

GOING FOR GOLD

(Steps food operators need to take to reduce the amount of acrylamide in food)

Acrylamide is a chemical substance formed when sugar in starchy foods, such as potatoes and bread, are cooked at high temperatures (above 120°C). It can be formed when foods are **baked, fried, grilled, toasted or roasted**. It is a natural by-product of the cooking process and gives food a desirable colour, smell and taste **but** can be harmful in excess. It is found in a wide range of foods including: roasted potatoes and root vegetables, chips, crisps, toast, cakes, biscuits, cereals, coffee.

Potential health effects of acrylamide and legal requirement

Scientific tests show that too much acrylamide in the diet has the potential to cause cancer in humans, with young children most at risk. As a result new legislation - **Regulation (EU) No. 2017/2158** - came into effect in April 2018 requiring food businesses to reduce acrylamide in specific foods they produce by taking action 'from farm to fork'. It does the following:

1. **Lists** the following foods that require action to be taken to reduce acrylamide:

- **french fries, other cut (deep fried) products and sliced potato crisps from fresh potatoes** (includes potatoes deep fried then roasted)
- **potato crisps, snacks, crackers, other potato products from potato dough** (not croquettes)
- **bread** (Includes toast and toasted products but not pitta bread or pizza bases)
- **breakfast cereals (excluding porridge and muesli)**
- **fine bakery wares: cookies, biscuits, rusks, cereal bars, scones, cornets, wafers, crumpets and gingerbread, as well as crackers, crisp breads and bread substitutes** (not croissants, cakes, choux or Danish pastry)
- **coffee: (i) roast coffee; (ii) instant (soluble) coffee and coffee substitutes**
- **baby food and processed cereal-based food intended for infants and young children**

2. Sets out specific **measures (controls) to reduce acrylamide** in the above foods based on the nature and size of the business, with the larger ones having to do more than smaller ones. The three groups are:

A) Large national manufacturers

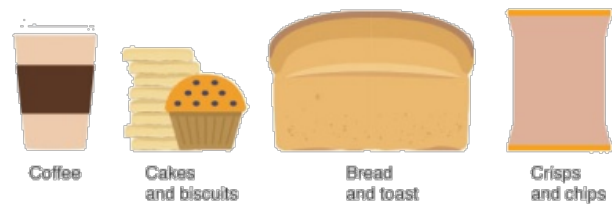
B) Large non local group/franchise caterers with a central control, supply chain and standard menus eg: McDonalds, KFC, catering contractors

C) Independent local food businesses serving direct to the final customer and/or to local outlets eg: hotels, restaurants, cafes, takeaways and bakeries

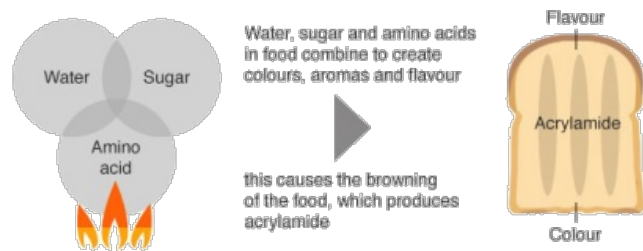
3. Requires **representative sampling and analysis** of acrylamide in the listed foods for businesses in group **A** and **B**.

4. Requires different types and detail of **documentation** dependent on which group the business is in. Whereas Groups **A & B** require detailed '**records**' of sampling and procedures, Group **C** can show '**evidence**' in a simpler format that they are following suitable **controls** eg: show temp. set for frying, colour charts, maintenance records.

What foods can acrylamide be found in?



How does it form when food is cooked?



Source: Food Standards Agency

BBC

How does this look in practice?

In general

1. All businesses will need to consider it in their **Food Safety Management System** as a Chemical Hazard (potential to cause harm), put in place appropriate **controls** to reduce it to a safer level, **monitor** this effectively and take **corrective action** when something goes wrong. The degree of documentation and controls depends on:
 - a) The size and nature of the food operation (see item 4. previous page).
 - b) Type of production, geographic or seasonal conditions or product characteristic

Management must set up:

- a) **Safe operating procedures (SOPs), instructions or guidance** to include **following manufacturer's instructions** for bought in part baked/frozen products to finish cooking on site eg: chips, bread, biscuits
- b) **maintain equipment** (especially thermostat controls) in clean and good working order and
- c) **train staff** in the requirements and their role in applying the controls

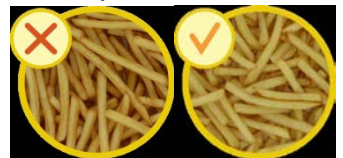
Below are examples of the types of **controls** required when making some of the listed foods

Chips and other cut (deep fried) products from fresh potatoes

Ordering & Storage: Use potato varieties with less sugar and store them in a dark, dry, cool place above 6°C.

Preparation: soak prepared/cut potatoes in cold water but not below 6°C. Then rinse, dry and blanch before final cooking.

Cooking: in oils that fry quickly at lower temperatures eg: rapeseed, never exceed 175°C (or 220°C for oven chips), clean oil regularly and monitor using SOPs, instructions and/or colour charts. Aim for a golden colour and use computerised fryers with pre-set time/temperatures settings, where possible. Discard dark or overcooked products.

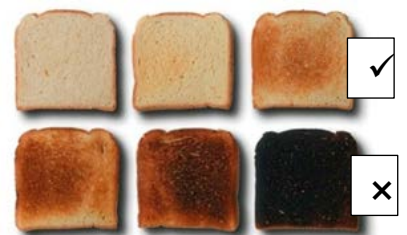


Bread, Toast, Toasted Sandwiches and Bakery Goods

Ordering: Inform suppliers not to provide overcooked products.

Preparation: Use ingredients and methods that allow for longer yeast fermentation and proving times

Baking: bake at lower temperatures for longer and maintain maximum moisture in the product. Use SOPs, instructions and colour charts to monitor, aiming for a golden colour but allowing for darker finish where darker ingredients are used eg: wholemeal flour, brown sugar. Reject/discard overcooked foods.



Coffee

There are limited control measures for coffee. When ordering/blending consider that Arabica beans have less acrylamide than Robusta beans and use a reputable supplier who is working to achieve levels as low as reasonably possible. (see FoodDrinkEurope Toolkit below for more info.)

Further Information and Help

EU Commission Guidance:

http://www.aecosan.msssi.gob.es/AECOSAN/docs/documentos/seguridad_alimentaria/gestion_riesgos/02-GUIDANCE-DOCUMENT.pdf

Food Standards Agency acrylamide legislation/guidance:

<https://www.food.gov.uk/business-guidance/acrylamide-legislation?navref=related>

UK Hospitality interim draft practical guidance for caterers: [interim acrylamide guide](#)

FoodDrinkEurope acrylamide leaflets in different languages and acrylamide Toolbox for manufacturers and caterers:

<https://www.fooddrinkeurope.eu/publications/category/toolkits/>

Cooking Chips and colour guides: <http://goodfries.eu/en/home>