The current Thailand food additives regulations

Chitra Settaudom
Senior Expert in Food Standard
Thai Food and Drug Administration
Thai FDA

The main role of the Thai FDA is to protect consumer’s health, especially, to ensure safety, quality and efficacy of health products within its remit. These include: foods, drugs, psychotropic substances, narcotics, medical devices, volatile substances, cosmetics and hazardous substances available in the country.
FDA-MISSION

Regulate and monitor health products to meet quality and efficacy standards.

Promote Good Manufacturing Practice in the production and quality control of health products to ensure consumer safety and to encourage exports.

Encourage and enable all stakeholders and non-government parties to share in the consumer protection role.

Research and develop the effectiveness of the consumer protection system for health products.

Promote and support the capability of health product consumers and society to be able to protect themselves and be self-reliant.
Food Act B.E.2522 (1979) is the current mandatory food safety standard and consumer protection in Thailand.

Minister of Public Health is in charge to promulgate all regulations called “Notifications” pursuant to the Food Act.

Notification covers all aspects such as standard and quality, packaging, labelling, storage, distribution, importation, etc.
FAO/WHO’s Food Safety Concept

- Integrated from-farm-to-table concept
- Risk analysis → CODEX standards
  → Consumer protection
- Transparency system
- Regulatory impact assessment
Global Food Trade

WTO
SPS and TBT
Agreements

Scientific-Risk Based

↓

Food Trade Barriers

Codex
“International Standards”

↓

Food Trade Promotion
Thailand’s National Food Safety Programme

- Risk Analysis Principle

  Risk Assessment
  - Hazard Identification
  - Hazard Characterization
  - Exposure Assessment
  - Risk Characterization

  Risk Communication

  Risk Management
  - Risk Evaluation
  - Option Assessment
  - Option Implementation
  - Monitoring and Review
* Definition of Terminology Used in the Act
* Power of the Minister of Public Health
* Food Commission
* Application and Grant of Licencee
* Duties of the licences
* Control of Food
  - impure food (Section 26)
  - adulterated food (Section 27)
  - substandard food (Section 28)
  - other food which specified by the Minister Section 29)
* Product Registration and Advertisement of Food
* Competent Officer
* Suspension and Revoke of Licencee
* Punishment
Regulations

- **Horizontal Standard**: General standard
  - Food Additives
  - Labeling
  - Nutrition Labeling
  - *Health claims (on process)*

- **Vertical Standard**: Commodity standard
  - Milk
  - Infant formula and food
  - Beverage
  - Drinking water
  - Fats & oils
  - etc.
Examples of Notifications of Ministry of Public Health

**Vertical (Products)**
- Cow’s milk
- Vinegar
- Fats and Oils
- Cheeses
- Sauces
- Chewing gums and candies
- Ice-cream
- Mineral water
- Jam, Jelly, and marmalade
- Coffee
- Dietary Supplementary
- Supplementary food for infants and young children

**Horizontal (Every product)**
- Microorganism
- Mycotoxin
- Food Additives
- Standard of contaminants
- Pesticides Residues
- GMP
- Labeling
- Veterinary Drugs Residues
- Nutrition Labeling
Approvals in Thailand

Premise

Premise = GMP Standard

Product

Analytical result = Label = Formula = Product Standard

Advertisement

Advertisement =
• Not falsifying
• Not misleading
• Not allow Medical Claim

Notification

- Safety
- Identity
- Efficacy
Pre-marketing Control

- Product
  - Safety
  - Identity

- Advertisement
  - Truthful & Efficacy

- Process
  - GMP

- Consumer

- Finished Product

Thai Food and Drug Administration
Procedure for Pre-marketing Approval

PRIVATE COMPANY

- Preparing Document
- Premise Document
- Product Document
- Advertisement Document

Registration

THAI FDA

- Premise Approval
- Product Document Approval
- Advertisement Document Approval

Premise License

Product Notification & Registration number

Production

Product in the Market

Advertisement Number

Advertisement

Consumer
FOOD LABEL

XX-X-XXXXX-Y-YYYY
2. Post-Marketing Control

* monitoring
* sampling
* surveillance
* legal action
Steps of Establishing of National Food Standards

1. Codex Contact point
2. Need & Problem
3. Agree in Principle
4. Compiling of information
5. Drafting of standard
6. Subcommittee approval
7. Research & Development
8. National data
9. Industries
Steps of Establishing of National Food Standards

(Continue)

Public hearing

Notify WTO

Food Committee approval

Sign by
Minister of Public Health

Publish in government Gazette
Food standards among ASEAN countries and trading partners are quite different.

