC~~ CCFA/CCCF or CAC may make a more specific request to JECFA to obtain the scientific guidance necessary for a risk management decision.
- 10) ~~CCFAC~~ CCFA's risk management recommendations to the CAC with respect to food additives shall be guided by the principles described in the Preamble and relevant annexes of the Codex General Standard for Food Additives.

¹ A Safety Assessment is defined as a scientifically-based process consisting of: 1) the determination of a NOEL (No Observed Effect Level) for a chemical, biological, or physical agent from animal feeding studies and other scientific considerations; 2) the subsequent application of safety factors to establish an ADI or tolerable intake; and 3) comparison of the ADI or tolerable intake with probable exposure to the agent (Temporary definition to be modified when JECFA definition is available).

- 11) ~~CCFAC~~ CCCF's risk management recommendations to the CAC with respect to contaminants and naturally occurring toxicants shall be guided by the principles described in the Preamble and relevant annexes of the Codex General Standard for Contaminants and Naturally Occurring Toxins in Food.
- 12) ~~CCFAC~~ CCFA/CCCF's risk management recommendations to the CAC that involve health and safety aspects of food standards shall be based on JECFA's risk assessments and other legitimate factors relevant to the health protection of consumers and to ensuring fair practices in food trade in accordance with the *Criteria for the Consideration of the Other Factors Referred to in the Second Statement of Principles*.
- 13) ~~CCFAC~~ CCFA/CCCF's risk management recommendations to the CAC shall take into account the relevant uncertainties and safety factors described by JECFA.
- 14) ~~CCFAC~~ CCFA shall endorse maximum use levels only for those additives for which 1) JECFA has established specifications of identity and purity and 2) JECFA has completed a safety assessment or has performed a quantitative risk assessment.
- 15) ~~CCFAC~~ CCCF shall endorse maximum levels only for those contaminants for which 1) JECFA has completed a safety assessment or has performed a quantitative risk assessment and 2) the level of the contaminant in food can be determined through appropriate sampling plans and analysis methods, as adopted by Codex. ~~CCFAC~~ CCCF should take into consideration the analytical capabilities of developing countries unless public health considerations require otherwise.
- 16) ~~CCFAC~~ CCFA/CCCF shall take into account differences in regional and national food consumption patterns and dietary exposure as assessed by JECFA when recommending maximum use levels for additives or maximum levels for contaminants and naturally occurring toxicants in food.
- 17) Before finalising proposals for maximum levels for contaminants and naturally occurring toxicants, ~~CCFAC~~ CCCF shall seek the scientific advice of JECFA about the validity of the analysis and sampling aspects, about the distribution of concentrations of contaminants and naturally occurring toxicants in foods and about other relevant technical and scientific aspects, including dietary exposure, as necessary to provide for a suitable scientific basis for its advice to ~~CCFAC~~ CCCF.
- 18) When establishing its standards, codes of practice, and guidelines, ~~CCFAC~~ CCFA/CCCF shall clearly state when it applies any other legitimate factors relevant to the health protection of consumers and to ensuring fair practices in food trade in accordance with the *Criteria for the Consideration of the Other Factors Referred to in the Second Statement of Principles*, in addition to JECFA's risk assessment, and specify its reasons for doing so.
- 19) ~~CCFAC~~ CCFA/CCCF's risk communication with JECFA includes prioritising substances for JECFA review with the view towards obtaining the best available risk assessment for purposes of elaborating safe conditions of use for food additives and elaborating safe maximum levels or codes of practice for contaminants and naturally occurring toxicants in food.
- 20) ~~CCFAC~~ CCFA/CCCF shall consider the following when preparing its priority list of substances for JECFA review:
 - Consumer protection from the point of view of health and prevention of unfair trade practices;
 - ~~CCFAC~~ CCFA/CCCF's Terms of Reference;
 - JECFA's Terms of Reference;
 - The Codex Alimentarius Commission's Strategic Plan , its relevant plans of work and *Criteria for the Establishment of Work Priorities*;
 - The quality, quantity, adequacy, and availability of data pertinent to performing a risk assessment, including data from developing countries;
 - The prospect of completing the work in a reasonable period of time;
 - The diversity of national legislation and any apparent impediments to international trade;
 - The impact on international trade (i.e., magnitude of the problem in international trade);
 - The needs and concerns of developing countries; and,

