

Regulation of Pesticide Residues in Food – Practices in International Communities

21 January 2011

Food supply in Hong Kong

- ✿ Mainly imported from different countries
- ✿ Locally produced fresh vegetables (2009)
 - ✦ accounted for ~2% of fresh vegetables consumed in Hong Kong
- ✿ Percentage of fresh and semi-processed fruits, vegetables and cereals imported from different countries (2009)

✦ Mainland China	– 34%
✦ Thailand	– 34%
✦ USA	– 10%
✦ Other countries	– < 5%



Regulation of Pesticide Residues in Food

- ✿ Our major food supplying countries have established regulations of pesticide residues in food
 - ✿ Mainland
 - ✿ USA
 - ✿ Thailand

The Mainland

- ✿ National standard on maximum residues limits for pesticides in food (食品中農藥最大殘留量) (GB 2763-2005)
 - ✿ Some 470 MRLs/EMRLs for 136 pesticides
- ✿ New national food safety standard (GB25193-2010)
 - ✿ 16 MRLs for 12 pesticides



中华人民共和国国家标准

GB 2763—2005
代替 GB 2763—1981, GB 4788—1994 等

食品中农药最大残留限量

Maximum residue limits for pesticides in food

2005-01-25 发布

2005-10-01 实施

中华人民共和国卫生部 发布
中国国家标准化管理委员会

The Mainland

- ✿ Ministry of Agriculture
 - ✿ Professional standards for maximum residue limits for pesticides in farm products (中華人民共和國農業行業標準—農產品中農藥最大殘留限量)
- ✿ No exempted substances list

An example of MRLs in GB standard

GB 2763—2005

4.36.4 最大残留限量:应符合表 36 的规定。

表 36

食 物	最大残留限量/(mg/kg)
叶菜类蔬菜	0.2
果菜类蔬菜	0.2
梨果类水果	0.2
柑橘	0.2
棉籽油	0.02

4.36.5 检验方法:按 GB/T 5009.146 规定的方法测定。

4.37 氰氟菊酯(cypermethrin)

4.37.1 主要用途:杀虫剂。

4.37.2 ADI:0.05 mg/kg 体重(1996 年)。

4.37.3 残留物:氰氟菊酯(所有异构体之总和,脂溶)。

4.37.4 最大残留限量:应符合表 37 的规定。

表 37

食 物	最大残留限量/(mg/kg)
小麦	0.2
玉米	0.05
大豆	0.05
叶菜类蔬菜	2
果菜类蔬菜	0.5
黄瓜	0.2
豆类蔬菜	0.5
梨果类水果	2
柑橘类水果	2
棉籽	0.2
茶叶	20

4.37.5 检验方法:按 GB/T 5009.110 规定的方法测定。

4.38 灭蝇胺(cyromazine)

4.38.1 主要用途:杀虫剂。

4.38.2 ADI:0.02 mg/kg 体重(1990 年)。

4.38.3 残留物:灭蝇胺。

4.38.4 最大残留限量:应符合表 38 的规定。

表 38

食 物	最大残留限量/(mg/kg)
黄瓜	0.2

4.39 2,4-滴(2,4-D)

