

**GUIDANCE ON THE IMPLEMENTATION OF
COMMISSION REGULATION (EU) 2017/2158
OF 20 NOVEMBER 2017 ESTABLISHING
MITIGATION MEASURES AND BENCHMARK
LEVELS FOR THE REDUCTION OF THE
PRESENCE OF ACRYLAMIDE IN FOOD**

IMPORTANT DISCLAIMER

**“This document has no formal legal status
and, in the event of a dispute, ultimate
responsibility for the interpretation of the
law lies with the Court of Justice”**

This document has been endorsed by the Standing Committee on Plants, Animals, Food and Feed, section Novel Food and Toxicological Safety of the Food Chain at the meeting on 11 June 2018.

This document has not been adopted by the European Commission. Any views expressed may therefore not be regarded as stating an official position of the Commission.

This document is an evolving document and might need to be further updated based upon the experiences gained with the application of Regulation (EU) 2017/2158

GUIDANCE ON THE IMPLEMENTATION OF COMMISSION REGULATION (EU) 2017/2158 OF 20 NOVEMBER 2017 ESTABLISHING MITIGATION MEASURES AND BENCHMARK LEVELS FOR THE REDUCTION OF THE PRESENCE OF ACRYLAMIDE IN FOOD

A) Food products referred to in Article 1(2)

- (a) French fries, other cut (deep fried) products and sliced potato crisps from fresh potatoes;

This covers cut deep-fried and potato crisps from fresh potatoes. It includes also deep-fried potato products to be finished in the oven.

Products such as rösti are not covered

- (b) potato crisps, snacks, crackers and other potato products from potato dough;

*This covers potato crisps, potato dough based savoury snacks, potato crackers and other potato products from potato dough.
It covers deep-fried and oven-baked products.
It covers all potato products made from potato dough;
It covers mixed doughs (mix of dough from potatoes and e.g. pulses), where potato is the major ingredient in the dough.*

Products such as pommes duchesse, croquettes, pommes noisettes, are not covered.

- (c) bread;

*This covers all ordinary bakery wares which are considered bread (e.g. wheat bread, rye bread, whole meal bread, multi grain bread, malt bread), steamed breads and baguettes, ...
The mitigation measures applicable to bread are also applicable to the production of rolls (hamburger rolls, whole wheat rolls and milk rolls)*

Products such as pita bread, Mexican tortillas, are not covered

- (d) breakfast cereals (excluding porridge)
(muesli, rolled flakes and oatmeal are also excluded);

This covers all ready-to-eat breakfast cereal products. Examples include: whole grain breakfast cereals, granola-type breakfast cereals, corn flakes, puffed wheat or rice, multi-grain (e.g. rice, wheat and corn) breakfast cereals, breakfast cereals made from bran, and extruded-type breakfast cereals made from grain flour or powder.

Products such as porridge, muesli, rolled flakes (e.g. rolled oat flakes), oatmeal, are not covered by this category

- (e) fine bakery wares: cookies, biscuits, rusks, cereal bars, scones, cornets, wafers, crumpets and gingerbread, as well as crackers, crisp breads and bread substitutes. In this category a cracker is a dry biscuit (a baked product based on cereal flour);

This covers sweet, salty and savoury products, such as cookies, biscuits, rusks, cereal bars, scones, cornets, wafers, crumpets, gingerbread, as well as unsweetened products such as crackers, crisp breads and bread substitutes (such as breadsticks).

In this category a cracker is a dry biscuit (baked product based on cereal flour), e.g. soda crackers, pretzel crackers, pretzel sticks, ...

This category also covers pretzel crackers, rye crisps, matzo etc ...

Products such as pretzel bread, doughnuts, muffins, cakes, éclairs, croissants, rice crackers, are not covered

(f) coffee

(i) roast coffee;

This covers product prepared by roasting, grinding, or both roasting and grinding, coffee beans (Coffea arabica or Coffea robusta). Available as roasted coffee beans or ground coffee.

(ii) instant (soluble) coffee;

This means the concentrated product obtained by extraction from roasted coffee beans using only water as the medium of extraction and excluding any process of hydrolysis involving the addition of an acid or a base. Apart from those insoluble substances which are technically impossible to remove, and insoluble oils derived from coffee, coffee extract must contain only the soluble and aromatic constituents of coffee. The coffee-based dry matter content must comply with the provisions of Directive 1999/4/EC of the European Parliament and of the Council of 22 February 1999 relating to coffee extracts and chicory extracts (OJ L 066, 13.3.1999, p.26) .

