Food and Agriculture Organization of the United Nations

World Health Organization

JOINT FAO/WHO EXPERT COMMITTEE ON FOOD ADDITIVES
Sixty-seventh meeting
Rome, 20-29 June 2006

SUMMARY AND CONCLUSIONS

issued 7 July 2006

A meeting of the Joint FAO/WHO Expert Committee on Food Additives (JECFA) was held in Rome, Italy, from 20 to 29 June 2006. The purpose of the meeting was to evaluate certain food additives and food contaminants.

Mrs Inge Meyland, Danish Institute of Food and Veterinary Research, Søborg, Denmark, served as Chairman and Dr John Larsen, Division of Toxicology and Risk Assessment, Danish Institute of Food and Veterinary Research, Søborg, Denmark, served as Vice-Chairman.

Dr Annika Wennberg, Nutrition and Consumer Protection Division, Food and Agriculture Organization, and Dr Angelika Tritscher, International Programme on Chemical Safety, World Health Organization, served as joint secretaries.

The present meeting was the sixty-seventh in a series of similar meetings. The tasks before the Committee were (a) to elaborate further principles for evaluating the safety of food additives including flavouring agents; (b) to evaluate certain food additives and food contaminants; and (c) to review and prepare specifications for selected food additives.

The report of the meeting will appear in the WHO Technical Report Series. Its presentation will be similar to that of previous reports, namely, general considerations, comments on specific substances, and recommendations for future work. An annex will include detailed tables (similar to the tables in this report) summarizing the main conclusions of the Committee in terms of acceptable daily intakes (ADIs) and other toxicological recommendations. Information on specifications for the identity and purity of certain food additives examined by the Committee will also be included.

The participants in the meeting are listed in Annex 1. Further information required or desired is listed in Annex 2. General considerations that contain information that the Committee would like to disseminate quickly are included in Annex 3.

Toxicological monographs or monograph addenda on most of the substances that were considered will be published in WHO Food Additives Series No. 58.

New and revised specifications for the identity and purity of the compounds will be published in FAO JECFA Monographs 3.

More information on the work of the Joint FAO/WHO Expert Committee on Food Additives (JECFA) is available at:

http://www.fao.org/ag/agn/jecfa/index_en.stm

http://www.who.int/ipcs/food/jecfa/en/index.html

Toxicological recommendations and information on specifications

1. Food additives and ingredients evaluated toxicologically or assessed for dietary exposure

Food additive	Specifi-cations[a]	Acceptable daily intake (ADI) and other toxicological recommendations
Annatto Extracts	R	**ADI for bixin of 0-12 mg/kg bw** Applicable to the following Annatto extracts, provided they comply with the respective specifications: - solvent-extracted bixin (≥85 % bixin, ≤2.5% norbixin) - aqueous processed bixin (≥25 % bixin, ≤7% norbixin) Does **not apply** to oil-processed bixin (≥10 % bixin) **Group ADI for norbixin and its sodium and potassium salts of 0-0.6 mg/kg bw (expressed as norbixin)** Applicable to the following Annatto extracts, provided they comply with the respective specification: - solvent extracted norbixin (≥85 % norbixin) - alkali processed norbixin, acid precipitated (≥35% norbixin) and not acid precipitated (≥15 % norbixin) In re-evaluating the studies of toxicity with solvent-extracted bixin (92% bixin) and solvent-extracted norbixin (91.6% norbixin) and in light of the additional compositional data, the Committee considered that ADIs could be allocated to these pigments, based on the studies conducted on the extracts. The Committee established an ADI for bixin of 0–12 mg/kg bw on the basis of the NOEL of 1311 mg/kg bw per day from a 90-day study in male rats fed an extract containing 92% bixin, corrected for pigment content and applying a safety factor of 100. The Committee established a group ADI for norbixin and its sodium and potassium salts of 0–0.6 mg/kg bw (expressed as norbixin) on the basis of the NOEL of 69 mg/kg bw per day from a 90-day study in male rats fed an extract containing 91.6% norbixin, corrected for pigment content and applying a safety factor of 100. Based on compositional data and toxicological data on aqueous processed bixin and alkali-processed norbixin (acid precipitated), the Committee concluded that the use of these annatto extracts as sources of bixin or norbixin would not raise safety concerns, provided that they complied with the relevant specifications. Accordingly, the ADIs given above could be applied to bixin and norbixin derived from these annatto extracts. The Committee noted that the pigment in alkali-processed norbixin (not acid-precipitated) consists of sodium or potassium salts of norbixin and that compositional data on this extract, complying with the specifications, did not raise safety concerns. Consequently, the Committee concluded that the group ADI for norbixin and its sodium and potassium salts is applicable to norbixin salts from this source. As no NOEL could be identified for oil-processed bixin and no compositional data were available, the Committee decided that the above evaluation could not be applied to this extract. Assuming all annatto derived pigment were bixin, the estimated intake would amount to approximately 0.2% of the ADI (0–12 mg/kg bw). Assuming all annatto derived pigment were norbixin, the estimated intake would amount to approximately 4% of the ADI (0–0.6 mg/kg bw). Specifications have been established for all extracts which are covered by the established ADIs, and tentative specifications for oil-processed bixin.

