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WORLD FOOD SAFETY GUIDELINES

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Purpose

The World Food Safety Guidelines describe an effective food safety control concept applicable to airline catering establishments worldwide and accepted by international airlines as the basic reference document for airline catering food safety without reservations or additions.

However the World Food Safety Guidelines are superseded by national food legislation whenever requirements of national food legislation exceed or prohibit requirements of the World Food Safety Guidelines.

1. Introduction

Food safety has long been recognized by the Airline Catering Industry as a matter of paramount importance and this is reflected in its excellent safety record.

In preparing this second edition of the World Food Safety Guidelines, our objective has been to update, revise, enhance and sustain the value of the Guidelines as an authoritative, widely recognized and comprehensive set of benchmarks to assist the industry to develop robust food safety management systems against which responsible, meaningful and objective auditing may be conducted worldwide.

The strategy adopted throughout this revision is in line with that recommended by the World Health Organization ("WHO") for developing such guidelines, including:

- The involvement of a broad spectrum of stakeholders, airlines, caterers and suppliers.
- Inclusion of leading industry food safety experts throughout the process.
- Simple, practical risk and science based guidelines, which are outcome based, rather than prescriptive.

This pragmatic approach recognises the complexity and dynamics of the industry without compromise to the highest food safety standards.

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2. HACCP Concept

The Hazard Analysis Critical Control Point (HACCP) concept is a systematic approach to the identification and assessment of food safety hazards and of defining means of their control.

As a management tool, HACCP provides for a structured approach to control identifiable hazards that directly affect safety of food.

The system focuses on prevention at every step of the production process rather than detection of unsafe food products at the end of production. It provides an efficient right-first-time approach to food processing, thereby reducing the need for end product monitoring including microbiological testing. It is a cost effective, powerful system for managing food safety.

Principles of HACCP

Flight Caterers must demonstrate their HACCP system by documenting the relevant system elements according to Codex Alimentarius CAC/RCP 1-1969, Rev. 4-2003 HACCP Principles, these being:

Principle 1: Conduct a hazard analysis:

The process of collecting and evaluating information on hazards and conditions leading to their presence to decide which are significant for food safety and therefore should be addressed in the HACCP plan.

Principle 2: Determine the Critical Control Points (CCPs):

A *critical control point* is a step at which control can be applied and is essential to prevent or eliminate a food safety hazard or reduce it to an acceptable level.

Principle 3: Establish critical limit(s):

A *critical limit* is a criterion, which separates acceptability from unacceptability.

Principle 4: Establish a system to monitor control of the CCP:

Monitoring is the act of conducting a planned sequence of observations or measurements of control parameters to assess whether a CCP is under control.

Principle 5: Establish the Corrective Action to be taken when Monitoring indicates that a particular CCP is not under control:

Corrective Action is any action to be taken when the results of *Monitoring* at the CCP indicates a loss of control.

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Principle 6: Establish procedure for the Verification to confirm that the HACCP system is working effectively:

Verification is the application of methods, procedures, tests and other evaluations, in addition to monitoring to determine compliance with the HACCP plan.

Principle 7: Establish documentation concerning all procedures and records appropriate to these principles and their application.

Application of HACCP:

The application of HACCP principles consists of the following tasks as identified in the Logic Sequence for Application of HACCP in the Codex Alimentarius 1997.

1. Assemble HACCP Team

The food operation should assure that the appropriate product specific knowledge and expertise is available for the development of an effective HACCP plan. Optimally, this may be accomplished by assembling a multidisciplinary team. For example the team may comprise members from the Caterer's Quality Assurance, Production, Operations, Engineering, Purchasing or Research & Development teams. Where such expertise is not available on site, expert advice should be obtained from other sources. The scope of HACCP plan should identify which segment of the food chain is involved and the general classes of hazards to be addressed (e.g. does it cover all classes of hazards or only selected classes).

2. Describe Products

A description of the product groups should be drawn up, plus relevant processes such as handling, packaging, storage and distribution.

3. Identify Intended Use

The intended use should be based on the expected uses of the product by the end user or consumer. In specific cases, vulnerable groups of the population, e.g. institutional feeding, may have to be considered.

4. Construct Flow Diagram

The flow diagram should be constructed by the HACCP team. The flow diagram should cover all steps in the operation. When applying HACCP to a given operation, consideration should be given to steps preceding and following the specified operation.

5. On-site Confirmation of Flow Diagram

The HACCP team should confirm the processing operation against the flow diagram during all stages and hours of operation and amend the flow diagram where appropriate.

6. Implement the Seven Principles of HACCP

As set out above.

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Support Programs / Standard Operating Procedures (SOPs)

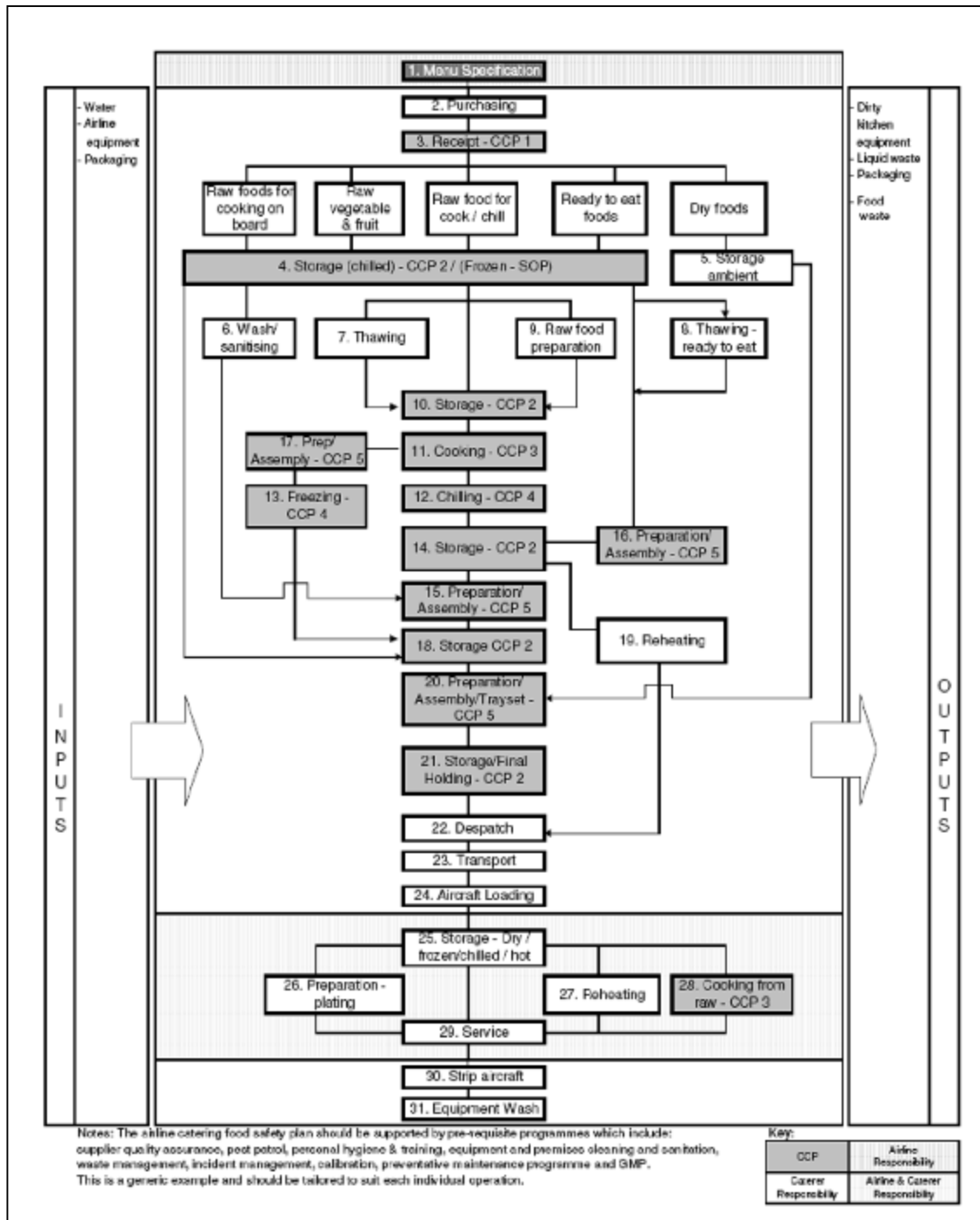
Support programs are systems that must be in place to support the HACCP system. They are often described as Pre-requisite programs, Good Manufacturing Practices (GMP) or Standard Operating Procedures (SOP). These are generally systems (e.g. Supplier Approval, Personal Hygiene, Training, Pest Control, Cleaning and Sanitation, Equipment Calibration, etc) that will effectively design out generalised hazards that apply to the whole operation, leaving HACCP to deal with the specific product-process hazards. These support programs are normally in place before the HACCP system is developed. We refer to these support programs as Standard Operating Procedures (SOPs) within this document.

3. Process Flow Diagram Examples

Each flight caterer should construct its own Process Flow Diagram to describe the production process, which occurs in its production facility. This diagram should detail the flow of events through the whole process giving a clear and simple description of how the end product(s) is made and handled. A generic example of Process Flow Diagram for an airline caterer that produces many hundreds of products is shown below:

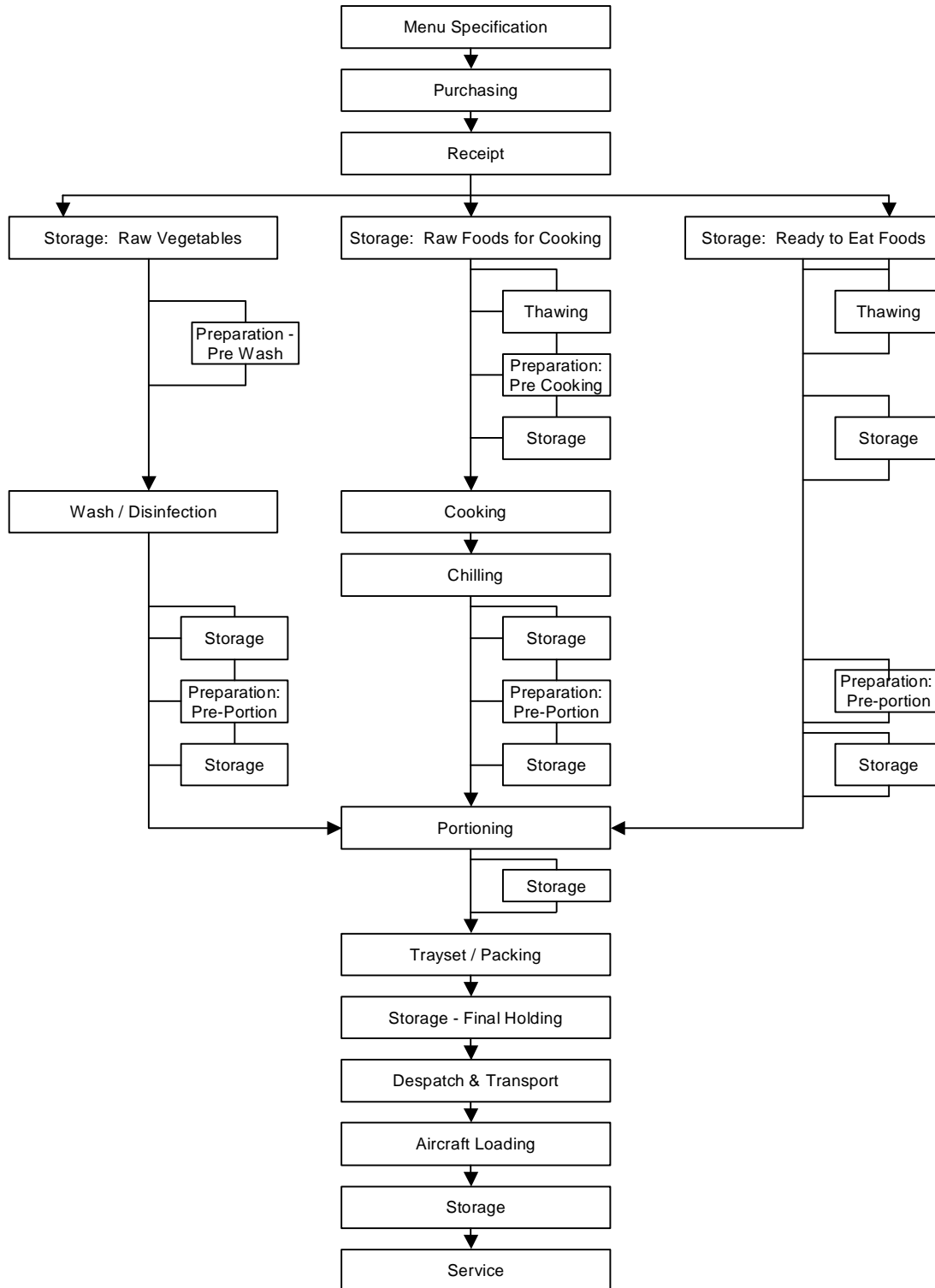
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Figure 1. Example Process Flow Diagram.