Coffee extract in solid or paste form must not contain any substances other than those derived from the extraction of coffee.

Liquid coffee extract may contain edible sugars, whether or not roasted, in a proportion not exceeding 12% by weight.

(g) coffee substitutes;

These are non-coffee products, usually without caffeine, that are used to imitate/replace coffee. They are typically obtained from plant-based substances such as grains (e.g. barley, rye, etc.), plant roots (e.g. chicory, dandelion, beetroot, etc.) and molasses. The plant material may be roasted prior to processing into a soluble extract. Coffee substitutes may be sold as plain liquid extract and/or instant powder or granules; Coffee substitutes be made of several plant-based substances or blended with coffee extracts and may be flavoured.

Roasted grain beverages are common coffee substitutes. A roasted grain beverage is a beverage made from one or more roasted cereal grains and commercially processed into granular or powder form to be reconstituted with water. The product is often marketed as a caffeine-free alternative to coffee and tea. Some common ingredients include toasted/malted barley, rye, etc.

Ground roasted chicory root is used as a coffee substitute product, both alone and mixed with coffee. 'Chicory' means the roots of Cichorium Intybus L., not used for the production of witloof chicory, usually used for the preparation of beverages, suitably cleaned to be dried and roasted. 'Chicory extract', 'soluble chicory' or 'instant chicory' means the concentrated product obtained by extraction from roasted chicory using only water as the extraction medium and excluding any process of hydrolysis involving the addition of an acid or a base.

The chicory-based dry matter content must comply with the provisions of Directive 1999/4/EC of the European Parliament and of the Council of 22 February 1999 relating to coffee extracts and chicory extracts (OJ L 066, 13.3.1999, p.26) .

Chicory extract in solid or paste form may contain no more than 1% by weight of substances not derived from chicory.

Liquid chicory extract may contain edible sugars, whether roasted or not, to a proportion not exceeding 35% by weight.

There are several different types of coffee substitutes: mixture of barley, rye, chicory, and fig; mixture of roasted barley, malted barley, chicory and rye; mixture of roasted barley, roasted barley malt and roasted chicory; mixture of barley, chicory, malted barley, figs, and extract of red beets; postum (made from roasted wheat bran, wheat and molasses), malt-based flavoured drinks, etc.

- (h) baby food and, processed cereal-based food intended for infants and young children as defined in Regulation (EU) No 609/2013 of the European Parliament and of the Council .

'baby food' means food intended to fulfil the particular requirements of infants in good health while they are being weaned, and of young children in good health as a supplement to their diet and/or for their progressive adaptation to ordinary food, excluding:

(i) processed cereal-based food; and

(ii) milk-based drinks and similar products intended for young children;

'processed cereal-based food' means food :

(i) intended to fulfil the particular requirements of infants in good health while they are being weaned, and of young children in good health as a supplement to their diet and/or for their progressive adaptation, to ordinary food; and

(ii) pertaining to one of the following categories:

— simple cereals which are or have to be reconstituted with milk or other appropriate nutritious liquids,

— cereals with an added high protein food which are or have to be reconstituted with water or other protein-free liquid,

— pastas which are to be consumed after cooking in boiling water or other appropriate liquids,

— rusks and biscuits which are to be consumed either directly or, after pulverisation, with the addition of water, milk or other suitable liquids;

B) Food businesses referred to in Article 2 (1) (2), (3) – cf chart in Annex

Article 2(1): relates to food business operators, which produce and place on the market foodstuffs, listed in Article 1(2) ¹(with the exception of the food business operators referred to in Article 2(2) and 2(3))

Article 2(2) Food business operators producing foodstuffs listed in Article 1(2), which perform retail activities, and/or directly supply only local retail establishments²

Retail (as defined in Regulation (EC) 178/2002): means the handling and/or processing of food and its storage at the point of sale or delivery to the final consumer, and includes distribution terminals, catering operations, factory canteens, institutional catering, restaurants and other similar food service operations, shops, supermarket distribution centres and wholesale outlets;

Final consumer (as defined in Regulation (EC) 178/2002): means the ultimate consumer of a foodstuff who will not use the food as part of any food business operation or activity.

