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- 122. Evaluation of certain food additives and contaminants (Forty-sixth report of the Joint FAO/WHO Expert Committee on Food Additives). WHO Technical Report Series, No. 868, 1997.
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- 126. Toxicological evaluation of certain veterinary drug residues in food. WHO Food Additives Series, No. 38, 1996.
- 127. Residues of some veterinary drugs in animals and foods. FAO Food and Nutrition Paper, No. 41/9, 1997.
- 128. Evaluation of certain veterinary drug residues in food (Forty-eighth report of the Joint FAO/WHO Expert Committee on Food Additives). WHO Technical Report Series, No. 879, 1998.
- 129. Toxicological evaluation of certain veterinary drug residues in food. WHO Food Additives Series, No. 39, 1997.
- 130. Residues of some veterinary drugs in animals and foods. FAO Food and Nutrition Paper, No. 41/10, 1998.
- 131. Evaluation of certain food additives and contaminants (Forty-ninth report of the Joint FAO/WHO Expert Committee on Food Additives). WHO Technical Report Series, No. 884, 1999.
- 132. Safety evaluation of certain food additives and contaminants. WHO Food Additives Series, No. 40, 1998.
- 133. Compendium of food additive specifications, addendum 5. FAO Food and Nutrition Paper, No. 52, Add. 5, 1997.
- 134. Evaluation of certain veterinary drug residues in food (Fiftieth report of the Joint FAO/WHO Expert Committee on Food Additives). WHO Technical Report Series, No. 888, 1999, and corrigendum.
- Toxicological evaluation of certain veterinary drug residues in food. WHO Food Additives Series, No. 41, 1998.
- 136. Residues of some veterinary drugs in animals and foods. FAO Food and Nutrition Paper, No. 41/11, 1999.
- Evaluation of certain food additives (Fifty-first report of the Joint FAO/WHO Expert Committee on Food Additives). WHO Technical Report Series, No. 891, 2000.

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- 139. Compendium of food additive specifications, addendum 6. FAO Food and Nutrition Paper, No. 52, Add. 6, 1998.
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- 141. Toxicological evaluation of certain veterinary drug residues in food. WHO Food Additives Series, No. 43, 2000.
- 142. Residues of some veterinary drugs in animals and foods. FAO Food and Nutrition Paper, No. 41/12, 2000.

Annex 2

Acceptable Daily Intakes, other toxicological information and information on specifications

Specific food additives and substances used in food fortification

Substance	Specifications ^a	Acceptable Daily Intake (ADI) in mg/kg of body weight and other toxicological recommendations
Glazing agent Hydrogenated poly-1-decene	R	No ADI allocated ^b
Sweetening agent Erythritol	N	ADI "not specified" ^c
Thickening agent Curdlan	N	ADI "not specified" (temporary)c-e
Miscellaneous substances γ-Cyclodextrin Sodium iron EDTA	R R	ADI "not specified" ^c Considered to be safe when used in supervised food fortification programmes ^f
Sodium sulfate	N,T	ADI "not specified" (temporary) og

^a N, New specifications prepared; R, existing specifications revised; T, the existing, new or revised specifications are tentative and comments are invited.

^b Data were insufficient for establishing an ADI.

^e See Annex 3.

9 Temporary ADI pending consideration of the "tentative" qualification of the specifications (see Annex 3).

Flavouring agents

The substances listed here were evaluated using the Procedure for the Evaluation of Flavouring Agents. For further details, see section 4 of the main report.

^c ADI "not specified" is used to refer to a food substance of very low toxicity which, on the basis of the available data (chemical, biochemical, toxicological and other) and the total dietary intake of the substance arising from its use at the levels necessary to achieve the desired effect and from its acceptable background levels in food, does not, in the opinion of the Committee, represent a hazard to health. For that reason, and for reasons stated in individual evaluations, the establishment of an ADI expressed in numerical form is not deemed necessary. An additive meeting this criterion must be used within the bounds of good manufacturing practice, i.e. it should be technologically efficacious and should be used at the lowest level necessary to achieve this effect, it should not conceal food of inferior quality or adulterated food, and it should not create a nutritional imbalance.

d Applies to food additive uses.

