

# CODEX ALIMENTARIUS

INTERNATIONAL FOOD STANDARDS



Food and Agriculture  
Organization of  
the United Nations



World Health  
Organization

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## GUIDELINES ON NUTRITION LABELLING

CAC/GL 2-1985

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ANNEX adopted in 2011. Revision: 2013, 2015 and 2016.

**PURPOSE OF THE GUIDELINES**

To ensure that nutrition labelling is effective:

- In providing the consumer with information about a food so that a wise choice of food can be made;
- in providing a means for conveying information of the nutrient content of a food on the label;
- in encouraging the use of sound nutrition principles in the formulation of foods which would benefit public health;
- in providing the opportunity to include supplementary nutrition information on the label.

To ensure that nutrition labelling does not describe a product or present information about it which is in any way false, misleading, deceptive or insignificant in any manner.

To ensure that no nutrition claim is made without nutrition labelling.

**PRINCIPLES FOR NUTRITION LABELLING****A. Nutrient declaration**

- Information supplied should be for the purpose of providing consumers with a suitable profile of nutrients contained in the food and considered to be of nutritional importance. The information should not lead consumers to believe that there is exact quantitative knowledge of what individuals should eat in order to maintain health, but rather to convey an understanding of the quantity of nutrients contained in the product. A more exact quantitative delineation for individuals is not valid because there is no meaningful way in which knowledge about individual requirements can be used in labelling.

**B. Supplementary nutrition information**

- The content of supplementary nutrition information will vary from one country to another and within any country from one target population group to another according to the educational policy of the country and the needs of the target groups.

**C. Nutrition labelling**

- Nutrition labelling should not deliberately imply that a food which carries such labelling has necessarily any nutritional advantage over a food which is not so labelled.

**1. SCOPE**

These guidelines recommend procedures for the nutrition labelling of foods.

These guidelines apply to the nutrition labelling of all foods. For foods for special dietary uses, more detailed provisions may be developed.

**2. DEFINITIONS**

For the purpose of these guidelines:

***Nutrition labelling*** is a description intended to inform the consumer of nutritional properties of a food.

Nutrition labelling consists of two components:

- (a) nutrient declaration;
- (b) supplementary nutrition information.

**Nutrient declaration** means a standardized statement or listing of the nutrient content of a food.

**Nutrition claim** means any representation which states, suggests or implies that a food has particular nutritional properties including but not limited to the energy value and to the content of protein, fat and carbohydrates, as well as the content of vitamins and minerals. The following do not constitute nutrition claims:

- (a) the mention of substances in the list of ingredients;
- (b) the mention of nutrients as a mandatory part of nutrition labelling;
- (c) quantitative or qualitative declaration of certain nutrients or ingredients on the label if required by national legislation.

**Nutrient** means any substance normally consumed as a constituent of food:

- (a) which provides energy; or
- (b) which is needed for growth, development and maintenance of life; or
- (c) a deficit of which will cause characteristic bio-chemical or physiological changes to occur.

**Nutrient Reference Values (NRVs)**<sup>1</sup> are a set of numerical values that are based on scientific data for purposes of nutrition labelling and relevant claims. They comprise the following two types of NRVs:

**Nutrient Reference Values - Requirements (NRVs-R)** refer to NRVs that are based on levels of nutrients associated with nutrient requirements.

**Nutrient Reference Values – Non-communicable Disease (NRVs-NCD)** refer to NRVs that are based on levels of nutrients associated with the reduction in the risk of diet-related noncommunicable diseases not including nutrient deficiency diseases or disorders.

**Sugars** means all mono-saccharides and di-saccharides present in food.

**Dietary fibre** means carbohydrate polymers<sup>2</sup> with ten or more monomeric units<sup>3</sup>, which are not hydrolysed by the endogenous enzymes in the small intestine of humans and belong to the following categories:

- Edible carbohydrate polymers naturally occurring in the food as consumed,
- carbohydrate polymers, which have been obtained from food raw material by physical, enzymatic or chemical means and which have been shown to have a physiological effect of benefit to health as demonstrated by generally accepted scientific evidence to competent authorities,
- synthetic carbohydrate polymers which have been shown to have a physiological effect of benefit to health as demonstrated by generally accepted scientific evidence to competent authorities.