There are several factors involved, such as:
- holistic health approach
- consumer behaviors,
- consumption patterns,
- local food characteristics,
- technology for food production,
- organizational structure
- laws of each country.
### Grouped by year of adopted (Step 8) provisions with note 161

<table>
<thead>
<tr>
<th>Food additive</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>Sum</th>
</tr>
</thead>
<tbody>
<tr>
<td>acesulfame potassium</td>
<td>31</td>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td>44</td>
</tr>
<tr>
<td>aspartame-acsulfame salt</td>
<td></td>
<td></td>
<td>10</td>
<td></td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>alitame</td>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>13</td>
</tr>
<tr>
<td>aspartame</td>
<td>25</td>
<td>23</td>
<td>1</td>
<td></td>
<td></td>
<td>49</td>
</tr>
<tr>
<td>cyclamates</td>
<td>20</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td>23</td>
</tr>
<tr>
<td>neotame</td>
<td>31</td>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td>49</td>
</tr>
<tr>
<td>saccharins</td>
<td>18</td>
<td>19</td>
<td>1</td>
<td></td>
<td></td>
<td>38</td>
</tr>
<tr>
<td>sucralose</td>
<td>26</td>
<td>23</td>
<td></td>
<td></td>
<td></td>
<td>49</td>
</tr>
<tr>
<td>Sum of sweetener</td>
<td>164</td>
<td>99</td>
<td>11</td>
<td>1</td>
<td>0</td>
<td>275</td>
</tr>
<tr>
<td>carmine</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Ponceau 4r</td>
<td>12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>sunset yellow</td>
<td>11</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>allura red</td>
<td>22</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>22</td>
</tr>
<tr>
<td>brilliant blue fcf</td>
<td></td>
<td></td>
<td></td>
<td>12</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>caramel III</td>
<td>5</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td>11</td>
</tr>
<tr>
<td>caramel IV</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>carotenoids</td>
<td>2</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>chlorophylls</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>fast green fcf</td>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>grape skin extract</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>indigotin</td>
<td>18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>18</td>
</tr>
<tr>
<td>iron oxides</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Sum of color</td>
<td>0</td>
<td>26</td>
<td>83</td>
<td>15</td>
<td>0</td>
<td>124</td>
</tr>
<tr>
<td>Total color &amp; sweetener</td>
<td>164</td>
<td>125</td>
<td>94</td>
<td>16</td>
<td>0</td>
<td>399</td>
</tr>
</tbody>
</table>
Current Food Additive Standard


which covers :

1. Food Additive comply with the Codex GSEA (Step 8)

2. Food Categories are also followed Codex GSFA
NOTIFICATION OF THE MINISTRY OF PUBLIC HEALTH
NO. 281 (B.E.2547) Reg: FOOD ADDITIVES

Packaging Specification:
According to the Notification
Reg: Packaging

Labelling:
(1) Name of Product
(2) Registration Number
(3) Names & Addresses of Producer/Re-packer
(4) Net Weight/Volume
(5) Main Ingredients
  - Name of Food Additive
  - Percentage of Content

- Additive Code (INS No.)