4.39.1 主要用途:除草剂。

4.39.2 ADI:0.01 mg/kg 体重(1996 年)。

4.39.3 残留物:2,4-滴。

4.39.4 最大残留限量:应符合表 39 的规定。

Classification of food in the GB Standard

GB 2763—2005

附录 A
(资料性附录)
食品分类

依据农药在食品、农产品中形成残留的情况以及饮食习惯,将食品、农产品(限植物性)进行分类,见表 A.1。

表 A.1 食品分类

食品类别	食品品种	示 例
原粮	水稻	稻谷
	麦类	小麦、大麦、燕麦、黑麦
	杂谷类	玉米、高粱、谷子、糜子
	豆类	大豆、绿豆、红小豆
	薯类	甘薯、红薯、芋头
加工粮	粗磨(碾去外皮)	糙米、全麦粉
	精制	大米、面粉(如小麦粉)
产糖禾本类		甘蔗
蔬菜	叶菜类	白菜、菠菜、青菜、茼蒿
	甘蓝类	花椰菜、甘蓝
	果菜类	番茄、茄子、辣椒、蘑菇、甜玉米
	瓜菜类	黄瓜、西葫芦、南瓜、甜瓜、丝瓜
	豆类	豌豆(肉质植物籽)、菜豆、蚕豆(未成熟籽)、扁豆、豇豆、荷兰豆
	茎类	芹菜、芦笋、朝鲜蓟
	鳞茎类	韭菜、洋葱、大葱、百合、大蒜
	块根类	萝卜、胡萝卜、山药、马铃薯、甜菜
水果	梨果类	苹果、梨
	核果类	桃、油桃、李、杏、樱桃、枣
	小粒水果	葡萄、草莓、黑莓、醋栗
	柑橘类	柑、橘、橙、柚、柠檬
	热带及亚热带水果(皮可食)	无花果、橄榄
	热带及亚热带水果(皮不可食)	香蕉、菠萝、猕猴桃、荔枝、芒果
油料作物	油料种子	花生仁、大豆、油菜籽、棉籽、葵花籽
	未精炼植物油	
	食用植物油	
茶叶		红茶、绿茶

USA

- ✿ US Environmental Protection Agency (EPA) is responsible for the registration and approval of the use of the pesticides; and establishment of MRLs
 - ✿ Some 7800 MRLs for ~400 pesticides
 - ✿ “Exempted substances”
- ✿ Changes to MRLs will be announced in the Federal Register, and then incorporated in the Code and Federal Regulations (CFR)

An example of MRLs under US CFR

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Title 40: Protection of Environment
[PART 180—TOLERANCES AND EXEMPTIONS FOR PESTICIDE CHEMICAL RESIDUES IN FOOD](#)
[Subpart C—Specific Tolerances](#)

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§ 180.418 Cypermethrin and an isomer zeta-cypermethrin; tolerances for residues.

(a) *General.* (1) Tolerances are established for residues of the insecticide cypermethrin (±)alpha cyano-(3-phenoxyphenyl)methyl(±)cis,trans-3(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate in or on the following commodities:

Commodity	Parts per million
Brassica, head and stem, subgroup 5A	2.0
Brassica, leafy greens, subgroup 5B	14.0
Cattle, fat	1.0
Cattle, meat	0.2
Cattle, meat byproducts	0.05
Cotton, gin byproducts	11.0
Cotton, undelinted seed	0.5
Egg	0.05
Goat, fat	1.0
Goat, meat	0.2
Goat, meat byproducts	0.05
Hog, fat	0.1
Hog, meat	0.05
Horse, fat	1.0
Horse, meat	0.2
Horse, meat byproducts	0.05

完成 國際網略

An example of classes of food under US CFR

Electronic Code of Federal Regulations - Microsoft Internet Explorer

http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=1794d87b19f7e18cc0b92cee59fd8cc0&rgn=div8&view=text&node=40:23.0.1.1.28.2.19.12.&idno=40

commodities for the subgroup. Subgroups, which are a subset of their associated crop group, are established for some but not all crops groups.

(1) *Crop Group 1: Root and Tuber Vegetables Group.*

(i) *Representative commodities.* Carrot, potato, radish, and sugar beet.

(ii) *Table.* The following table 1 lists all the commodities included in Crop Group 1 and identifies the related crop subgroups.

Table 1—Crop Group 1: Root and Tuber Vegetables

Commodities	Related crop subgroups
Arracacha (<i>Arracacia xanthorrhiza</i>)	1C, 1D
Arrowroot (<i>Maranta arundinacea</i>)	1C, 1D
Artichoke, Chinese (<i>Stachys affinis</i>)	1C, 1D
Artichoke, Jerusalem (<i>Helianthus tuberosus</i>)	1C, 1D
Beet, garden (<i>Beta vulgaris</i>)	1A, 1B
Beet, sugar (<i>Beta vulgaris</i>)	1A
Burdock, edible (<i>Arctium lappa</i>)	1A, 1B
Canna, edible (Queensland arrowroot) (<i>Canna indica</i>)	1C, 1D
Carrot (<i>Daucus carota</i>)	1A, 1B
Cassava, bitter and sweet (<i>Manihot esculenta</i>)	1C, 1D
Celeriac (celery root) (<i>Apium graveolens</i> var. <i>rapaceum</i>)	1A, 1B
Chayote (root) (<i>Sechium edule</i>)	1C, 1D
Chervil, turnip-rooted (<i>Chaerophyllum bulbosum</i>)	1A, 1B
Chicory (<i>Cichorium intybus</i>)	1A, 1B
Chufa (<i>Cyperus esculentus</i>)	1C, 1D
Dasheen (taro) (<i>Colocasia esculenta</i>)	1C, 1D
Ginger (<i>Zingiber officinale</i>)	1C, 1D
Ginseng (<i>Panax quinquefolius</i>)	1A, 1B
Horseradish (<i>Armoracia rusticana</i>)	1A, 1B
Leren (<i>Calathea allouia</i>)	1C, 1D
Parsley, turnip-rooted (<i>Petroselinum crispum</i> var. <i>tuberosum</i>)	1A, 1B
Parsnip (<i>Pastinaca sativa</i>)	1A, 1B
Potato (<i>Solanum tuberosum</i>)	1C
Radish (<i>Raphanus sativus</i>)	1A, 1B
Radish, oriental (daikon) (<i>Raphanus sativus</i> subvar.)	1A, 1B