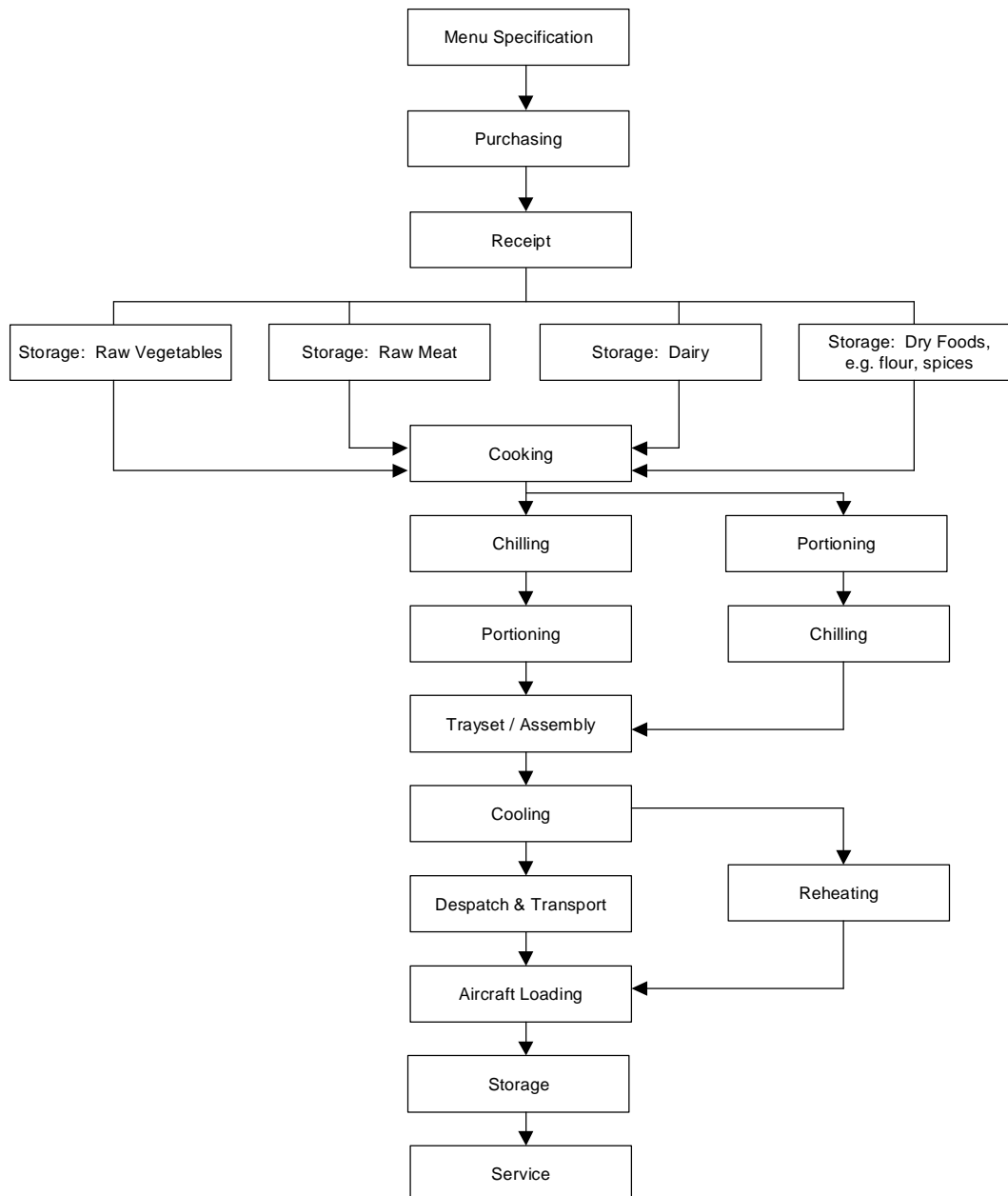
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Figure 2. Process Flow Diagram – Potentially Hazardous Foods



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Figure 3. Process Flow Diagram – Foods Cooked In-House



4. Hazard Analysis Table (Example for Guidance Purposes) (Risk Assessment)

Following construction of the Process Flow Diagram, the HACCP team should then ensure that all conceivable hazards are identified. Once the hazards are identified for each process step, determination of whether the hazard is significant or not should occur through the evaluation of each hazards severity and likelihood of occurrence. The Decision Tree (Codex 1997) can be used to determine whether hazards identified at a particular step may be controlled by a Critical Control Point (CCP) or by a Standard Operating Procedure (SOP).

A CCP is a step, location, practice or procedure at which control can be applied and which is essential to prevent, eliminate or reduce a food safety hazard to an acceptable level.

SOPs are defined as universal steps or procedures that control the operational conditions within a food establishment allowing for environmental conditions that are favourable to production. The importance of SOPs cannot be overstated, together with the HACCP plan they form the foundations of food safety. When documenting SOPs the frequency of monitoring and corrective action must be included.

Table 1 summarizes a typical hazard analysis process for an airline catering operation.

Step No	Process Stage	Hazard	Hazard analysis	Significant hazard Y / N	Example Control Measures (other Controls should also be considered)	CCP (as per Codex decision tree), or SOP?
1	Menu Specification	Recipes that contain hazardous ingredients or recipes that contain hazardous process steps which could result in: <u>Biological</u> contamination <u>Chemical</u> contamination <u>Physical</u> contamination	<u>Likelihood</u> will depend on products selected. Microbiological hazards are related to specific raw and undercooked foods. Chemical hazards are related to specific foods, as set out in section 10 D.	Y	Control of ingredients by: <ul style="list-style-type: none"> Implementing a suggested hazardous meal ingredients foods list Implementation of menu specification review & adjustment Customer consultation during menu presentation Supplier Management 	SOP
2	Purchasing	Bringing ingredients which are potentially hazardous into the facility which are contaminated with: <u>Biological</u> pathogens <u>Chemical</u> contaminants <u>Physical</u> contaminants	<u>High likelihood</u> of food poisoning if pathogens are present in ready-to-eat purchased foods.	Y	Control of purchased foods by: <ul style="list-style-type: none"> Supplier Approval Process Supplier Performance Program 	SOP

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Step No	Process Stage	Hazard	Hazard analysis	Significant hazard Y / N	Example Control Measures (other Controls should also be considered)	CCP (as per Codex decision tree), or SOP?
3	Receipt	<u>Biological</u> : growth of pathogens in incoming goods	<u>High likelihood</u> if delivery temperatures are too high. If potentially hazardous foods have been temperature abused and pathogens have grown to dangerous levels, no subsequent step will reduce the contamination to an acceptable level.	Y	Control of pathogen growth by: <ul style="list-style-type: none"> Temperature monitoring of potentially hazardous foods upon receipt. 	CCP 1
		<u>Biological</u> : out-of-date product: Spoilage Growth of pathogens (Listeria)	<u>Low likelihood</u> . Certain pathogens will grow under refrigeration.	Y	Control of raw materials: <ul style="list-style-type: none"> Check expiry dates of received foods. 	SOP
		<u>Chemical</u> and <u>physical</u> contamination due to damaged packaging/improper storage i.e. with chemicals.	<u>Low likelihood</u> . Due to rejection on visible signs of damage.	Y	Control of chemical/physical contamination: <ul style="list-style-type: none"> Check integrity of packaging upon receipt. 	SOP
4 (A)	Storage: Chilled - raw foods for cooking onboard - raw fruits & vegetables for raw service - ready-to-eat foods	<u>Biological</u> : pathogen growth for potentially hazardous, ready-to-eat food, if temperature increases above ideal temperature	<u>High likelihood</u> . Potentially hazardous food will support the rapid growth of pathogens under ideal time-temperature conditions. If potentially hazardous foods have been temperature abused and pathogens have grown to a dangerous level, no subsequent step will reduce the contamination to an acceptable level.	Y	Control of pathogen growth: <ul style="list-style-type: none"> Potentially hazardous foods to be stored under refrigeration. 	CCP 2
		<u>Biological</u> : out-of-date product: Spoilage Growth of pathogens (Listeria)	<u>Low likelihood</u> . Certain pathogens will grow under refrigeration.	Y	Control of raw materials: <ul style="list-style-type: none"> Check expiry dates of received foods. 	SOP
4 (A)	Storage: Chilled - raw foods for cooking onboard - raw fruits & vegetables for raw service - ready-to-eat foods	<u>Chemical</u> and <u>physical</u> contamination during storage.	<u>Low likelihood</u> .	N	Control of chemical / physical contamination: <ul style="list-style-type: none"> Correct food storage practices Separate chemical store 	SOP

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Step No	Process Stage	Hazard	Hazard analysis	Significant hazard Y / N	Example Control Measures (other Controls should also be considered)	CCP (as per Codex decision tree), or SOP?
4 (B)	Storage: Frozen - raw foods for cooking onboard - raw food for cook/ chill - ready-to-eat foods	<u>Biological</u> : Contamination pathogen growth on raw or bought-in ready-to-eat products	No hazard if product remains frozen.	N	Control of freezer temperature.	SOP
5	Storage: - dry foods	<u>Physical</u> : Contamination Pest infestation	<u>Low likelihood.</u>	N	Control of chemical / physical contamination: <ul style="list-style-type: none"> • Correct food storage and handling practices • Pest control 	SOP
6	Wash/Sanitise - raw vegetables & fruit for raw service	<u>Biological</u> : pathogen contamination	<u>Medium likelihood.</u> Pathogens may be present in unwashed raw vegetables and fruit.	N	Control of microbial contamination: <ul style="list-style-type: none"> • Effective washing and documented sanitizing (where permitted) for products that will not undergo heat processing • correct food handling and storage 	SOP
		<u>Chemical</u> and <u>physical</u> contamination e.g. foreign objects, pests, pesticides on raw produce.	<u>Low likelihood.</u>	N	Control of chemical / physical contamination: <ul style="list-style-type: none"> • Foreign Object Policy • Segregation of chemicals. 	SOP
7	Thawing - raw food for cook/ chill	<u>Biological</u> : growth of pathogens	<u>Low likelihood.</u>	N	Control of pathogen growth: <ul style="list-style-type: none"> • Correct thawing practices 	SOP
8	Thawing - ready-to-eat foods	<u>Biological</u> : growth of pathogens	<u>Low likelihood.</u>	N	Control of pathogen growth: <ul style="list-style-type: none"> • Correct thawing practices 	SOP
9	Raw Food Preparation	<u>Biological</u> : growth of pathogens	<u>Low likelihood.</u>	N	Control of pathogen growth: <ul style="list-style-type: none"> • Time-temperature control during preparation. 	SOP
		<u>Chemical</u> and <u>physical</u> contamination	<u>Low likelihood.</u>	N	Control of chemical / physical contamination: <ul style="list-style-type: none"> • Foreign Object Policy • Segregation of chemicals. 	SOP
10	Storage - raw food for cook/ chill	<u>Biological</u> : growth of pathogens	<u>Low likelihood</u> due to slow growth of pathogens during refrigeration.	N	Control of pathogen growth: <ul style="list-style-type: none"> • Correct operation of refrigeration 	SOP
		<u>Chemical</u> and <u>physical</u> contamination	<u>Low likelihood.</u>	N	Control of chemical / physical contamination: <ul style="list-style-type: none"> • Foreign Object Policy • Segregation of chemicals 	SOP