^f The Committee concluded that sodium iron EDTA (ethylene diamine tetraacetate) could be considered to be safe when used in supervised food fortification programmes in response to a need for iron supplementation of the diet of a population as determined by public health officials. Such programmes would provide a daily iron intake of approximately 0.2mg/kg of body weight.

Flavouring agent ^a	No.	Specifications ^b	Conclusion based on current intake
Aliphatic and aromatic sulfides and thiol			
Subgroup i — simple sulfides (thioethers	s)		
Structural class I	450	NI 3	
Methyl sulfide	452	N]	
Methyl ethyl sulfide (ethyl methyl sulfide)	453	N	
Diethyl sulfide Butyl sulfide	454 455	N N	No safety concern
(1-Buten-1-yl)methyl sulfide	455	N,T	
bis(Methylthio)methane	533	N,T	
	000	,	
Structural class II	450	NIT 1	
Allyl sulfide	458	N,T	N1 F-1
Methyl phenyl sulfide	459	N	No safety concern
Benzyl methyl sulfide	460	N I	
Subgroup ii — acyclic sulfides with oxid	ized s	ide-chains	
Structural class I			
3-(Methylthio)propanol	461	N,T	
4-(Methylthio)butanol	462	N,T	
3-(Methylthio)-1-hexanol	463	N	
2-(Methylthio)acetaldehyde ((methylthio)-	465	N,T	
acetaldehyde)	466	NIT	
3-(Methylthio)propionaldehyde	466	N,T	
3-(Methylthio)butanal	467 468	N,T N,T	
4-(Methylthio)butanal 3-(Methylthio)hexanal	469	N N	
2-[(Methylthio)methyl]-2-butenal	470	N,T	
2,8-Dithianon-4-ene-4-carboxaldehyde	471	N,T	
(5-(methylthio)-2-[(methylthio)methyl]-2-pentenal)	771	18,1	
Methyl 3-(methylthio)propionate	472	Ν	
(Methylthio)methyl butyrate	473	N,T	
Methyl 4-(methylthio)butyrate	474	Ň	No pofety concern
Ethyl 2-(methylthio)acetate (ethyl(methylthio)acetate)	475	N,T	No safety concern
Ethyl 3-(methylthio)propionate	476	Ν	
Ethyl 4-(methylthio)butyrate	477	Ν	
3-(Methylthio)propyl acetate	478	N,T	
(Methylthio)methyl hexanoate	479	N,T	
Ethyl 3-(methylthio)butyrate	480	N,T	
3-(Methylthio)hexyl acetate (3-(methylthio)- 1-hexanol acetate)	481	N,T	
1-(Methylthio)-2-propanone	495	N,T	
1-(Methylthio)-2-butanone	496	Ň	
4-(Methylthio)-2-butanone	497	N,T	
4-(Methylthio)-4-methyl-2-pentanone	500	N,T	
(4-methyl-4-(methylthio)-2-pentanone)			
Di(butan-3-one-1-yl) sulfide (4,4'-thiobis-2-	502	N,T	