**Polyunsaturated fatty acids** means fatty acids with cis-cis methylene interrupted double bonds.

**Trans Fatty Acids**<sup>4</sup>: For the purpose of the *Guidelines on Nutrition Labelling* and other related Codex Standards and Guidelines, trans fatty acids are defined as all the geometrical isomers of monounsaturated and polyunsaturated fatty acids having non-conjugated, interrupted by at least one methylene group, carbon-carbon double bonds in the trans configuration.

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<sup>1</sup> See also the Annex for the General Principles for the Establishment of Nutrient Reference Values.

<sup>2</sup> When derived from a plant origin, dietary fibre may include fractions of lignin and/or other compounds associated with polysaccharides in the plant cell walls. These compounds also may be measured by certain analytical method(s) for dietary fibre. However, such compounds are not included in the definition of dietary fibre if extracted and re-introduced into a food.

<sup>3</sup> Decision on whether to include carbohydrates from 3 to 9 monomeric units should be left to national authorities.

<sup>4</sup> Codex Members may, for the purposes of nutrition labelling, review the inclusion of specific trans fatty acids (TFAs) in the definition of TFAs if new scientific data become available.

### 3. NUTRIENT DECLARATION

#### 3.1 Application of nutrient declaration

- 3.1.1** Nutrient declaration should be mandatory for all prepackaged foods for which nutrition or health claims, as defined in the [Guidelines for Use of Nutrition and Health Claims](#) (CAC/GL 23-1997), are made.
- 3.1.2** Nutrient declaration should be mandatory for all other prepackaged foods except where national circumstances would not support such declarations. Certain foods may be exempted for example, on the basis of nutritional or dietary insignificance or small packaging.

#### 3.2 Listing of nutrients

- 3.2.1** Where nutrient declaration is applied, the declaration of the following should be mandatory:

Energy value; and

The amounts of protein, available carbohydrate (i.e. dietary carbohydrate excluding dietary fibre), fat, saturated fat, sodium<sup>5</sup> and total sugars; and

The amount of any other nutrient for which a nutrition or health claim is made; and

The amount of any other nutrient considered to be relevant for maintaining a good nutritional status, as required by national legislation or national dietary guidelines<sup>6</sup>.

- 3.2.2** When a voluntary declaration of specific nutrient, in addition to those listed in section 3.2.1, is applied, national legislation may require the mandatory declaration of the amount of any other nutrients considered relevant for maintaining a good nutritional status.
- 3.2.3** Where a specific nutrition or health claim is applied, then the declaration of the amount of any other nutrient considered relevant for maintaining a good nutritional status as required by national legislation or national dietary guidelines should be mandatory.
- 3.2.4** Where a claim is made regarding the amount and/or the type of carbohydrate, the amount of total sugars should be listed in addition to the requirements in Section 3.2.1. The amounts of starch and/or other carbohydrate constituent(s) may also be listed. Where a claim is made regarding the dietary fibre content, the amount of dietary fibre should be declared.
- 3.2.5** Where a claim is made regarding the amount and/or type of fatty acids or the amount of cholesterol, the amounts of saturated fatty acids, monounsaturated fatty acids and polyunsaturated fatty acids and cholesterol should be declared, and the amount of trans fatty acid may be required according to national legislation, in addition to the requirements of Section 3.2.1 and in accordance with Section 3.4.7.
- 3.2.6** In addition to the mandatory declaration under 3.2.1, 3.2.3 and 3.2.4 vitamins and minerals may be listed in accordance with the following criteria:
- Only vitamins and minerals for which recommended intakes have been established and/or which are of nutritional importance in the country concerned should also be declared.
- When nutrient declaration is applied, vitamins and minerals which are present in amounts less than 5% of the Nutrient Reference Value or of the officially recognized guidelines of the competent authority per 100 g or 100 ml or per serving as quantified on the label should not be declared.
- 3.2.7** In the case where a product is subject to labelling requirements of a Codex standard, the provisions for nutrient declaration set out in that standard should take precedence over but not conflict with the provisions of Sections 3.2.1 to 3.2.6 of these Guidelines.