- Work already undertaken by other international organizations;
- 21) When referring substances to JECFA, ~~CCFAC~~ CCFA/CCCF shall provide background information and clearly explain the reasons for the request when chemicals are nominated for evaluation;
- 22) ~~CCFAC~~ CCFA/CCCF may also refer a range of risk management options, with a view toward obtaining JECFA's guidance on the attendant risks and the likely risk reductions associated with each option.
- 23) ~~CCFAC~~ CCFA/CCCF requests JECFA to review any methods and guidelines being considered by ~~CCFAC~~ CCFA/CCCF for assessing maximum use levels for additives or maximum levels for contaminants and naturally occurring toxicants. ~~CCFAC~~ CCFA/CCCF makes any such request with a view toward obtaining JECFA's guidance on the limitations, applicability, and appropriate means for implementation of a method or guideline for ~~CCFAC~~ CCFA/CCCF's work.

SECTION 4. JECFA

- 24) JECFA is primarily responsible for performing the risk assessments upon which ~~CCFAC~~ CCFA/CCCF and ultimately the CAC base their risk management decisions.
- 25) JECFA's scientific experts should be selected on the basis of their competence and independence, taking into account geographical representation to ensure that all regions are represented.
- 26) JECFA should strive to provide ~~CCFAC~~ CCFA/CCCF with science-based risk assessments that include the four components of risk assessment as defined by CAC and safety assessments that can serve as the basis for ~~CCFAC~~ CCFA/CCCF's risk-management discussions. For contaminants and naturally occurring toxicants, JECFA should determine to the extent possible the risks associated with various levels of intake. Because of the lack of appropriate information, including data in humans, however, this may be possible in only a few cases for the foreseeable future. For additives, JECFA should continue to use its safety assessment process for establishing ADIs.
- 27) JECFA should strive to provide ~~CCFAC~~ CCFA/CCCF with science-based quantitative risk assessments and safety assessments for food additives, contaminants, and naturally occurring toxicants in a transparent manner.
- 28) JECFA should provide ~~CCFAC~~ CCFA/CCCF with information on the applicability and any constraints of the risk assessment to the general population to particular sub-populations and should as far as possible identify potential risks to populations of potentially enhanced vulnerability (e.g., children, women of child-bearing age, the elderly).
- 29) JECFA should also strive to provide ~~CCFAC~~ CCFA with specifications of identity and purity essential to assessing risk associated with the use of additives.
- 30) JECFA should strive to base its risk assessments on global data, including data from developing countries. These data should include epidemiological surveillance data and exposure studies.
- 31) JECFA is responsible for evaluating exposure to additives, contaminants, and naturally occurring toxicants.
- 32) When evaluating intake of additives or contaminants and naturally occurring toxicants during its risk assessment, JECFA should take into account regional differences in food consumption patterns.
- 33) JECFA should provide to ~~CCFAC~~ CCCF its scientific views on the validity and the distribution aspects of the available data regarding contaminants and naturally occurring toxicants in foods which have been used for exposure assessments, and should give details on the magnitude of the contribution to the exposure from specific foods as may be relevant for risk management actions or options of ~~CCFAC~~ CCCF.
- 34) JECFA should communicate to ~~CCFAC~~ CCFA/CCCF the magnitude and source of uncertainties in its risk assessments. When communicating this information, JECFA should provide ~~CCFAC~~ CCFA/CCCF with a description of the methodology and procedures by which JECFA estimated any uncertainty in its risk assessment.
- 35) JECFA should communicate to ~~CCFAC~~ CCFA/CCCF the basis for all assumptions used in its risk assessments including default assumptions used to account for uncertainties.