Lycopene (synthetic)	N	The Committee established an **ADI of 0–0.5 mg/kg bw for synthetic lycopene** based on the highest dose of 50 mg/kg bw per day tested in the 104-week study in rats (at which no adverse effects relevant to humans were induced), and a safety factor of 100. **This ADI was made into a group ADI to include lycopene from *Blakeslea trispora,*** which was also under consideration at the present meeting and was considered to be toxicologically equivalent to chemically synthesized lycopene. The estimate of high exposure (greater than 95th percentile) of 30 mg/person per day, equivalent to 0.5 mg/kg bw per day, which includes background exposure plus additional exposure from food additive uses, is compatible with the ADI.
Lycopene from *Blakeslea trispora*	N	Lycopene from *Blakeslea trispora* is considered to be toxicologically equivalent to chemically synthesized lycopene, for which an ADI of 0–0.5 mg/kg bw was established. This was given further credence by the negative results obtained for lycopene from *B. trispora* in two tests for genotoxicity, and the absence of adverse effects in a short-term toxicity study considered at the present meeting. **The ADI for synthetic lycopene was therefore made into a group ADI of 0-0.5 mg/kg bw to include lycopene from *B. trispora*.** The exposure estimate is the same as for synthetic lycopene.
Natamycin (aka pimaricin) (exposure assessment)		The data as a whole, including estimations based on GEMS/Food Consumption Cluster Diets and calculations for consumers with a high intake and children, confirm the results of the assessment made by the Committee at its fifty-seventh meeting and show that the **current ADI of 0–0.3 mg/kg bw is unlikely to be exceeded**.
Propyl paraben (aka propyl para-hydroxybenzoate)	W	In view of the adverse effects in male rats, **propyl paraben (propyl p-hydroxybenzoate) should be excluded from the group ADI for the parabens used in food**. This conclusion was reached on the grounds that the group ADI was originally set on a NOEL of 1000 mg/kg bw per day for a different toxicological end-point—growth depression—taken from the range of studies then available for the methyl, ethyl and propyl parabens. Propyl paraben has shown adverse effects in tissues of reproductive organs in male rats at dietary doses of down to 10 mg/kg bw per day, which is within the range of the group ADI (0–10 mg/kg bw), with no NOEL yet identified. The specifications for propyl paraben were withdrawn. **The group ADI of 0–10 mg/kg bw for the sum of methyl and ethyl esters of p-hydroxybenzoic acid was maintained**.

[a] N: new specifications prepared; R: existing specifications revised; W: specifications withdrawn

2. Food additives considered for specifications only

Food Additive	Specifications[a]
Acetylated oxidised starch	R
Annatto extracts (oil processed bixin)	R, T
Butyl p-hydroxybenzoate (butyl paraben)	W
Carob bean gum	R, T
Carob bean gum (clarified)	N, T
Ethylene oxide	W
Guar gum	R, T
Guar gum (clarified)	N, T
DL-Malic acid and its calcium and sodium salts	R
Maltitol	R
Titanium dioxide	R
Zeaxanthin (synthetic)	R

[a]N: new specifications prepared; R: existing specifications revised; T: tentative specifications; W: specifications withdrawn.

