Principles and Practice Toolkit

WARWICK DISTRICT COUNCIL

Food Safety TEAM

Certificate No. 961473

Warwickshire COLLEGE

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Contents

Preface

Since 1995 food business operators in the Warwick District have been required to do Hazard Analysis for their food products and encouraged to keep records.

From 1st of January 2006, new European Community Food Hygiene Regulations replaced the existing UK food safety laws. In practice, the main change relates to food safety management, and will require the documentation of arrangements for making sure that food sold to customers is safe.

This booklet is a step by step guide for you to form your own documented Hazard Analysis plan based on HACCP principles and practice. By completing each task in each section you will be able to construct your own HACCP plans.

Each step has a task to complete, either in this guide and/or on a blank HACCP template. The following symbols indicate that action is required by you:

You will need to think about the task

You will need to write down your thoughts

By constructing HACCP plans through using this booklet you will be deemed to comply with the documentation (HACCP) requirements of the new regulations.

REMEMBER, THAT, EVEN WITH HACCP IN PLACE, YOU MUST COMPLY WITH ALL OTHER REQUIREMENTS OF CURRENT FOOD SAFETY LEGISLATION

Introduction

What is Hazard Analysis?
It is a way of looking at a food business operation or process and making sure that anything in the food that could cause harm to consumer is controlled.

It is an important part of any food safety management system.

There is no single recommended method or system. Well known systems include:

- HACCP Principles and Practice (Chartered Institute of Environmental Health)
- Safer Food Better Business (Food Standards Agency) (FSA)
- Safe Catering – Your Guide to HACCP (FSA Northern Ireland)
- CookSafe – Food Safety Assurance System (FSA Scotland)

The level of detail required depends upon the nature, size and extent of the business and the types of hazards. No two hazard analysis plans will be the same because all businesses are different.

What are the benefits of a Hazard Analysis System?
There are many benefits to the business, the customer and the staff. These may include:

- Safer Food
- Legal compliance and 'due diligence' defence
- Improved consumer confidence
- Increased reputation
- An improved quality product
- Clarity of procedures
- Improved staff morale and increased involvement
- Increased productivity

Hazard analysis should identify poor standards and procedures before problems occur.

Hazard Analysis Critical Control Points

HACCP means Hazard Analysis Critical Control Points. This is a process that helps you look at how you handle food, and introduce procedures to make sure the food you produce is safe to eat.

Look at your **process steps** for handling different types of foods and what **control measures** you would use to remove or reduce the food hazard?

HACCP involves the following 7 principles:

1) Identify the potential food **hazards** in a food business that must be prevented, eliminated or reduced to acceptable levels. A food hazard may be: Biological, Physical, or Chemical

2) Identify the **critical control points (CCP)** at the process step(s) where control is critical to ensure food safety; by preventing, eliminating or reducing the hazard an acceptable level

3) Establish **critical limits;** targets set at each critical control point which guarantees to eliminate or reduce the hazard to a safe level

4) Establish and implement effective **monitoring** procedures at CCPs

5) Establish **corrective actions** when monitoring indicates that a CCP is not under control

6) Establish procedures to **verify** that the measures outlined above are working effectively

7) Establish **documents** and records commensurate with the nature and size of the food business to demonstrate the effective application of the measures outlined above

Review the procedures when any modification is made to the product, or process, and ensure that the necessary changes are made.

Food Hazard

'Hazard' can be defined as a biological, chemical or physical agent in, or condition of, food or feed with the potential to cause an adverse health effect. A hazard may be;

1. **Biological -** harmful organisms / toxins
   e.g. *E .coli* 0157, Salmonella, Campylobacter, *Bacillus cereus*

- Naturally present – raw meat - e.g. Salmonella in raw meat
- Cross contamination – preparation – e.g. raw with cooked meat
- Growth – during refrigeration / hot holding/cooling
- Survival – cooking – e.g. Campylobacter in undercooked meat
  Bacillus cereus spores in rice

2. **Physical -** foreign objects

- Hair – human / pet
- Insects and pests
- Drawing pins
- Soil
- Nuts and bolts

3. **Chemical -** contaminants

- Cleaning surfaces and spillages
- Detergent stores
- Pest control chemicals
- Pesticides sprayed on fruit and vegetables
- Histamine in fish

Remember - Food Allergies - Naturally present / cross contamination
e.g. Peanut, nuts, eggs, fish, milk

Action 1: Assessing the Scope

Look at your menus and **group** types of food together e.g. salads, soups, roast meats, sauces, sandwiches, rice dishes, shellfish, desserts, and so on. The items within a group should have similar preparation methods.