- 36) JECFA's risk assessment output to ~~CCFAC~~ CCFA/CCCF is limited to presenting its deliberations and the conclusions of its risk assessments and safety assessments in a complete and transparent manner. JECFA's communication of its risk assessments should not include the consequences of its analyses on trade or other non-public health consequence. Should JECFA include risk assessments of alternative risk management options, JECFA should ensure that these are consistent with the Working Principles for Risk Analysis for the Application in the Framework of the Codex Alimentarius and Risk Analysis Principles applied by the ~~Codex Committee on Food Additives and Contaminants~~ Codex Committee on Food Additives and the Codex Committee on Contaminants in Foods.
- 37) When establishing the agenda for a JECFA meeting, the JECFA Secretariat work closely with ~~CCFAC~~ CCFA/CCCF to ensure that ~~CCFAC~~ CCFA/CCCF's risk management priorities are addressed in a timely manner. With respect to food additives, the JECFA Secretariat should normally give first priority to compounds that have been assigned a temporary ADI, or equivalent. Second priority should normally be given to food additives or groups of additives that have previously been evaluated and for which an ADI, or equivalent, has been estimated, and for which new information is available. Third priority should normally be given to food additives that have not been previously evaluated. With respect to contaminants and naturally occurring toxicants, the JECFA Secretariat should give priority to substances that present both a significant risk to public health and are a known or expected problem in international trade.
- 38) When establishing the agenda for a JECFA meeting, the JECFA Secretariat should give priority to substances that are known or expected problems in international trade or that present an emergency or imminent public health risk.

ANNEX 2**~~CCFAC~~ CCCF POLICY FOR EXPOSURE ASSESSMENT OF CONTAMINANTS AND TOXINS IN FOODS OR FOOD GROUPS****SECTION 1. INTRODUCTION**

1. Maximum Limits (MLs) do not need to be set for all foods that contain a contaminant or a toxin. The Preamble of the Codex General Standard for Contaminants and Toxins in Foods (GSCTF) states in Section 1.3.2 that “maximum levels (MLs) shall only be set for those foods in which the contaminant may be found in amounts that are significant for the total exposure of the consumer. They should be set in such a way that the consumer is adequately protected”. Setting standards for foods that contribute little to dietary exposure would mandate enforcement activities that do not contribute significantly to health outcomes.
2. Exposure assessment is one of the four components of risk assessment within the risk analysis framework adopted by Codex as the basis for all standard-setting processes. The estimated contribution of specific foods or food groups to the total dietary exposure to a contaminant as it relates to a quantitative health hazard endpoint (e.g., PMTDI, PTWI) provides further information needed for the setting of priorities for the risk management of specific foods/food groups. Exposure assessments must be guided by clearly articulated policies elaborated by Codex with the aim of increasing the transparency of risk management decisions.
3. The purpose of this Annex is to outline steps in contaminant data selection and analysis undertaken by JECFA when requested by ~~CCFAC~~ CCCF to conduct a dietary exposure assessment.
4. The following components highlight aspects of JECFA’s exposure assessment of contaminants and toxins that contribute to ensuring transparency and consistency of science-based risk assessments. Exposure assessments of contaminants and toxins in foods are performed by JECFA at the request of ~~CCFAC~~CCCF. ~~CCFAC~~CCCF will take this information into account when considering risk management options and making recommendations regarding contaminants and toxins in foods.

SECTION 2. ESTIMATION OF TOTAL DIETARY EXPOSURE TO A CONTAMINANT OR TOXIN FROM FOODS/FOOD GROUPS

5. JECFA uses available data from member countries and from GEMS/Food Operating Program for analytical laboratories system on contaminant levels in foods and the amount of foods consumed to estimate total dietary exposure to a contaminant or toxin. This is expressed as a percentage of the tolerable intake (e.g., PTDI, PTWI, or other appropriate toxicological reference point). For a carcinogen with no clear threshold, JECFA uses available data on intake combined with data on carcinogenic potency to estimate potential population risks.
6. Median/mean contaminant levels in foods are determined from available analytical data submitted by countries and from other sources. These data are combined with information available for the GEMS/Food Regional diets to generate dietary exposure estimates for regions in the world. JECFA provides an estimate as to which of the GEMS/Food Regional diets are likely to approach or exceed the tolerable intake.
7. In some cases, available national contaminant and/or individual food consumption data may be used by JECFA to provide more accurate estimates of total dietary exposure, particularly for vulnerable groups such as children.
8. JECFA performs exposure assessments if requested by ~~CCFAC~~CCCF using the GEMS/Food Regional Diets and, if needed, available national consumption data to estimate the impact on dietary exposure of proposed alternative maximum levels to inform ~~CCFAC~~CCCF about these risk management options.

