

UNOFFICIAL TRANSLATION

In case of any difference in meaning between the original Thai text and the English translation,
the Thai text shall apply.

Notification of Ministry of Public Health

(No 414) B.E. 2563

Issued by virtue of the Food Act B.E. 2522

Re: Standards for Contaminants in Food

It deems appropriate to revise the standards for contaminants in food.

By the virtue of provisions of the first para under Section 5 and Section 6(3) and (9) of the Food Act B.E. 2522 (1979), the Minister of Public Health hereby issues the notification as follows:

Clause 1 Following Regulation shall be repealed;

(1) Notification of the Ministry of Public Health No. 98 B.E. 2529 (1986)

Re: Standards of food contained contaminants dated 21st January B.E. 2529 (1986),

(2) Notification of the Ministry of Public Health No. 273 B.E. 2546 (2003) Re: Standards of food contained contaminants (No.2) dated 10th July B.E. 2546 (2003).

Clause 2 Food contained contaminants shall be prescribed standard food.

Clause 3 In this notification:

Contaminants mean any substance not intentionally added to food, which is present in such food as a result of the production, preparation, processing, packaging, transport or holding of such food transport or as a result of environmental contamination but exclude physical extraneous matters.

Maximum level means the maximum concentration of that substance allowed to contaminate in edible part of food except for food prescribed specific characteristic.

Clause 4 Contaminations of food shall comply with the following requirement:

(1) Shall not found in amount exceed the maximum levels specified in Annex 1 of this notification,

(2) other than (1) shall not found in an amount exceed the maximum levels specified in Codex General Standard for Contaminants and Toxins in Food and Feed; CODEX STAN 193-1995 (updated version),

(3) other than (1) and (2) shall not exceed the acceptable levels calculating based on the criteria for the establishment of maximum levels in food and feed provided by Codex Alimentarius Commission, which producer or importer of such contaminated food shall responsible to support the evidence to prove that the amount of contaminants are acceptable.

Clause 5 General requirement for the analytical method of contaminants shall follow as specified in Annex 2 of this notification.

Clause 6 This notification in not applied to the following food:

(1) Food additives and processing aids according to Notification of the Ministry of Public Health regarding Food additives.

(2) Drinking water in sealed containers according to Notification of the Ministry of Public Health regarding Drinking water in sealed containers.

(3) Natural mineral water according to Notification of the Ministry of Public Health regarding Natural mineral water.

Clause 7 This notification shall come into force after 180 days as from the day of its publication in the Government Gazette.

Notified on 20 March B.E. 2563 (2020)

(Signed) Anutin Chanverakul

(Mr. Anutin Chanverakul)

Minister of Public Health

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Annex 1

of Notification of the Ministry of Public Health (No. 414) B.E. 2563

Issued by virtue of the Food Act B.E. 2522 Re: Standards for Contaminants in Food

Table 1 Heavy Metal

1. Cadmium			
Commodity/Food Product Name	Maximum Level (mg/kg)	Portion of the Commodity/ Product to which the ML applies	Note
Cereal grains (excluding buckwheat, cañihua, quinoa, wheat and rice)	0.1	Whole commodity	(1)
Rice, polished	0.4	Whole commodity	(1)
Wheat (including common wheat, durum wheat, spelt and emmer)	0.2	Whole commodity	(1)
Brassica vegetables (excluding Brassica leafy vegetables)	0.05	Head cabbages and kohlrabi: whole commodity as marketed, after removal of obviously decomposed or withered leaves. Cauliflower and broccoli: flower heads (immature inflorescence only) Brussels sprouts: “buttons” only	(1)
Leafy vegetables (including Brassica leafy vegetables)	0.2	Whole commodity as usually marketed, after removal of obviously decomposed or withered leaves	(1)
Stalk and stem vegetables	0.1	Whole commodity as marketed after removal of obviously decomposed or withered leaves. Rhubarb: leaf stems only. Globe artichoke: flower head only. Celery and asparagus: remove adhering soil.	(1)
Fruiting vegetables	0.05	Whole commodity after removal of stems; Sweet corn and fresh corn: kernels plus cob without husk	(1)
Root and tuber vegetables (excluding celeriac)	0.1	Whole commodity after removing tops. Remove adhering soil (e.g. by rinsing in running water or by gentle brushing of the dry commodity). Potato: peeled potato.	(1)
Bulb vegetables	0.05	Bulb/dry onions and garlic: whole commodity after removal of roots and adhering soil and whatever parchment skin is easily detached.	(1)
Legume vegetables	0.1	Whole commodity as consumed.	(1)