(6) Declaration
(7) Expiated Date Manufacturing
(8) Storage Condition
(9) Preparation

*This notification (No.281) shall not enforce to flavoring agents

Food Additive Specification:
(1) Definition
(2) Description
(3) Function Use
(4) Characteristic (Identification)
(5) Method of Assay

Production Hygiene:
According to the Notification
Reg: General GMP

Provisional:
1. Functional Class
2. Food Category
3. Maximum Use Level
• Limited to used food additive which specify for the purpose of that food additive, name, type of food additive and maximum level limit to use in food as follow:

  * **Codex General Standard for Food Additives**
  or
  * **Announcement of FDA by Food Committee approval or FDA approval**
NOTIFICATION OF THE MINISTRY OF PUBLIC HEALTH
NO. 281 (B.E.2547)
RE: FOOD ADDITIVES

Scope
1. Definition
2. Description
3. Function use
4. Characteristic
5. Test
6. Method of assay

Quality and Standard
1. Maximum Use Level
2. Functional Class
3. Food Category

Provisional

Labeling
1. Name of Food Add.
2. Serial number.
3. Names & addresses of Producer/re-packer
4. Net weight/volume
5. Main ingredients
6. Declaration
7. Expired Date/ Manufacturing Date
8. Storage condition
9. Preparation

Producing
follow the Notification of the Ministry of Public Health No 193: General GMP

Packaging
follow the Notification of the Ministry of Public Health No.92 and 295: Packaging.

*This notification shall not enforce to flavoring agents
Prescribed Quality and Standard of food additives as follow:

- Codex Advisory Specification for the Identification and Purity of Food Additives or
- Announcement of FDA by Food Committee approval or
- Risk Assessment sub-committee approval and issue as Announcement of FDA by Food Committee approval (New additives)
Prescribed Method of Analysis as follow:

- Codex Advisory Specification for the Identification and Purity of Food Additives or

- Announcement of FDA by Food Committee approval
Step in Safety Approval for New Food Additives in Thailand

Food Additives in Notification 281

- Yes
  - Pre-Marketing Approval are required for premise licence and product registration

- No
  - Applying for Safety Assessment to FDA

Applying for Safety Assessment to FDA

- Review by FDA expert working group
- Approve by Risk Assessment Sub-committee

Risk Assessment

- Toxicological data, Mechanistic data, Epidemiological data conform to Notification 281
- Hazard Identify/Characterization
- Exposure Assessment
- Reference Dose (ADI)

Risk Management

- Approve by Risk Management Sub-committee
- Risk Management Policy
  - Improvement Standard of Food Additives
  - Compliance Policy/Legal Action
  - Labeling Notification
  - Education
  - Database/Information

Risk Communication

- Approved and distributed in the market

Risk Management

- Risk Communication Officer
  - Measure
    - Labelling
    - Information
    - Education

Risk Management

- Field Study
  - Consumption Data
  - Concentration Data

Risk characterization

- No
  - Risk?
  - Reject
  - - Approve and amend in Notification 281
  - - Monitoring/Surveillance Program

Risk Management

- Risk Management Policy
  - Improvement Standard of Food Additives
  - Compliance Policy/Legal Action
  - Labeling Notification
  - Education
  - Database/Information

Risk Communication

- Approved by Food Committee

Risk Management

- Risk Management Policy
  - Improvement Standard of Food Additives
  - Compliance Policy/Legal Action
  - Labeling Notification
  - Education
  - Database/Information

Risk Communication

- Approved and distributed in the market

Risk Management

- Field Study
  - Consumption Data
  - Concentration Data

Risk characterization

- No
  - Risk?
  - Reject
  - - Approve and amend in Notification 281
  - - Monitoring/Surveillance Program

Risk Management

- Risk Management Policy
  - Improvement Standard of Food Additives
  - Compliance Policy/Legal Action
  - Labeling Notification
  - Education
  - Database/Information

Risk Communication

- Approved and distributed in the market
New Food Additive exempt from the List of No.281 shall apply for the Safety Approval and its required submitted comply to

Principles For the Safety assessment of Food Additives and Contaminants in Food
(ENVIRONMENTAL HEALTH CRITERIA 70 ; WHO, 1987)

New

Principles and Methods for the Risk Assessment of Chemicals in Food
(ENVIRONMENTAL HEALTH CRITERIA 240 ; WHO, 2009)
Proposed Quality & standard/ML

