

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 (Text with EEA relevance)

Article 1	Scope
Article 2	Mitigation measures
Article 3	Definitions
Article 4	Sampling and analysis
Article 5	Review of the levels of acrylamide
Article 6	Entry into force and application
	Signature

ANNEX I

MITIGATION MEASURES REFERRED TO IN ARTICLE 2(1)

Where the mitigation measures in this Annex include the use...

I. PRODUCTS BASED ON RAW POTATOES

Selection of suitable potato varieties

1. Food business operators (hereinafter 'FBOs') shall identify and use the...
2. FBOs shall use the potato varieties which have been stored...
3. FBOs shall identify potato varieties with lower acrylamide forming potential...

Acceptance criteria

1. FBOs shall specify in their arrangements regarding potato supply the...
2. If the specified content of reducing sugar content in potatoes...

Potato storage and transport

1. Where FBOs operate their own storage facilities:
2. Potato lots shall be monitored for reducing sugars at the...
3. FBOs shall specify the potato transport conditions in terms of...

(a) SLICED POTATO CRISPS

Recipe and process design

1. For each product design, FBOs shall specify frying oil temperatures...
2. Where the frying oil temperatures at the exit of the...
3. For each product design, FBOs shall specify the moisture content...
4. FBOs shall use in-line colour sorting (manual and/or optical-electronic) for...

(b) FRENCH FRIES AND OTHER CUT DEEP FRIED OR OVEN-FRIED POTATO...

Recipe and Process design

1. Potatoes shall be tested for reducing sugars prior to use....
2. FBOs shall remove immature tubers having a low underwater weight...

3. FBOs shall remove slivers right after cutting to avoid burned...
 4. FBOs shall blanch potato strips to remove some of the...
 5. FBOs shall adapt blanching regimes to the specific quality attributes...
 6. FBOs shall prevent (enzymatic) discolouration and after cooking darkening of...
 7. The use of reducing sugars as a browning agent shall...
- Information to the end users
1. For the end users, FBOs shall indicate recommended cooking methods...
 2. FBOs shall recommend the end users in particular to:

II. DOUGH-BASED POTATO CRISPS, SNACKS, CRACKERS AND OTHER DOUGH-BASED POTATO PRODUCTS...

Raw Materials

1. For each product, FBOs shall specify target values for reducing...
2. The target value of reducing sugars in the products concerned...
3. Where the content of reducing sugars is higher than 1,5 %...

Recipe and Process Design

1. Dehydrated potato ingredients shall be analysed prior to their use...
2. Where dehydrated potato ingredients exceed the specified sugar level, FBOs...
3. For each product FBOs shall review whether it is possible...
4. In wet dough-based systems, FBOs shall consider the use of...
5. Where dough-based potato crisps, snacks or crackers are fried, FBOs...
6. The oil temperature at the fryer exit shall be as...
7. Where dough-based potato crisps, snacks or crackers are baked, FBOs...
8. The temperature at the exit of the baking oven/drying process...
9. Where the product temperature is higher than 175 °C at the...
10. For each product, FBOs shall specify the moisture content post...

III. FINE BAKERY WARES

Agronomy

Recipe and Product Design

Processing

IV. BREAKFAST CEREALS

Agronomy

Recipe

1. Given that products based on maize and rice tend to...
2. FBOs shall control the addition rates at the point of...
3. FBOs shall take into account in the risk assessment the...
4. For heat-treated ingredients which contain 150 micrograms of acrylamide per...
5. When the cereal is in a flour dough format and...

Processing

V. COFFEE

Recipe

Processing

1. FBOs shall identify the critical roast conditions to ensure minimal...
2. Control of roast conditions shall be incorporated into a Pre-requisite...

3. FBOs shall consider the use of asparaginase treatment, insofar possible...

VI. COFFEE SUBSTITUTES CONTAINING MORE THAN 50 % CEREALS

Agronomy

Recipe

1. Given that products based on maize and rice tend to...
2. FBOs shall control the addition rates at the point of...
3. If coffee substitutes are not made exclusively from cereals, FBOs...

Processing

1. FBOs shall identify the critical roast conditions to ensure minimal...
2. Control of roast conditions shall be incorporated into a Pre-requisite...

VII. COFFEE SUBSTITUTES CONTAINING MORE THAN 50 % CHICORY

Recipe

Processing

1. FBOs shall identify the critical roast conditions to ensure minimal...
2. Control of roast conditions shall be incorporated into the manufacturer's...