1. Cadmium (cont.)

Commodity/Food Product Name	Maximum Level (mg/kg)	Portion of the Commodity/ Product to which the ML applies	Note
Pulses (excluding dried soya bean)	0.1	Whole commodity	(1)
Chocolate Products;		as prepared for wholesale or retail distribution.	
- Chocolate containing or declaring ≥ 50% to < 70% total cocoa solids on a dry matter basis.	0.8	Including sweet chocolate, Gianduja chocolate, semi – bitter table chocolate, Vermicelli chocolate/ chocolate flakes, and bitter table chocolate.	
- Chocolate containing or declaring ≥ 70% total cocoa solids on a dry matter basis.	0.9		
Fish	1	Whole commodity (in general after removing the digestive tract)	(1)
Cephalopods (such as cuttlefishes, octopuses and squids)	2	Whole commodity without viscera.	(1)
Marine bivalve mollusks (such as clams, cockles and mussels but not to oysters and scallops)	2	Whole commodity after removal of shell.	(1)
Gastropoda (ex. apple snail, golden apple snail, river snail, pond snail)	2	Whole commodity after removal of shell.	(1)
Salt, food grade	0.5		(1)
Tea and herbal tea	0.3	Dried materials.	(1)
Food supplement	0.3	Whole commodity as prepared for wholesale or retail distribution.	
Seaweed	2	Dried seaweed	(1)

2. Tin

Commodity/Food Product Name	Maximum Level (mg/kg)	Portion of the Commodity/ Product to which the ML applies	Note
Canned beverages	150	the product as consumed.	
Canned foods (other than beverages)	250	the product as consumed.	
Meat products in containers other than tins;			
- Corned beef	50	the product as consumed.	
- Luncheon meat	50	the product as consumed.	
- Cooked cured ham	50	the product as consumed.	
- Cooked cured chopped meat	50	the product as consumed.	
- Cooked cured pork shoulder	50	the product as consumed.	
Jams, jellies and marmalades	250	the product as consumed.	
Foods other than the above mentioned.	250		

3. Lead

Commodity/ Food Product Name	Maximum Level (mg/kg)	Portion of the Commodity/ Product to which the ML applies	Note
Cereal grains (excluding buckwheat, cañihua and quinoa)	0.2	Whole commodity.	(1)
Brassica vegetables (excluding kale and leafy Brassica vegetables)	0.1	Head cabbages and kohlrabi: whole commodity as marketed, after removal of obviously decomposed or withered leaves. Cauliflower and broccoli: flower heads (immature inflorescence only). Brussels sprouts: "buttons" only.	(1)
Fruiting vegetables	0.05	Whole commodity after removal of stems; Sweet corn and fresh corn: kernels plus cob without husk.	(1)
Leafy vegetables (including leafy brassica vegetables but does not apply to spinach)	0.3	Whole commodity as usually marketed, after removal of obviously decomposed or withered leaves.	(1)
Root and tuber vegetables	0.1	Whole commodity after removing tops and adhering soil. Potato: peeled potato.	(1)
Bulb vegetables	0.1	Bulb/dry onions and garlic: whole commodity after removal of roots and adhering soil and whatever parchment skin is easily detached.	(1)
Legume vegetables	0.1	Whole commodity as consumed. The succulent forms may be consumed as whole pods or as the shelled product.	(1)
Canned vegetables	0.1	for the product as consumed	
Preserved tomatoes	0.05		(2)
Pickled cucumbers (cucumber pickles)	0.1	for the product as consumed	
Fruits (excluding cranberry, currant and elderberry)	0.1	Whole commodity; Pome fruits: whole commodity after removal of stems. Stone fruits, dates and olives: whole commodity after removal of stems and stones. Fruit with hard seeds: whole commodity after removal of stone but calculated on whole fruit.	(1)
Berries and other small fruits (excluding cranberry, currant and elderberry).	0.1	whole commodity after removal of caps and stems.	(1)
Cranberry	0.2	Whole commodity after removal of caps and stems.	(1)
Elderberry	0.2	Whole commodity after removal of caps and stems.	(1)