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Step No	Process Stage	Hazard	Hazard analysis	Significant hazard Y / N	Example Control Measures (other Controls should also be considered)	CCP (as per Codex decision tree), or SOP?
11	Cooking	<u>Biological:</u> pathogen survival	<u>High likelihood.</u> Undercooking will result in inadequate destruction of pathogens. No subsequent step will reduce the contamination to an acceptable level	Y	Control of pasteurisation: <ul style="list-style-type: none"> Raw foods of animal origin to be cooked to safe core temperatures 	CCP 3
11	Cooking	<u>Chemical and physical</u> contamination	<u>Low likelihood.</u>	N	Control of chemical / physical contamination <ul style="list-style-type: none"> Foreign Object Policy Segregation of chemicals 	SOP
12 13	Chilling / Freezing	<u>Biological:</u> pathogen growth of spore forming pathogens	<u>High likelihood.</u> Spore germination and toxin production may occur if cooling is slow. No controls later in process to reduce contamination to an acceptable level	Y	Control of pathogen growth: <ul style="list-style-type: none"> Food must be rapidly chilled after cooking 	CCP 4
14	Storage - cook / chill - ready-to-eat	<u>Biological:</u> pathogen growth for potentially hazardous, ready-to-eat food, if temperature increases above ideal temperature.	<u>High likelihood.</u> Potentially hazardous food will support the rapid growth of pathogens under ideal time-temperature conditions. If potentially hazardous ready-to-eat foods have been temperature abused and pathogens have grown to a dangerous level, no subsequent step will reduce the contamination to an acceptable level.	Y	Control of pathogen growth: Potentially hazardous foods to be stored under refrigeration	CCP 2
14	Storage - cook / chill - ready-to-eat	<u>Biological: out-of-date product:</u> Spoilage Growth of pathogens (Listeria) <u>Chemical and physical</u> <u>contamination during storage.</u>	<u>Low likelihood.</u> Certain pathogens will grow under refrigeration. <u>Low likelihood.</u>	Y N	Control of raw materials: <ul style="list-style-type: none"> Check day/date labels Control of chemical / physical contamination: <ul style="list-style-type: none"> Foreign Object Policy Segregation of chemicals 	CCP 2
15 16 17	Preparation / Assembly	<u>Biological: growth of pathogens</u>	<u>High likelihood</u> of pathogen growth if time or temperature is not controlled. No controls later in process to reduce contamination to an acceptable level.	Y	Control of pathogen growth: <ul style="list-style-type: none"> Control of food temperature or time of exposure to ambient temperature during handling is required, <u>unless</u> it can be demonstrated that the food temperature will not exceed 8 °C / 47 °F (e.g. if ambient temperature is at 8 °C / 47 °F or below or portioning of frozen food). 	CCP 5

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Step No	Process Stage	Hazard	Hazard analysis	Significant hazard Y / N	Example Control Measures (other Controls should also be considered)	CCP (as per Codex decision tree), or SOP?
15 16 17	Preparation / Assembly	<u>Biological: contamination</u>	<u>High likelihood.</u> Manipulation will increase contamination risk.	N	Control of contamination: <ul style="list-style-type: none"> Disinfection of food contact surfaces Good food handling practices 	SOP
		<u>Chemical and physical contamination with foreign matter.</u>	<u>Low likelihood.</u>	N	Control of chemical / physical contamination: <ul style="list-style-type: none"> Foreign Object Policy Segregation of chemicals 	SOP
18	Storage - ready-to-eat	<u>Biological:</u> pathogen growth for potentially hazardous, ready-to-eat food, if temperature increases above ideal temperature.	<u>High likelihood.</u> Potentially hazardous food will support the rapid growth of pathogens under ideal time-temperature conditions. If potentially hazardous ready-to-eat foods have been temperature abused and pathogens have grown to a dangerous level, no subsequent step will reduce the contamination to an acceptable level.	Y	Control of pathogen growth: <ul style="list-style-type: none"> Potentially hazardous foods to be stored under refrigeration. 	CCP 2
18	Storage - ready-to-eat	<u>Biological:</u> out-of-date product: Spoilage Growth of pathogens (Listeria)	<u>Low likelihood.</u> Certain pathogens will grow under refrigeration.	Y	Control of raw materials: <ul style="list-style-type: none"> Check expiry dates of received foods. 	SOP
		<u>Chemical and physical contamination during storage.</u>	<u>Low likelihood</u>	N	Control of chemical / physical contamination: <ul style="list-style-type: none"> Foreign Object Policy Segregation of chemicals 	SOP
19	Re-heating for hot service delivery	<u>Biological:</u> Survival of pathogens Growth of pathogens	<u>Low to medium likelihood</u> during hot holding at unsafe temperature, e.g. below 60 °C / 140 °F for extended time.	N	Control of pathogen growth/pasteurisation: <ul style="list-style-type: none"> Product to be reheated rapidly to a temperature of 74 °C / 165 °F and held above 60 °C / 140 °F in a suitable container. 	SOP
		<u>Chemical and physical contamination with foreign matter</u>	<u>Low likelihood.</u>	N	Control of chemical / physical contamination: <ul style="list-style-type: none"> Foreign Object Policy Segregation of chemicals 	SOP

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Step No	Process Stage	Hazard	Hazard analysis	Significant hazard Y / N	Example Control Measures (other Controls should also be considered)	CCP (as per Codex decision tree), or SOP?
20	Preparation / Assembly / Tray set	<u>Biological</u> : growth of pathogens	<u>High likelihood</u> of pathogen growth if time or temperature is not controlled. No controls later in process to reduce contamination to an acceptable level.	Y	Control of pathogen growth: <ul style="list-style-type: none"> Control of food temperature or time of exposure to ambient temperature during handling is required, <u>unless</u> it can be demonstrated that the food temperature will not exceed 8 °C / 47 °F (e.g. if ambient temperature is at 8 °C / 47 °F or below or portioning of frozen food). 	CCP 5
		<u>Biological</u> : contamination	<u>High likelihood</u> . Manipulation will increase contamination risk.	N	Control of contamination: <ul style="list-style-type: none"> Disinfection of food contact surfaces Good food handling practices 	SOP
		<u>Chemical</u> and <u>physical</u> contamination with foreign matter.	<u>Low likelihood</u> .	N	Control of chemical / physical contamination <ul style="list-style-type: none"> Foreign Object Policy Segregation of chemicals 	SOP
21	Storage Final holding	<u>Biological</u> : pathogen growth for potentially hazardous, ready-to-eat food, if temperature increases above ideal temperature	<u>High likelihood</u> . Potentially hazardous food will support the rapid growth of pathogens under ideal time-temperature conditions. If potentially hazardous ready-to-eat foods have been temperature abused and pathogens have grown to a dangerous level, no subsequent step will reduce the contamination to an acceptable level.	Y	Control of pathogen growth: <ul style="list-style-type: none"> Potentially hazardous foods to be stored under refrigeration. 	CCP 2
		<u>Biological</u> : out-of-date product: Spoilage Growth of pathogens (Listeria)	<u>Low likelihood</u> . Certain pathogens will grow under refrigeration.	Y	Control of raw materials: <ul style="list-style-type: none"> Check day/date label 	SOP
		<u>Chemical</u> and <u>physical</u> contamination during storage.	<u>Low likelihood</u> .	N	Control of chemical/physical contamination: <ul style="list-style-type: none"> Foreign Object Policy Segregation of chemicals 	SOP

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Step No	Process Stage	Hazard	Hazard analysis	Significant hazard Y / N	Example Control Measures (other Controls should also be considered)	CCP (as per Codex decision tree), or SOP?
22	Despatch	<u>Biological</u> : growth of pathogens	<u>Low likelihood.</u>	N	Correct food refrigeration practices. <ul style="list-style-type: none"> • Temperature of potentially hazardous foods to be measured prior to despatch or security sealing where applicable. • Food temperature prior to despatch max. 8 °C / 47 °F or national standards where stricter. 	SOP
		<u>Chemical and physical</u> contamination	<u>Low likelihood.</u>	N	Control of chemical / physical contamination: <ul style="list-style-type: none"> • Foreign Object Policy • Segregation of chemicals 	SOP
23	Transport	<u>Biological</u> : growth of pathogens	<u>Medium likelihood.</u> Potentially hazardous foods will support the growth of pathogens under ideal time-temperature conditions	N	Control of pathogen growth: <ul style="list-style-type: none"> • Time-temperature control to minimize period in the temperature danger zone. 	SOP
		<u>Chemical and physical</u> contamination	<u>Low likelihood.</u>	N	Control of chemical / physical contamination: <ul style="list-style-type: none"> • Foreign Object Policy • Segregation of chemicals 	SOP
24	Aircraft loading	<u>Biological</u> : pathogen growth during aircraft loading	<u>Low likelihood.</u> if the loading time is minimal due to operational requirements.	N	Control of pathogen growth: <ul style="list-style-type: none"> • Time-temperature control to minimise period in the temperature danger zone. • Loading temperature 10 °C / 50 °F or less. 	SOP
		<u>Chemical and physical</u> contamination	<u>Low likelihood.</u>	N	Control of physical / chemical contamination <ul style="list-style-type: none"> • Foreign Object Policy • Segregation of chemicals 	SOP
25	Storage on Board	<u>Biological</u> : growth of pathogens	<u>Low likelihood</u> if time prior to consumption is short correct use of refrigeration or dry ice.	N	Control of pathogen growth: <ul style="list-style-type: none"> • Correct use of refrigeration or dry ice. • Correct food storage policies 	SOP
		<u>Chemical and physical</u> contamination			Control of pests: <ul style="list-style-type: none"> • Effective housekeeping / cleaning, pest control procedures 	SOP

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Step No	Process Stage	Hazard	Hazard analysis	Significant hazard Y / N	Example Control Measures (other Controls should also be considered)	CCP (as per Codex decision tree), or SOP?
26	Preparation On Board	<u>Biological</u> : growth of pathogens	<u>Low likelihood</u> due to immediate service.	N	Control of pathogen growth: <ul style="list-style-type: none"> Time-temperature control during assembly and reheating. Control of microbial contamination: <ul style="list-style-type: none"> Correct food handling procedures to minimise cross-contamination Effective personnel hygiene practices Control of physical contamination: <ul style="list-style-type: none"> Housekeeping/cleaning, equipment sanitation, pest management programs. 	SOP
		<u>Biological</u> : contamination	<u>Low likelihood</u> due to minimal bare hand contact.	N		SOP
		<u>Chemical</u> and <u>physical</u> contamination	<u>Low likelihood</u> .	N		SOP
27	Reheat on Board	<u>Biological</u> : growth of pathogens	<u>Low likelihood</u> due to immediate service.	N	Control of pathogen growth: <ul style="list-style-type: none"> Time-temperature control during reheating. Control of physical contamination: <ul style="list-style-type: none"> Housekeeping / cleaning, equipment sanitation, pest management programs. 	SOP
		<u>Chemical</u> and <u>physical</u> contamination	<u>Low likelihood</u> .	N		SOP
28	Cook from Raw Ingredients on Board	<u>Biological</u> : growth of pathogens	<u>High likelihood</u> . Undercooking will result in inadequate destruction of pathogens. No subsequent step will reduce the contamination to an acceptable level.	Y	Control of pasteurisation: <ul style="list-style-type: none"> Raw foods (animal origin) to be cooked to safe core temperatures Control of physical contamination: <ul style="list-style-type: none"> Housekeeping / cleaning, equipment sanitation, pest management programs 	CCP 3
		<u>Chemical</u> and <u>physical</u> contamination	<u>Low likelihood</u> .	N		SOP
29	Service	<u>Physical</u> contamination	<u>Low likelihood</u> .	N	Control of physical contamination: <ul style="list-style-type: none"> Housekeeping / cleaning, equipment sanitation, pest management programs 	SOP
30	Aircraft Strip-ping	No hazards identified		N	No hazards Identified	
31	Equipment wash / sanitizing (kitchen and aircraft equipment)	<u>Biological</u> : pathogen survival and growth on unclean equipment	<u>Low likelihood</u> .	N	Control of thermal/chemical sanitizing: <ul style="list-style-type: none"> Cleaning and sanitising procedure documented for all equipment. All food contact surfaces must be cleaned, rinsed then sanitised by heat or chemical sanitisation. 	SOP

5. Food Safety Process Table – Critical Control Points

The table below is a HACCP model for the inflight catering industry. Please note that each individual kitchen should assign a person, or position responsible for monitoring Frequency, Corrective Action and Verification steps.

Step No	Process Step	Hazard	Control Measures	CCPs	Critical Limits	Monitoring Procedures / Frequency	Corrective Actions	Verification	Records
3	Goods Receipt	<u>Biological</u> : growth of pathogens	Temperature monitoring of Potentially Hazardous Foods upon receipt.	CCP 1	Chilled Food 8 °C / 47 °F. Frozen food Solid with no signs of defrosting.	Food temperature monitored from each delivery of Potentially Hazardous foods. (Physical inspection of frozen products.)	If above 8 °C / 47 °F reject product. If frozen product shows signs of defrosting, these should be rejected.	Verify critical limits are being achieved through thermometer / gauge, calibration, records review, staff interviews, temperature spot checks and that the system is fully operational.	Maintain records of goods receipt on file.
4 14 21	Storage / Final Holding	<u>Biological</u> : growth of pathogens	Potentially hazardous food to be stored under refrigeration.	CCP 2	Critical limit 8 °C / 47 °F for chilled food or national standards where stricter.	Refrigerator gauges monitored either by continuous recording or manually daily or at a frequency considered effective.	Where refrigeration temperatures rises above critical limit above 8 °C / 47 °F check food temperature. Where food temperature rises above 8 °C / 47 °F discard food.	Verify critical limits are being achieved through thermometer / gauge, calibration, records review, staff interviews, temperature spot checks and that the system is fully operational.	Maintain documentation to prove continuous readouts and / or manual temperature records.
11 28	Cooking / Cooking on Board	<u>Biological</u> : growth of pathogens	<i>Fully cooked.</i> Raw foods of animal origin to be cooked to safe core temperatures <i>Seared foods.</i> Raw whole muscle foods to be seared to achieve colour change on all outer surfaces.	CCP 3	For minimum cooking temperatures refer to Chapter 7 or apply national standards where stricter.	<i>Fully cooked.</i> Temperature probing of products at the end of the cooking process of each batch. <i>Seared foods.</i> Physical inspection of total surface of product to ensure all outer surfaces are fully seared.	<i>Fully cooked.</i> Continue cooking until temperature requirements are met. <i>Seared foods.</i> Continue cooking until outside surfaces are fully seared.	Verify critical limits are being achieved through thermometer / gauge, calibration, records review, staff interviews, temperature spot checks and that the system is fully operational.	Records of core temperature or physical inspection where appropriate for seared items. Measurement at end of cooking time to be maintained.