VIII. BABY BISCUITS AND INFANT CEREALS

Product Design, Processing and Heating

1. FBOs shall use asparaginase to reduce the levels of asparagine...
2. FBOs shall make an assessment during recipe development that provides...
3. FBOs shall ensure that heat treated ingredients which are susceptible...
4. FBOs shall have a change control procedure in place to...
5. If the use of heat-treated raw materials and ingredients results...

Recipe

1. Given that products based on maize and rice tend have...
2. FBOs shall take into account, in particular in their risk...
3. FBOs shall control the addition rates at the point of...
4. FBO shall determine the acrylamide contribution from heat-treated and dry...

Processing

1. FBOs shall identify, by means of risk assessment, the critical...
2. FBOs shall measure the moisture content and express acrylamide concentration...
3. FBOs shall identify and apply an effective combination of temperature...
4. FBOs shall control heating temperatures, times and feed-rates. Feed-rate and...
5. Monitoring and controlling product moisture content after the critical heat-treatment...

IX. BABY JAR FOODS (LOW-ACID AND PRUNE-BASED FOODS)

1. For the production of baby jar foods, FBOs shall choose...
2. In case of contract farming, where agricultural products are supplied...
3. In prune purée purchase contracts FBOs shall include requirements which...
4. FBOs shall ensure that heat treated ingredients which are susceptible...
5. If the use of heat-treated raw materials and ingredients results...

Recipe

1. FBOs shall take into account in the risk assessment of...

2. FBOs shall choose varieties of sweet potatoes and prunes which...

3. FBOs shall control the addition rates at the point of...

Processing

1. FBOs shall identify the key heat-treatment step(s) in the process...

2. To avoid the generation of acrylamide spikes, FBO shall control...

3. FBOs shall ensure that the lowering of thermal input to...

X. BREAD

Agronomy

Product design, processing and heating

1. FBOs shall ensure that bread is baked to a lighter...

2. FBOs shall extend the yeast fermentation time taking into account...

3. FBOs shall lower thermal input by optimising baking temperature and...

4. FBOs shall provide baking instructions for bread that is to...

5. FBOs shall substitute ingredients that have the potential to raise...

6. FBOs shall replace fructose with glucose particularly in recipes containing...

7. In products with low moisture content, FBOs shall use asparaginase...

ANNEX II

PART A

MITIGATION MEASURES TO BE APPLIED BY FOOD BUSINESS OPERATORS (FBOs) REFERRED TO IN ARTICLE 2(2)

1. FBOs producing potato products shall apply the following mitigation measures:...

2. FBOs producing bread and fine bakery wares shall use the...

3. When preparing sandwiches, the FBOs shall ensure that sandwiches are...

PART B

MITIGATION MEASURES TO BE APPLIED BY FOOD BUSINESS OPERATORS REFERRED TO IN ARTICLE 2(3) IN ADDITION TO THE MITIGATION MEASURES REFERRED TO IN PART A

1. General requirement

2. French fries and other cut (deep fried) potato products

3. Bakery products

4. Coffee

ANNEX III

SAMPLING AND ANALYSIS REQUIREMENTS FOR THE MONITORING REFERRED TO IN ARTICLE 4

- I. Sampling
 1. The sample shall be representative for the sampled batch.
 2. FBOs shall ensure that they undertake representative sampling and analysis...
 3. FBOs shall ensure that a representative sample of each product...
- II. Analysis
 1. FBOs shall provide sufficient data to enable an assessment of...
 2. The sample shall be analysed in a laboratory that participates...
 3. The method of analysis used for the analysis of acrylamide...
 4. Analysis of acrylamide can be replaced by measurement of product...
- III. Frequency of sampling
 1. FBOs shall, undertake sampling and analysis at least annually for...
 2. Based on this assessment referred to in point II.1, the...
- IV. Mitigation
- V. Information to competent authorities

ANNEX IV

BENCHMARK LEVELS REFERRED TO IN ARTICLE 1(1)

Benchmark levels for the presence of acrylamide in foodstuffs referred...

Status: This is the original version (as it was originally adopted).

- (1) [OJ L 139, 30.4.2004, p. 1.](#)
- (2) Council Regulation (EEC) No 315/93 of 8 February 1993 laying down Community procedures for contaminants in food ([OJ L 37, 13.2.1993, p. 1.](#)).
- (3) Commission Recommendation 2013/647/EU of 8 November 2013 on investigations into the levels of acrylamide in food ([OJ L 301, 12.11.2013, p. 15.](#)).
- (4) The EFSA Journal 2015;13(6):4104.
- (5) Regulation (EC) No 882/2004 of the European Parliament and of the Council of 29 April 2004 on official controls performed to ensure the verification of compliance with feed and food law, animal health and animal welfare rules ([OJ L 165, 30.4.2004, p. 1.](#)).