3. Lead (cont.)

Commodity/ Food Product Name	Maximum Level (mg/kg)	Portion of the Commodity/ Product to which the ML applies	Note
Currants	0.2	Fruit with stem	(1)
Fruit juices (excluding juices exclusively from berries and other small fruit).	0.03	Whole commodity (not concentrated) or commodity reconstituted to the original juice concentration, ready to drink.	
Fruit juices obtained exclusively from berries and other small fruits (excluding grape juice).	0.05	Whole commodity (not concentrated) or commodity reconstituted to the original juice concentration, ready to drink. The ML applies also to nectars, ready to drink.	
Grape juice	0.04	Whole commodity (not concentrated) or commodity reconstituted to the original juice concentration, ready to drink. The ML applies also to nectars, ready to drink.	
Canned fruits	0.1	For the product as consumed.	
Mango chutney	0.4	For the product as consumed.	
Jams, jellies and marmalades	0.4	For the product as consumed.	
Table olives	0.4	the product as consumed.	
Pulses	0.2	Whole commodity	(1)
Canned chestnuts and canned chestnuts puree	0.05	For the product as consumed.	
Fresh farmed mushrooms (common mushrooms (<i>Agaricus bisporous</i>), shiitake mushrooms (<i>Lentinula edodes</i>), and oyster mushrooms (<i>Pleurotus ostreatus</i>))	0.3	Whole commodity, Fresh	(1)
Meat of cattle, pigs and sheep. (including fat from the meat)	0.1	Whole commodity (without bones)	(1)
Meat and fat of poultry	0.1	Whole commodity (without bones)	(1)
Fish	0.3	Whole commodity (in general after removing the digestive tract)	(1)
Edible offal of Cattle	0.2	Brain, head, heart, kidney, liver, tongue and stomach	(1)
Edible offal of Pig	0.15	Blood, heart, kidney, liver and tongue.	(1)
Edible offal of Poultry	0.1	Heart, kidney, liver, stomach and thymus.	(1)
Black egg (or Century egg or or millennium egg or preserved egg).	2	For the product as consumed.	
Milk and Secondary milk products.	0.02	Milk without either addition to it or extraction from it, intended for consumption as liquid milk or for further processing.	(1)
Fat spreads and blended spreads.	0.04	Whole commodity as prepared for wholesale or retail distribution.	

3. Lead (cont.)

Commodity/ Food Product Name	Maximum Level (mg/kg)	Portion of the Commodity/ Product to which the ML applies	Note
Infant formula, formula for special medical purposes intended for infants and follow-up formula.	0.01	Whole commodity or formula as consumed.	
Electrolyte drinks	0.3	Ready to drink.	
Tea and herbal tea	0.5	Ready to drink.	
Salt, food grade	2		
Edible fats and oils	0.08	Whole commodity as prepared for wholesale or retail distribution	
Food Supplement	1	Whole commodity as prepared for consume.	
Wine	0.1	Whole commodity	(3)
Food other than above mentioned.	1		

4. Methylmercury and total mercury

Commodity/ Food Product Name	Maximum Level (mg/kg)	Portion of the Commodity/ Product to which the ML applies	Note
Methylmercury			
predator fish other than Marlin Alfonsino Shark and Tuna	1.0	Whole commodity fresh or frozen (in general, after removing the digestive tract)	(1) (4)
Marlin	1.7		
Alfonsino	1.5		
Shark	1.6		
Tuna	1.2		
Other marine animals or plants	0.5		
Mercury			
Food Supplement	0.5	Whole commodity as prepared for consume.	
Salt, food grade	0.1		(1)
Food other than the above mentioned.	0.02		(1)