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Step No	Process Step	Hazard	Control Measures	CCPs	Critical Limits	Monitoring Procedures / Frequency	Corrective Actions	Verification	Records
12 13	Chilling / Freezing: (Rapid Cooling)	<u>Biological</u> : growth of spore forming pathogens	Food must be rapidly chilled after cooking.	CCP 4	Product to reduce in core temperature from 60 °C / 140 °F as follows, or national standards where stricter. 60 °C / 140 °F to 10 °C / 50 °F in 4 hours or 60 °C / 140 °F to 5 °C / 41 °F in 6 hours	Time and core temperature of rapid chilling to be measured at start and finish of process.	Dispose of product and conductor assessment cooling method where the cooling regime has not been met.	Verify critical limits are being achieved through thermometer / gauge, calibration, records review, staff interviews, temperature spot checks and that the system is fully operational.	Record time and temperature of product whilst being rapidly cooled. Maintain on file.
15 16 17 20	Handling of ready-to-eat food, e.g. Meal Assembly Portioning Traysetting	<u>Biological</u> : growth of pathogens	Control of food temperature or time of exposure to ambient temperature during handling is required, unless it can be demonstrated that the food temperature will not exceed 8 °C / 47 °F (e.g. for portioning of frozen food, or if ambient temperature is at 8 °C / 47 °F or below)	CCP 5	<u>Temperature as critical limit.</u> Ambient temperature above 15 °C / 59 °F, food temperature must not exceed 15 °C / 59 °F. Or <u>Time as critical limit</u> Ambient temperature above 15 °C / 59 °F, exposure time must not exceed 45 minutes. Or Ambient temperature 8 °C / 47 °F to 15 °C / 59 °F, exposure time must not exceed 90 minutes. Or <u>Exemption</u> Where ambient temperature is below 8 °C / 47 °F no time or temperature recording on food is required	<u>Temperature as critical limit.</u> Check food temperature at end of process. (Note: It is not necessary to check time.) Or <u>Time as critical limit</u> Check time at start and end of process. (Note: It is not necessary to check food temperature.) Or Check time at start and end of process. (Note: It is not necessary to check food temperature.)	<u>Temperature as critical limit.</u> Where temperature has been selected as the critical limit. If the food exceeds 15 °C / 59 °F product must be discarded. Or <u>Time as critical limit</u> Where time has been selected as the critical limit then food exposed for more than 45 minutes must be discarded. Or If food exposure time exceeds 90 minutes the product must be discarded.	Verification critical limits are being achieved through thermometer / gauge, calibration, records review, staff interviews, temperature spot checks and that the system is fully operational.	Maintain records of time or temperature exposure of food in preparation on file. For time monitoring, if ambient temperature of the room is less than 15°C / 59°F documentation of ambient room temperature should be maintained.

6. Food Safety Process Table – Standard Operating Procedures (SOP)

Standard Operating Procedures are defined as universal steps or procedures that control the operational conditions within a food establishment allowing for environmental conditions that are favourable to production. The importance of Standard Operating Procedures cannot be overstated, together with the HACCP plan they form the foundations of food safety. When documenting Standard Operating Procedures, the frequency of monitoring and corrective action must be included.

Step No.	Process Step	Hazard	Control Measures
1	Menu specification	Biological, Chemical, Physical	<ul style="list-style-type: none"> - Identify hazardous ingredients (see Hazardous Meal Ingredients list) - Product specifications to be available upon request from the supplier - Customer consultation during menu presentation.
2	Purchasing	Biological, Chemical, Physical	<ul style="list-style-type: none"> - Caterer to have a proven system of supplier approval based on the assessment of hazards and risk of product. - Minimize use of product, which contains packaging of glass, staples, wood etc. - Product specifications to be available for potentially hazardous foods. - Appropriate training of Purchasing staff.
3	Goods Receipt	Biological, Chemical, Physical	<ul style="list-style-type: none"> - Monitoring of quality parameters of incoming goods (i.e. physical inspection to ensure package integrity, no non-characteristic odours, product and date labelling requirements). - Manufacturers' storage guidelines applied.
4 B	Storage, freezing	Biological	<ul style="list-style-type: none"> - Maintain in a frozen state.
5	Storage – dry goods	Biological, Chemical, Physical	<ul style="list-style-type: none"> - Correct food storage practices. - Effective housekeeping/cleaning, pest control, stock rotation practices and separate chemical storage.
6	Wash/Sanitise –raw fruits and vegetables	Biological, Chemical, Physical	<ul style="list-style-type: none"> - Effective supplier management program. - Effective wash and sanitize (where permitted) produce that will not undergo further heat processing - Good personal hygiene practices - Segregated storage of washed/unwashed produce to prevent cross-contamination.
7	Thawing – raw foods	Biological: growth of pathogens	<ul style="list-style-type: none"> - Process step not critical as followed by CCP 3 Cooking. - Effective stock rotation through use of labels showing date from freezer. - Product to be thawed preferably under refrigerated conditions.
8	Thawing – ready-to-eat foods	Biological: growth of pathogens	<p>Thawing under refrigeration</p> <ul style="list-style-type: none"> - Process step not critical as thawed food is controlled by CCP 2 Cold Storage. - Effective stock rotation through use of labels showing date from freezer. - Product to be thawed preferably under refrigerated conditions and being maintained at maximum 8 °C / 47 °F. <p>Thawing using other approved methods</p> <ul style="list-style-type: none"> - see methods under Thawing section

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Step No.	Process Step	Hazard	Control Measures
9	Preparation – raw food	Biological Chemical Physical	<ul style="list-style-type: none"> - Ensure segregated handling of raw and ready-to-eat products to prevent cross-contamination. - Ensure food contact surfaces are maintained in a clean condition. - Food to be date-labelled and FIFO applied. - Effective wash and sanitise (where permitted) of fruits and vegetables that will not undergo further heat processing. - Food-safe chemicals should be used for sanitising at correct concentrations. - Product to have been decanted from outer packaging.
14	Storage after rapid cooling	Physical Biological	<ul style="list-style-type: none"> - Food to be covered to prevent physical contamination. - Date labeling to be applied to facilitate FIFO. - Recommended maximum shelf life from production to despatch 72 hours.
15 16 17 20	Preparation, Assembly, Trayset	Biological: growth of pathogens Physical	<ul style="list-style-type: none"> - Effective labeling/dating coding and stock rotation, in line with established internal food safety systems, see Section 10. - Minimise external packaging material. - Prevention of food contamination with foreign objects. - Effective housekeeping/cleaning, equipment sanitation, pest control program, equipment storage.
19	Reheating – for hot delivery to the aircraft	Biological Physical	<ul style="list-style-type: none"> - Product to be reheated rapidly to a temperature of 74 °C / 165 °F and held hot in a suitable container. - Food to be covered and protected from contamination.
22	Despatch	Biological	<ul style="list-style-type: none"> - Correct food refrigeration practices. - Temperature of potentially hazardous foods to be measured prior to despatch. - Food temperature prior to despatch max. 8 °C / 47 °F or national standards where stricter.
23 24	Transportation / Aircraft loading	Physical	<ul style="list-style-type: none"> - Foods to be covered or protected from physical contamination. - Target temperature 10 °C / 50 °F or less.
25	Storage – on board	Biological, Chemical, Physical	<ul style="list-style-type: none"> - Correct food storage practices (stored in sealed, lidded or covered containers and segregated as required). - Effective housekeeping/cleaning, pest control procedures. - Correct temperature control.
26	Preparation – onboard	Biological, Chemical, Physical	<ul style="list-style-type: none"> - Effective crew training to ensure safe food handling practices. - Segregated storage of food and chemicals.
27	Reheating – onboard	Physical	<ul style="list-style-type: none"> - Food to be covered and protected from contamination.
29	Service - onboard	Physical	<ul style="list-style-type: none"> - Foods to be covered or protected from physical contamination. - Effective crew training to minimise cross-contamination.
30	Strip aircraft	No hazards identified	
31	Equipment wash	Biological, Physical	<ul style="list-style-type: none"> - Effective washing and sanitising procedures for inbound equipment. Monitoring of sanitising step by temperature gauge inspection, thermolabels or other means of effective monitoring at 71 °C / 160 °F at equipment surface or final rinse water temperature of 82 °C / 180 °F. If a chemical sanitizer is used, it must be used in accordance with the manufacturer's specifications. - Effective cleaning/maintenance program of dishwashers. - Equipment to be washed on a FIFO basis unless operational requirements dictate otherwise. - To prevent cross-contamination, clean and soiled equipment should be segregated.
32	Equipment / Pot Wash	Biological, Physical	<ul style="list-style-type: none"> - Cleaning and sanitising procedure documented for all equipment. - All food contact surfaces must be cleaned, rinsed then sanitised by heat or chemical sanitisation.

Process step numbers refer to those described on Figure 1. Example Process Flow Diagram.

7. Critical Control Points

CCP 1 Control at Food Receiving	
Purpose	To verify safe food temperature control during transport from the supplier.
Scope	Deliveries of refrigerated and frozen potentially hazardous foods.
Critical Limit	Refrigerated foods shall be delivered at a maximum of 8 °C / 47 °F. Frozen foods shall be hard frozen and without signs of previous thawing at time of delivery.
Monitoring	Food temperature to be monitored from each delivery of refrigerated potentially hazardous food.
Corrective Action	Reject deliveries where temperatures do not meet the critical limit.
Physical Audit	Verify control and control documentation on possible deliveries taking place at the time of the audit. I. Assess Receiving Control by observation. II. Identify representative samples of foods in refrigerator and confirm on control checklist that respective <i>deliveries to which these foods</i> belong were controlled at time of receiving. Note: Each delivery of refrigerated and frozen food must be controlled, but not necessarily each food of a given delivery.
Paper Audit	Select at random in refrigerators and freezers foods having been delivered and verify control of corresponding deliveries.

CCP 2 Control of Temperature of Refrigerators	
Purpose	To prevent growth of pathogenic microorganisms to harmful levels during storage.
Scope	Refrigerators for food storage.
Critical Limit	Critical limit 8 °C / 47 °F
Monitoring	Refrigerator gauges monitored either by continuous recording or manually daily or at a frequency considered effective.
Corrective action	Where refrigeration temperatures rises above 8 °C / 47 °F check food temperature. Where food temperature rises above 8 °C / 47 °F discard food - allowance must be made for food which has been returned following recent handling at ambient temperatures.
Physical Audit	Check temperatures of randomly selected refrigerators. I. Check gauge temperatures during tour of unit. If significant deviations are noticed, verify over next 1-2 hours that corrective action is initiated. II. Electronic surveillance: Verify that a procedure/schedule for monitoring screen or prints is in place and / or that an alarm system is active. Manual surveillance: Verify procedure for control per shift or other appropriate time period.
Paper Audit	Verify completion of documentation for randomly selected refrigerators.