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<sup>5</sup> National authorities may decide to express the total amount of sodium in salt equivalents as "salt".

<sup>6</sup> Countries where the level of intake of trans-fatty acids is a public health concern should consider the declaration of trans-fatty acids in nutrition labelling.

### 3.3 Calculation of nutrients

#### 3.3.1 Calculation of energy

The amount of energy to be listed should be calculated by using the following conversion factors:

Carbohydrates	4 kcal/g – 17 kJ
Protein	4 kcal/g – 17 kJ
Fat	9 kcal/g – 37 kJ
Alcohol (Ethanol)	7 kcal/g – 29 kJ
Organic acid	3 kcal/g – 13 kJ

#### 3.3.2 Calculation of protein

The amount of protein to be listed should be calculated using the formula:

$$\text{Protein} = \text{Total Kjeldahl Nitrogen} \times 6.25$$

unless a different factor is given in a Codex standard or in the Codex method of analysis for that food.

### 3.4 Presentation of nutrient content

**3.4.1** The declaration of nutrient content should be numerical. However, the use of additional means of presentation should not be excluded.

**3.4.2** Information on energy value should be expressed in kJ and kcal per 100 g or per 100 ml or per package if the package contains only a single portion. In addition, this information may be given per serving as quantified on the label or per portion provided that the number of portions contained in the package is stated.

**3.4.3** Information on the amounts of protein, carbohydrate and fat in the food should be expressed in g per 100 g or per 100 ml or per package if the package contains only a single portion. In addition, this information may be given per serving as quantified on the label or per portion provided that the number of portions contained in the package is stated.

**3.4.4** Numerical information on vitamins and minerals should be expressed in metric units and/or as a percentage of the NRV per 100 g or per 100 ml or per package if the package contains only a single portion. In addition, this information may be given per serving as quantified on the label or per portion provided that the number of portions contained in the package is stated.

In addition, information on protein and additional nutrients may also be expressed as percentages of the NRV where an NRV has been established.

The following NRVs are for the general population identified as individuals older than 36 months. They should be used for labelling purposes to help consumers make choices that contribute to an overall healthful dietary intake.

They comprise two types of NRVs: Nutrient Reference Values-Requirements (NRVs-R) and Nutrient Reference Values – Non-communicable Disease (NRVs-NCD).<sup>7</sup>

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<sup>7</sup> The general principles and related definitions used in establishing these NRVs are identified in the Annex.

## 3.4.4.1 NRVs-R

<b>Vitamins</b>	
Vitamin A ( $\mu\text{g}$ RAE or RE)	800
Vitamin D ( $\mu\text{g}$ )	5*
Vitamin C (mg)	100
Vitamin K ( $\mu\text{g}$ )	60
Thiamin (mg)	1.2
Riboflavin (mg)	1.2
Niacin (mg NE)	15
Vitamin B6 (mg)	1.3
Folate ( $\mu\text{g}$ DFE)	400
Vitamin B12 ( $\mu\text{g}$ )	2.4
Pantothenate (mg)	5
Biotin ( $\mu\text{g}$ )	30
<b>Minerals</b>	
Calcium (mg)	1 000
Magnesium (mg)	310
Iron (mg)**	14 (15% dietary absorption; Diversified diets, rich in meat fish, poultry, and/or rich in fruit and vegetables) 22 (10% dietary absorption; Diets rich in cereals, roots or tubers, with some meat, fish, poultry and/or containing some fruit and vegetables)
Zinc (mg)**	11 (30% dietary absorption; Mixed diets, and lacto-ovo vegetarian diets that are not based on unrefined cereal grains or high extraction rate (>90%) flours) 14 (22% dietary absorption; Cereal-based diets, with >50% energy intake from cereal grains or legumes and negligible intake of animal protein)
Iodine ( $\mu\text{g}$ )	150
Copper ( $\mu\text{g}$ )	900
Selenium ( $\mu\text{g}$ )	60
Manganese (mg)	3
Molybdenum ( $\mu\text{g}$ )	45
Phosphorus (mg)	700
<b>Other</b>	
Protein (g)	50

\* Competent national and/or regional authorities should determine an appropriate NRV-R that best accounts for population sunlight exposure and other relevant factors.