3. Food contaminants evaluated toxicologically

Food Contaminant	Tolerable intakes and other toxicological recommendations
Aluminium (from all sources including food additives)	The Committee established a **PTWI for Al of 1 mg/kg bw**, which applies to all aluminium compounds in food, including additives. The previously established ADIs and PTWI for aluminium compounds were withdrawn. The Committee concluded that aluminium compounds have the potential to affect the reproductive system and developing nervous system at doses lower than those used in establishing the previous PTWI and therefore revised the PTWI. The available studies have many limitations and are not adequate for defining the dose–response relationships. The Committee therefore based its evaluation on the combined evidence from several studies. The relevance of studies involving administration of aluminium compounds by gavage was unclear because the toxicokinetics following gavage were expected to differ from toxicokinetics following dietary administration, and these gavage studies generally did not report total aluminium exposure including basal levels in the feed. The studies conducted with dietary administration of aluminium compounds were considered most appropriate for the evaluation. The lowest LOELs for Al in a range of different dietary studies in mice, rats and dogs were in the range of 50–75 mg/kg bw per day. The Committee applied an uncertainty factor of 100 to the lower end of this range of LOELs (50 mg Al/kg bw per day) to allow for inter- and intra-species differences. There are deficiencies in the database, notably the absence of NOELs in the majority of the studies evaluated and the absence of long-term studies on the relevant toxicological end-points. These deficiencies are counterbalanced by the probable lower bioavailability of the less soluble aluminium compounds present in food. Overall, it was considered appropriate to apply an additional uncertainty factor of 3. The Committee confirmed that the resulting health-based guidance value should be expressed as a PTWI, because of the potential for bioaccumulation. The Committee noted that the PTWI is likely to be exceeded to a large extent by some population groups, particularly children, who regularly consume foods that include aluminium-containing additives. The Committee also noted that dietary exposure to Al is expected to be very high for infants fed on soya-based formula.
Food Contaminant	**Tolerable intakes and other toxicological recommendations**
3-chloro-1,2-propanediol	As no new pivotal toxicological studies had become available the Committee **retained the previously established PMTDI of 2 µg/kg bw** for 3-chloro-1,2-propanediol. Estimated exposures at the national level considered a wide range of foods, including soy sauce and soy-sauce related products, ranged from 1% to 35% of the PMTDI for average exposure in the general population. For the consumers at the high percentile (95th), the estimated intakes ranged from 3% to 85% and up to 115% of the PMTDI in young children. These estimates are based on concentrations of 3-chloro-1,2-propanediol derived before any remedial action had been taken by government or industry. The Committee noted that reduction in the concentration of 3-chloro-1,2-propanediol in soy sauce and related products made with acid-HVP could substantially reduce the intake of this contaminant by certain consumers of this condiment.

1,3-dichloro-2-propanol	The Committee concluded that the critical effect of 1,3-dichloro-2-propanol is carcinogenicity. The substance yielded negative results in two new studies on genotoxicity in vivo, but limitations in these studies and positive findings in tests for genotoxicity in vitro as well as lack of knowledge on the modes of action operative at the various tumour locations led the Committee to the conclusion that a genotoxic mode of action could not be excluded. Accordingly, the cancer dose–response data were analysed by dose–response modelling to calculate BMD10 and BMDL10 values. The Committee concluded that a representative mean intake for the general population of 1,3-dichloro-2-propanol of 0.051 µg/kg bw per day and an estimated high-level intake (young children included) of 0.136 µg/kg bw per day could be used in the evaluation. Comparison of these mean and high-levels intakes with the lowest BMDL10 of 3.3 mg/kg bw per day, which was the BMDL10 for incidence data on tumour-bearing animals for all treatment-affected locations, indicates **margins of exposure of approximately 65 000 and 24 000**, respectively. **Based on these margins of exposure, the Committee concluded that the estimated intakes of 1,3-dichloro-2-propanol were of low concern for human health.** The available evidence suggests that 1,3-dichloro-2-propanol occurs at lower levels than 3-chloro-1,2-propanediol in soy sauce and related products, and also in acid-HVP food ingredients. However, in meat products the concentrations of 1,3-dichloro-2-propanol are generally higher than the levels of 3-chloro-1,2-propanediol.
Food Contaminant	**Tolerable intakes and other toxicological recommendations**
Methylmercury	The Committee made it clear that the previous PTWI of 3.3 µg/kg bw had, in fact, been withdrawn in 2003. The Committee **confirmed the existing PTWI of 1.6 µg/kg bw**, set in 2003, based on the most sensitive toxicological end-point (developmental neurotoxicity) in the most susceptible species (humans). However, the Committee noted that **life-stages other than the embryo and fetus may be less sensitive to the adverse effects of methyl mercury**. In the case of adults, the Committee considered that intakes of up to about two times higher than the existing PTWI of 1.6 µg/kg bw would not pose any risk of neurotoxicity in adults, although in the case of women of childbearing age, it should be borne in mind that intake should not exceed the PTWI, in order to protect the embryo and fetus. Concerning infants and children aged up to about 17 years, the data do not allow firm conclusions to be drawn regarding their sensitivity compared to that of adults. While it is clear that they are not more sensitive than the embryo or fetus, they may be more sensitive than adults because significant development of the brain continues in infancy and childhood. Therefore, the Committee could not identify a level of intake higher than the existing PTWI that would not pose a risk of developmental neurotoxicity for infants and children. The Committee has previously noted that fish makes an important contribution to nutrition, especially in certain regional and ethnic diets. The present Committee recommends that the known benefits of fish consumption need to be taken into consideration in any advice aimed at different subpopulations. Risk managers may wish to consider whether specific advice should be given concerning children and adults, after weighing the potential risks and benefits. The Committee concluded that the setting of guideline levels for methyl mercury in fish may not be an effective way of reducing exposure for the general population. The Committee noted that advice targeted at population subgroups that may be at risk from methyl mercury exposure may provide an effective method for lowering the number of individuals with exposures greater than the PTWI.

