

# Acrylamide

Information on the risks of acrylamide and how you can reduce the chances of being harmed by it.

Acrylamide is a chemical substance formed when 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
- roasted

Acrylamide is not deliberately added to foods – it is a natural by-product of the cooking process and has always been present in our food.

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

Laboratory tests show that acrylamide in the diet causes cancer in animals. Scientists agree that acrylamide in food has the potential to cause cancer in humans as well. We recommend that the amount of acrylamide we all consume is reduced, as a precaution.

## What the food industry is doing to reduce acrylamide

The food industry has undertaken a lot of work to identify and implement measures to reduce acrylamide levels in food. This includes developing guidance on ways to limit acrylamide formation in a variety of foods and processes.

Legislation now requires food business operators to put in place simple, practical steps to manage acrylamide within their food safety management systems, including sourcing of ingredients, and appropriate storage.

## How to reduce acrylamide at home

To reduce your consumption of acrylamide when preparing food at home, we advise you should:

- aim for a golden yellow colour or lighter when frying, baking, toasting or roasting starchy foods
- follow the cooking instructions on the pack when cooking packaged foods like chips and roast potatoes
- eat a healthy, balanced diet and get your [5 A Day](#) to help reduce your risk of cancer

We previously advised consumers against storage of raw potatoes in the fridge at home, as it was thought this could lead to the formation of additional sugars (known as cold sweetening) which can then convert into acrylamide when the potatoes are fried, roasted or baked.

A recent study, which has been reviewed by the Committee on the Toxicity of Chemicals in Food, Consumer Products and the Environment (COT), has shown that home storage of potatoes in the fridge doesn't materially increase acrylamide forming potential when compared to storage in a cool, dark place.

So, if you wish to help avoid food waste, you can choose to store either in the fridge or in a cool, dark place.

### FSA Explains

Acrylamide is formed during high temperature cooking, when water, sugar and amino acids combine to create a food's characteristic flavour, texture, colour and smell. This process is called the Maillard reaction. Long cooking times and higher temperatures form more acrylamide than short cooking times and lower temperatures.

Organisations including the World Health Organisation, the European Food Safety Authority (EFSA) and UK scientific advisory committees have assessed the risks posed by acrylamide.

In 2015, the EFSA published its [risk assessment of acrylamide in food](#). The assessment confirms that acrylamide levels found in food have the potential to increase the risk of cancer for people of all ages. However, it's not possible to estimate how much the risk is increased. Acrylamide in your diet could contribute to your lifetime risk of developing cancer.

As it's not possible to establish a safe level of exposure for acrylamide to quantify the risk, the EFSA used a 'margin of exposure' approach. [The margin of exposure \(MOE\) approach](#) provides an indication of the level of health concern posed by a substance's presence in food.

EFSA's Scientific Committee states that, for substances that are genotoxic and carcinogenic, a MOE of 10,000 or higher is of low concern for public health. The MOE identified in our total diet study on acrylamide have indicated a concern for public health. These range between 300 for an average adult consumer and 120 for toddlers.

## Our work on acrylamide

To understand more about acrylamide and how to reduce the risk it presents we are:

- supporting food manufacturers' initiatives to reduce acrylamide in foods
- conducting and publishing annual monitoring data for acrylamide in a range of foods
- working with industry to help manufacturers comply with the new legislation
- advising people what they can do to reduce acrylamide in food they cook at home