\*\* Competent national and/or regional authorities should determine an appropriate NRV-R that best represents the dietary absorption from relevant diets.

#### Conversion factors for vitamin equivalents

Vitamin	Dietary equivalents	
Niacin	1 mg niacin equivalents (NE) =	1 mg niacin 60 mg tryptophan
Folate	1 µg dietary folate equivalents (DFE) =	1 µg food folate 0.6 µg folic acid added to food or as supplement consumed with food 0.5 µg folic acid as supplement taken on an empty stomach
Vitamin A	1 µg retinol activity equivalents (RAE) =  OR	1 µg retinol 12 µg β-carotene 24 µg other provitamin A carotenoids
	1 µg retinol equivalents (RE) =	1 µg retinol 6 µg β-carotene 12 µg other provitamin A carotenoids

The conversion factors for vitamin equivalents in the Table provide supporting information to enable competent national and/or regional authorities to determine appropriate application of NRVs-R.

#### 3.4.4.2 NRVs-NCD

##### Intake levels not to exceed

Saturated fatty acids 20 g<sup>8,9</sup>

Sodium 2 000 mg<sup>10</sup>

##### Intake levels to achieve

Potassium 3 500 mg<sup>10</sup>

**3.4.5** In countries where serving sizes are normally used, the information required by Sections 3.4.2, 3.4.3 and 3.4.4 may be given per serving only as quantified on the label or per portion provided that the number of portions contained in the package is stated.

**3.4.6** The presence of available carbohydrates should be declared on the label as “carbohydrates”. Where the type of carbohydrate is declared, this declaration should follow immediately the declaration of the total carbohydrate content in the following format:

“Carbohydrate ... g, of which sugars ... g”.

This may be followed by the following: “x” ...g

where “x” represents the specific name of any other carbohydrate constituent.

**3.4.7** Where the amount and/or type of fatty acids or the amount of cholesterol is declared, this declaration should follow immediately the declaration of the total fat in accordance with Section 3.4.3.

<sup>8</sup> This value is based on the reference energy intake of 8 370 kilojoules/2 000 kilocalories.

<sup>9</sup> The selection of this nutrient for the establishment of an NRV was based on “convincing evidence” for a relationship with NCD risk as reported in the report *Diet, Nutrition and the Prevention of Chronic Diseases*. WHO Technical Report Series 916. WHO, 2003.

<sup>10</sup> The selection of these nutrients for the establishment of an NRV was based on “high quality” evidence for a relationship with a biomarker for NCD risk in adults as reported in the respective 2012 WHO Guidelines on sodium and potassium intake for adults and children.

The following format should be used:

<b>Total Fat</b>	...	g
of which	saturated fatty acids	g
	trans fatty acids	g
	monounsaturated fatty acids	g
	polyunsaturated fatty acids	g
<b>Cholesterol</b>	...	mg

### 3.5 Tolerances and compliance

Tolerance limits should be set in relation to public health concerns, shelf-life, accuracy of analysis, processing variability and inherent liability and variability of the nutrient in the product, and, according to whether the nutrient has been added or is naturally occurring in the product.

The values used in nutrient declaration should be weighted average values derived from data specifically obtained from analyses of products which are representative of the product being labelled.

In those cases where a product is subject to a Codex standard, requirements for tolerances for nutrient declaration established by the standard should take precedence over these guidelines.

## 4. PRINCIPLES AND CRITERIA FOR LEGIBILITY OF NUTRITION LABELLING

### 4.1 General principles

In the case of nutrition labelling whether applied on a mandatory or voluntary basis, the principles of Sections 8.1.1, 8.1.2, 8.1.3 and 8.2 of the [General Standard for the Labelling of Prepackaged Foods](#) (CODEX STAN 1-1985) should be applied. Sections 8.1.1, 8.1.2 and 8.1.3 should be applied to any supplementary nutrition labels.

### 4.2 Specific features of presentation

These recommendations related to specific features of presentation are intended to enhance the legibility of nutrition labelling. However, competent authorities may determine any additional means of presentation of nutrition information taking into account approaches and practical issues at the national level and based on the needs of their consumers.