Annex 1

Sixty-seventh meeting of the Joint FAO/WHO Expert Committee on Food Additives (JECFA)

Rome, 20-29 June 2006

Members

Prof Gabriel Adegoke, Department of Food Technology, University of Ibadan, Ibadan, Nigeria

Prof John R. Bend, School of Medicine and Dentistry, University of Western Ontario, London, Ontario, Canada

Dr Mike Bolger, US Food and Drug Administration, College Park, MD, USA

Dr Yoko Kawamura, National Institute of Health Sciences, Tokyo, Japan

Dr Ada Knaap, National Institute of Public Health and the Environment, Bilthoven, The Netherlands

Dr Paul M. Kuznesof, US Food and Drug Administration, College Park, MD, USA

Dr John C. Larsen, Danish Institute of Food and Veterinary Research, Søborg, Denmark *(vice-Chairman)*

Dr Antonia Mattia, US Food and Drug Administration, College Park, MD, USA

Mrs Inge Meyland, Danish Institute of Food and Veterinary Research, Søborg, Denmark *(Chairman)*

Dr Madduri Veerabhadra Rao, Central Laboratories Unit, U.A.E. University, Al Ain, United Arab Emirates

Dr Josef Schlatter, Swiss Federal Office of Public Health, Zürich, Switzerland

Dr Philippe Verger, Institut National de la Recherche Agronomique, Paris, France

Prof Ronald Walker, Emeritus Professor of Food Sciences, Aldershot, Hants, United Kingdom

Mrs Harriet Wallin, National Food Safety Authority (EVIRA), Helsinki, Finland

Dr Brian Whitehouse, Bowdon, Cheshire, United Kingdom

Secretariat

Dr Susan Barlow, Brighton, East Sussex, United Kingdom *(WHO Temporary Adviser)*

Dr Diane Benford, Food Standards Agency, London, United Kingdom *(WHO Temporary Adviser)*

Dr Ruth Charrondiere, Nutrition and Consumer Protection Division, Food and Agriculture Organization, Rome, Italy *(FAO Staff Member)*

Dr Maria de Lourdes Costarrica, Nutrition and Consumer Protection Division, Food and Agriculture Organization, Rome, Italy *(FAO Staff Member)*

Dr Michael DiNovi, US Food and Drug Administration, College Park, MD, USA *(WHO Temporary Adviser)*

Dr Christopher E Fisher, Cambridge, United Kingdom (*FAO Expert*)

Dr Noriko Iseki, Joint FAO/WHO Food Standards Programme, Secretariat of the Codex Alimentarius Commission, Food and Agriculture Organization, Rome, Italy

Prof Fujio Kayama, Division of Environmental Medicine, Jichi Medical University, Tochi-ken, Japan *(WHO Temporary Adviser)*

Prof Robert Kroes, Institute for Risk Assessment Sciences, Utrecht University, Soest, Netherlands *(WHO Temporary Adviser, unable to participate)*

Dr Charles A. Lawrie, Food Standards Agency, London, United Kingdom *(FAO Expert)*

