# Guidance on Food Safety for home-producers of Chutneys, Pickles, Flavoured Oils and Jams

Council of the ISLES OF SCILLY

**General Hygiene**
Food business operators are required to make sure the food they sell is safe. The ingredients used, the premises where products are made, the method of production and the person making the food all have an impact on the safety and quality of the final product.

Things to consider regarding structural items and equipment include:

- Floors, walls, ceilings and work surfaces must be in good condition and be capable of being cleaned and maintained in a clean condition.
- There must be adequate storage space for ingredients and finished products.
- The kitchen must be kept clear so that there are no small or loose items on worktops or shelves above.
- Work surfaces and cutting boards must be thoroughly washed and disinfected before food preparation begins.
- Hot and cold water must be available at the sink whilst preparation is being done.
- A separate wash basin must be available for hand washing. This could be a half bowl attached to a sink or an accessible wash basin in a downstairs toilet. The wash basin must be provided with hot and cold running water, soap and a hygienic means of hand drying.
- Equipment, bowls, utensils etc must be clean and in good repair.
- Animals must be removed from the kitchen.
- If you have young children or toddlers, keep them out of the kitchen while you are preparing food for your business.

**Food Hygiene Training**
Food handlers should be trained, supervised and/or instructed to a level appropriate to their work activities.

**Food Safety Management**
A documented food safety management system (or HACCP) is required by law and needs to be appropriate for the nature and size of your business. The system needs to:
1. Identify what could go wrong (hazards);
2. Identify the controls needed to eliminate or reduce the hazard;
3. Identify which controls are critical to the safety of the food;
4. Identify the critical limits for each critical control point
5. Identify how critical control points will be measured e.g. temperature, pH
6. Check that steps 1-5 are working effectively
7. Revisions needed, for example, if recipes change or new ones are introduced.
8. Keep appropriate records.

A general internet search for the terms ‘Hazard Analysis’, ‘HACCP and ‘Food Safety Management’ will provide further information and guidance.

You will need to look at the different steps in the activities of your food business, which might include some of the following:

- Intake of ingredients
- Storage
- Washing
- Slicing and dicing (preparation),
- Recipe control (adding ingredients to cooking vessel)
- Cooking
- Jar preparation
- Filling
- Sealing
- Cooling
- Labelling
- Storage

At each of these stages you need to consider what the potential hazards are (biological, chemical, physical), whether the potential food safety hazards are significant i.e. critical to ensuring food safety, and what preventative measures can be applied to prevent the significant hazards. You could set up your HACPP in a simple table format as illustrated below.

| Process Step | Identify potential hazards | Are potential food safety hazards significant (Y/N) | Justify your decision for column 3 | What preventative measures are applied to prevent the hazard | Is this step a critical control point (Y/N) | What do you do if something goes wrong |
|---|---|---|---|---|---|---|
| Intake of ingredients | | | | | | |
| Storage | | | | | | |
| Washing | | | | | | |
| Preparation | | | | | | |
| Recipe Control | | | | | | |
| Cooking | | | | | | |
| Etc. | | | | | | |

The Food Standards Agency (FSA) has developed Safer Food Better Business for small catering businesses to help businesses carry out an assessment of their food safety hazards. You may find this useful. More information can be found:
http://www.food.gov.uk/foodindustry/regulation/hygleg/hyglegresources/sfbb/sfbbcaterers/

The FSA has also produced a booklet called 'Starting Up'.
http://www.food.gov.uk/multimedia/pdfs/publication/startingup0310a.pdf

**What are the hazards?**

Clostridium botulinum

The toxin of the common bacteria *Clostridium botulinum* has caused deaths.
Whilst there will be pathogenic bacteria present in fruit and vegetables that have come into contact with soil, most of these are killed by general cooking provided a temperature of 75$^{o}$C is achieved for at least 30 seconds. However, *Clostridium botulinum* is a spore forming pathogenic bacteria that is not readily killed by standard cooking and can grow under aerobic conditions (i.e. without air) it produces a harmful toxin (poison) in food which causes the serious and fatal illness botulism.

The spore of *C.botulinum* are widely distributed in the environment and may be present in a range of foods, including fruit or vegetable ingredients used to make jams, pickles and flavoured oils. Storing such products in sealed bottles can create the right conditions for the bacteria to multiply.

Although this type of food poisoning is rare in the UK, the fatal consequences of such food poisoning means that you need to consider the risks and implement appropriate controls to reduce/eliminate the risks from it.

Preventative controls you need to implement involve either achieving a botulinum cook or controlling the pH and water activity of the final product. If your products do not undergo a botulinum cook and you choose not to control the pH and water activity then products must be kept refrigerated at all times, even before they are opened.

