

STANDARD 1.3.1

FOOD ADDITIVES

Purpose

A food additive is any substance not normally consumed as a food in itself and not normally used as an ingredient of food, but which is intentionally added to a food to achieve one or more of the technological functions specified in Schedule 5. It or its by-products may remain in the food. Food additives are distinguishable from processing aids (see Standard 1.3.3) and vitamins and minerals added to food for nutritional purposes (see Standard 1.3.2).

This Standard regulates the use of food additives in the production and processing of food. A food additive may only be added to food where expressly permitted in this standard. Additives can only be added to food in order to achieve an identified technological function according to Good Manufacturing Practice.

Standard 1.3.4 prescribes standards for the identity and purity of food additives.

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Clauses

1 Definitions

In this Standard –

maximum permitted level means the maximum amount of additive which may be present in the food as set out in relation to that food in Schedule 1.

processed food means food which has undergone any treatment resulting in a substantial change in the original state of the food.

technological function means a function set out in Schedule 5, but does not include the addition of a food additive to a single ingredient food that is not required by this Code to be labelled where a single process is applied and the food is presented in a manner which suggests that the organoleptic qualities have not been altered, other than through the process.

Editorial note:

The technological functions of food additives are listed in Schedule 5 of Standard 1.3.1. See Standard 1.2.4 – Labelling of Ingredients for the requirements for the declaration of ingredients, including for food additive class names.

2 General prohibition on the use of additives

Unless expressly permitted in this Standard, food additives must not be added to food.

3 Permitted use of additives

(1) The additives listed by name or number in Schedules 1, 2, 3 and 4 may be added to a food or class of food to perform technological functions provided that –

- (a) the use complies with any restrictions on use listed in Schedule 1; and
- (b) the proportion of the additive is no more than the maximum level necessary to achieve one or more technological functions under the conditions of Good Manufacturing Practice (GMP).

(2) The additives in Schedule 2 may be present in processed foods as a result of use in accordance with GMP, except where expressly prohibited in Schedule 1.

(3) The colours in Schedule 3 may be present in processed foods as a result of use in accordance with GMP except where expressly prohibited in Schedule 1.

(4) The colours in Schedule 4 may be present in processed foods to a combined maximum level of 290 mg/kg in foods, and 70 mg/L in beverages, except where expressly prohibited in Schedule 1.

4 Requirements for use of intense sweeteners

Save where otherwise expressly stated in Schedule 1 and notwithstanding any specific level specified in a Schedule to this Standard, intense sweeteners may only be added to food as a flavour enhancer or in an amount necessary to replace, either wholly or partially, the sweetness normally provided by sugars.

Editorial note:

Limits for specific intense sweeteners in specific foods are included in Schedule 1. Some intense sweeteners are included in Schedule 2 and these sweeteners may be added to a food in accordance with Schedule 1 (i.e. where Schedule 2 additives may be present in a food).

The amount of an intense sweetener needed in a food would depend on the amount required:

- 1. as a flavour enhancer in the food; or
- 2. to wholly or partially replace the sweetness of sugars that would or could be present in the food.

Polyols, isomalt and polydextrose are examples of ingredients that are used as humectants or texturisers or as foods in their own right.

5 Maximum permitted levels of additives

(1) Where a maximum level for an additive in a food is prescribed, unless otherwise stated, the level refers to the maximum amount which may be present in the food as sold or, where there are directions for preparation, when prepared for consumption according to label directions.

(2) For the purposes of this Standard –

annatto and annatto extracts shall include norbixin and bixin, calculated as bixin.

benzoic acid and its salts shall be calculated as benzoic acid.

cyclamate and its salts shall be calculated as cyclohexyl-sulphamic acid.

ethyl lauroyl arginate shall be calculated as ethyl-N^a-lauroyl-L-arginate·HCl.

propionic acid and its salts shall be calculated as propionic acid.

saccharin and its calcium and sodium salts shall be calculated as saccharin.

sorbic acid and its salts shall be calculated as sorbic acid.

steviol glycosides shall be calculated as steviol equivalents in accordance with the formula used in subclause 3.

sulphur dioxide, sulphites including bisulphites and metabisulphites shall be calculated as sulphur dioxide.

(3) To calculate the steviol equivalent levels for a steviol glycoside, the following equation is used –

$$[SE] = \sum ([SG] \times CF)$$

where –

[SE] = concentration as steviol equivalents
[SG] = concentration of individual steviol glycoside
CF = Conversion Factor as listed in the Table for the corresponding steviol glycoside

Table to subclause 5(3)

| Column 1 | Column 2 |
|-------------------|-------------------|
| Steviol glycoside | Conversion factor |
| Dulcoside A | 0.40 |
| Rebaudioside A | 0.33 |
| Rebaudioside B | 0.40 |
| Rebaudioside C | 0.33 |
| Rebaudioside D | 0.28 |
| Rebaudioside F | 0.34 |
| Rubusoside | 0.50 |
| Steviol | 1.00 |
| Steviolbioside | 0.50 |
| Stevioside | 0.40 |

Examples:

Example 1 – Calculating steviol equivalents for a single glycoside

A preparation of 100 mg/kg of Rebaudioside B contains $100 \times 0.40 = 40$ mg/kg steviol equivalents.