5. Arsenic

Commodity/ Food Product Name	Maximum Level (mg/kg)	Portion of the Commodity/ Product to which the ML applies	Note
Inorganic arsenic			
Rice, polished	0.2	Whole commodity	(1) (5)
Rice, husked	0.35	Whole commodity	(1) (5)
fish oils	0.1	Whole commodity as prepared for wholesale or retail distribution	(5)
Other marine animals or plants and their products	2		(1) (5)
Arsenic, total			
Fat spreads and blended spreads	0.1	Whole commodity as prepared for wholesale or retail distribution	
Edible fats and oils	0.1	Whole commodity as prepared for wholesale or retail distribution	
Tea and herbal tea	0.2	As prepared for consume.	
Food supplement	2	Whole commodity as prepared for consume.	
Salt, food grade	0.5		(1)
Food, other than the above mentioned.	2		

Note:

- (1) The MLs should preferably for food as described portion of the commodity or product. For a food product with the different because of primary processing such as drying, reconstitute, or dilute, the amount, *ML*, of a contaminant in that food must be calculate by a concentration factor or extraction rate.
- (2) The determination of the maximum levels for contaminants shall consider the natural total soluble solids, the reference value being 4.5 for fresh fruit.
- (3) The ML applies to wine made from grapes harvested after July 2019.
- (4) For methyl mercury, it may decide to analyze as total mercury as screening method. If the total mercury concentration is below or equal to the ML for methyl mercury, no further testing is required, and the sample is determined to be compliant with the ML. If the total mercury concentration is above the ML for methyl mercury, follow-up testing shall be conducted to determine if the methyl mercury concentration is above the ML.
- (5) For inorganic Arsenic, it may decide to analyze total arsenic (As-tot) as screening method. If the As-tot concentration is below or equal to the ML for As-in, no further testing is required, and the sample is determined to be compliant with the ML. If the As-tot concentration is above the ML for As-in, follow up testing shall be conducted to determine if the As-in concentration is above the ML.

Table 2 Mycotoxin

1. Aflatoxin			
Commodity/ Food Product Name	Maximum Level (ug/kg)	Portion of the Commodity/ Product to which the ML applies	Note
Aflatoxin M1			
Milk	0.5	Whole commodity of all mammary secretion of milking animals without either addition to it or extraction from it, intended for consumption as liquid milk or for further processing. A concentration factor applies to partially or wholly dehydrated milks.	(1)
Aflatoxin total (B1+ B2+ G1 +G2)			
Brazil nuts	10	Brazil nuts ready-to-eat	
	15	Whole commodity after removal of shell and intended for further processing.	
Pistachios	10	Pistachios "ready-to-eat"	
	15	Whole commodity after removal of shell and intended for further processing.	
Dried figs	10	dried figs "ready-to-eat"	
Peanuts	20	seed or kernels, after removal of shell or husk and intended for further processing.	
Almonds	10	almonds "ready-to-eat"	
	15	Whole commodity after removal of shell and intended for further processing.	
Hazelnuts	10	hazelnuts, also known as filberts, "ready to eat"	
	15	Whole commodity after removal of shell and intended for further processing.	
Peanut oils and cocoanut oils	20	Whole commodity as prepared for wholesale or retail distribution.	
Food, other than above mentioned.	20		
2. Deoxynivalenol: DON			
Commodity/ Food Product Name	Maximum Level (ug/kg)	Portion of the Commodity/ Product to which the ML applies	Note
Cereal grains (wheat, maize and barley)	2,000	Whole community which destined for further processing.	(1)
Flour, meal, semolina and flakes derived from wheat, maize or barley.	1,000		(1)

Cereal-based foods for infants and young children.	200	The commodity on a dry matter basis.
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3. Fumonisin B1+B2

Commodity/ Food Product Name	Maximum Level (ug/kg)	Portion of the Commodity/ Product to which the ML applies	Note
Raw maize grain	4,000	Whole commodity	(1)
Maize flour and maize meal	2,000		(1)
Maize flour or maize meal-based food		Whole commodity as prepared for wholesale or retail distribution	

4. Ochratoxin A

Commodity/ Food Product	Maximum Level (ug/kg)	Portion of the Commodity/ Product to which the ML applies	Note
Barley	5	Whole commodity of raw barley.	(1)
Rye	5	Whole commodity of raw rye.	(1)
Wheat	5	Whole commodity of raw common wheat, raw durum wheat, raw spelt and raw emmer.	(1)
Chili	30	Dried chili	(1)

5. Patulin

Commodity/ Food Product	Maximum Level (ug/kg)	Portion of the Commodity/ Product to which the ML applies	Note
Apple juice	50	Whole commodity (not concentrated) or commodity reconstituted to the original juice concentration.	(1)

Note:

- (1) The MLs should preferably for food as described portion of the commodity or product. For a food product with the different because of primary processing such as drying, reconstitute, or dilute, the amount, *ML*, of a contaminant in that food must be calculate by a concentration factor or extraction rate.