You will have to establish the **scope,** which has four parts. i) What is the type of food or food group? ii) What menu items fit into the food group? iii) Where do the process steps start and end? and, iv) What food hazards does it cover i.e. microbiological, physical and/or chemical hazards?

Example:

HACCP Plan for: **Boiled rice**

1. This HACCP Plan was completed on 01 January 2006 by:
   Mr A. Other, Food Operator
2. The **scope** of this HACCP Plan covers:

   The biological, physical and chemical **food hazards** during the **process steps** of purchase/delivery to service. For the food / ~~food group~~ *boiled rice* covering the **menu items** *boiled rice dishes*

3. **Review** date(s):
   01 January 2007 (alternatively, when / if the following process steps alter)
   _____ by:
   _____ by:
   _____ by:

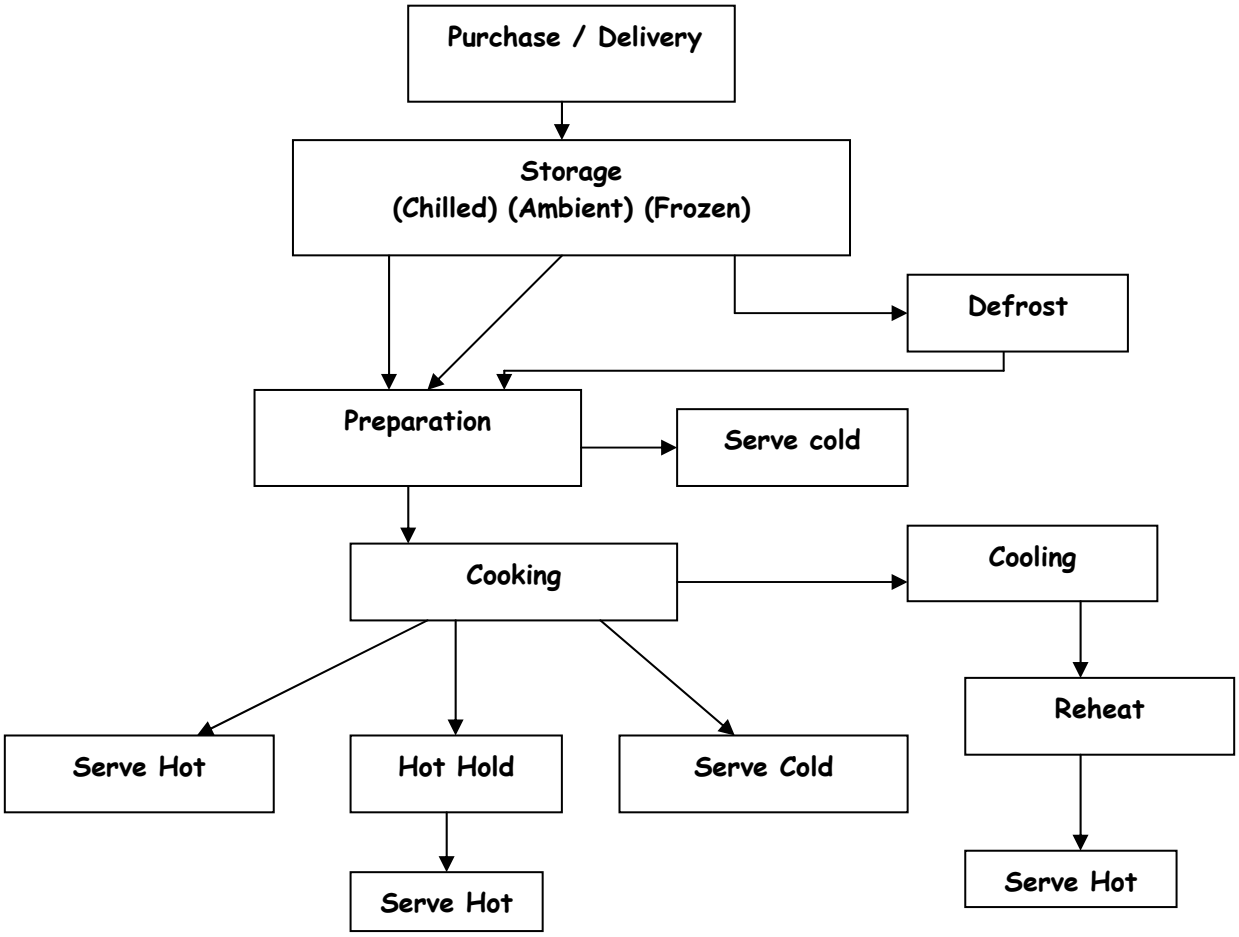
TASK: Look at your menu(s) and group food items as outlined above.