SECTION 3. IDENTIFICATION OF FOODS/FOOD GROUPS THAT CONTRIBUTE SIGNIFICANTLY TO TOTAL DIETARY EXPOSURE OF THE CONTAMINANT OR TOXIN

9. From dietary exposure estimates JECFA identifies foods/food groups that contribute significantly to the exposure according to ~~CCFAC~~CCCF’s criteria for selecting food groups that contribute to exposure.

10. The ~~CCFAC~~CCCCF determines criteria for selecting foods/food groups that contribute significantly to total dietary exposure of a contaminant or toxin. These criteria are based upon the percentage of the tolerable intake (or similar health hazard endpoint) that is contributed by a given food/food group and the number of geographic regions (as defined by the GEMS/Food Regional diets) for which dietary exposures exceed that percentage.
11. The criteria are as follows:
- a) Foods or food groups for which exposure to the contaminant or toxin contributes approximately 10%¹ or more of the tolerable intake (or similar health hazard endpoint) in one of the GEMS/Food Regional diets;
- or,
- b) Foods or food groups for which exposure to the contaminant or toxin contributes approximately 5%¹ or more of the tolerable intake (or similar health hazard endpoint) in two or more of the GEMS/Food Regional diets;
- or,
- c) Foods or food groups that may have a significant impact on exposure for specific groups of consumers, although exposure may not exceed 5% of the tolerable intake (or similar health hazard endpoint) in any of the GEMS/Food Regional diets. These would be considered on a case-by-case basis.

SECTION 4. GENERATION OF DISTRIBUTION CURVES FOR CONCENTRATIONS OF THE CONTAMINANT IN SPECIFIC FOODS/FOOD GROUPS (CONCURRENT WITH SECTION 2, OR SUBSEQUENT STEP)

12. If requested by ~~CCFAC~~, JECFA uses available analytical data on contaminant or toxin levels in foods/food groups identified as significant contributors to dietary exposure to generate distribution curves of contaminant concentrations in individual foods. ~~CCFAC~~ will take this information into account when considering risk management options and, if appropriate, for proposing the lowest achievable levels for contaminants/toxins in food on a global basis.
13. Ideally, individual data from composite samples or aggregated analytical data would be used by JECFA to construct the distribution curves. When such data are not available, aggregated data would be used (for example mean and geometric standard deviation). However, methods to construct distribution curves using aggregated data would need to be validated by JECFA.
14. In presenting the distribution curves to ~~CCFAC~~, JECFA should, to the extent possible, provide a comprehensive overview of the ranges of contamination of foods (i.e., both the maximum and outlier values) and of the proportion of foods/food groups that contain contaminants/toxins at those levels.

SECTION 5. ASSESSMENT OF THE IMPACT OF AGRICULTURAL AND PRODUCTION PRACTICES ON CONTAMINANT LEVELS IN FOODS/FOOD GROUPS (CONCURRENT WITH SECTION 2, OR SUBSEQUENT STEP)

15. If requested by ~~CCFAC~~, JECFA assesses the potential impact of different agricultural and production practices on contaminant levels in foods to the extent that scientific data are available to support such assessments. ~~CCFAC~~ takes this information into account when considering risk management options and for proposing Codes of Practice.
16. Taking this information into account, ~~CCFAC~~ proposes risk management decisions. To refine them, ~~CCFAC~~ may request JECFA to undertake a second assessment to consider specific exposure scenarios based on proposed risk management options. The methodology for assessing potential contaminant exposure in relation to proposed risk management options needs to be further developed by JECFA.

¹ Rounded to the nearest 1/10th of a percent.