

Acrylamide

Examples of food

| What can go wrong here? (Hazards) | What can I do about it? (Control/Critical Limits) | How can I check? (Monitoring/Verification) | What if it's not right? (Corrective Action) |
|--|---|---|---|
| Acrylamide forming when cooking chips and other potato products. | Do not store raw unpeeled potatoes in the fridge if you intend to use them for roasting or frying, as this can increase the amount of acrylamide formed during cooking. Store in a dark, cool place instead with a temperature higher than 6°C. <div style="text-align: right;"> <input type="checkbox"/> I do this </div> | Check that unpeeled potatoes are stored in a dark, cool place, but not in the fridge. | Store unpeeled potatoes in a dark, cool place. |
| | Use potato varieties with the lowest sugar content, as more sugar in potatoes means higher acrylamide levels. <div style="text-align: right;"> <input type="checkbox"/> I do this </div> | Check with your potato supplier on available potato varieties with a lower sugar content. Bear in mind seasonal variations of sugar levels. | Switch to a potato variety that has a lower sugar content if possible – there may be seasonal variations. |
| | Before frying, in order to reduce the sugar content to the lowest possible level: <ul style="list-style-type: none"> • Wash and soak chips for between 30 minutes and 2 hours in cold water. Rinse the chips in clean water before frying. <div style="text-align: right;"> <input type="checkbox"/> I do this </div> or • Soak for a few minutes in warm water. Rinse the chips in clean water before frying. <div style="text-align: right;"> <input type="checkbox"/> I do this </div> or • Blanch potatoes before frying. <div style="text-align: right;"> <input type="checkbox"/> I do this </div> | Observe staff practices. | Better supervision, training, and/or retraining of staff. |

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|---|--|---|--|
| <p>Acrylamide forming when cooking chips and other potato products. (continued)</p> | <p>Ensure that potato products are cut to similar sizes so that they will cook uniformly. <input type="checkbox"/> I do this</p> <hr/> <p>When frying chips or potato products:</p> <ul style="list-style-type: none"> • Use oils that allow shorter frying times and/or lower temperatures. <input type="checkbox"/> I do this • Keep frying temperatures below 175°C or as close to this as possible. <input type="checkbox"/> I do this • Keep the frying oil clean by skimming to remove crumbs and debris, and change regularly. <input type="checkbox"/> I do this • Fill fryer basket to the halfway mark – do not overfill. <input type="checkbox"/> I do this <p>Visibly display the colour chart on pg 77 so that staff preparing chips can check that they are a light golden colour and not overcooked. <input type="checkbox"/> I do this</p> <p>When cooking potatoes in the oven, turn halfway through the cooking time. <input type="checkbox"/> I do this</p> <p>For frozen potato products, follow the manufacturer's cooking instructions. <input type="checkbox"/> I do this</p> | <p>Observe staff practices.</p> <hr/> <p>Check with your oil supplier on available oils with shorter frying times and/or lower temperatures.</p> <p>Check the fryer temperatures.</p> <p>Visually check the quality of the oil.</p> <p>Observe staff practices.</p> <p>Check that the colour chart is in the kitchen and used by staff to check that the food is a light golden colour.</p> <p>Observe staff practices.</p> <p>Observe staff practices.</p> | <p>Better supervision, training, and/or retraining of staff.</p> <hr/> <p>Switch to an oil that allows shorter frying times and/or lower temperatures.</p> <p>Better supervision, training, and/or retraining of staff.</p> <p>Make the colour chart available in the kitchen.</p> <p>Better supervision, training, and/or retraining of staff.</p> <p>Better supervision, training, and/or retraining of staff.</p> |

What can go wrong here?

(Hazards)

Acrylamide forming when cooking bread and bakery products.

Acrylamide forming when making toast and toasted/grilled sandwiches.

What can I do about it?

(Control/Critical Limits)

In order to reduce acrylamide forming where possible:

- Extend yeast fermentation time.
I do this
- Reduce the moisture content of the dough.
I do this
- Lower the oven temperatures and extend cooking times.
I do this
- Bake to a light colour and avoid dark crusts.
I do this
- Follow manufacturers' cooking instructions carefully when finishing parbaked products.
I do this

For toasters, mark and use the setting on the dial that produces toast with a light golden colour.
I do this

Ensure that sandwiches are toasted to a light golden colour.
I do this

When using pre-packed par-baked bread, ensure that the baking instructions are followed.
I do this

How can I check?

(Monitoring/Verification)

Check that staff are following the recipe and cooking instructions.

Check the oven temperature.

Visually inspect the food.

Observe staff practices.

Check the toaster settings and visually inspect the food.

Observe staff practices.

What if it's not right?

(Corrective Action)

Change recipes and cooking method where possible.

Reduce oven temperature and extend cooking times where possible.

Better supervision, training, and/or retraining of staff.

Adjust toaster settings.

Better supervision, training, and/or retraining of staff.

Advice on Acrylamide

What is acrylamide?

Acrylamide is a chemical that naturally forms in baked or fried starchy foods, e.g. chips and bread. The browner the food is after cooking, the higher the level of acrylamide present. Acrylamide begins to form at temperatures above 120 °C and rapidly increases at temperatures above 180 °C, so controlling the temperature that you cook these foods at is very important.

Why is acrylamide a concern?

Acrylamide may increase the risk of developing cancer. Consumers are frequently exposed to acrylamide because it is present in a wide range of everyday foods. It is virtually impossible to eliminate it completely from these foods, so efforts need to be made to reduce the levels of acrylamide to the lowest possible level.

There is legislation¹ in place setting out what you need to do to reduce the levels of acrylamide in your food.

What foods do you need to think about?

- Potato products, e.g. chips, roast potatoes, wedges, crisps, snacks, and crackers
- Bread and bakery products, e.g. bread, toast, crumpets, cookies, biscuits, scones, pastries, and gingerbread.

What do you need in order to reduce acrylamide levels?

- Cook food to a light golden colour and not to a dark brown colour, e.g. toast, chips, roast potatoes.
- Avoid overcooking, excessive crisping or burning.
- Do not accept over-baked or burnt products from suppliers.
- Consider using alternative methods of cooking where possible, e.g. steam or boil potatoes instead of frying or roasting them.
- Follow cooking instructions given on the product label, and pre-heat fryers and ovens before cooking.
- Work with your suppliers to ensure that they have acrylamide controls in place.

What are your responsibilities?

You must put controls in place to ensure that the acrylamide levels in starchy foods you cook and serve are as low as possible. The information in this section is for independent caterers who are not part of a franchise or larger commercial group, as there are extra requirements for these types of caterers – see www.fsai.ie for more information.

¹Commission Regulation (EU) 2017/2158 establishing mitigation measures and benchmark levels for the reduction of the presence of acrylamide in food



What do you do if your customer is not happy with light golden chips?

The Food Safety Authority of Ireland (FSAI) recommends that starchy foods be cooked to a light golden colour using the controls outlined in this Section, and you should make your customers aware of this and of the risks involved with being exposed to too much acrylamide.