TASK: Write down the title and scope of one food group (other than Boiled Rice) on your blank HACCP Plan.

Action 2: Constructing a Flow Diagram

A flow diagram allows you to identify the process steps involved in the production of a particular product or group of products.

In a typical catering operation you may find the following stages:



TASK: Draw a flow diagram on your HACCP Plan for the food group that you identified above.

Action 3: Construct Process Steps

The Process steps are the same steps that you have written down on your flow diagram.

Example:

Hazard Analysis Plan: BOILED RICE

Process steps (see flowchart)
1. Purchase / Delivery
2. Storage: ambient
3. Preparation: wash
4. Cook: boil
5. Rinse
6. Cool
7. Storage: chilled

TASK: Write the process steps on your HACCP plan by transferring the steps detailed on your flow diagram

Action 4: Assessing Food Hazards

You now need to assess what hazards (biological, chemical and physical) are associated with each process step.

Example:

Hazard Analysis Plan: BOILED RICE

Process steps (see flowchart)	**Hazards** (**B**iological, **P**hysical and **C**hemical)
1. Purchase / Delivery	B - Presence of germs and moulds P - Foreign object contamination C - Chemical contamination
2. Storage: ambient	B - Growth of germs and moulds P - Foreign Object contamination C - Chemical contamination (e.g. cleaning chemicals)
3. Preparation: wash	B - Inherent germs/spores; contamination from food handlers, dirty articles/equip., and/or wash water P - Contamination from poorly maintained articles/equip. C - Contamination from wash water
4. Cook: boil	B - Survival of germs P - As step 3 C - As step 3

TASK: Consider the biological, physical and chemical hazards associated with each step (see page 5 to help).

TASK: Write down the hazards that you have identified on your HACCP Plan.

Action 5: Control Measures

Control measures are factors that can be used to reduce or eliminate the hazards. See Appendix 1 for examples of typical control measures.

Example:

Hazard Analysis Plan: BOILED RICE

Process steps (see flowchart)	**Hazards** (**B**iological, **P**hysical and **C**hemical)	**Control measures** (how do you remove/reduce the hazard?)
1. Purchase / Delivery	B - Presence of germs and moulds P - Foreign object contamination C - Chemical contamination	B, P & C: a. Purchase from reputable supplier b. Ensure packaging intact c. Purchase food within date code
2. Storage: ambient	B - Growth of germs and moulds P - Foreign Object contamination C - Chemical contamination (e.g. cleaning chemicals)	B - Store in dry well ventilated conditions; Ensure effective stock control P - Use covered storage containers C - Use covered storage containers
3. Preparation: wash	B - Inherent germs/spores; contamination from food handlers, dirty articles/equip., and/or wash water P - Contamination from poorly maintained articles/equip. C - Contamination from wash water	B - Thorough washing of rice; Ensure effective personal hygiene, including the use of appropriate protective clothing; Use only clean articles/equipment, and potable water P - Use sound articles/equip. C - Use potable water
4. Cook: boil	B - Survival of germs P - As step 3 C - As step 3	B - Boil rice as per suppliers instructions P - As step 3 C - As step 3

TASK: Consider the control measures necessary for each of the hazards that you have written down on you HACCP Plan.