Approval by
Risk Assessment/Risk Management
Sub committee
Food committee

FDA Announcement for Quality & standard/ML
- Comply to Codex ML
- Not comply to Codex ML according to Risk Assessment result

Permit to produce/sold/use

Monitoring for the compliance to the regulation
Ministry of Public Health has reviewed the existing provision of food additives labelling and concluded that it should be updated. The Notification of MOPH No. 281 B.E. 2547 (2004) entitled "Food Additives" has been amended as follows:

- Should have text in Thai language details as follow:
  1. a name of food additives with marked by the word "food additives"
  2. a food serial number
  3. Name and address of manufacturer or packer
  4. Lot No.
  5. The net contents (System International Units)
(6) The components of food additives shall be displayed as follows,

(6.1) The common name of food additives also its **international numbering system number** and given in the form of the list in order to a percentage by weigh, and the name must be listed as a specific for general standard for food additives or the Ministry of Public Health on Food additives.

**Approach in the first paragraph does not apply to sales for manufacturers (Plant) shall be display the common name, INS number and declared in the list of food additives in descending order of proportion** and labeled “used in manufactures plant only".
(6.2) The name of food ingredients shall be declared in the list of ingredients in descending order of proportion.

(7) Month and year of manufacture, or month and year of expiration or labeled.

(8) The directions for use

(9) Instructions for storage

(10) restrictions on use and warnings or cautions (if any).

(11) Labeling of food additives produced for export will display any language at least required,

(11.1) producing countries.

(11.2) a food serial number or the identification of the producing factory.

(11.3) "Lot No." or marked with other text that can be traceable.
Challenge to Food Additives Regulation in Thailand

- Codex’s GSFA does not cover the entire of FA that available the market.
- Codex’s GSFA does not cover Maximum level of Additives in each food Categories that industry want to use
- Codex’s food categories do not covered local/native Food in Thailand and lack of ML for FA in certain foods
## Grouped by year of adopted (Step 8) provisions with note 161

<table>
<thead>
<tr>
<th></th>
<th>Food additive</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>Sum</th>
<th>% of all adopted (Step 8) provisions with note 161</th>
<th>ข้อกำหนดของไทย</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>acesulfame potassium (ADI=15 kg/kg bw)</td>
<td>31</td>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td>44</td>
<td>69</td>
<td>ห้ามใช้ 6  กำหนดเงื่อนไขเฉพาะ 8 รายการ</td>
</tr>
<tr>
<td>2</td>
<td>aspartame-acsulfame salt (ADI=15, 40 kg/kg bw)</td>
<td></td>
<td></td>
<td>10</td>
<td></td>
<td></td>
<td>10</td>
<td>63</td>
<td>ห้ามใช้ 2 รายการ</td>
</tr>
<tr>
<td>3</td>
<td>Alitame (ADI=1 kg/kg bw)</td>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>13</td>
<td>82</td>
<td>ห้ามใช้ 4 รายการ  กำหนดเงื่อนไขเฉพาะ 1 รายการ</td>
</tr>
<tr>
<td>4</td>
<td>Aspartame (ADI=40 kg/kg bw)</td>
<td>25</td>
<td>23</td>
<td>1</td>
<td></td>
<td></td>
<td>49</td>
<td>72</td>
<td>ห้ามใช้ 4 รายการ  กำหนดเงื่อนไขเฉพาะ 8 รายการ</td>
</tr>
<tr>
<td>5</td>
<td>Cyclamates (ADI=11 kg/kg bw)</td>
<td>20</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td>23</td>
<td>68</td>
<td>ห้ามใช้ในอาหารทุกชนิด</td>
</tr>
<tr>
<td></td>
<td>Neotame</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>ห้ามใช้ 4 รายการ</td>
</tr>
</tbody>
</table>
1. To understand the current US regulations on substances used as food additives, flavoring substances and processing aids (GRAS substances, direct and indirect food additives)

2. To increase understanding of the International food additives database online.
I would like to propose the initiatives as follows:

1. ASEAN countries should share resource persons, particularly in the field of exposure assessment of food additives. Qualification and role of these ASEAN experts should be clearly established. The experts should have high experience and proficiency in the CODEX risk assessment guidelines and are used to be trained by JECFA. Besides, the International Advisory Board may be required to provide advice in some cases.
2. The database on food consumption of ASEAN consumers should be constructed by survey.