Dr Jean-Charles Leblanc, French Food Safety Agency (AFSSA), Maisons Alfort, France *(WHO Temporary Adviser)*

Dr Catherine LeClercq, National Research Institute for Food and Nutrition (INRAN), Rome, Italy *(FAO Expert)*

Dr Heidi Mattock, Technical Editor, Illkirch-Graffenstaden, France *(WHO Temporary Adviser)*

Dr Gerald Moy, Food Safety Department, World Health Organization, Geneva, Switzerland *(WHO Staff Member)*

Dr Ian C. Munro, CanTox Health Sciences International, Mississauga, Ontario, Canada *(WHO Temporary Adviser)*

Dr Akiyoshi Nishikawa, Division of Pathology, National Institute of Health Sciences, Tokyo, Japan *(WHO Temporary Adviser)*

Dr Zofia Olempska-Beer, US Food and Drug Administration, College Park, MD, USA *(FAO Expert)*

Dr Barbara Petersen, Exponent, Washington DC, USA *(WHO Temporary Adviser, unable to participate)*

Mrs Marja E.J. Pronk, Center for Substances and Integrated Risk Assessment, National Institute for Public Health and the Environment, Bilthoven, The Netherlands *(WHO Temporary Adviser)*

Prof Andrew G. Renwick, Clinical Pharmacology Group, University of Southampton, Southampton, United Kingdom *(WHO Temporary Adviser)*

Dr Niek Schelling, Ministry of Agriculture, Nature and Food Quality, The Hague, Netherlands *(WHO Temporary Adviser, participated only June 20th)*

Dr Klaus Schneider, Forschungs-und Beratungsinstitut Gefahrstoffe (FoBiG), Freiburg, Germany *(WHO Temporary Adviser)*

Dr James Smith, Prince Edward Island Food Technology Centre, Charlottetown, Canada *(FAO Expert)*

Dr Debra Street, US Food and Drug Administration, College Park, MD, USA *(WHO Temporary Adviser)*

Dr Angelika Tritscher, International Programme on Chemical Safety, World Health Organization, Geneva, Switzerland *(WHO Joint Secretary)*

Prof Lucia Maria Valenta Soares, Campinas, Brazil *(FAO Expert)*

Ms Annie de Veer, Ministry of Agriculture, Nature and Food Quality, The Hague, Netherlands *(WHO Temporary Adviser, participated only June 20th)*

Dr Annika Wennberg, Nutrition and Consumer Protection Division, Food and Agriculture Organization, Rome, Italy *(FAO Joint Secretary)*

Prof Gary M Williams, Environmental Pathology and Toxicology, New York Medical College, Valhalla, NY, USA *(WHO Temporary Adviser)*

Annex 2

Further information required

Annatto extracts (oil-processed bixin)

Information is required on the chemical characterisation of the non-colouring matter components of commercial products. The tentative specifications monograph will be withdrawn unless the requested information is received before the end of 2008.

Carob bean gum

Data are required on gum content, solubility in water and an analytical method using capillary gas chromatography for measuring residual solvents. For clarified carob bean gum, in addition to the information listed above for carob bean gum, information is requested on synonyms and a range of other information on purity. The tentative specifications monograph will be withdrawn unless the required information is received before the end of 2007.

Guar gum

Data are required on gum content and an analytical method using capillary gas chromatography for measuring residual solvents. For clarified guar gum, in addition to the information listed above for guar gum, information is requested on synonyms and a range of other information on purity. The tentative specifications monograph will be withdrawn unless the required information is received before the end of 2007.

Aluminium

Further data on the bioavailability of different aluminium-containing food additives are required.

There is a need for an appropriate study of developmental toxicity and a multigeneration study incorporating neurobehavioural end-points, to be conducted on a relevant aluminium compound(s).

Studies to identify the forms of aluminium present in soya formulae, and their bioavailability, are needed before an evaluation of the potential risk for infants fed on soya formulae can be considered.

3-chloro-1,2-propanediol

The Committee noted that it has been reported that fatty acid esters of 3-chloro-1,2-propanediol are present in foods, but there were insufficient data to enable either their intake or toxicological significance to be evaluated. The Committee recommended that studies be undertaken to address this question.

Annex 3

An edited version of this section will appear in the report of the sixty-seventh meeting of the Joint FAO/WHO Expert Committee on Food Additives (JECFA). It is reproduced here so that the information is disseminated quickly. This draft is subject to extensive editing.