TASK: Write down the control measures that you have identified on your HACCP Plan.

Action 6: Critical control point (CCP)

If at a step, and at no step afterwards, the hazard is not removed or reduced to a safe level, it is a **Critical Control Point** i.e. no further part of the process will deal with it. Some process steps are specifically designed to eliminate or reduce the likely occurrence of a hazard to an acceptable level e.g. washing and cooking raw rice.

Example:

Hazard Analysis Plan: BOILED RICE

Process steps (see flowchart)	**Control measures** (how do you remove/reduce the hazard?)	**Critical control point (y/n)** (is this check crucial to the safety of the end product?)
1. Purchase / Delivery	B, P & C: a. Purchase from reputable supplier b. Ensure packaging intact c. Purchase food within date code	N (NB 1. Later steps will control all identified hazards)*
2. Storage: ambient	B - Store in dry well ventilated conditions; Ensure effective stock control P - Use covered storage containers C - Use covered storage containers	N N N
3. Preparation: wash	B - Thorough washing of rice; Ensure effective personal hygiene, including the use of appropriate protective clothing; Use only clean articles/equipment, and potable water P - Use sound articles/equip. C - Use potable water	N Y (N.B.2 Specifically designed step to eliminate or reduce the hazard)* N
4. Cook: boil	B - Boil rice as per suppliers instructions P - As step 3 C - As step 3	Y (N.B. 3 Specifically designed step to eliminate or reduce the hazard)* Y Y (NB.4 No later steps will control the identified hazards)*

* See following page for further explanation

Note:
Rice when delivered is likely to be contaminated with harmful bacteria such as *Bacillus cereus*.

- **NB 1**. The process steps of purchase/delivery and preparation are not critical control points, as there will be a later step (i.e. cooking) that will control the hazard and therefore cooking will be a critical control point
- **NB 2**. Washing rice to remove physical contaminants is a specifically designed step to reduce the hazard to a safe level and therefore is a critical control point
- **NB 3**. Cooking rice to remove bacteriological hazards is a specifically designed step to reduce the hazard to a safe level and therefore is a critical control point
- **NB 4**. There are no furthers steps to remove or reduce the hazard to a safe level; it is therefore a critical control point

Some hazards pose a more significant threat than others. The extent of the threat will depend upon the nature of the hazard and the point at which it occurs in the food process.

The identification of CCPs will allow you to concentrate time and resources on those areas where control will specifically protect the consumer. Remember, a CCP for a biological hazard will be **different** than that of a physical or chemical hazard.

TASK: Identify your Critical Control Points

TASK: Write down the Critical Control Points on your HACCP Plan.

Action 7: Critical Limits

Many of the controls at critical points are measurable in terms of time, temperature or dimensions (e.g. absence of foreign objects). Such controls should be expressed as parameters for each critical control point.

For each Critical Control Point a value should be set which guarantees to eliminate or reduce the hazard to safe level.

Example:
Hazard Analysis Plan: BOILED RICE

Process steps (see flowchart)	**Critical control point (y/n)** (is this check crucial to the safety of the end product?)	**Critical limits** (what are the acceptable levels?)
1. Purchase / Delivery	N (NB. 1 Later steps will control all identified hazards)	not applicable
2. Storage: ambient	N N N	not applicable
3. Preparation: wash	N y (N.B.2 Specifically designed step to eliminate or reduce the hazard) N	Absence of foreign bodies
4. Cook: boil	y (N.B. 3 Specifically designed step to eliminate or reduce the hazard) y y (NB.4 No later steps will control the identified hazards)	Compliance with supplier's instructions. Absence of foreign bodies. Use only potable water

These **critical limits** are targets that separate acceptability from unacceptability.