Flavouring agent ^a	No.	Specifications ^b	Conclusion based on current intake
Aliphatic and aromatic sulfides and thiol			
Subgroup ii — acyclic sulfides with oxid	ized si	ide-chains (conti	nued)
Structural class II o-(Methylthio)phenol	503	N,T	No anfaty concern
, , ,	303	1 1 1	No safety concern
Structural class III Sodium 4-(methylthio)-2-oxobutanoate	501	NI 1	
2-(Methylthiomethyl)-3-phenylpropenal	505	N N	
(2-[(methylthio)methyl]-3-phenyl-2-propenal)	500	14	No safety concern
		J	
Subgroup iii — cyclic sulfides Structural class I			
2,5-Dimethyl-2,5-dihydroxy-1,4-dithiane	562	N,T]	
(2,5-dimethyl-1,4-dithiane-2,5-diol)	302	IN, I	
2,5-Dihydroxy-1,4-dithiane (1,4-dithiane-	550	N	No safety concern
2,5-diol)	200		
Structural class II			
2-Methyl-4-propyl-1,3-oxathiane	464	N,T]	
4,5-Dihydro-3(2 <i>H</i>)-thiophenone	498	N,T	
(dihydro-3(2H)-thiophenone)		,	
2-Methyltetrahydrothiophen-3-one	499	N,T	No pofety concern
(dihydro-2-methyl-3(2H)-thiophenone)			No safety concern
1,4-Dithiane	456	N,T	
2-Methyl-1,3-dithiolane	534	N	
2,2,4,4,6,6-Hexamethyl-1,3,5-trithiane	543	N,T J	
Subgroup iv — simple thiols			
Structural class I			
Methyl mercaptan (methanethiol)	508	N,T]	
1-Propanethiol	509	N,T	
2-Propanethiol	510	N,T	
1-Butanethiol	511 512	N	
2-Methyl-1-propanethiol 3-Methyl-1-butanethiol	513	N,T N,T	
Pentane-2-thiol	514	N,T	
2-Methyl-1-butanethiol	515	N {	No safety concern
3-Methyl-2-butanethiol	517	N I	
1-Hexanethiol	518	N,T	
2-Ethylhexane-1-thiol	519	N,T	
Prenylthiol (3-methyl-2-butene-1-thiol)	522	N	
Thiogeraniol (3,7-dimethyl-2(<i>E</i>),	524	N,T	
6-octadiene-1-thiol)		J	
Structural class II			
Cyclopentanethiol	516	N,T	
Mixture of 2-, 3- and 10-mercaptopinane	520	N,T	
(mixture of 2,6,6-trimethyl-bicyclo(3.1.1)-			No safety concern
heptane-2-, 3- and 10-thiols)	E01	N.T	
Allyl mercaptan (2-propene-1-thiol)	521	N,T J	

Flavouring agent ^a	No.	Specifications ^b	Conclusion based on current intake
Aliphatic and aromatic sulfides and thiol	s (con	tinued)	1, 1,
Subgroup iv — simple thiols (continued)	`	,	
Structural class II (continued)			
1-p-Menthene-8-thiol (α , α -4-trimethyl-3-	523	N,T]	
cyclohexene-1-methanethiol)			
Benzenethiol	525	N	
Benzyl mercaptan (benzenemethanethiol)	526	Ν	
Phenylethyl mercaptan	527	Ν	No safety concer
(2-phenylethanethiol)			No salety concer
<i>o</i> -Toluenethiol	528	N,T	
2,6-Dimethylthiophenol	530	N	
(2,6-dimethylbenzenethiol)			
2-Naphthalenethiol	531	N,T J	
Structural class III			
2-Ethylthiophenol (2-ethylbenzenethiol)	529	N,T	No safety concer
Subgroup v — thiols with oxidized side-	chains		
Structural class I			
2-Mercaptopropionic acid	551	N	
Ethyl 2-mercaptopropionate	552	N,T	
Ethyl 3-mercaptopropionate	553	N	
3-Mercaptohexyl acetate	554	N	
3-Mercaptohexyl butyrate	555	N	
3-Mercaptohexyl hexanoate	556	N,T	
1-Mercapto-2-propanone	557	N,T	
3-Mercapto-2-butanone	558	N,T	
2-Keto-4-butanethiol (4-mercapto-2-butanone)	559	N,T	NI 63
3-Mercapto-2-pentanone	560	N,T	No safety concer
3-Mercapto-3-methyl-1-butanol	544	N,T	
3-Mercaptohexanol	545	N	
2-Mercapto-3-butanol	546	N,T	
((R,S)-3-mercaptobutan-2-ol)		•	
α -Methyl-β-hydroxypropyl α -methyl-β-	547	Ν	
mercaptopropyl sulfide (3-[(2-mercapto-			
1-methylpropyl)thio]-2-butanol)			
4-Methoxy-2-methyl-2-butanethiol	548	N,T	
3-Mercapto-3-methylbutyl formate	549	N	
Structural class II			
p-Mentha-8-thiol-3-one (2-(1-mercapto-	561	N,T	No safety concer
1-methylethyl)-5-methylcyclohexanone)			
Structural class III			
Sodium 3-mercapto-oxopropionate (sodium 3-mercaptopyruvate)	563	Ν	No safety concer
Subgroup vi — dithiols			
Structural class I			
1,2-Ethanedithiol	532	Ν	No safety concer