Food business operators producing foodstuffs which perform only retail activities (establishments handling and/or processing of food at the point of sale or delivery to the final consumer) fall within this category insofar they do not fall under the category 2(3)

¹ Indicatively, food business operators who would fall within this category are those whose interests are represented by the following European stakeholder organisation:

- FDE (FoodDrinkEurope) and relevant branch organisations:
- CAOBISCO - Association of Chocolate, Biscuit and Confectionery Industries of the European Union
- CEEREAL - European Breakfast Cereal Association
- ECF - European Coffee Federation
- ESA - European Snacks Association
- EUPPA - European Potato Processors' Association
- FEDIMA - Federation of EU Manufacturers and Suppliers of Ingredients to the Bakery, Confectionary and Patisserie Industries
- SNE: Specialised Nutrition Europe
- AIBI asbl: International Association of Plant Bakers

² Indicatively, food business operators who would fall within this category are those whose interests are represented by the following European stakeholder organisation: UEAPME (European Association of craft, small and medium-sized enterprises), HOTREC (Umbrella association for hotels, restaurants, cafés and similar establishments in Europe), FoodServiceEurope (European contract catering sector), Eurocommerce (retail and wholesale sector in Europe), CEPB aisbl (European Confederation of National Bakery and Confectionary Organisations)

Food business operators performing retail activities and directly supply local retail establishments

Food business operators which besides performing retail activities also directly supply only local retail establishments and food business operators which directly supply only local retail establishments without performing retail activities fall within this category if it concerns typically small scale operators. To determine that these food business operators fall within this category as regards “directly supply local retail establishments” but not category 2(1) (or 2(3)) the following criteria can be used as guidance:

- Local: As defined at national level or according to national provisions. In case this is not defined at national level, a distance of within 100km of the supplying establishment could be used as indication;

- It relates to a micro-enterprise or small enterprise

(http://ec.europa.eu/growth/smes/business-friendly-environment/sme-definition_en).

In case this criterion is applied, only the personnel employed in the production of food referred to in Article 1(2) is to be counted as regards the number of employees;

- Other possible criteria: the ratio in turn-over between selling directly to the final consumer and supply to other local retail establishments, occasional/seasonal supply, the number of other local retail establishments supplied, criteria considered relevant by the competent authority.

Retailers and wholesalers whose activities are limited to storing and delivering products on the market (not producing food products) are not covered by the Regulation.

Article 2(3) Food business operators producing foodstuffs listed in Article 1(2), which perform retail activities, and/or directly supply only local retail establishments and which operate in facilities under direct control, and that are operating under one trademark or commercial license, as a part of, or franchise of, a larger, interconnected operation and under the instructions of the food business operator that centrally supplies the foodstuffs³

The food business operators covered by this category are typically large, centrally controlled (direct control) and centrally supplied chains with standardised menus and/or same standard operating procedures in all related decentralised facilities of the food business operator

Remark as regards food business operators performing different activities.

In case a food business operator produces foodstuffs falling under different categories of foods within the scope of the Regulation (see Article 1(2)) and the food business operator² would for one activity fall under category 2(1) as a food business operator and for another activity fall under category 2(2) as a food business operator, such a food business operator is obliged to apply the mitigation measures referred to in Annex I of the Regulation and to fulfil the requirements as regards sampling and analysis as referred to in Annex III for all their activities falling within the scope of the Regulation .

However, in case the majority of the activities would fall under category 2(2) and only a small portion of the activities would fall under category 2 (1), the food business operator is obliged to apply the mitigation measures referred to in Annex I of the Regulation and to fulfil the requirements as regards sampling and analysis referred to in Annex III only for products falling within the scope of the Regulation.

³ *Indicatively, food business operators who would fall within this category are those whose interests are represented by the following European stakeholder organisation: Serving Europe (Branded Food and Beverage Service Chains Association). However it is to be noted that food business operators having a large, centrally controlled and centrally supplied chain with standardised menus and/or same standard operating procedures in all their facilities fall within this category, independently of the organisation they are represented by.*

C) Benchmark levels – definition provided in Article 3(2)

'benchmark levels' are performance indicators used to verify the effectiveness of mitigation measures and are based on experience and occurrence for broad food categories. **The benchmark level cannot be directly used as reference to evaluate if a product can be placed on the market or not.**

When the benchmark levels are exceeded, food business operators shall review without delay the mitigation measures applied and adjust processes and controls with an aim to achieve levels of acrylamide as low as reasonable achievable and below the benchmark levels set (obligations for food business operators referred to in Article 2(1) and 2(3)). This must be demonstrated by undertaking new representative sampling and analysis after the introduction of additional mitigation measures.