CCP 3 Control of Food Cooking															
Purpose	To ensure destruction/reduction to safe levels of pathogenic bacteria, viruses and parasites.														
Scope	High-risk raw foods of animal origin.														
Procedure	<p>Minimum required core temperatures:</p> <table border="0"> <tr> <td>Poultry</td> <td>74 °C / 165 °F</td> </tr> <tr> <td>Meats¹</td> <td>65 °C / 158 °F</td> </tr> <tr> <td>Meats, comminuted²</td> <td>74 °C / 165 °F</td> </tr> <tr> <td>Fish, Shell fish, Crustaceans</td> <td>65 °C / 149 °F</td> </tr> <tr> <td>Fish, shell fish, comminuted²</td> <td>70 °C / 158 °F</td> </tr> <tr> <td>Un-pasteurized Eggs³</td> <td>74 °C / 165 °F</td> </tr> <tr> <td>Un-pasteurized Dairy³</td> <td>72 °C / 161 °F</td> </tr> </table> <p>Whole-muscle⁴ beef, lamb, fish seared on all external surfaces to effect a cooked colour change</p>	Poultry	74 °C / 165 °F	Meats ¹	65 °C / 158 °F	Meats, comminuted ²	74 °C / 165 °F	Fish, Shell fish, Crustaceans	65 °C / 149 °F	Fish, shell fish, comminuted ²	70 °C / 158 °F	Un-pasteurized Eggs ³	74 °C / 165 °F	Un-pasteurized Dairy ³	72 °C / 161 °F
Poultry	74 °C / 165 °F														
Meats ¹	65 °C / 158 °F														
Meats, comminuted ²	74 °C / 165 °F														
Fish, Shell fish, Crustaceans	65 °C / 149 °F														
Fish, shell fish, comminuted ²	70 °C / 158 °F														
Un-pasteurized Eggs ³	74 °C / 165 °F														
Un-pasteurized Dairy ³	72 °C / 161 °F														
Monitoring	Check food core temperature upon completion of cooking or surface colour change where food has been seared.														
Corrective Action	If critical limit is not met, re-cook until limit is met.														
Physical Audit	<p>Select at random some foods being cooked and verify compliance by end temperature monitoring.</p> <ol style="list-style-type: none"> I. Verify compliance with batch control principle for high-risk raw foods in general, particularly for batches of raw poultry, eggs and minced meats. II. Monitor by use of probe thermometer compliance with critical limit on possible batches of poultry, eggs and minced meats being cooked at time of inspection. III. Verify complete cooking of poultry and minced meat products by cutting through a piece and confirm fully cooked meat colour. IV. Randomly monitor by use of probe thermometer cooking of other raw <i>high-risk</i> foods such as pork, fish, shellfish. V. Identify representative samples of food in refrigerator and verify control documentation for these batches 														
Paper Audit	Select at random some foods and verify control documentation.														

¹ include beef, pork, lamb and other meats, which are not whole-muscle or comminuted.

² include ground, minced, re-formed, tumbled meats.

³ use of these products is not recommended, see Hazardous Ingredients List

⁴ includes filet (tenderloin), sirloin, loin of lamb etc.

CCP 4 Control of Food Chilling	
Purpose	To prevent harmful growth of vegetative pathogenic bacteria during post-cook chilling process.
Scope	Potentially Hazardous Foods, cooked in-house.
Critical Limit	Food temperature (core) to pass temperature interval of 60 °C / 140 °F to 10 °C / 50 °F within 4 hours Or 60 °C / 140 °F to 5 °C / 41 °F within 6 hours.
Monitoring	Check food core temperature at the thickest part of the product at start and finish of process following initiation of the chilling process.
Corrective action	Dispose of product and conduct reassessment cooling method where the cooling regime has not been met.
Physical Audit	Select at random some foods (preferably dense*) being chilled and verify compliance by time/temperature monitoring. I. Verify by visual observation general quality and reliability of chilling procedure. II. If available verify compliance by control of dense* cooked foods presently being chilled. III. Identify representative samples of dense food batches in refrigerator and verify control documentation for these batches *dense products such as cooked rice, pasta, stews, sauces
Paper Audit	Select at random some foods in refrigerator having been cook/chilled within the past 24 hours and verify control documentation.

CCP 5 Control of Food Handling	
Purpose	To prevent growth of pathogenic microorganisms to harmful levels during handling.
Scope	Potentially Hazardous Foods.
Critical Limit	<p><u>Temperature as critical limit.</u> Ambient temperature above 15 °C / 59 °F, food temperature must not exceed 15 °C / 59 °F.</p> <p>Or</p> <p><u>Time as critical limit</u> 1. Ambient temperature above 15 °C / 59 °F, exposure time must not exceed 45 minutes.</p> <p>Or</p> <p>2. Ambient temperature 8 °C / 47 °F to 15 °C/ 59 °F, exposure time must not exceed 90 minutes.</p> <p>Or</p> <p><u>Exemption</u> Where ambient temperature is below 8 °C / 47 °F no time or temperature recording on food is required</p>
Monitoring	<p><u>Temperature as critical limit.</u> Check and record food temperature at end of process. (Note: It is not necessary to check time.)</p> <p>Or</p> <p><u>Time as critical limit</u> Check and record time at start and end of process. (Note: It is not necessary to check food temperature.)</p> <p>Or</p> <p><u>Exemption</u> Where ambient temperature is below 8 °C / 47 °F no time or temperature recording on food is required</p>
Corrective action	If critical limit is exceeded, discard food.
Physical Audit	Randomly select foods/meals batches and verify compliance by temperature or time monitoring.
Paper Audit	Randomly select foods in refrigerators and verify control documentation.

8. HACCP Verification

The purpose of verification activities is to confirm that the HACCP plan is working according to expectations.

Verification may be achieved by various tools and techniques, of which *internal audits*, including records review and *microbiological analysis* are among the most important.

Audits

Audits are systematic and independent examinations to determine whether activities and results comply with the documented procedures; also whether these procedures are implemented effectively and are suitable to achieve the objectives.

Internal Audits

Internal audit elements include review of the HACCP plan, Process Flow Diagram, CCP and SOP procedures as well as inspection of control procedures.

Recommended audit frequency depends upon the type of operation, but quarterly frequency is considered sensible. The audit may take place in full or in parts over a certain time period.

External Audits

External audits by customers and authorities may independently provide information relevant to the verification process, but may not replace the internal audit as a verification tool.

Records Review

Review of control records is important in order to assess whether the records have been kept correctly, at the appropriate frequency and whether the results are reliable and in compliance with critical limits and other criteria.

Auditors should confirm that the records represent a true record of the operation's performance.

Not least verification of reliability is relevant. Unfortunately auditors often face checklists the results of which are uniform to a degree, which allows only one conclusion, namely that results are false. Considering the importance of food safety and the resources invested in its control obviously unreliable control practices should not be accepted by auditors.

Microbiological testing

The limited value of microbiological testing *as control method* is confirmed by various scientific sources, e.g. ICMSF Micro organisms in Foods Volume 4 Application of HACCP, whereas use of microbiological testing is recommended *as a verification tool* (refer to Chapter 9).

9. Microbiological Analysis

The limited value of microbiological testing as *control method* is confirmed by various scientific sources, e.g. ICMSF Micro organisms in Foods Volume 4 Application of HACCP, whereas use of microbiological testing is recommended as a *verification tool*.

Scope of analysis includes:

In-house produced ready-to-eat foods

Purchased ready-to-eat foods

Potable Water

Microbiological cleaning control

In-house produced ready-to-eat foods.

Random sampling and analysis of a limited number of potentially hazardous ready to eat foods may provide valuable information regarding effectiveness and reliability of in-house control procedures.

If internal audit, including records verifies safe procedures *and* results of analysis of in-house produced foods are satisfactory. The auditor has verified that control system works according to expectations at time of audit.

If internal audit, including records verifies safe procedures and results of analysis of in-house produced foods identify unsafe food properties, the auditor has detected weaknesses in the control system, which must be located and identified.

Testing frequency depends on the performance of the control system as assessed by internal audit, as well as other factors such as number and frequency of alleged or confirmed food safety related customer complaints. Food safety related customer complaints may indicate the need for additional microbial testing even when other records confirm satisfactory control.

Purchased ready-to-eat foods

Microbiological testing of purchased ready-to-eat foods is often the most appropriate option for verification of safety of product, as alternatives may be costly audits of remotely located manufacturers.

Frequency of testing should be determined primarily by performance history, such as alleged or confirmed problems with the purchased product in question, expressed through customer complaints or in-house observations.

Water

Microbiological analysis is the most appropriate method of verification of safety of potable water. Analysis may be performed by health authorities or by caterer.

Microbiological cleaning control

Visual assessment may verify whether cleaned food contact surfaces such as table tops, processing machines and utensils etc are visually clean.

Swab tests and impression tests are excellent tools for verification of microbiological cleanliness of such surfaces.

IFSA and AEA World Food Safety Guidelines

Microbiological “guidelines” tabulated below are for guidance and do not have legal standing. Where a country has published legal standards or criteria, then that country’s standards must apply. Where a country’s standards or criteria are stricter than the guidelines below, then the country’s standards must apply. For many countries, microbiological standards, criteria or guidelines have been published for particular food types such as dried milk, pasteurised milk, meat, egg products and shellfish. However, due to the complexity and range of menus that a single caterer may produce, the guidelines below refer to broad categories of ready-to-eat foods at the point of sale, sourced from available literature and do not include guidelines for in-process testing.

Microbiological methods used:

Internationally or nationally approved or recommended testing methods should be used.

Microbiological Guidelines for Ready-to-eat Foods¹

Category	APC	E. coli	Coliforms	S. aureus	B. cereus	Salmonella	Cl. perf	V. parahaem	C. jejuni
Heat-treated foods	<10 ⁶	<10	<10.000	<100	<1000	Absent in 25 g	<10.000	Absent in 25 g	Absent in 25 g
Fruits and vegetables	N/A	<10	N/A	<100	<10,000	Absent in 25 g	<10.000	N/A	Absent in 25 g
Fermented foods	N/A	<10	<10.000	<100	<1000	Absent in 25 g	<10.000	N/A	Absent in 25 g
Water and Ice ²	N/A	Absent in 100 ml	Absent in 100 ml	N/A	N/A	N/A	N/A	N/A	N/A

¹ Ready-to-eat foods include heat-treated (cooked, baked, pasteurized) foods of animal and vegetable origin, cleaned raw vegetables and fruits, fermented and / or smoked foods, water and ice.

^{2/3} as per Guidelines for Drinking Water Quality, second edition, World Health Organisation (1993)

	Heat treated foods	Fruits & vegetables	Fermented food	Water and Ice ²
Aerobic Plate Count	< 10 ⁶ /gram	Not applicable	Not applicable	Not applicable
Coliforms	< 10.000 /gram	Not applicable	< 10.000 /gram	Absent in 100 ml
E.coli	< 10 /gram	< 10 /gram	< 10 /gram	Absent in 100 ml
Staphylococcus aureus	< 100 /gram	< 100 /gram	< 100 /gram	Not applicable
Salmonella	Absent in 25 grams	Absent in 25 grams	Absent in 25 grams	Not applicable
Bacillus cereus	< 1.000 /gram	< 10.000 /gram	< 1.000 /gram	Not applicable
Clostridium perfringens	< 10.000 /gram	< 10.000 /gram	< 10.000 /gram	Not applicable
Vibrio parahaemoliticus ¹	Absent in 25 grams	Not applicable	Not applicable	Not applicable
Campylobacter jejuni ²	Absent in 25 grams	Absent in 25 grams	Absent in 25 grams	Not applicable

Selection of tests:

For routine screening, primary indicators such as Aerobic Plate Count, Coliforms or Enterobacteriaceae and *E. coli* should be included.

Pathogenic bacteria of concern vary depending upon the food type. The following table provides general guidance that may assist caterers in selecting the most applicable tests to optimise the microbiological testing program.

Common pathogens of concern						
Food	<i>Salmonella</i>	<i>C. jejuni</i>	<i>B. cereus</i>	<i>Vibrio</i>	<i>Cl. perfringens</i>	<i>S. aureus</i>
Meats	X				X	X
Fish				X		X
Poultry	X	X				X
Eggs	X	X				X
Cereals			X			X
Vegetables	X					X

References:

1. Association of the European Airlines (1999) Microbiological Standards
2. Forsythe S.J & Hayes P.R. (1998) Food Hygiene, Microbiology and HACCP. Aspen Publishers, Gaithersburg.
3. Gilbert R.J. et al, (2000) Guidelines for the microbiological quality of some ready-to-eat foods sampled at the point of sale, PHLS Advisory Committee for Food and Dairy Products.
4. Mortimore, S. and Wallace, C (1998) HACCP A practical approach. 2nd Ed. Aspen Publishers, Gaithersburg.
5. WHO (1997) HAZARD ANALYSIS AND CRITICAL CONTROL POINT (HACCP) SYSTEM AND GUIDELINES FOR ITS APPLICATION Annex to CAC/RCP 1-1969, Rev. 3 (1997)
6. WHO (1998) Guidance on regulatory assessment of HACCP. Report of a Joint FAO/WHO Consultation on the role of Government Agencies in Assessing HACCP.

10. Standard Operating Procedures (SOPs)

Standard Operating Procedures are defined as universal steps or procedures that control the operational conditions within a food establishment allowing for environmental conditions that are favourable to production. The importance of Standard Operating Procedures cannot be overstated, together with the HACCP plan they form the foundations of food safety management. When documenting Standard Operating Procedures (SOPs), the frequency of monitoring and corrective action must be included.

They are also often described as Support Programs, Prerequisite Programs or Good Manufacturing Practice (GMP).

It is advisable to adopt a consistent approach to the documentation of the key elements of SOPs. Therefore it is recommended that the following headings / layout may be encompassed:

Purpose: This should define what is to be achieved or the desired outcome.