Flavouring agent ^a	No.	Specifications ^b	Conclusion based on current intake
Aliphatic and aromatic sulfides and the	iols (con	tinued)	
Subgroup vi — dithiols (continued)		•	
Structural class I (continued)			
1,2-Propanedithiol	536	N,T	
1,2-Butanedithiol	537	N	
1,3-Butanedithiol (butane-1,3-dithiol)	538	N	
2,3-Butanedithiol	539	N	No safety concern
1,6-Hexanedithiol (hexane-1,6-dithiol)	540	N	
1,8-Octanedithiol (octane-1,8-dithiol)	541	N	
1,9-Nonanedithiol	542	N J	
Subgroup vii — simple disulfides			
Structural class I	EC.4	NI i	
Dimethyl disulfide	564 565	N)	
Methyl propyl disulfide Propyl disulfide	566	N,T N	
Diisopropyl disulfide	567	N	No eafaty concern
Methyl 1-propenyl disulfide	569	N,T	No safety concern
1-Propenyl propyl disulfide	570	N.T	
Methyl 3-methyl-1-butenyl disulfide	571	N,T	
Structural class II	0,1	14,1	
Allyl methyl disulfide	568	N,T)	
Allyl disulfide	572	N,T	
Dicyclohexyl disulfide	575	N,T	
Methyl phenyl disulfide	576	N	No safety concern
Benzyl methyl disulfide	577	N	
Benzyl disulfide	579	N,T	
Structural class III		, ,	
Phenyl disulfide	578	N	No safety concern
•			no saicty concern
Subgroup viii — disulfides with oxidize Structural class I	ed side-c	hains	
2-Methyl-2-(methyldithio)propanal	580	N,T]	No safahi panaara
Ethyl 2-(methyldithio)propionate	581	N,T	No safety concern
Subgroup ix — trisulfides and polysulf	ides		
Structural class I			
Dimethyl trisulfide	582	N,T]	
Ethyl methyl trisulfide	583	N,T	No safety concern
Methyl propyl trisulfide	584	N,T	
Dipropyl trisulfide	585	N,T]	
Structural class II			
Allyl methyl trisulfide	586	N,T	
Diallyl trisulfide	587	N,T	No safety concern
Diallyl polysulfide	588	N,T	
Subgroup x — heterocyclic disulfides			
Structural class II 3,5-Dimethyl-1,2,4-trithiolane	573	N,T]	
3-Methyl-1,2,4-trithiane	574	N,T	No safety concern
o monyi i, z, = miniano	J/ 1	11,1	