The benchmark levels have been established for broad food categories. It is to be acknowledged that for specific foods within such a broad food category there could be specific production, geographic or seasonal conditions, or product characteristics for which it is not possible to achieve the benchmark levels despite the application of all relevant mitigation measures. In such situations, the food business operator should be able to show evidence that they applied the relevant mitigation measures.

Furthermore it has to be stressed that the application of mitigation measures and benchmark levels should not result in the prohibition of certain traditional culinary practices and/or certain traditional foods (this can include, but not exhaustively, foods with protected designations of origin (PDOs) and protected geographical indications (PGIs), foods traditional speciality guaranteed (TSG)). Food business operators are obliged to apply mitigation measures and benchmark levels with respect to culinary practices and the recipes of traditional foods (i.e. choosing those options which result in a level of acrylamide as low as reasonably achievable) without changing the nature and the organoleptic characteristics of the traditional food.

Where levels of acrylamide exceed the benchmark levels, this does not necessarily mean that the food has to be withdrawn or recalled from the market. If considered necessary, a risk assessment has to be carried out to determine whether the food exceeding the benchmark level has to be withdrawn or recalled from the market in application of article 14 of the General Food Law 178/2002.

D) Application of mitigation measures (Article 2, Annexes I and II)

a) Mitigation measures have to be applied by food business operators, who produce and place on the market foodstuffs (Article 1 (1)) .

If the producer and distributor of the food are not the same food business operator, the mitigation measures provided for in the Annexes to the Regulation have to be applied by the producer and not by the distributor.

b) Information for end users on the packaging:

Food business operators are allowed to market products made before 11th April 2018 until the exhaustion of stock and to use the packaging produced before 11th April 2018 until exhaustion of stock. End users can be commercial final users or final consumers.

c) Clarifications as regards food categories in Annex I (see also section A of this guidance document)

References to the scope of Article 1(2) should be read in conjunction with the information provided in section A of this guidance document
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I. Products based on raw potatoes

Refers to products covered by Article 1 (2) (a)

II. Dough based potato crisps, snacks, crackers and other dough based potato products

Refers to dough based potato crisps, potato dough based savoury snacks, potato crackers and other dough based potato products covered by Article 1 (2) (b)

III. Fine bakery wares

Refers to products covered by Article 1 (2) (e)

IV. Breakfast cereals

Refers to products covered by Article 1 (2) (d)

V. Coffee

Refers to products covered by Article 1 (2) (f)

VI. Coffee substitutes containing more than 50% cereals

VII. Coffee substitutes containing more than 50 % chicory

Refers to products covered by Article 1 (2) (g)

VIII. Baby biscuits and infant cereals

Refers to processed cereal-based food intended for infants and young children covered by Article 1 (2) (h)

IX. Baby jar foods (low acid and prune based foods)

Refers to baby food covered by Article 1 (2) (h). It does not only include not baby foods in jars in the strictest sense (“sensu stricto”), but also baby foods sold in plastic pots, bags, pouches, tubes, etc.

X. Bread

Refers to products covered by Article 1 (2) (c)

d) Food business operators referred to in Article 2(2) have to apply the mitigation measures provided for in Annex II part A

It should be noted that certain food business operators falling within Article 2(2) have no mitigation measures provided for the products produced/processed by them in Annex II part A, e.g. food business operators roasting coffee on a small scale and selling directly to the consumer in their shop. Consequently, for these food business operators there is no legal obligation to apply mitigation measures.

e) Mitigation measures to be applied by food business operator referred to in Article 2(3)

As regards the requirement to work with calibrated fryers, equipped with computerised timers and programmed to standard settings (time temperature):

- Food business operators are not required to immediately purchase such equipment provided that their current equipment is operationally fit for purpose and well maintained.
- Food business operators may continue using standalone timers when using fryers that are not equipped with built-in timers.
- Furthermore, as regards calibration and computerised timers, flexibility can be applied, e.g. there is no need to have a calibration certificate from an external body, it is sufficient to have the calibration completed by the food business operator internally.

E) Sampling and analysis (Article 4)

Food business operators referred to in Article 2(1) and 2(3) shall perform sampling and analysis to determine the level of acrylamide in foodstuffs in accordance with the requirements set out in Annex III to this Regulation and shall record the results of the sampling and analysis.