Scope: Extent to which the procedure will be applied.

Procedure: This should define how the outcome is to be achieved.

A. Health Monitoring

Employee Health Regarding Transmissible Diseases:

Purpose:

To prevent the transmission of pathogenic microorganisms from infected employees to food.

Scope:

This policy applies to employees who have direct manual contact with unpackaged food.

Procedure:

Employees and potential employees with direct manual contact with unpackaged food shall be questioned regarding symptoms of intestinal and skin infections prior to employment. Thereafter they should be required to report symptoms and shall be reminded on an annual basis.

Control at recruitment and subsequent employment.

Applicant/employee shall complete Questionnaire for Food handlers.

If applicant / employee confirms suffering from any of the above symptoms, they shall not be employed for food handling until examined and subsequently cleared by a medical professional. Provided confirmation by medical authority they may be employed in a non-food handling position while awaiting clearance by the medical authority.

Visitors:

- **Risk Assessment of harmful food contamination from visitors**

Visitors may touch and eat special food samples for presentation etc, but they do normally not have direct contact with meals for passengers and crew.

Accordingly risk of microbial contamination from visitors to meals for passengers and crew is negligible.

- **Preventive Measures**

Harmful contamination of food from visitors to food handling areas shall be prevented by one of the following measures:

1. Visitor completes of Company Health Questionnaire before entry **or**
2. Visitor presented with written instruction before entry **or**
3. Visitor presented with verbal instruction before entry

Audit:

Check during paper audit that the process is being followed, *especially with regard to responsibility to report symptoms of skin and intestinal infection*. Infection control procedure may be separate or included in training, which should be accepted provided that the message is clear and that staff somehow acknowledges, e.g. by their signature, having understood the message. *Be aware that national legislation on infection control varies greatly, and that legislation may not allow certain sub-procedures, such as requiring employees to disclose previous or present diagnoses*. Auditor may verify understanding by questioning employees during the audit.

B. Personal Hygiene

General Guidelines for employees and visitors to areas where open food is handled.

Purpose:

To ensure good hygiene practices by employees and visitors.

Scope:

All employees and visitors.

Procedure:

- **Protective Clothing:**

Suitable, company issued, clean protective clothing shall be worn.

- **Laundry:**

The Company is to ensure protective clothing worn by staff handling open food is commercially laundered.

Provision should be made for the storage of clean protective clothing to prevent contamination. Adequate provision should be made for the complete segregation between clean and soiled protective clothing. A designated area for the returned soiled clothing is recommended.

- **Staff Change Facilities:**

Personal lockers should be provided for both male and female staff to secure personal possessions. Lockers should be used for the storage of external personal clothing. Clean or soiled protective clothing should not be stored inside lockers. Periodic checks should be carried out by management to ensure compliance.

- **Protective Hair Covering:**

Disposable protective hair covering should be worn by all persons working in or entering areas for handling of open food. Suitable head covering should be provided and worn correctly to ensure complete enclosure of hair. Beards should be covered with snoods.

- **Personal Hygiene:**

Employees, visitors and contractors should be requested to wash their hands prior to entering areas for handling of open food.

Fingernails shall be kept short, clean and unvarnished. False fingernails are not permitted. Visitors will be asked to wear gloves if wearing false fingernails or nail varnish. Gloves, if worn, should be suitable, disposable, changed frequently and their disposal controlled to avoid product contamination.

Cuts and grazes on exposed skin should be covered with a company-issued blue or appropriate coloured waterproof dressing.

- **Jewellery:**

All employees to observe catering company rules on jewellery when in food production areas.

- **Eating, Drinking or Smoking:**

Staff and visitors should be advised that eating, drinking and smoking is strictly restricted to designated areas e.g., staff canteen.

Audit:

Verify good hygiene practices.

C. Food Safety Training

Purpose:

Training and ongoing refresher training to provide job specific knowledge and skills required to ensure preparation of safe food.

Scope:

Employees and management require food safety training specific for their jobs.

Procedure:

- **New employee training:**

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- *Management* must be trained to have a good understanding of Food Safety procedures.
- *Employees* require training specific to their job.
- **Refresher Training:**
 - At a frequency to be determined by the caterer
 - Updates knowledge and skills
 - Provide an ongoing reminder of all food safety procedures

Audit:

- Verify existence of an organized training procedure.
 - Check for training records (hard copy or a computer record on a training database).
 - Verify that training provides basic understanding as well as basic control competence relevant to the job, for example by observing or talking to food handlers during inspection.
- If the above elements are verified, the training procedure should be accepted.

D. Hazardous Meal Ingredients

Purpose:

To prevent use of ready-to-eat meal ingredients which by their nature may constitute a food safety risk to the consumer.

Scope:

Ready-to-eat meal ingredients

Procedure:

The prevention of use of hazardous ingredients must be considered during meal development, procurement, menu presentation and on-going operation.

The following table, which is not exhaustive, provides guidance as to meal ingredients and possible hazards:

	Food Type	Examples of Possible Hazard(s)
1	Raw meat, fish or shellfish such as sashimi, carpaccio, poisson cru, oysters, mussels, clams, cockles and fish roe.	Bacterial / viral and parasitic pathogens
2	Fish likely to be contaminated with ciguatera toxin. These include fish from tropical reefs of the Pacific, West Indies and Florida. Species to be avoided may include: Amberjack (<i>Seriola lalandei</i>), Barracuda (<i>Sphyrnaidae</i>), Spanish Mackerel (<i>Scromberomorus sierra</i>), Coral Trout, large Snappers (<i>Lutjanidae</i>), large Groupers, Moray Eel and Flowery Cod. This list is not exhaustive.	Ciguatera toxin.
3	Any menu item that contains uncooked or lightly cooked shell eggs.	<i>Salmonella</i> species.
4	Raw alfalfa sprouts, bean sprouts, any other sprouts or fresh herb garnishes that cannot be readily washed and sanitised.	<i>E.coli</i> , <i>Salmonella</i> species, <i>Listeria monocytogenes</i> .
5	Poisonous fungi, inedible flowers and plants.	Toxins.
6	Aspic glaze, except when gelatine is used as an essential and integral part of a cooked food such as terrine.	Excellent growth medium and if contaminated a microbiological hazard.

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	Food Type	Examples of Possible Hazard(s)
7	Unpasteurized dairy products made from raw milk, such as soft cheese.	<i>E.coli</i> , <i>Salmonella</i> species, <i>Listeria monocytogenes</i> .
8	Unpasteurized fruit, vegetable and other juices.	<i>E.coli</i> , <i>Salmonella</i> species, <i>Listeria monocytogenes</i> and viruses.
9	Raw coconut, e.g. desiccated coconut when used as a garnish, decoration or in uncooked desserts.	<i>Salmonella</i> species.
10	Miscellaneous foods to be aware of e.g. undercooked red kidney beans.	Haemagglutinating lectins in kidney beans,

Attention should also be focused upon other food products, which pose a health hazard to specific consumer segments, i.e. allergens and caterers are advised to observe possible governmental directives and the requirements of their individual airline customers on this issue.

Audit:

Verify absence of restricted ingredients at time of meals presentation, menu design or similar.

E. Supplier Approval

Purpose:

To ensure safety of purchased foods, a procedure of assessment and approval of food suppliers shall be documented.

Scope:

The primary target of the approval procedure is suppliers of potentially hazardous ready-to-eat food. This should be kept in mind during auditing.

Explanatory comments:

Microbiological hazards of *raw* foods are controlled by caterer's own control procedures i.e. cooking, chilling and segregation procedures, and in general terms approval audits of suppliers of raw foods are not justified by microbiological hazards.

It is completely different with *ready-to-eat* foods. Microbiological hazards of these foods can only be eliminated/controlled by manufacturer, thus the primary scope of supplier approval procedure is suppliers of high-risk ready-to-eat foods.

Approval of suppliers of *low-risk* foods is less important, as these foods do not frequently harbour microbiological pathogens.

Some low-risk foods may however be contaminated by foreign bodies, and verification of supplier's control of physical hazards may be required, but not necessarily by on-site audit e.g. by questionnaire.

Procedure:

Approval process may be performed by:

An *on-site audit*, including assessment of control system audit as well as a physical inspection of

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premises. Assessment may be done by a *system audit* (“paper audit”), consisting of an assessment of supplier’s food safety control, based on supplier’s description and documentation, *without* physical inspection of supplier’s premises.

Approval may also be performed by assessment of supplier’s possible certification/authorization by national authorities or by third party audits, when such certifications are well documented.

Approval frequency:

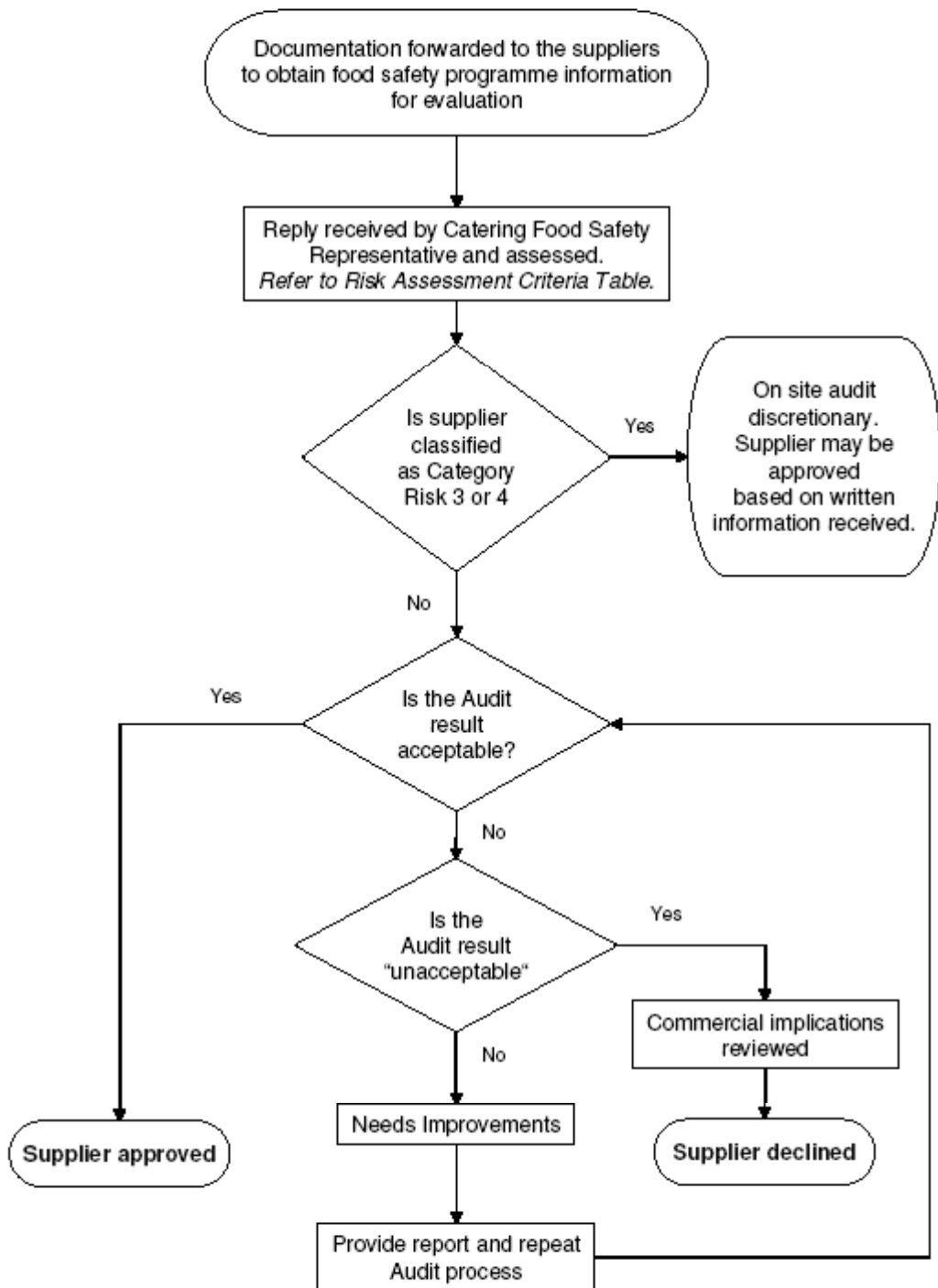
Suppliers of potentially hazardous ready-to-eat food should be approved before deliveries are commenced.

Initial approval should be regarded valid as long as supplier performance in terms of quality, safety and on-time performance remains satisfactory.

Audit:

Select at random a few purchased ready-to-eat foods and confirm approval.