Table 3 Others

1. Hydrocyanic acid			
Commodity/ Food Product	Maximum Level (mg/kg)	Portion of the Commodity/ Product to which the ML applies	Note
Gari	2	Whole commodity	(1)
Cassava flour	10		(2)
2. Cyclopropenoid fatty acid			
Commodity/ Food Product	Maximum Level (percent by weight)	Portion of the Commodity/ Product to which the ML applies	Note
Fat and oils	0.4	Whole commodity as prepared for wholesale or retail distribution.	
3. Melamine and Cyanuric Acid			
Commodity/ Food Product	Maximum Level (mg/kg)	Portion of the Commodity/ Product to which the ML applies	Note
Infant foods	0.15	Apply to liquid infant formula.	
	1	Apply to powdered infant formula before reconstitution.	
Food (other than infant formulae)	2.5		(3)
4. Vinylchloride monomer			
Commodity/ Food Product	Maximum Level (mg/kg)	Portion of the Commodity/ Product to which the ML applies	Note
Food	0.01	Whole commodity as prepared for wholesale or retail distribution.	(4)
5. Acrylonitrile monomer			
Commodity/ Food Product	Maximum Level (mg/kg)	Portion of the Commodity/ Product to which the ML applies	Note
Food	0.02	Whole commodity as prepared for wholesale or retail distribution.	(5)
6. Chloropropanols or 3-MCPD or 3-Chloro -1,2- propanediol			
Commodity/ Food Product	Maximum Level (mg/kg)	Portion of the Commodity/ Product to which the ML applies	Note
Condiments containing acid	0.4	Products with solids content not more than 40 %	
hydrolyzed vegetable proteins	1	Products with solids content more than 40 %	

Note;

- (1) Expressed as free hydrocyanic acid.
- (2) Expressed as total hydrocyanic acid.
- (3) Applies to milk-based food.
- (4) The ML apply to levels of vinylchloride monomer migration from food contact materials.
- (5) The ML apply to levels of acrylonitrile monomer migration from food contact materials.

Table 4 Radionuclides

Representative radionuclides	Commodity/Product Name	Guideline Level (GL) (Bq/kg)	Note
Pu-238	Infant foods	1	(1)
Pu-239			
Pu-240	Foods other than infant foods	10	(1)
Am-241			
Sr-90	Infant foods	100	(1)
Ru-106			
I-129	Foods other than infant foods	100	(1)
I-131			
U-235			
S-35	Infant foods	1,000	(1)
Co-60			(2)
Sr-89			
Ru-103			
Cs-134	Foods other than infant foods	1,000	
Cs-137			
Ce-144			
Ir-192			
H-3	Infant foods	1,000	(1)
C-14			(3)
Tc-99	Foods other than infant foods	10,000	

Note;

- (1) The Maximum Levels apply to radionuclides contained in foods destined for human consumption, which have been contaminated following a nuclear or radiological emergency. These MLs apply to food after reconstitution or as prepared for consumption.
- (2) This represents the value for organically bound Sulphur.
- (3) This represents the value for organically bound tritium.

Annex 2

of Notification of the Ministry of Public Health (No. 414) B.E. 2563

Issued by virtue of the Food Act B.E. 2522 Re: Standards for Contaminants in Food

Analytical Methods

The analytical method used for contaminants in food shall be one of the following:

1. the analytical methods are mentioned in general methods of analysis for contaminants issued by Codex Alimentarius;
2. the analytical methods issued by the national organizations or international standards organizations, or published in the manuals or publications which are internationally recognized;
3. the analytical methods must be consistent, accurate and reliable. Method validation should perform by a collaborative study or single laboratory based on international guidelines. The analytical result shall be in document comply with the latest version of ISO/IEC 17025.

The methods of analysis as stated under items 1 and 2 shall provide the reliable concentration of contaminants in food.