The obligation to perform sampling and analysis does not apply to Food business operators referred to in Article 2(2)

Food business operators shall ensure that a representative sample of **each product type** is taken for analysis of acrylamide concentration. A “**product type**” includes groups of products with the same or similar ingredients, recipe design, process design and/or process controls where these have a potential influence on acrylamide levels in the finished product (process is defined by the variables having a possible influence on the acrylamide level, such as raw material, temperature, time). Monitoring programmes (i) shall prioritise product types that have demonstrated potential to exceed the benchmark levels and (ii) shall select the product within a product type that is known/assumed to contain the highest levels of acrylamide and (iii) shall be risk-based and consider where further mitigation measures are feasible.

The sample shall be representative of the sampled batch. The food business operator has to determine a representative sampling procedure and should be able to justify their decision.

Food business operators shall ensure that they undertake representative sampling and analysis of their products for the presence of acrylamide to verify the effectiveness of mitigation measures, i.e. the levels of acrylamide are consistently below the benchmark levels.

→ *Food business operator has to be able to justify the selection of the product within a product type for sampling*

Frequency of sampling

Food business operators shall, undertake sampling and analysis **at least annually** for products that have a known and **well-controlled acrylamide level**.

- no seasonal variation
- where there is known seasonal variation, sample(s) are expected to be taken by the food business operator when the level of acrylamide is expected to be the highest.
- in case of changing the supply of an ingredient/raw material which is known to influence the level of acrylamide, a representative sample must be taken to ensure/verify that the level of acrylamide remains below benchmark level

Food business operators shall carry out **higher frequency sampling and analysis of products having the potential to exceed the benchmark level** and shall be risk-based and consider where further mitigation measures are feasible.

- Food business operators shall specify appropriate frequencies for analysis of each product type. If a product or process is modified in a way that could lead to a change in the acrylamide level in the final product → an adapted frequency of sampling should be determined.

In case of exceedance of the benchmark level (corrected for recovery but not taking into account the measurement uncertainty), food business operators shall carry out a review of the mitigation measures applied and shall take additional available mitigation measures to ensure that the acrylamide level in the finished product is below the benchmark level. This must be demonstrated by undertaking new representative sampling and analysis after the introduction of additional mitigation measures.

For situations where no further mitigation measures are available to be applied to further reduce the level of acrylamide, the food business operator does not need to continue testing on a regular basis but must be able to demonstrate that they applied all available mitigation measures to ensure the levels of acrylamide are as low as reasonably achievable (ALARA).

For food business operators referred to in Article 2(3) it is sufficient that the food business operators carry out tests on samples of deep fried/ oven-baked potato products and bakery products at centralised level (not in individual stores), whereby the food has been prepared under practical conditions according to the standard operating procedure (SOP). This is because these food business operators use standardised procedures for processing and cooking products with the precise objective of serving standardised food offerings to customers, mainly concerning deep fried/ oven-baked potato and bakery products.

Taking into consideration the highly standardised and controlled procedures that characterise the operations of the food business operators referred to under Article 2(3), it is sufficient to measure the acrylamide level in samples of deep fried/oven-baked potato products and bakery products once per year, unless during a calendar year a key factor comes to light, that is likely to impact the acrylamide level in relevant products (e.g. in the event that there is the introduction of a new or adapted recipe or cooking procedure).

Business operators, who do not produce foodstuffs themselves but merely prepare them in accordance with the manufacturer's instructions, are not obliged to carry out sampling and analysis themselves. In these cases:

- The manufacturer of the foodstuffs makes instruction for preparation available to the business operator, and
- The manufacturer provides empirical evidence by means of relevant tests that the ready-to-eat products comply with the benchmark levels if the instruction for preparation has been followed.

Statistical correlation to be demonstrated between product attributes or process parameters and the acrylamide level (Annex III, point 4)

A statistical correlation shows whether, and how strongly pairs of variables are related. The number of analyses to be performed to demonstrate this correlation depends on the variability of the analytical results. In case the acrylamide level related to a product attribute (e.g. a specific colour) is constant (i.e. not variable, within a small range of variation), then fewer analyses would be sufficient to demonstrate this correlation, when compared to the case where larger variation was observed and more analyses might be needed.