General Considerations

1. Additional method for assessing dietary exposure to flavouring agents

Introduction

JECFA has employed the maximized survey-derived intake (MSDI) method as a surrogate measure of dietary exposure for use in the Procedure for the Safety Evaluation of Flavouring Agents. The MSDI is a per-capita estimate based on the reported amount of the flavouring agent disappearing into the food supply per year in specific regions (currently Europe and the United States of America; data from Japan are anticipated in the future) and on the assumption that 10% of the population would consume the foods containing the flavour. This exposure estimate is used according to the Procedure for the Safety Evaluation of Flavouring Agents and compared to the thresholds of toxicological concern (TTC) in a decision-tree approach.

The Committee considered issues related to the dietary exposure of flavouring agents at its 44th, 46th, 49th, 55th and 63rd meetings. The estimation of dietary exposures based on annual production data was considered to be a practical and realistic approach. Further consideration was recommended for flavouring agents for which there are high anticipated average use levels in foods, but low dietary exposures when calculated by the MSDI method. Such consideration is needed because some flavouring agents may be disseminated unevenly within the food supply, raising the possibility of high dietary exposures in individuals regularly consuming specific flavoured foods.

At its 65th meeting, the Committee considered how to improve the identification and assessment of flavouring agents for which the MSDI estimates may be substantially lower than the dietary exposures that would be estimated from the anticipated average use levels in foods. The 65th meeting proposed that an ad-hoc Working Group be convened to further consider all relevant aspects of the introduction of an additional screening method based on use levels, to complement the MSDI.

Using data for over 800 flavouring agents, the ad-hoc Working Group noted that MSDI values could be up to four orders of magnitude lower than dietary exposures derived using anticipated average use levels in foods. Analysis of the safety implications showed that in the majority of cases the differences between estimates would not have affected the conclusions reached by the Committee on these flavours, because of the increasing margin of safety at low poundages (and low MSDI estimates) compared with the relevant TTC values used in the Procedure. The ad-hoc Working Group explored various options and proposed an additional method of dietary exposure assessment to address the questions raised by previous Committees.

Proposed additional method to assess dietary exposure

The next meeting of the Committee that considers flavouring agents will evaluate these agents according to the Procedure. The Committee recommended that an additional method to assess dietary exposure should be tested at that meeting. Dietary exposures for selected flavouring agents would be estimated using a method based on use levels. The additional method would be based on flavour-industry recommended use levels for each flavouring agent in food categories, in combination with standard portion sizes*. For flavouring agents with usages in multiple food categories, only the food category resulting in highest potential dietary exposure would be considered. This dietary exposure is taken to represent that of a regular consumer of a flavoured food, who is loyal to a brand containing the specific flavour of interest. Such an estimate, based on daily consumption and using a single standard portion size, is likely to provide a conservative assessment of long-term average dietary exposure for consumers with a high-percentile intake of flavouring agents. These additional analyses would be performed before that meeting.

The ramifications of any differences between the MSDI and the dietary exposure estimated by the additional method would be examined by the Committee.

* The standard portion sizes will be included in the future call for data for evaluation of flavouring agents issued by the Secretariat.

Any discrepancies would be considered in detail and recommendations on the need for, and nature of, any possible future changes to the Procedure would be proposed after such detailed consideration. The Committee recognized that the production of such use-level data is a major undertaking and therefore consideration of the additional method should focus on selected flavouring agents that would provide useful information on its utility.

Prioritization

The Committee proposes to focus on a limited number of flavouring agents at the lower and upper ends of the poundage distribution. These analyses should provide information to address the comments of the Committee at previous meetings.

(a) Flavouring agents with poundages of less than 10 kg per year

The Committee noted that although the discrepancies between different methods to estimate dietary exposure were greatest at low reported poundages, there is no clear cut-off value that can be used to define a "low-poundage" flavouring agent. An annual production volume of less than 10 kg in each specific region was selected as a value to identify flavouring agents that might have limited food applications and for which there may be greater uncertainty about their dissemination within the food supply.