Example 1 - *Washing* (physical hazards)

No foreign matter is acceptable

Absence of foreign matter is a critical limit

Presence of foreign matter is unacceptable

If the raw rice can be safely washed with no foreign matter and not contain foreign matter then the critical limit is absence of foreign matter

Example 2 – *Cooking* (biological hazards)

76°C is acceptable

75°C is a critical limit

74°C is unacceptable

If the food can be safely cooked at 76°C and not at 74° C then the critical limit is 75°C

TASK: Identify the Critical Limits associated with the Critical Control Points that you have just identified.

TASK: Write down the Critical Limits on your HACCP Plan.

Use this space to make notes of any uncertainties:

Action 8: Monitoring

Monitoring is a way of checking that the critical control points are being controlled. These **checks** should be carried out in a planned, organised way as part of the food production procedures.

Example:
Hazard Analysis Plan: BOILED RICE

Process steps (see flowchart)	**Control measures** (how do you remove/reduce the hazard?)	**Monitoring procedures** (what **C**hecks do you carry out and how are they **R**ecorded?)
1. Purchase / Delivery	B, P & C: a. Purchase from reputable supplier b. Ensure packaging intact c. Purchase food within date code	C - Visual inspection of incoming goods R - Presence/absence of contamination on invoice
2. Storage: ambient	B - Store in dry well ventilated conditions; Ensure effective stock control P - Use covered storage containers C - Use covered storage containers	C - Regular inspection of storage containers and surrounding structure R - Record any resulting maintenance C - Regular pest control inspections R - Maintain pest control record book C - Check date codes on a weekly basis R - Record any wastage in wastage book
3. Preparation: wash	B - Thorough washing of rice; Ensure effective personal hygiene, including the use of appropriate protective clothing; Use only clean articles/equipment, and potable water P - Use sound articles/equip. C - Use potable water	C - Regular inspection of articles/equip. R - Record any resulting maintenance C - Supervisory check of personal hygiene R - Record incidents of poor personal hygiene on personnel record
4. Cook: boil	B - Boil rice as per suppliers instructions P - As step 3 C - As step 3	C - Visually check the boiling of rice for the period stated in the suppliers instructions R - not applicable P & C as step 3

A **record** should be made of all measurements taken or observations made. Correct monitoring should be able to detect any loss of control at a critical control point in time for corrective actions to be implemented.

Monitoring systems include the checking of:

- Delivery vehicles
- Packaging integrity
- Use by and best before dates
- Condition of food
- Temperatures – using a clean sanitised, digital probe thermometer or taking digital gauge readings
- Times – using a clock or oven timer

Also:

- Visual checks – to ensure food is thoroughly cooked
- Observation of food handlers-routine inspections of staff practices
- Correct food labelling and stock rotation procedures
- Pest control and foreign body contamination
- Cleaning schedules – signed and dated

TASK: Identify how you are going to Monitor the Control Measures that you have just identified.

TASK: Write down what Monitoring you intend to carry out and how you are going to record it on your HACCP Plan.

Use this space to make notes of any uncertainties:

Action 9: Corrective Actions

Corrective actions are procedures or actions to be taken if there is a deviation beyond the critical limit set at a critical control point. The corrective actions are an important part of the hazard analysis plan as they ensure there is no misunderstanding or ambiguity about the procedures to be followed.

Example:

Hazard Analysis Plan: BOILED RICE

Process steps (see flowchart)	**Monitoring procedures** (what **C**hecks do you carry out and how are they **R**ecorded?)	**Corrective action(s)** (what is done when things go wrong?)
1. Purchase / Delivery	C - Visual inspection of incoming goods R - Presence/absence of contamination on invoice	Reject contaminated or out of date code foods
2. Storage: ambient	C - Regular inspection of storage containers and surrounding structure R - Record any resulting maintenance C - Regular pest control inspections R - Maintain pest control record book C - Check date codes on a weekly basis R - Record any wastage in wastage book	Repair/replace defective storage containers or structure Call in specialist pest control contractor to get rid of pests identified Dispose of out of date code stock
3. Preparation: wash	C - Regular inspection of articles/equip. R - Record any resulting maintenance C - Supervisory check of personal hygiene R - Record incidents of poor personal hygiene on personnel record	Repair/replace defective articles/equip. Retrain food handlers
4. Cook: boil	C - Visually check the boiling of rice for the period stated in the suppliers instructions R - not applicable P & C as step 3	Continue boiling for stated period

Staff should be clearly instructed as to the corrective actions and arrangements for re-monitoring.