This correlation should be demonstrated and provided by the central supplier and does not need to be performed by the individual food business operators who may be viewed as the end user (e.g. bake-off areas).

F) Record keeping and information to competent authorities

Food business operators referred to in Article 2(1) shall keep a record of the applied mitigation measures set out in Annex I of the Regulation and food business operators referred to in Article 2(3) shall keep a record of the applied mitigation measures set out in Part A and B of Annex II.

These food business operators shall make the sampling plan and the results of their analytical testing available, together with descriptions of the products analysed, on request to the competent authority or enforcement officer. Details of mitigation measures taken to reduce levels of acrylamide below the benchmark levels shall be provided for those products exceeding the benchmark levels.

Food business operators referred to in Article 2(2) do not have to keep records of the applied mitigation measures but have to be able to provide evidence of being aware and of the application of mitigation measures set out in part A of Annex II. This requirement to provide evidence does not necessarily imply documentation obligations but any other type of evidence is sufficient to fulfil this obligation (e.g. by showing the temperature set for frying, use of colour charts, following manufacturer's instructions etc.)

G) Colour guides

For food business operators referred to in Article 2(2) and 2(3), the use and display of colour guides for the cooking of French fries and preparing toasted sandwiches is a strong recommendation but not an obligation for the food business operators.

For French fries: the colour guide available at <http://goodfries.eu/en/home/> can be used as a reference.



light golden

Agtron = 65, USDA = 0



golden yellow

Agtron = 55, USDA = 1



golden brown

Agtron = 40, USDA = 2

Another example of a colour guide:



EU Regulation 2017/2158 sets benchmark level for French fries (ready-to-eat) at 500 µg/kg

For toasted sandwiches, no widely accepted and validated colour charts are yet available.

Benchmark levels (Annex IV)

IMPORTANT REMARK: The benchmark levels have been established for broad food categories. It is acknowledged that for specific foods within such a broad food category there could be specific production, geographic or seasonal conditions or product characteristics for which it is not possible to achieve the benchmark levels, despite the application of all relevant mitigation measures. In such situations, the food business operator should be able to show evidence that they applied the relevant mitigation measures.

References to the scope of Article 1(2) should be read in conjunction with the information provided in section A of this guidance document

French fries (ready-to-eat) - benchmark level 500 µg/kg

The benchmark level is also applicable to other cut deep-fried and oven baked products from fresh potatoes (foods referred to in Article 1 (2) (a) with the exception of sliced potato crisps and sliced potato sticks from fresh potatoes)

Potato crisps from fresh potatoes and from potato dough / potato based crackers (including potato based snacks) / other potato products from potato dough - benchmark level 750 µg/kg

The benchmark level is applicable to all the products referred to in Article 1(2)(b) and sliced potato crisps as well as sliced potato sticks from fresh potatoes referred to in Article 1(2)(a)

Soft bread – wheat based bread – benchmark level 50 µg/kg

The benchmark level is applicable to wheat-based bread referred to in Article 1 (2) (c). Wheat based bread is bread of which the cereal ingredient is at least or equal to 50 % wheat (or wheat derived product).

Soft bread – soft bread other than wheat based bread – benchmark level 100 µg

The benchmark level is applicable to bread other than wheat-based bread referred to in Article 1 (2) (c), i.e. all bread of which wheat (or wheat derived products) constitutes less than 50 % of the cereal ingredient. The benchmark level for pumpernickel bread is equivalent to the benchmark level for products in the category of fine bakery wares (i.e. 300 µg/kg).

**Breakfast cereals (excluding porridge)
(muesli, rolled flakes and oatmeal are also excluded);**

This benchmark level is applicable to products referred to in Article 1 (2) (d).

Breakfast cereals produced under high temperature conditions such as toasted and gun-puffed breakfast cereals contain higher levels of acrylamide (without having the possibility to apply additional mitigation measures to obtain lower levels of acrylamide) than other breakfast cereals produced with lower temperature conditions such as granola. Examples include whole grain toasted flakes with higher acrylamide levels compared to muesli and rolled oat flakes with no or very low acrylamide content.

**Breakfast cereals (excluding porridge)
(muesli, rolled flakes and oatmeal are also excluded);
– bran products and whole grain cereals, gun puffed grain – benchmark level of 300 µg/kg**

This benchmark level is applicable to all breakfast cereals based on bran products and/or whole grain cereals or gun puffed grain (independent of the type of grain from which the breakfast cereal is produced). The breakfast cereals in this category contain bran, whole grain cereals or gun puffed grains as ingredients present in the largest quantities.