Example of Supplier Approval



Process

Example of Risk Assessment Criteria:

Risk 1	Potentially hazardous food	Food that may contain pathogenic micro-organisms and supports the growth or formation of toxins of pathogenic micro-organisms i.e. foods that contain meat, fish, poultry or dairy products, and certain fruit and vegetable products, that have a pH and a_w that will allow growth. Potentially hazardous foods that are not normally subjected to further processing by caterer e.g. Oysters, milk, ready to eat foods such as meat, pies, hamburgers, prepared meals, dairy desserts, sushi.
Risk 1	Requires on site audit / verification	
Risk 2	Potentially hazardous foods	Foods that support the proliferation of micro-organisms i.e. food that contain meat, fish, poultry or dairy products, and certain fruit and vegetable products, that have a pH and a_w that will allow growth. Potentially hazardous foods that would normally be expected to receive further processing by Caterer e.g. Raw meat, poultry and fish, bacon, sausages intended for cooking i.e. breakfast sausages, frankfurters, uncooked fresh filled pasta.
Risk 2	Moderately hazardous food	Food occasionally contaminated with pathogenic micro-organisms, although will normally not support their growth. Moderately hazardous foods that are not normally subjected to further processing by Caterer e.g. shelf stable meat products i.e. salami, dairy products.
Risk 2	Requires on site audit / verification	
Risk 3	Moderately hazardous food	Food occasionally contaminated with pathogenic micro-organisms, although will normally not support their growth. Moderately hazardous foods that would usually receive further processing by Caterer e.g. vegetables requiring cooking before eating i.e. potatoes, pumpkin, dried pasta.
Risk 3	Low hazard food	Food not normally contaminated with pathogenic micro-organisms and would usually not support their growth (i.e. grains and cereals, carbonated beverages, confectionery – excluding dairy-based products). Low hazard foods that may or may not receive further processing by Caterer e.g. grains, nuts, confectionery, carbonated beverages, and jams.
Risk 3	Paper audit / on site audit discretionary.	
Risk 4	Food packaging	Food packaging, which would come into direct contact with food, must be food grade material, which will not leach any chemical content into the foods. Any purchasing / procurement contract for food packaging material must emphasise this point.

Reference:

Discussion paper on prioritization (risk) classification systems for food businesses 10/09/98. ANZFA (Industry Codes of Practice file) & The Priority Classification System for Food Businesses – ANZFA released 2000.

F. Stock Rotation / Date Coding

Purpose:

A system for identifying the age of food items so that the oldest stock is always used first and that all food items and in particular potentially hazardous foods are used within acceptable storage times.

Scope:

Stock rotation should be applied to all food items.

Procedure:

Stock rotation can be maintained and controlled by the use of various date coding procedures suitable for the specific step in the process. For example, bulk food items may have a manufacturer's product expiry date, which should be followed. In process food items should have an internal production / expiry date. It is particularly important to have a method of coding for those items bought in that are not required to be date labelled under applicable food legislation and for food items that are "in process".

• **Process Steps:**

The process steps typically requiring date coding but not restricted to for stock control purposes are:

- Receiving
- Storage prior to use in the kitchen
- Thawing
- Storage after cooking
- "in process" food items
- Assembly / Trayset
- Final Holding

• **Time Control:**

Caterer needs to establish standards of food storage to protect food safety and quality e.g.

- maximum 72 hours for hot food from cooking to scheduled time of departure.
- maximum 48 hours for cold food from start of preparation/end of thawing to scheduled time of departure

• **Shelf Life:**

Stable products like olives and gherkins, due to their pH value and / or water activity may have substantially longer shelf-life.

• **Date coding methods:**

The following are suggested methods but are not exhaustive. Many of the label options are commercially available as set out in product catalogues.

(See attached examples)

- Colour coding for the day of the week
- Date labeling
- Coloured marker pens that correspond to day of the week
- Manufacturers use by or best before

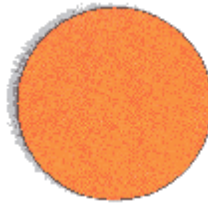
Whatever system is used it must be clearly documented in writing and for all staff should receive appropriate training on the correct use of the date coding system(s).

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Audit:

Verify by randomly selecting a representative sample in refrigeration

Examples of various styles of Colour Coded date labels are shown below:



SAT SABADO	ITEM: _____	
	EMP: _____	QTY: _____
	DATE: _____	<input type="checkbox"/> AM <input type="checkbox"/> PM
	USE BY: _____	<input type="checkbox"/> AM <input type="checkbox"/> PM



	DATE	HOUR
PULL		
THAW		
DISCARD		



G. Wash / Sanitize Raw Fruit and Vegetables

Purpose:

To ensure raw fruit and vegetables are thoroughly washed and or sanitized where permitted in order to remove dirt, insects and reduce bacteria levels, thereby ensuring safe product.

Scope:

All fresh fruit and vegetables should be washed in clean potable water. Where permitted a suitable sanitizer should be used in accordance with the manufacturer's instructions.

Procedure:

Cleaning and disinfection (where allowed) of raw fruit and vegetables:

Raw fruit and vegetables shall undergo the following steps of cleaning:

- F. Preparation (removal of damaged parts, major foreign bodies, separation of leaves etc.)
- G. Washing/ disinfection in a solution with concentration and contact times in accordance with manufacturer's instructions
- H. Rinse in potable water
- I. Inspect to verify cleanliness

Audit:

Verify compliance to the procedure. Check records of monitoring of the concentration of sanitizing solution.

H. Thawing

Purpose:

To control growth of pathogenic microorganisms during thawing of raw food for cook/chill and ready-to-eat foods. To ensure that ready-to-eat food is not contaminated by micro organisms during thawing.

Scope:

Thawing of raw food for cook/chill and ready-to-eat food above freezing point in accordance with an approved documented procedure.

Procedure:

Segregation between raw and ready-to-eat food must be maintained during thawing. The temperature of food surface must not exceed 8 °C / 47 °F. Thawed food must be labelled with appropriate day or date marking. (Label indicating the day it was removed from the freezer.)

The food must be temperature controlled after thawing. Thawed food must not be refrozen without heat treatment.

Approved Methods:

1. Under refrigeration below 8 °C / 47 °F no record required
2. At ambient temperature Control of food temperature and time exposure shall be recorded. The temperature of food surface must not exceed 8 °C / 47 °F.
3. In water Under running cool potable water food temperature and time exposure shall be recorded. The temperature of food surface must not exceed 8 °C / 47 °F. Risk of cross-contamination must be avoided by use of a clean, sanitized container or sink.
4. Cook from Frozen Continuous process where product is cooked from a frozen state.

Audit:

Review the thawing process and the labeling. Check temperatures and verify control documentation.

I. Cleaning and Sanitizing

Purpose:

To ensure that food contact surfaces are visually clean and sanitized.
To ensure that non-food contact surfaces are visually clean.

Scope:

Cleaning procedures include three main cleaning areas, namely:

- Pot wash: Cleaning of kitchen equipment and utensils
- Dish wash: Cleaning of airline tray equipment, trolleys and liquid containers
- Manual cleaning: main surfaces and equipment of food handling and storage areas.

Procedures:

1. Pot wash

The purpose of the pot wash is to ensure safe wash and disinfection of food equipment and utensils. Pot wash may be performed by manual procedure or by use of washing machine. The wash process shall include a step of disinfection/sanitizing by use of heat or by use of chemical. Disinfection by use of heat shall be verified by reaction of 71 °C / 160 °F thermo label or monitoring by thermometer. Disinfection by chemical shall be verified by monitoring and recording of the chemical concentration.

- **Storage of Clean Equipment**

Clean equipment shall be visually clean and stored as to permit quick drying, i.e. containers shall be stored upside down. Visibly dirty equipment should be removed for soaking.

2. Dish wash

Normal temperature of wash water 55 °C - 65 °C (130 °F - 150 °F).

Temperature of the final rinse water, as monitored on machine thermometer, shall comply with recommended temperature minimum of 82 °C (180 °F).

Or

The dish temperature at exit shall indicate a time/temperature treatment corresponding to low pasteurization as verified by positive reaction of 71 °C (160 °F) thermo label.

- **Storage of Clean Equipment**

Equipment shall be visually clean and stored as to permit quick drying and in a manner to avoid risk of contamination.

3. Manual Cleaning Procedures

- **Cleaning Program**

Cleaning shall be detailed in a program, specifying detergents and disinfectant concentration used, frequencies and responsibilities, cleaning instructions for specific equipment, which require dismantling.

- **Selection of Detergents**

Select detergents and detergents/disinfectants as follows:

- Weak alkaline ("universal") detergent for routine cleaning of premises and equipment.
- Acid detergent for scale removal
- Strong alkaline detergent for grease removal (e.g. ovens)
- Combined detergent/ disinfectant for food contact surfaces.

- **Selection of Disinfectants**

The following types of chemical disinfectants are approved for use:

- Chlorine compounds, preferably hypochlorite (bleach) or chloroisocyanurate
- Quarternary ammonium compounds
- Iodine compounds
- 70% alcohol preparations

- **Cleaning of food contact surfaces**

Cleaning of food contact surfaces shall include a disinfection step.

Disinfection may be achieved by application of chemical disinfectant after normal cleaning or by cleaning with a combined detergent / disinfectant.

- **Cleaning of non-food contact surfaces**

Non-food contact surfaces shall be visually clean after wash.

Audit:

Verify by visual observation cleanliness of washed equipment (food contact surfaces- dishes, utensils etc.) exiting machine.

Verify machine disinfection capacity

- by use of 71 °C / 161 °F thermolabel **or**
- by rinse temperature at 82 °C / 180 °F **or**
- by review of regular microbiological swab- or impression tests or similar testing.

J. Despatch, Transportation and Aircraft Loading

Purpose:

To minimize harmful growth of pathogenic microorganisms during despatch, transportation and aircraft loading.

Scope:

All potentially hazardous food (PHF) for consumption on aircraft.

Procedure:

To ensure that temperature of food prior to despatch does not exceed 8 °C / 47 °F.

It is recommended that temperature be taken inside final holding chiller (temperature measurement at point of despatch may not always be possible due to security regulations).

Transportation and loading of food is expedited in a way to avoid food temperature rise beyond recommended 10 °C / 50 °F.

Audit:

Verify that meal temperature is controlled at time of dispatch.

K. Delay Procedure

Purpose:

To outline the parameters used to make an assessment of food safety risk in the event of an aircraft departure delay.

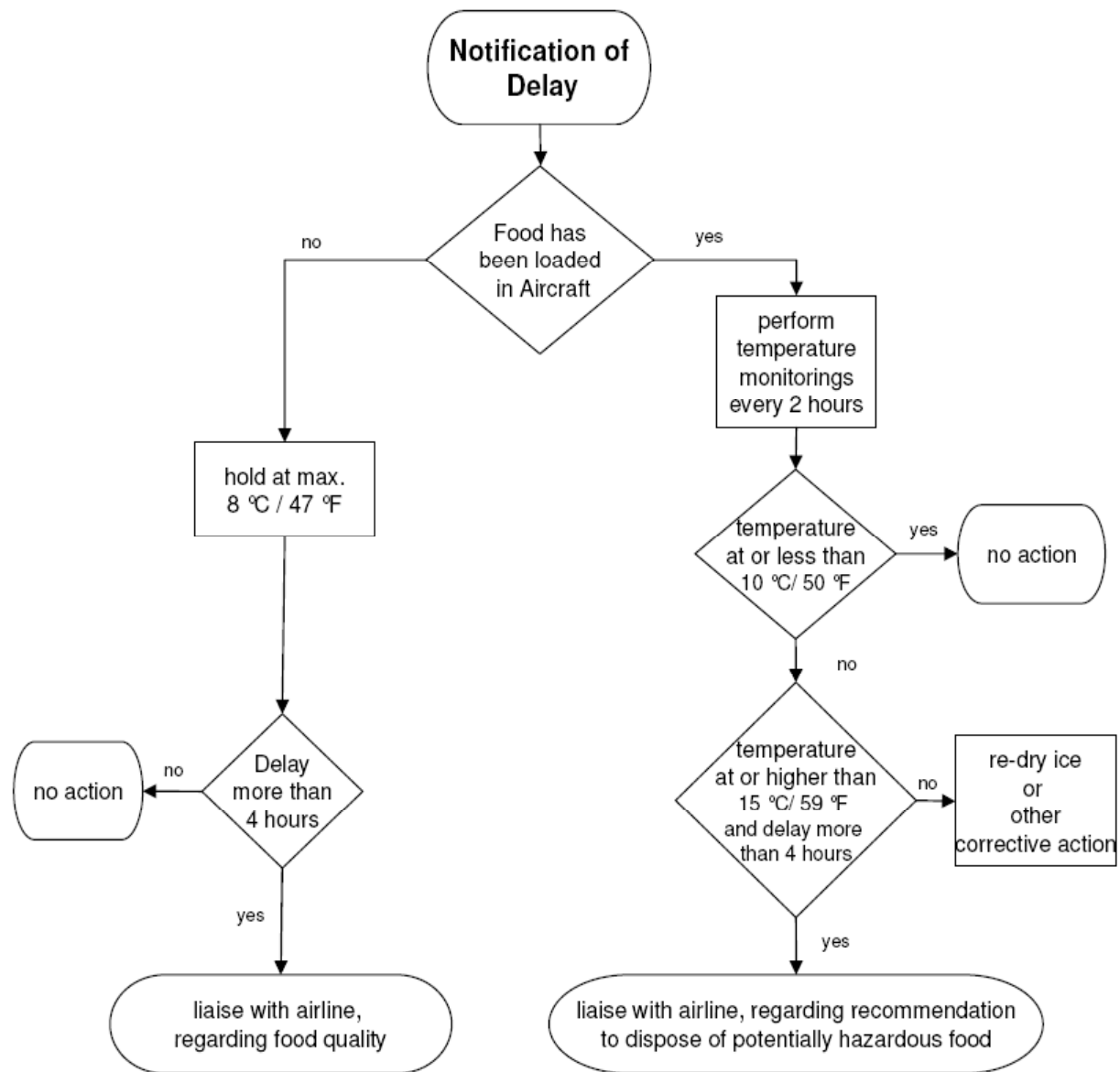
Scope:

Every notified delay has to be considered on a case-by-case basis.