(b) Flavouring agents with poundages that result in MSDI values of more than one third of the relevant TTC value

The MSDI is a population-based estimate of dietary exposure and may not adequately represent the dietary exposures of consumers with brand loyalty to a particular flavoured food. Because consumption at high percentiles (approximately 90th) of widely distributed foodstuffs approximates to three times the average dietary consumption, this relationship can be applied to "high-poundage" flavouring agents. Therefore the additional method to estimate dietary exposure should be applied to flavouring agents with poundages that result in MSDI values of one third or more of the relevant TTC value for that flavouring agent.

(c) Naturally-occurring flavouring agents

Flavouring agents that are known to occur naturally in the food supply in quantities that are more than tenfold the total amount used for flavouring purposes could be excluded from this initial analysis.

Request for data

On request, the Committee received information from the industry on use levels for three flavouring agents currently in commerce. This information included the number of formulations containing the specific flavouring agent, the approximate range of use levels for the flavouring agent within the formulation, the food types containing the formulation, the range of levels of the formulation in each food type, and the resulting anticipated average use levels in the food type. The Committee concluded that such information would provide a suitable basis for the additional estimations of dietary exposure.
The Committee therefore requests this type of information for:

D. flavouring agents with poundages of less than 10 kg per year in every region;[*] and

E. flavouring agents with poundages that result in MSDI values that are greater than one third of the relevant TTC value.[†]

In order to facilitate the preparation of dossiers and of the additional information requested herein, the food categories and standard portion sizes should be transmitted to appropriate parties who would submit dossiers on flavouring agents to the Committee.

[*] Should a large number of flavouring agents meet this criterion, the Committee considered that data on the 100 flavouring agents with the lowest poundages would be sufficient to provide information suitable for assessing the new method.
[†] Data on use levels for previously evaluated flavouring agents could be requested by the JECFA Secretariat for this exercise, if there are few examples meeting this criterion among the flavouring agents to be evaluated by the Committee at its next meeting.

2. Surveys of production of flavouring agents

The Committee was informed that new surveys of production of flavouring agents for use in food had recently been undertaken by flavour industry associations in the European Union, Japan and the United States of America, and that the results of these surveys would be available to support the Committee's future evaluations of flavouring agents and to update previous evaluations. The Committee welcomed this development, which would help to address recommendations, made at the 46th and 49th meetings, concerning the need for periodic updating of the poundage data and extended geographical coverage. The Committee asked that the survey methods be described in detail when data from the new surveys are submitted for the first time, so that the Committee can fully assess the coverage of the surveys and any uncertainties in the results.

3. General specifications and considerations for enzyme preparations used in food processing

The General Specifications and Considerations for Enzyme Preparations Used in Food Processing were last revised by the Committee at its fifty-seventh meeting. At its sixty-fifth meeting, the Committee recommended that the guidance document be updated.

The General Specifications and Considerations for Enzyme Preparations Used in Food Processing were revised by the Committee at its present meeting. General information on the classification and nomenclature of enzymes was updated and recommendations for naming enzymes in JECFA specifications monographs, including enzymes from microorganisms containing recombinant DNA, were included.

The description of an enzyme preparation was expanded to include formulation ingredients as well as the constituents of the source organism and compounds originating from the manufacturing process, which, in some instances, may be carried over to the final enzyme preparation. The discussion on active enzymes present in enzyme preparations and their characterization was expanded.

The general information on microbial sources was updated to address the use of fungal species with the potential to produce low levels of certain mycotoxins under fermentation conditions conducive to mycotoxin synthesis. A statement was added that enzyme preparations derived from such fungal species should not contain toxicologically significant levels of mycotoxins that could be produced by these species.

The paragraph on safety assessment was modified by including a statement that evaluation of the enzyme component should include considerations of its potential to cause an allergic reaction.

The list of references to international documents pertaining to foods and food ingredients from plants and microorganisms containing recombinant DNA was updated. The document will be published in FAO JECFA monographs 3.

4. Withdrawal of specifications

Butyl p-hydroxybenzoate (butyl paraben)

The reproductive toxicity of the parabens appears to increase with increasing length of the alkyl chain, and there are specific data showing adverse reproductive effects in male rats of butyl paraben. In view of this and the fact that butyl paraben was not included in the group ADI for parabens, the Committee decided to withdraw the specifications for this substance.

Ethylene oxide

The Committee’s attention was drawn to the continued existence of a specifications monograph for ethylene oxide as a food additive, despite the fact that it has never been used as a food additive as such. In view of the known hazards of ethylene oxide, the Committee decided to withdraw the specification.