**Breakfast cereals (excluding porridge)
(muesli, rolled flakes and oatmeal are also excluded);
– wheat and rye based products - benchmark level of 300 µg/kg**

This benchmark level is applicable to non-whole grain and/or non-bran based breakfast cereals (also breakfast cereals based on gun puffed grain are not included in this category). The breakfast cereals in this category do not contain bran, whole grain or gun puffed grain as ingredients present in the largest quantities. The cereal present in the largest quantity determines the category. Therefore, the breakfast cereal is wheat or rye based where wheat or rye are the cereals present in the largest quantities.

Breakfast cereals (excluding porridge)

(muesli, rolled flakes and oatmeal are also excluded);

– maize, oat, spelt, barley and rice based products - benchmark level of 150 µg/kg

This benchmark level is applicable to non-whole grain and/or non-bran based breakfast cereals (also breakfast cereals based on gun puffed grain are not included in this category). The breakfast cereals in this category do not contain bran, whole grain or gun puffed grain as ingredients present in the largest quantities. The cereal present in the largest quantity determines the category.

Biscuits and wafers, crackers with the exception of potato based crackers, crispbread, ginger bread and products similar to the other products in this category.

This benchmark level is applicable to the fine bakery wares referred to in Article 1 (2) (e). The products that are covered by this category are further classified under sub-groups within the group of fine bakery wares:

Biscuits and wafers – benchmark level of 350 µg/kg

Besides biscuits and wafers, this benchmark level is applicable to rusks, cookies, cornets, etc. (it does not apply to biscuits and rusks intended for infants and young children referred to in Article 1 (2) (h))

Crackers with the exception of potato based crackers - benchmark level of 400 µg/kg

This benchmark level is applicable to crackers which are a dry biscuit (baked product based on cereal flour) e.g. soda crackers, pretzel crackers, etc.

Crispbread – benchmark level of 350 µg/kg

This benchmark level is applicable to crispbread, rye crisps, etc. (products can have specific regional names)

Crispbread is a dry flat bread that is made from wholemeal grist, wholemeal flour or flour from rye, wheat and other grains or mixtures thereof as well as other food. The crispbread is produced with leavening by yeast, sourdough, physical or other measures. The humidity of the final product does not exceed 10 % (w/w).

Gingerbread – benchmark level of 800 µg/kg

Gingerbread refers to a broad category of baked goods, typically flavoured with ginger, clove, nutmeg or cinnamon sweetened with honey, sugar or molasses. Gingerbread foods vary, ranging from a soft, moist loaf cake to something close to a ginger biscuit (products can have specific regional names).

Products similar to the other products in this category – benchmark level of 300 µg/kg

This benchmark level is applicable to cereal bars, scones, crumpets, matzo, etc.

This benchmark level is applicable to certain bread substitutes (such as breadsticks).

Pastries and cakes are excluded.

Roast coffee – benchmark level of 400 µg/kg

This benchmark level is applicable to products referred to in Article 1 (2) (f) (i).

Instant (soluble) coffee – benchmark level of 850 µg/kg

This benchmark level is applicable to products referred to in Article 1 (2) (f) (ii).

Coffee substitutes

This benchmark level is applicable to products referred to in Article 1 (2) (g).

Coffee substitutes exclusively from cereals – benchmark level of 500 µg/kg

Coffee substitutes exclusively from chicory – benchmark level of 4000 µg/kg

Coffee substitutes from a mixture of cereals and chicory

The applicable benchmark level for these coffee substitutes takes into account the relative proportion of the ingredients in the final product.

Mixture of coffee with coffee substitutes

The applicable benchmark level to these mixtures takes into account the relative proportion of the ingredients in the final product.

Baby foods, processed cereal based foods for infant and young children excluding biscuits and rusks - benchmark level of 40 µg/kg

This benchmark level is applicable to products referred to in Article 1 (2) (h).

It refers to baby food and processed cereal based foods (excluding biscuits and rusks) as defined in Regulation (EU) No 609/2013

Biscuits and rusks for infant and young children - benchmark level of 150 µg/kg

This benchmark level is applicable to products referred to in Article 1 (2) (h).

It refers to biscuits and rusks (processed cereal based foods) as defined in Regulation (EU) No 609/2013

APPENDIX TO SECTION B