3. Constructive partnership between ASEAN and food business associations need to be strengthened. Business associations might support some funding for the work of the ASEAN experts and the construction of such databases mentioned for the benefit of the whole of ASEAN.
International Network

- Research and training
- Information sharing
- Warning system
Codex Advisory Specification for the Identity and Purity of Food Additives

JECFA specification (Codex Advisory Specification for the Identity and Purity of Food Additives)
CODEX GENERAL STANDARD FOR FOOD ADDITIVES  
CODEX STAN 192-1995  
PREAMBLE

1. SCOPE

1.1 FOOD ADDITIVES INCLUDED IN THIS STANDARD

Only the food additives listed herein are recognized as suitable for use in foods in conformance with the provisions of this Standard. Only food additives that have been assigned an Acceptable Daily Intake (ADI) or determined, on the basis of other criteria, to be safe by the Joint FAO/WHO Expert Committee on Food Additives (JECFA) and an International Numbering System (INS) designation by Codex will be considered for inclusion in this Standard. The use of additives in conformance with this standard is considered to be technologically justified.

1.2 FOODS IN WHICH ADDITIVES MAY BE USED

This Standard sets forth the conditions under which food additives may be used in all foods, whether or not they have previously been standardized by Codex. The use of additives in foods standardized by Codex is subject to the conditions of use established by the Codex commodity standards and this standard. The General Standard for Food Additives (GSFA) should be the single authoritative reference point for food additives. Codex commodity committees have the responsibility and expertise to appraise and justify the technological need for the use of additives in foods subject to a commodity standard. The information given by the commodity committees may also be taken into account by the Codex Committee on Food Additives (CCFA) when considering food additive provisions in similar non-standardized foods. When a food is not covered by a commodity committee, CCFA will appraise the technological need.

1.3 FOODS IN WHICH ADDITIVES MAY NOT BE USED

Food categories or individual food items in which the use of food additives is not acceptable, or where use should be restricted, are defined by this Standard.

1.4 MAXIMUM USE LEVELS FOR FOOD ADDITIVES

The primary objective of establishing maximum use levels for food additives in various food groups is to ensure that the intake of an additive from all its uses does not exceed its ADI.

The food additives covered by this Standard and their maximum use levels are based on the food additive provisions of previously established Codex commodity standards, or upon the request of governments after subjecting the requested maximum use levels to an appropriate method for verifying the compatibility of a proposed maximum level with the ADI.

Annex A of this Standard may be used as a first step in this regard. The evaluation of actual food consumption data is also encouraged.

---

1. Notwithstanding the provisions of this Section of the General Standard, the lack of reference to a particular additive or to a particular use of an additive in a food in the General Standard as currently drafted, does not imply that the additive is unsafe or unsuitable for use in food. The Commission shall review the necessity for maintaining this footnote on a regular basis, with a view to its deletion once the General Standard is substantially complete.

2. For the purpose of this standard "determined, on the basis of other criteria, to be safe" means that the use of a food additive does not pose a safety concern under conditions of use described by JECFA as being of no toxicological concern (e.g. use levels defined circumstances).