Flavouring agent ^a	No.	Specifications ^b	Conclusion based on current intake
Aliphatic and aromatic sulfides and thiols	s (con	tinued)	
Subgroup xi — thioesters			
Structural class I			
Methyl thioacetate	482	N,T)	
Ethyl thioacetate (S-ethyl ethanethioate)	483	N	
Methyl thiobutyrate (S-methyl butanethioate)	484	N,T	
Propyl thioacetate (S-propyl thioacetate)	485	N	
S-Methyl 2-methylbutanethioate	486	N,T	
S-Methyl 3-methylbutanethioate	487	N,T	
S-Methyl 4-methylpentanethioate	488	N,T	
S-Methyl hexanethioate	489	N,T	
•	490	N,T	No safety concern
Allyl thiopropionate (S-2-propenyl propanethioate)		·	
Prenyl thioacetate	491	N	
Methylthio 2-(acetyloxy)propionate (1-[(methylthio)methyl]ethyl acetate)	492	N	
Methylthio 2-(propionyloxy)propionate (S-methyl 2-(propionyloxy)- propanethioate)	493	Ν	
3-(Acetylmercapto)hexyl acetate	494	N	
Structural class II S-Methyl benzothioate (S-methyl thiobenzoate)	504	N,T	
cis- and trans-Menthone-8-thioacetate (S-[1-methyl-1-(4-methyl-2- oxocyclohexyl)ethyl]ethanethioate)	506	N	No safety concern
Subgroup xii — sulfoxides			
Methylsulfinylmethane (dimethyl sulfoxide)	507	N,T	No safety concern
Aliphatic primary alcohols, aldehydes, ca			s and esters
containing additional oxygenated function Structural class I	nai gr	oups	
2-Oxobutyric acid (2-oxobutanoic acid)	589	N,T	
Methyl 2-hydroxy-4-methylpentanoate (methyl 2-hydroxy-4-methylvalerate)	590	N,T	
Methyl 2-oxo-3-methylpentanoate (methyl 3-methyl-2-oxo-pentanoate)	591	N,T	
Citronelloxyacetaldehyde ([(3,7-dimethyl-6-octenyl)oxy]-acetaldehyde	592	N,T	
3-Oxobutanal dimethyl acetal (4,4-dimethoxy-2-butanone)	593	Ν	No safety concern
Ethyl 3-hydroxybutyrate	594	N,T	
	595	,	
Ethyl acetoacetate			
Butyl acetoacetate	596 507		
Isobutyl acetoacetate	597		
Isoamyl acetoacetate (isopentyl acetoacetate)	598	N,T	

Flavouring agent ^a	No.	Specifications ^b	Conclusion based
			on current intake

			on current intake
Aliphatic primary alcohols, aldehydes, ca			
containing additional oxygenated function Structural class I (continued)	nal grou	ips (continued	α)
Geranyl acetoacetate (3,7-dimethyl-2,6-	599	N,T	,
octadienyl acetoacetate)	000	1 1, 1	
Methyl 3-hydroxyhexanoate	600	N,T	
Ethyl 3-hydroxyhexanoate	601	N	
Ethyl 3-oxohexanoate	602	N	
Ethyl 2,4-dioxohexanoate	603	N,T	
B-(Hydroxymethyl)-2-heptanone	604	N,T	
1,3-Nonanediol acetate (mixed esters)	605	N,T	
(1,3-nonanediol monoacetate)	000	11,1	
_evulinic acid (4-oxopentanoic acid)	606	Ν	
Ethyl levulinate (ethyl 4-oxopentanoate)	607	N	
Butyl levulinate (butyl 4-oxopentanoate)	608	N	
1,4-Nonanediol diacetate	609	N,T	
Hydroxycitronellol (3,7-dimethyloctane-	610	N,T	
1,7-diol)	010	ΙΝ, Ι	
Hydroxycitronellal (7-hydroxy-3,7- dimethyloctanal)	611	Ν	
Hydroxycitronellal dimethyl acetal	612	N	
(8,8-dimethoxy-2,6-dimethyl-2-octanol)	610	NIT	
Hydroxycitronellal diethyl acetal	613	N,T	
(8,8-diethoxy-2,6-dimethyloctan-2-ol)	014	N.I.	
Diethyl malonate (diethyl propanedioate)	614	N	
Butyl ethyl malonate (butyl ethyl	615	N,T	No safety concer
propanedioate)	010	N.I.	
Dimethyl succinate (dimethyl	616	Ν	
butanedioate)	017	N.I.	
Diethyl succinate (diethyl butanedioate)	617	N	
Fumaric acid ^c ((2E)2-butenedioic acid)	618	R,T	
-)-Malic acid ((2S)-hydroxybutanedioic acid)	619	R,T	
Diethyl malate (diethyl hydroxybutanedioate)	620	N,T	
Aixture of (+)-, (-)-, (+/-)- and meso-tartaric acid (mixture of (+)-, ()-, (+/-)- and meso-2,3-dihydroxybutanedioic acid)	621	R	
Diethyl tartrate (diethyl 2,3-dihydroxybutanedioate)	622	Ν	
Adipic acid (hexanedioic acid)	623	R	
Diethyl sebacate (diethyl decanedioate)	624	N	
Dibutyl sebacate (dibutyl decanedioate)	625	N	
ithylene brassylate (1,4-dioxacyclohepta- decane-5,17-dione)	626	N	
acid)	627	N,T	
ithyl aconitate (mixed esters; ethyl 1-propene-1,2,3-tricarboxylate)	628	N,T	