Examples of exempted substances

Electronic Code of Federal Regulations: - Microsoft Internet Explorer

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[§180.649](#) Salufenacil; tolerances for residues.

[§180.650](#) Isoxaben; tolerances for residues.

[§180.651](#) Imazosulfuron; tolerances for residues.

Subpart D--EXEMPTIONS FROM TOLERANCES

[§180.900](#) Exemptions from the requirement of a tolerance.

[§180.905](#) Pesticide chemicals; exemptions from the requirement of a tolerance.

[§180.910](#) Inert ingredients used pre- and post-harvest; exemptions from the requirement of a tolerance.

[§180.920](#) Inert ingredients used pre-harvest; exemptions from the requirement of a tolerance.

[§180.930](#) Inert ingredients applied to animals; exemptions from the requirement of a tolerance.

[§180.940](#) Tolerance exemptions for active and inert ingredients for use in antimicrobial formulations (Food-contact surface sanitizing solutions).

[§180.950](#) Tolerance exemptions for minimal risk active and inert ingredients.

[§180.960](#) Polymers; exemptions from the requirement of a tolerance.

[§180.1011](#) Viable spores of the microorganismBerliner; exemption from the requirement of a tolerance.

[§180.1016](#) Ethylene; exemption from the requirement of a tolerance.

[§180.1017](#) Diatomaceous earth; exemption from the requirement of a tolerance.

[§180.1019](#) Sulfuric acid; exemption from the requirement of a tolerance.

[§180.1020](#) Sodium chlorate; exemption from the requirement of a tolerance.

[§180.1021](#) Copper; exemption from the requirement of a tolerance.

[§180.1022](#) Iodine-detergent complex; exemption from the requirement of a tolerance.

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[§180.1023](#) Propanoic acid; exemptions from the requirement of a tolerance.

網際網路

Thailand

- ✿ Thai Agricultural Commodity and Food Standards
 - ✿ Some 750 MRLs for ~40 pesticides
- ✿ Thai Ministry of Public Health Notification
 - ✿ Some 80 EMRLs for 5 pesticides



THAI AGRICULTURAL STANDARD

TAS 9002-2008

**PESTICIDE RESIDUES:
MAXIMUM RESIDUE LIMITS**

**National Bureau of Agricultural Commodity and Food Standards
Ministry of Agriculture and Cooperatives**

ICS 67.080.01 ISBN 978-974-403-574-5

In order to prevent accumulated toxicity due to consumption of foods containing residues of hazardous substances for agriculture.

By virtue of the provision of Section 5 and 6(3) of the Food Act B.E. 2522 (1979), which restricts personal rights and liberties in conjunction with Section 29, 35, 39, 48 and 50 of the Constitution of the Kingdom of Thailand, the Minister of Public Health announced as follows:

1. The Ministry of Public Health Notification of No. 163 B.E. 2538 (1995) entitled: "Food Containing Toxic Substances Residue" dated 28 April B.E. 2538 (1995) is repealed:

2. In this Notification,

Toxic substances residue means hazardous substances for agriculture including the derivatives of those substances i.e. conversion products, metabolites, reaction products or adulterated matters in the hazardous substances for agriculture that are toxic, and contaminate or remain in foods.

Hazardous substances for agriculture means substances used for the purpose of preventing, destroying, attracting, repelling or controlling pests and diseases in plants and animals or unwanted plants and animals during cultivation, storage, transportation, sale or during processing of

Thank you