3. A database of food additive specifications with their current ADI status, the year of their most recent JECFA evaluation, their assigned INS numbers, etc. are available in English at the JECFA website at FAO http://www.fao.org/ag/agn/jecfa-additives/search.html?lang=en. The database has a query page and background information in English, French, Spanish, Arabic and Chinese. The reports of JECFA are available at the JECFA website at WHO http://www.who.int/ipcs/food/jecfa/en/

### การจัดหมวดอาหาร (Food Category System)

ตารางข้อมูลตามข้อดังกล่าว:

<table>
<thead>
<tr>
<th>หมวด</th>
<th>รายละเอียด</th>
</tr>
</thead>
<tbody>
<tr>
<td>หมวด 01</td>
<td>ผลิตภัณฑ์ที่มีส่วนประกอบของผลิตภัณฑ์ที่เป็นมิตรกับสุขภาพ ตามหมวด 02.0 (Dairy products and analogues, excluding products of food category 02.0)</td>
</tr>
<tr>
<td>หมวด 02</td>
<td>ผลิตภัณฑ์ที่มีส่วนประกอบของผลิตภัณฑ์ที่เป็นมิตรกับสุขภาพ ตามหมวด 02.0 (Fats and oils, and fat emulsions)</td>
</tr>
<tr>
<td>หมวด 03</td>
<td>ผลิตภัณฑ์ที่มีส่วนประกอบของผลิตภัณฑ์ที่เป็นมิตรกับสุขภาพ ตามหมวด 02.0 (Edible lees, including sherbet and sorbet)</td>
</tr>
<tr>
<td>หมวด 04</td>
<td>ผลิตภัณฑ์ที่มีส่วนประกอบของผลิตภัณฑ์ที่เป็นมิตรกับสุขภาพ ตามหมวด 02.0 (Fruits and vegetables (including mushrooms and fungi, roots and tubers, pulses and legumes, and aloe vera), seaweeds, and nuts and seeds)</td>
</tr>
<tr>
<td>หมวด 05</td>
<td>ผลิตภัณฑ์ที่มีส่วนประกอบของผลิตภัณฑ์ที่เป็นมิตรกับสุขภาพ ตามหมวด 02.0 (Confectionery)</td>
</tr>
</tbody>
</table>
CODEX GENERAL STANDARD FOR FOOD ADDITIVES
CODEX Stan 196-1995

PREAMBLE

1. SCOPE
1.1. Food Additives in Foods Produced for Human Consumption

This standard applies to the use of food additives in foods produced for human consumption. It does not apply to animal feed additives, which are regulated under different standards. The provisions of this standard are intended to ensure the safety of food additives used in foods produced for human consumption and to harmonize international standards on the use of food additives.

1.2. Food Additives for Use in Food in General, Unless Otherwise Specified, in Accordance with GMP

Food additives are permitted for use in food in general, unless otherwise specified, in accordance with GMP. GMP requirements for the use of food additives are intended to ensure the safety of food additives in food, to prevent contamination of food during processing, and to ensure the integrity of the food supply.

1.3. Food Additives Not to be Used

Table One: Food Additives Not to be Used

- Acrylamide
- Cholera Toxin
- Dioxin
- Polychlorinated Biphenyls (PCBs)
- Polychlorinated Naphthalenes (PCNs)
- Polychlorinated Biphenyl Acids (PCBAs)
- Polychlorinated Biphenyl Epoxides (PCB-EOs)
- Polychlorinated Biphenyl Ketones (PCB-Ks)
- Polychlorinated Biphenyls (PCBs)
- Polychlorinated Dibenzo-p-dioxins (PCDDs)
- Polychlorinated Dibenzofurans (PCDFs)
- Polychlorinated Dibenzofurans (PCDFs)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
- Polychlorinated Dibenzofuran (PCDF)
# CODEX GENERAL STANDARD FOR FOOD ADDITIVES 192-1995

**Table One**

Additives Permitted for Use Under Specified Conditions in Certain Food Categories or Individual Food Items