Flavouring agent ^a	No.	Specifications ^b	Conclusion based on current intake
Aliphatic primary alcohols, aldehydes, ca containing additional oxygenated functio			
Structural class I (continued)	ııaı gı	oups (commuca,	1
Triethyl citrate ^c (triethyl 2-hydroxy-1,2,3-propanetricarboxylate)	629	R,T	
Tributyl acetylcitrate (tributyl 2-(acetyloxy)-1,2,3-propanetricarboxylate)	630	N,T	
3-Methyl-2-oxobutanoic acid and its sodium salt	631	N,T	Nie zefeki gongoro
3-Methyl-2-oxopentanoic acid and its sodium salt	632	N,T	No safety concern
4-Methyl-2-oxopentanoic acid and its sodium salt	633	N,T	
2-Oxopentanedioic acid	634	Ν	
3-Hydroxy-2-oxopropionic acid	635	Ν.	

The substance names are given as they appear in the specifications monograph (FAO Food and Nutrition Paper, No. 52, Add. 7, 1999). In cases where substances were evaluated under their trivial name, the systematic name is given in parentheses.

^c The ADI for this substance was maintained.

Peanut oil and soya bean oil

The Committee reviewed available information on the potential allergenicity of peanut oil and soya bean oil. It concluded that manufacturing processes that would consistently yield safe products have not been defined, since:

- the processes by which the peanut oil and soya bean oil tested clinically in humans were refined were not clearly described;
- comparable data on the protein content of those oils that had been clinically tested were not available; and
- the quality and validation of the analytical procedures used to determine the concentration of residual protein in the oils were not clearly described.

The information that would be required for a full re-evaluation of peanut oil and soya bean oil is described in section 5 of the main report.

Contaminants

Lead

The provisional tolerable weekly intake (PTWI) of $25\mu g/kg$ of body weight was maintained. The Committee considered the results of a quantitative risk assessment and concluded that the concentrations

^b N, new specifications prepared; R, existing specifications revised: T, the existing, new or revised specifications are tentative and further information is required (see Annex 3).

of lead found currently in food would have negligible effects on the neurobehavioural development of infants and children. The Committee noted, however, that examples of foods with high levels of lead remain in commerce. The simulation model that is presented in the report could be used to evaluate the effects of any proposed regulatory interventions to reduce exposure to lead. A full risk assessment of dietary intake of lead should also take into account other sources of exposure.

Methylmercury

The PTWI of 3.3µg/kg of body weight was maintained. The Committee considered data on intake, quantitative relationships between daily intake of methylmercury and concentrations in blood and hair, and epidemiological studies in progress. The information available was insufficient to evaluate neurodevelopmental effects on the children of mothers who had a low intake of methylmercury. No clear indication of consistent risk was detected in the epidemiological studies. The Committee noted that fish, the major source of methylmercury in the diet, makes an important contribution to nutrition, especially in certain regional and ethnic diets, and recommended that its nutritional benefits be weighed against the possibility of harm when limits on methylmercury concentrations in fish or on fish consumption are being considered.

The information that would be required for a full re-evaluation of methylmercury is described in Annex 3.

Zearalenone

A provisional maximum tolerable daily intake (PMTDI) of $0.5\mu g/kg$ of body weight was established.