Format – Nutrient content should be declared in a numerical, tabular format. Where there is insufficient space for a tabular format, nutrient declaration may be presented in a linear format.

Nutrients should be declared in a specific order developed by competent authorities and should be consistent across food products.

Font – The font type, style and a minimum font size as well as the use of upper and lower case letters should be considered by competent authorities to ensure legibility of nutrition labelling.

Contrast – A significant contrast should be maintained between the text and background so as to be that the nutrition information is clearly legible.

Numerical Presentation – The numerical presentation of nutrient content should be in accordance with the provisions of Section 3.4.

## 5. SUPPLEMENTARY NUTRITION INFORMATION

Supplementary nutrition information is intended to increase the consumer's understanding of the nutritional value of their food and to assist in interpreting the nutrient declaration. There are a number of ways of presenting such information that may be suitable for use on food labels.

The use of supplementary nutrition information on food labels should be optional and should only be given in addition to, and not in place of, the nutrient declaration, except for target populations who have a high illiteracy rate and/or comparatively little knowledge of nutrition. For these, food group symbols or other pictorial or colour presentations may be used without the nutrient declaration.

Supplementary nutrition information on labels should be accompanied by consumer education programmes to increase consumer understanding and use of the information.



## ANNEX: GENERAL PRINCIPLES FOR ESTABLISHING NUTRIENT REFERENCE VALUES FOR THE GENERAL POPULATION

### 1. PREAMBLE

These Principles apply to the establishment of Codex Nutrient Reference Values (NRVs) for the general population identified as individuals older than 36 months. These values may be used for helping consumers 1) estimate the relative contribution of individual products to overall healthful dietary intake, and 2) as one way to compare the nutrient content between products.

Governments are encouraged to use the NRVs, or alternatively, consider the suitability of the general principles below including the level of evidence required, and additional factors specific to a country or region in establishing their own reference values for labelling purposes. For example, at the national level, population-weighted values for the general population may be established by weighting science-based reference values for daily intakes for age-sex groups using census data for a country and proportions of each age-sex group. In addition, governments may establish reference values for food labelling that take into account country or region specific factors that affect nutrient absorption, utilization, or requirements. Governments may also consider whether to establish separate food label reference values for specific segments of the general population.

### 2. DEFINITIONS

**Daily Intake Reference Values** as used in these Principles refer to reference nutrient intake values provided by FAO/WHO or other recognized authoritative scientific bodies that may be considered in establishing an NRV based on the principles and criteria in Section 3. These values may be expressed in different ways (e.g. as a single value or a range), and are applicable to the general population or to a segment of the population (e.g. recommendations for a specified age range).

**Individual Nutrient Level 98 (INL98)**<sup>11</sup> is the daily intake reference value that is estimated to meet the nutrient requirement of 98 percent of the apparently healthy individuals in a specific life stage and sex group.

**Upper Level of Intake (UL)**<sup>12</sup> is the maximum level of habitual intake from all sources of a nutrient or related substance judged to be unlikely to lead to adverse health effects in humans.

**Acceptable Macronutrient Distribution Range (AMDR)** is a range of intakes for a particular energy source that is associated with reduced risk of diet-related non-communicable diseases while providing adequate intakes of essential nutrients. For macronutrients, they are generally expressed as a percentage of energy intake.

Other than FAO and/or WHO (FAO/WHO), a **Recognized Authoritative Scientific Body (RASB)** as used in these Principles refers to an organization supported by a competent national and/or regional authority(ies) that provides independent, transparent\*, scientific and authoritative advice on daily intake reference values through primary evaluation\*\* of the scientific evidence upon request and for which such advice is recognized through its use in the development of policies in one or more countries.

\* In providing transparent scientific advice, the Committee would have access to what was considered by a RASB in establishing a daily intake reference value in order to understand the derivation of the value.

\*\* Primary evaluation involves a review and interpretation of the scientific evidence to develop daily intake reference values, rather than the adoption of advice from another RASB.

### 3. GENERAL PRINCIPLES FOR ESTABLISHING NRVs

#### 3.1 Selection of suitable data sources to establish NRVs

Relevant daily intake reference values provided by FAO/WHO that are based on a recent review of the science should be taken into consideration as primary sources in establishing NRVs.