If you were to opt for the botulinum cook you would need to ensure that your products achieved 121$^{o}$C for 3 minutes. Your only way of doing this would be by use of a pressure cooker and you would need to check and follow the manufacturer's instructions to demonstrate this could be achieved. If cooking to this temperature would have a detrimental effect on product quality then you would need to look at controlling the pH and water activity as an alternative control.

If you are controlling pH and water activity then the pH of the products must be 4.5 or lower and the water activity below 0.9 throughout the product. You will need to send your products to a UKAS accredited laboratory for independent analysis to demonstrate this.

However, the pH content of the products will vary depending on the time of year and therefore you would need a means of checking this for each batch. Litmus paper can be used as a guide but is not accurate as the colour of the product being tested can make it difficult to judge the result and therefore you would need to purchase a pH meter, which would need regularly calibrating by a UKAS accredited laboratory.

An accredited that would be able to give you further advice on the risks and controls for *C.botulinum* in chutneys and jams and their details are:

They may also be able to advise on the suitability of a pH meter once you have found one, how frequently it would need calibrating and whether this is a service they could offer.

Regardless of whether you are using the botulium cook or pH/water activity to control the risks you will still need to send one of each product off for independent analysis to validate any proposed shelf life. If you are going to use the botulinum cook, consider that, in addition to checking the general microbial content, you have the pH and water activity checked at the same time. The laboratory will be able to advise you on what to check for.

Flavoured oils are different because they are not acidic. *Clostridium botulinum* has been associated with flavoured oils because they normally have a pH higher than 4.6 and the oil provides an air-free environment for the bacteria to multiply. Moisture, which bacteria need to survive and grow, will be added from the vegetable, spice or herb.

Physical contamination

Cracked or chipped jars, bottles or damaged lids can cause physical contamination of the product as can foreign objects harvested with fruit and vegetables e.g. stones, slugs and insects.

Moulds

Moulds and yeasts can form in products if the jars, bottles or lids are dirty or if the product is not sealed quickly after filling. Growth can also occur once the product is opened and exposed to air so you may want to consider storage instructions post opening. Your means of disinfecting your jars/bottles and ensuring they are fully dry before use is important to help control the risks of moulds.

**What should I do to control the hazards?**

For all products

1. Wash your hands before preparing or handling food.
2. Ensure chopping boards, pans and utensils are clean and kept in good condition.
3. Use clean disinfected jars/bottles and invert them after disinfection until you are ready to fill them, to prevent foreign body contamination. Disinfect them by placing them in the oven (10 minutes at gas mark 3/160°C), by passing them through the dishwasher or submerging them in hot water (above 90°C) for 10 minutes.
4. Store products in a cool, dry environment.
5. Unless you have undertaken independent analysis it is difficult to determine an appropriate shelf life for your product. Some recipes give an indication of shelf life. Never exceed this and it would be sensible to give your products a shorter shelf life than stated unless you have used a microbiological laboratory to undertake a shelf life study.
6. Always stick to standard recipes and cooking methods; the amount of vinegar and/or sugar is essential for safety. For example, ensure weights of ingredients are known and know how long to boil/simmer each batch.
7. Keep records of each batch produced. This would typically include the food name, date of production, number of jars/bottles produced, use by or best before date, lot or batch number, records of any temperatures or pH measurements. If you supply other business you must be able to identify what you have supplied them with in case you need to recall the food in the event of a problem.

For jams, pickles and chutney

1. Thoroughly wash, dry and where necessary peel fresh fruit, vegetables and herbs.
2. Ensure lids/stoppers are clean and tight fitting but do not re-use lids. Lids must be put on immediately after bottling, whilst the product is still hot for the vacuum seal to be formed.
3. Use a jam thermometer to ensure the jam is heated to the correct temperature (setting point). Jam sets around 105°C. Heating to this temperature will destroy a significant number of harmful bacteria.
4. Follow the guidance above with regard to pH.

Extra controls for flavoured oils

1. When making oils, use dried herbs, spices and vegetables to reduce moisture levels or dry ingredients well before adding.
2. Ensure the pH is lower than 4.5. Phosphoric or citric acid can be added to oils to help reduce the pH. pH meters or litmus paper should be used. This is a critical control point and must be followed to protect consumer safety.
3. Keep flavoured oils refrigerated i.e. 8°C or below.
4. The maximum shelf life of the product should be 10 days, unless the pH is shown to be lower than 4.5 or you have undertaken independent analysis to demonstrate a longer shelf life.

**Food Labelling**

Full details on how to comply with the labelling requirements can be found in the Food Labelling Regulations 1996. You should contact the Trading Standards Department for further advice on labelling, compositional standards and weight/volume marking.

It is essential that Trading Standers are consulted.

Contact Information:

Trading Standards
https://www.cornwall.gov.uk/business/trading-standards/
0300 1234 191

**For any further information or clarification**

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