Food additives considered for specifications

Food additive	Specifications
α-Acetolactate decarboxylase from <i>Bacillus brevis</i> expressed in <i>B. subtilis</i>	R
Adipic acid	R
α-Amylase from <i>B. megaterium</i> expressed in <i>B. subtilis</i>	R
α-Amylase from B. stearothermophilus expressed in B. subtilis	R
Argon	Ν
Calcium hydrogen sulfite	W
Carob bean gum	R
Carotenes, algae	S
Carotenes, vegetable	S
Chymosin A from <i>Escherichia coli</i> K-12 containing the prochymosin A gene	R

Food additive	Specifications
Chymosin B from Aspergillus niger var. awamori containing the prochymosin B gene	R
Chymosin B from <i>Kluyveromyces lactis</i> containing the prochymosin B gene	R
Citric acid	R
Ferrous gluconate	R
Ferrous sulfate	R
Ferrous sulfate, dried	Ν
Fumaric acid	R
Guar gum	R
Helium	Ν
Magnesium gluconate	R
DL-Malic acid	R
Maltogenic amylase from <i>B. stearothermophilus</i> expressed in <i>B. subtilis</i>	R
Nitrogen	R
Oxygen	Ν
Potassium metabisulfite	R
Potassium sulfite	R
Riboflavin from B. subtilis	R
Sodium hydrogen sulfite	R
Sodium metabisulfite	R
Sodium sulfite	R
Sodium thiosulfate	R
Sucrose esters of fatty acids	R
DL-Tartaric acid	R
L(+)-Tartaric acid	R
Thaumatin	R
Xanthan gum	R

^a N, new specifications prepared; R, existing specifications revised; S, specifications exist, revision not considered or not required; W, existing specifications withdrawn.

Food additives considered for evaluation of national intake assessments

Substance	Conclusions
Annatto extracts (bixin)	Intake estimates based on levels proposed in the draft General Standard for Food Additives ^a and the range of foods in which use is allowed integrated with national food consumption data exceeded the ADI of 0-0.065 mg/kg of body weight, expressed as bixin.
	Intake assessments based on national permitted levels would not exceed the ADI for most population groups. Data from Brazil, however, provided evidence that 28% of the population consume annatto seeds directly as a condiment and have chronic intakes of the order of 150% of the ADI.

Substance	Conclusions
Annatto extracts (bixin) (continued)	The Committee recommended that populations that have a high intake of annatto extracts continue to be monitored. The Committee also recommended that annatto extracts be re-evaluated in 2001, to ensure that all the relevant data on annatto extracts have been reviewed.
Canthaxanthin	Intake estimates based on levels proposed in the draft General Standard for Food Additives ^a and the range of foods in which use is allowed integrated with national food consumption data exceeded the ADI of 0–0.03 mg/kg of body weight.
	Indirect exposure through the use of canthaxanthin as a colourant in animal feeds is the major source of canthaxanthin in food.
	The Committee concluded that long-term intake of canthaxanthin is unlikely to exceed the ADI.
Erythrosine	The intake of erythrosine could exceed the ADI of 0–0.1 mg/kg of body weight if the maximum limits proposed in the draft General Standard for Food Additives ^a are widely adopted at the national level.
	Non-food sources of erythrosine, such as pharmaceutical products, should be included in intake assessments, as they may make a significant contribution to total intake if consumed over a long period.
	The Committee concluded that long-term intake of erythrosine is unlikely to exceed the ADI, as erythrosine would be used in only a limited number of foods.
Iron oxides	Iron oxides are permitted for use in foods in the draft General Standard for Food Additives ^a under conditions of good manufacturing practice.
	On the basis of national standards, the Committee concluded that it is unlikely that intake of iron oxides would exceed the ADI of 0-0.5 mg/kg of body weight.

^a Intake estimates based on food additive levels in the draft General Standard for Food Additives (GSFA) being developed by the Codex Committee on Food Additives and Contaminants integrated with national food consumption data will be gross overestimates of actual intakes in any one country because the levels proposed in the draft GSFA are generally compiled by adopting the highest level of use of any one food category submitted by Member States or nongovernmental organizations. The range of food uses specified in the draft GSFA is also usually much wider than in national standards.