Corrective actions include:

- Rejecting food that is delivered
- Changing supplier
- Destroy/discard food
- Repair/adjust equipment
- Re-cook or further cooking
- Increase defrosting time, increase cooking temperature, chill more rapidly
- Change product specifications
- Reheat for longer
- Remove and examine any physical contamination
- Clean again

TASK: Establish what must be done if, through your monitoring, you identify that Control Measures are not satisfactory.

TASK: Write down what Corrective Actions must be taken, when things go wrong, on your HACCP Plan.

Use this space to make notes of any uncertainties:

Action 10: Documentation

Documentation is an important part of hazard analysis because it helps to verify that your food safety management system is working.

Documentation is important for:

- Staff training purposes
- Suppliers in the case of any disputes or problems
- Customer confidence
- Food safety inspection visits or investigations
- Legal compliance and 'due diligence'

The types of documentation may include:

- Hazard analysis plans
- Staff training records
- Food temperature records
- Time records
- Cleaning schedules and records
- Working procedures
- Audit records
- Equipment records (including calibration checks)

Documentation should be simple, systematic, accurate, up to date and referenced. Records should be kept for 6 months or an appropriate time period.

TASK: Write down in the following space what Food safety Records you think you should keep in addition to your HACCP Plan.

My Food Safety Records will include:

Action 11: Review Procedure

Food Safety Management Systems must be subject to review of the analysis, critical points, control and monitoring procedures periodically and whenever operations change.

Examples -

- annually
- when the menu changes
- new process
- food complaint
- food poisoning

TASK: Write down in the following space when you think your Food Safety Management System should be reviewed.

My Food Safety Management System should be reviewed when and by whom:

Appendix 1: Typical Control Measures

Purchase

- Use of a reputable supplier

Receipt/Delivery

- Visual examination of packaging/food
- Checking of the temperature of food
- Checking durability dates (use by or best before)
- Checking delivery vehicle/person

Storage

- Stock rotation system
- Covering/wrapping of foods
- Separating raw and cooked foods
- Correct storage temperatures and times
- Storage conditions and regular cleaning of storage areas
- Dating of food if not in original packaging
- Day dot system to ensure food is used within a set time

Defrosting

- In chilled conditions
- Setting a minimum time for thorough defrosting
- Visual checks to ensure no ice crystals
- Minimum core temperature

Preparation

- Observation of good hygiene practices
- Limit time at kitchen temperature – prepare quickly
- Use of clean equipment and utensils
- Visual checks by manager/supervisor
- Up to date staff training and instruction
- Good personal hygiene
- Use of correct equipment (colour coded boards etc)

Cooking

- Cooking to a core temperature of 75°C for 30 seconds
- Setting cooking times
- Visual checks to ensure food is thoroughly cooked e.g. bacon

Cooling

- Chilling times – chill rapidly within 2 hours to room temperature
- Refrigerate when at room temperature
- Keep food covered in clean containers
- Good personal hygiene

Chilled Storage

- Check storage temperatures do not exceed 8°C
- Cover or wrap food
- Store in correct position
- Food day dotted or dated
- Stock rotation

Hot Holding

- Ensuring a minimum temperature of 63°C
- Use of clean equipment and utensils
- Food covered away from raw food

Serving

- Serve hot food at a minimum temperature of 63°C
- Food not 'topped up'
- Use of clean serving utensils and containers
- Good personal hygiene
- Regular staff training

Reheating

- Reheating to a core temperature of 75°C for 30 seconds
- Setting reheating times
- Visual checks to ensure food is thoroughly reheated

notes

notes