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<sup>11</sup> Different countries may use other terms for this concept, for example, Recommended Dietary Allowance (RDA), Recommended Daily Allowance (RDA), Reference Nutrient Intake (RNI), or Population Reference Intake (PRI).

<sup>12</sup> Different countries may use other terms for this concept, for example, Tolerable Upper Nutrient Intake Level (UL) or upper end of safe intake range.

Relevant daily intake reference values that reflect recent independent review of the science, from recognized authoritative scientific bodies other than FAO/WHO could also be taken into consideration. Higher priority should be given to values in which the evidence has been evaluated through a systematic review.

The daily intake reference values should reflect intake recommendations for the general population.

### **3.2 Selection of Nutrients and Appropriate Basis for NRVs**

#### **3.2.1 Selection of Nutrients and Appropriate Basis for NRVs-R**

The NRVs-R should be based on Individual Nutrient Level 98 (INL<sub>98</sub>). In certain cases where there is an absence of, or an older, established INL<sub>98</sub> for a nutrient for a specific sub-group(s), it may be more appropriate to consider the use of other daily intake reference values or ranges that have been more recently established by recognized authoritative scientific bodies. The derivation of these values should be reviewed on a case-by-case basis.

The general population NRVs-R should be determined by calculating the mean values for a chosen reference population group older than 36 months. NRVs-R derived by the Codex Alimentarius Commission are based on the widest applicable age range for each of adult males and females.

For the purpose of establishing these NRVs-R, the values for pregnant and lactating women should be excluded.

#### **3.2.2 Selection of Nutrients and Appropriate Basis for NRVs-NCD**

The following criteria should be considered in the selection of nutrients for the establishment of NRVs-NCD:

- Relevant convincing<sup>13/</sup> generally accepted<sup>14</sup> scientific evidence or the comparable level of evidence under the GRADE classification<sup>15</sup> for the relationship between a nutrient and non-communicable disease risk, including validated biomarkers for the disease risk, for at least one major segment of the population (e.g. adults).
- Public health importance of the nutrient-non-communicable disease risk relationship(s) among Codex member countries.

Relevant and peer-reviewed scientific evidence for quantitative reference values for daily intake should be available in order to determine an NRV-NCD that is applicable to the general population.

Daily intake reference values from FAO/WHO or other recognized authoritative scientific bodies that may be considered for NRVs-NCD include values expressed in absolute amounts or as a percentage of energy intake.

For practical application in nutrition labelling, a single NRV-NCD for the general population should be established for each nutrient that meets the principles and criteria in this Annex.

An NRV-NCD for the general population should be determined from the daily intake reference value for the general population or adults, or if given by sex, the mean of adult males and adult females.

Where a daily intake reference value is based on a percentage energy intake, the single NRV-NCD should be expressed in grams or milligrams based on a reference intake for the general population of 8 370 kilojoules/2000 kilocalories.

Governments may use a Codex NRV-NCD based on the reference energy intake of 8 370 kilojoules/2 000 kilocalories, or may derive their own reference values for nutrition labelling based on another reference energy intake that considers factors specific to their country or region.

### **3.3 Consideration of Daily Intake Reference Values for Upper Levels**

The establishment of general population NRVs should also take into account daily intake reference values for upper levels established by FAO/WHO or other recognized authoritative scientific bodies where applicable (e.g. Upper Level of Intake, Acceptable Macronutrient Distribution Range).

<sup>13</sup> At the time these guiding principles were drafted, the definition and criteria for “convincing evidence” from the following FAO/WHO report were used Diet, Nutrition and the Prevention of Chronic Diseases. WHO Technical Report Series 916. WHO, 2003.

<sup>14</sup> For these General Principles the terms convincing/generally accepted evidence are considered synonymous.

<sup>15</sup> WHO’s Guidelines Review Committee. WHO Handbook for guideline development. Geneva, World Health Organization (WHO), 2014 ([http://www.who.int/kms/handbook\\_2nd\\_ed.pdf](http://www.who.int/kms/handbook_2nd_ed.pdf))