Example 2 – Calculating steviol equivalents for a mixture of glycosides

For a preparation containing 100 mg/kg of a mixture of 90% Stevioside, 5% Rebaudioside B and 5% Rebaudioside A, the steviol equivalent is

$$= ([Stevioside] \times 0.4) + ([Rebaudioside B] \times 0.4) + ([Rebaudioside A] \times 0.33)$$

$$\begin{aligned}
 &= (90\% \times 100 \text{ mg/kg} \times 0.4) + (5\% \times 100 \text{ mg/kg} \times 0.4) + (5\% \times 100 \text{ mg/kg} \times 0.33) \\
 &= (0.9 \times 0.4 + 0.05 \times 0.40 + 0.05 \times 0.33) \times 100 \text{ mg/kg} \\
 &= \mathbf{39.7 \text{ mg/kg}}
 \end{aligned}$$

Example 3 – Calculating the maximum permitted level (MPL) of a steviol glycoside preparation

To calculate the MPL of a steviol glycoside preparation which contains 90% Stevioside, 5% Rebaudioside B and 5% Rebaudioside A, in a food where the permission is 160 mg/kg (steviol equivalents).

$$\begin{aligned}
 [\text{SE}] &= 160 \text{ mg/kg} & [\text{Stevioside}] &= 0.9 \times \text{MPL} & [\text{Rebaudioside B}] &= 0.05 \times \text{MPL} \\
 [\text{Rebaudioside A}] &= 0.05 \times \text{MPL}
 \end{aligned}$$

Substituting into the equation

$$[\text{SE}] = \sum ([\text{SG}] \times \text{CF})$$

We get:

$$160 \text{ mg/kg} = (0.9 \times \text{MPL} \times 0.4) + (0.05 \times \text{MPL} \times 0.4) + (0.05 \times \text{MPL} \times 0.33)$$

Therefore,

$$\text{MPL} = \frac{160}{0.9 \times 0.4 + 0.05 \times 0.4 + 0.05 \times 0.33} \text{ mg/kg}$$

$$\mathbf{\text{MPL} = 403.5 \text{ mg/kg}}$$

6 Food additives performing the same function

(1) Where a food contains a mixture of food additives that perform the same technological function, the sum of the proportion of these additives in the food must not be more than 1.

(2) The sum of the proportion of food additives in a food is calculated by –

- (a) dividing the concentration of each food additive in a food by the maximum permitted limit for that additive in that food; and
- (b) adding the proportions together for each of the food additives performing the same technological function.

Example Formula for Food Additives Performing the Same Function

$$\text{Sum of the proportion of food additives} = \frac{\text{Conc A}}{\text{MPLA}} + \frac{\text{Conc B}}{\text{MPLB}} + \frac{\text{Conc C}}{\text{MPLC}}$$

In this formula –

MPLA = Maximum permitted limit for food additive A in mg/kg
 MPLB = Maximum permitted limit for food additive B in mg/kg
 MPLC = Maximum permitted limit for food additive C in mg/kg
 Conc A = concentration of food additive A in the food in mg/kg
 Conc B = concentration of food additive B in the food in mg/kg
 Conc C = concentration of food additive C in the food in mg/kg

7 Carry-over of food additives

A food additive may be present in any food as a result of carry-over from a raw material or an ingredient, provided that the level of the food additive in the final food is no greater than would be introduced by the use of the raw material or ingredient under proper technological conditions and good manufacturing practice.

8 Food for use in preparation of another food

Any food additive permitted in a food may be added to an ingredient intended for use in the preparation of that food provided that the level in the final food when prepared complies with the maximum permitted level in this Standard.

9 The addition of a garnish to food

The addition of a garnish to a food does not render that food a mixed food for the purposes of this Standard.

10 Colours and their aluminium and calcium lakes

A reference to a colour listed in Schedules 1, 3 and 4 of this Standard includes a reference to the aluminium and calcium lakes prepared from that colour.

11 Permitted flavouring substances

Permitted flavouring substances, for the purposes of this Standard, are –

- (a) Flavouring substances which are listed in at least one of the following publications –
 - (i) Generally Recognised as Safe (GRAS) lists of flavouring substances published by the Flavour and Extract Manufacturers' Association of the United States from 1960 to 2011 (edition 25); or
 - (ii) Chemically-defined flavouring substances, Council of Europe, November 2000; or
 - (iii) 21 CFR § 172.515; or
- (b) Flavouring substances obtained by physical, microbiological, enzymatic, or chemical processes from material of vegetable or animal origin either in its raw state or after processing by traditional preparation process including drying, roasting and fermentation; or
- (c) Flavouring substances obtained by synthetic means which are identical to any of the flavouring substances described in subparagraph (b).

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