<table>
<thead>
<tr>
<th>BENZOATES</th>
<th>Function: preservative</th>
<th>Food Category</th>
<th>Max Level</th>
<th>Notes</th>
<th>Year Adopted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzoic acid</td>
<td></td>
<td>Daily-based desserts (e.g., pudding, fruit in fermented yoghurt)</td>
<td>9000mg/kg</td>
<td>13</td>
<td>2001</td>
</tr>
<tr>
<td>Potassium benzoate</td>
<td></td>
<td>Fat spreads, dairy fat spreads and blended spreads</td>
<td>10000mg/kg</td>
<td>13</td>
<td>2001</td>
</tr>
<tr>
<td>Sodium benzoate</td>
<td></td>
<td>Fat emulsions mainly of type of mayonnaise, including mixed and/or flavoured products based on fat emulsions</td>
<td>10000mg/kg</td>
<td>13</td>
<td>2001</td>
</tr>
<tr>
<td>Sodium benzoate</td>
<td></td>
<td>Fat-based desserts excluding dairy-based dessert products of food category 01.7</td>
<td>10000mg/kg</td>
<td>13</td>
<td>2001</td>
</tr>
<tr>
<td>Sodium benzoate</td>
<td></td>
<td>Dried fruit</td>
<td>8000mg/kg</td>
<td>13</td>
<td>2003</td>
</tr>
<tr>
<td>Sodium benzoate</td>
<td></td>
<td>Fruit in vinegar, oil, or lime</td>
<td>10000mg/kg</td>
<td>13</td>
<td>2001</td>
</tr>
<tr>
<td>Sodium benzoate</td>
<td></td>
<td>Jams, jellies, marmalades</td>
<td>10000mg/kg</td>
<td>13</td>
<td>2001</td>
</tr>
</tbody>
</table>
## Table Two

Food Categories or Individual Food Items in Which Food Additives are Permitted

<table>
<thead>
<tr>
<th>Food Category No.</th>
<th>14.1.4</th>
<th>Water-based flavoured drinks, including &quot;sport,&quot; &quot;energy,&quot; or &quot;electrolyte&quot; drinks and particulated drinks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additive</td>
<td>IN2</td>
<td>Year Adopted</td>
</tr>
<tr>
<td>FORMIC ACID</td>
<td>200</td>
<td>2001</td>
</tr>
<tr>
<td>GLYCEROL ESTERS OF WOOD ROSN</td>
<td>445</td>
<td>1999</td>
</tr>
<tr>
<td>IRON OXIDE</td>
<td>172</td>
<td>2006</td>
</tr>
<tr>
<td>ISOPROPYL CITRATE</td>
<td>384</td>
<td>2001</td>
</tr>
<tr>
<td>NEOTAME</td>
<td>961</td>
<td>2007</td>
</tr>
<tr>
<td>POLYMETHYLISILOXANE</td>
<td>900a</td>
<td>1999</td>
</tr>
<tr>
<td>POLYETHYLENE GLYCOL</td>
<td>152</td>
<td>2001</td>
</tr>
<tr>
<td>POLYSORBATE</td>
<td>432-430</td>
<td>2007</td>
</tr>
<tr>
<td>PONCEAU AR (COCHINEAL RED A)</td>
<td>124</td>
<td>2008</td>
</tr>
<tr>
<td>PROPYL GALLATE</td>
<td>310</td>
<td>2001</td>
</tr>
<tr>
<td>PROPYL 3-F PHOSPHATE GLYCOL ESTERS OF FATTY ACIDS</td>
<td>477</td>
<td>2001</td>
</tr>
<tr>
<td>QUILLIA EXTRACTS</td>
<td>969</td>
<td>2007</td>
</tr>
<tr>
<td>RIBOFLAVINS</td>
<td>101</td>
<td>2005</td>
</tr>
<tr>
<td>STANNIOUS CHLORIDE</td>
<td>512</td>
<td>2001</td>
</tr>
<tr>
<td>STEARYL CITRATE</td>
<td>484</td>
<td>1999</td>
</tr>
<tr>
<td>SUCRALOSE (TRICHLOROGALACTOSUCROSE)</td>
<td>966</td>
<td>2007</td>
</tr>
<tr>
<td>SUCROSE ACETATE ISOEUTYRATE</td>
<td>444</td>
<td>1999</td>
</tr>
<tr>
<td>SULFITES</td>
<td>220</td>
<td>2006</td>
</tr>
<tr>
<td>SUNSET YELLOW FCF</td>
<td>110</td>
<td>2008</td>
</tr>
<tr>
<td>THIODIPROPIONATES</td>
<td>388, 389</td>
<td>1999</td>
</tr>
<tr>
<td>TRIETHYL CITRATE</td>
<td>1505</td>
<td>1999</td>
</tr>
</tbody>
</table>
Table Three
Additives Permitted for Use in Food in General, Unless Otherwise Specified, in Accordance with GMP

<table>
<thead>
<tr>
<th>INS No</th>
<th>Additive</th>
<th>Year Adopted</th>
</tr>
</thead>
<tbody>
<tr>
<td>626</td>
<td>5′-Guanosine acid</td>
<td>1999</td>
</tr>
<tr>
<td>260</td>
<td>Acetic acid, glacial</td>
<td>1999</td>
</tr>
<tr>
<td>472a</td>
<td>Acetic and fatty acid esters of glycerol</td>
<td>1999</td>
</tr>
<tr>
<td>1422</td>
<td>Acetylated diacetyl adipate</td>
<td>1989</td>
</tr>
<tr>
<td>1414</td>
<td>Acetylated diacetyl phosphates</td>
<td>1999</td>
</tr>
<tr>
<td>1431</td>
<td>Acetylated oxidized starch</td>
<td>2000</td>
</tr>
<tr>
<td>1401</td>
<td>Annealed starch</td>
<td>1999</td>
</tr>
<tr>
<td>406</td>
<td>Agar</td>
<td>1999</td>
</tr>
<tr>
<td>480</td>
<td>Arginine acid</td>
<td>1999</td>
</tr>
<tr>
<td>1402</td>
<td>Alkaline treated starch</td>
<td>1999</td>
</tr>
<tr>
<td>1100</td>
<td>alpha-Amylase from Aspergillus oryza var</td>
<td>1999</td>
</tr>
<tr>
<td>1100</td>
<td>alpha-Amylase from Bacillus licheniformis (Carbohydrate)</td>
<td>1999</td>
</tr>
<tr>
<td>1100</td>
<td>alpha-Amylase from Bacillus megaterium expressed in Bacillus subtilis</td>
<td>1999</td>
</tr>
<tr>
<td>1100</td>
<td>alpha-Amylase from Bacillus steaerothermophilus</td>
<td>1999</td>
</tr>
</tbody>
</table>
(เรื่อง) ประกาศกระทรวงสาธารณสุข เรื่อง วัตถุเจือปนอาหาร (ฉบับที่ 2)

วัตถุเจือปนอาหารก่อพิษวิทยาแล้วอาจก่อให้เกิดอาการร้ายแรง อย่างน้อยอาการที่จะเกิดขึ้นจากวัตถุเจือปนอาหาร มีข้อมูลเชิงนิเวศวิทยาที่จะมีความเป็นภำยต่อสุขภาพและสมรรถภาพของร่างกายตัวย่อยได้และจะต้องมีการตรวจสอบและกำกับดูแลไปโดยมีการดูแลโดยทันท่วงที

1. ใช้อาหารโดยพิจารณา "วัตถุเจือปนอาหาร" กับทำไว้
2. เลือกอาหาร
3. รับประทานของสุนัขหรือแมวหลังจากวัตถุเจือปนอาหาร
4. รับประทานโดยพิจารณา "วัตถุเจือปนอาหาร" กับทำไว้
5. บริโภคของวัตถุเจือปนอาหารเป็นระบบที่ดี

- วัตถุเจือปนอาหารเป็นเนื้อเยื่อ ไม่ให้ส่งเสียกลิ่น
- วัตถุเจือปนอาหารที่เนื้อแข็ง ให้ส่งเสียกลิ่น
- วัตถุเจือปนอาหารที่เนื้อแข็ง ให้ส่งเสียกลิ่น
- วัตถุเจือปนอาหารที่เนื้อแข็ง ให้ส่งเสียกลิ่น
- วัตถุเจือปนอาหารที่เนื้อแข็ง ให้ส่งเสียกลิ่น

- อื่น ๆ ที่เนื้อแข็ง
Asean way  consensus