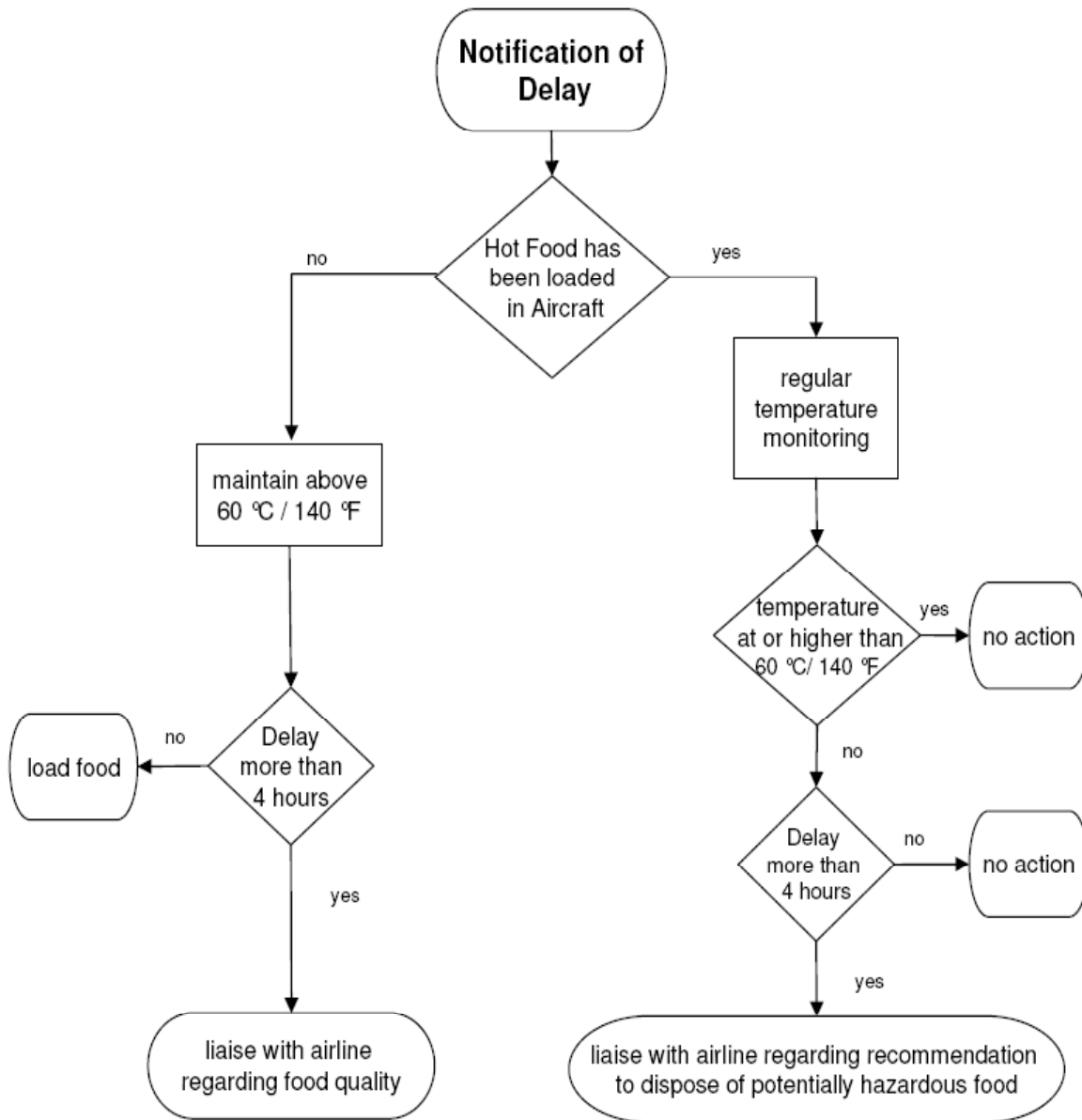
Procedure:

All data relating to times, food temperatures and decisions made must be documented.

Delay Procedure Flow Diagram
A: For meals loaded chilled



Delay Procedure Flow Diagram
B: For meals loaded hot



L. Product Recall Procedure

Purpose:

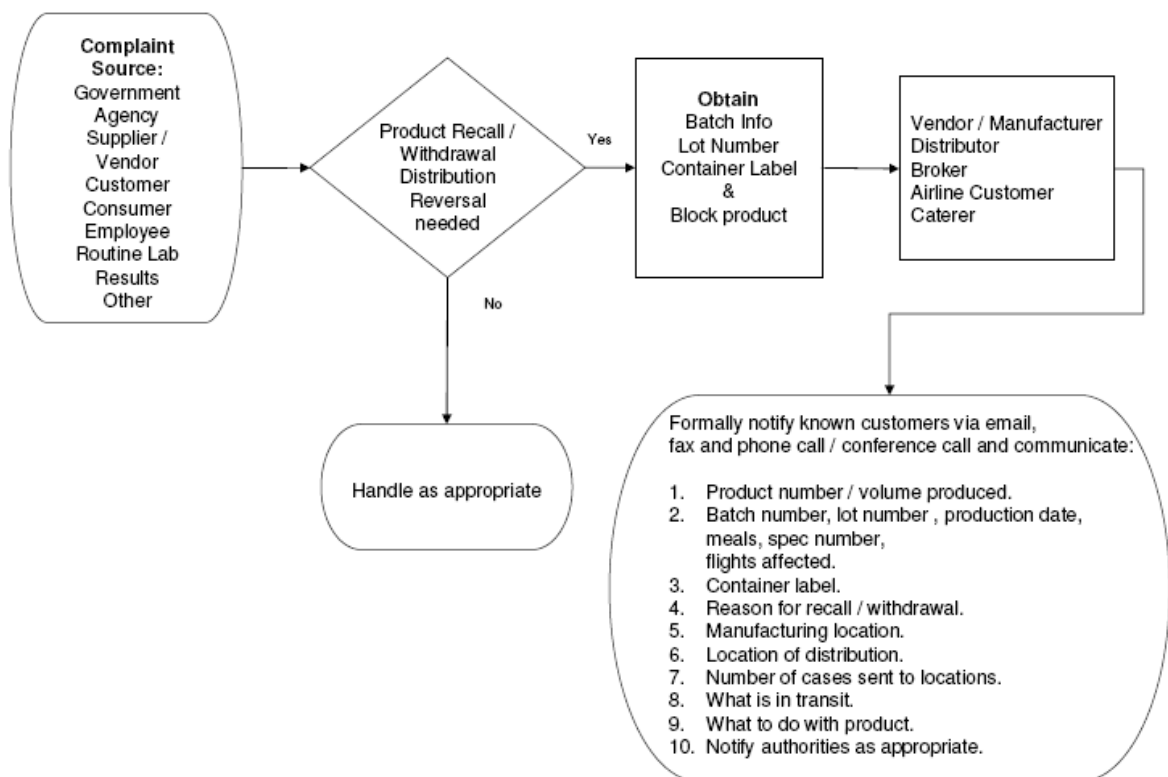
To protect the consumer from contaminated food

Scope:

All foods destined for customer consumption

Procedure:

Product Recall / Hold / Withdrawal Communication Flow Chart



1. Establish an internal plan at each local level location (i.e. each kitchen should have a plan in addition to the organisation plan).

2. Establish an internal recall plan – utilise a flowchart. Consider the following:

- Traceability. Caterers are advised to be able to identify the source of the product and the subsequent usage.
- Isolate the product
- Substitutions / alternatives
- Disposition

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- Pick-up
 - Credit
 - Storage charges
 - Documentation, verification
 - Internal contacts, establish internal recall team
3. Establish appropriate Point of Contact(s) at customer organisations; notification should occur immediately upon realisation of recall / withdrawal / hold:
 - Substitutions / alternatives
 - Documentation / verification
 4. Conduct periodic practice removals or recalls.
 5. Establish a communication strategy. Maintain standardised examples of approved recall notices and press releases.
 6. Have an inventory policy in place and be prepared to implement upon notification. If investigating potential recall or hold, please inform your customer group.
 7. Be able to quickly notify customers.
 8. Maintain an update-to-date list of food recall officials (single contacts) in appropriate regulatory agencies.
 9. Be aware of the existing and yet to be developed websites that list and track recalls.
 10. Be able to identify or define specific lots of product, when available.
 11. If you decide to conduct a recall, co-ordinate activities and co-operate with regulatory agencies. This includes sharing distribution records. Contact the relevant agency to terminate the recall once all product is removed from commerce.

Definitions:

- ***Recall:***

Used in situations when there is a reasonable probability that use of product will cause serious foreign body contamination or is likely to cause serious health consequences.

Examples:

- Presence of a microbiological pathogen, e.g. *Listeria monocytogenes*, *E.coli* O157:H7, *Clostridium botulinum*, or *Salmonella* sp;
- Food product contaminated with a toxic chemical;
- Presence of a life-threatening, undeclared allergen, e.g. peanuts, shell fish;
- Glass or metal fragments in food;
- Under processed canned or bottled products;
- Unsafe pesticide residues;
- Aflatoxin / vomitoxin in excess of the guidelines in food;
- Presence of unapproved food activities;
- Presence of histamine in fish;
- Insects in food;
- Labeling violations;
- Mould or yeast contamination;
- Spoilage.

- **Market Withdrawal:**

Used when there is a minor violation that is not subject to legal action.

- **Precautionary Hold:**

Product suspected of adulteration or contamination that is restricted from use, is held and labelled pending confirmation of test results, risk assessment, etc.

Audit:

Verify by paper audit existence of a control procedure.

M. Foreign Objects

Purpose:

To prevent food contamination with foreign objects.

Scope:

Purchased as well as in-house prepared foods.

Procedures:

Remove or control in-house potential sources of foreign objects.

1. Elimination:

Sources of foreign objects should be eliminated where possible.

2. Control:

Foreign objects that cannot be eliminated or substituted should be controlled, e.g. glass can be protected against damage, i.e. lighting fixtures, including the electric attractant fly killers, in all production and storage areas should be guarded, or sealed, with unbreakable enclosures to retain glass in the event of any breakage.

3. Training:

Staff should be trained in the prevention of contamination of food by foreign objects.

4. Foreign Object Claims Procedure Steps:

In case of a notification regarding alleged foreign objects, the following steps by the Person in Charge should be taken:

- All relevant information will be recorded immediately. Employees involved with the flight should be identified and interviewed and information recorded.

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- Retrieve and identify the foreign object.
- Complete customer required documentation and return to customer immediately.
- If suspect food is a supplier prepared item, ensure remaining inventory is isolated. Mark the product as UNSAFE PRODUCT / DO NOT USE / DATE. Notify supplier as needed.
- Recall / Withdrawal can be executed as necessary.
- Ensure compliance with all specified sanitation and HACCP practices.

5. Example: Foreign Object Policy

Foreign Object	Prevention	Control to be Implemented Where Risk Cannot be Prevented	Corrective Action
Packing materials such as glass and wood	<ul style="list-style-type: none"> - Eliminate all glass and wood from food handling areas. - Purchase food items in containers that are not made of glass / wood. - Substitute wooden pallets with non-wood, e.g. plastic in food production fridges. Wooden pallets are acceptable in receiving storage area. 	<ul style="list-style-type: none"> - Where glass jars / bottles are purchased, the contents should be decanted into lower risk containers, where practical. Or store glass containers on lower shelves. 	<ul style="list-style-type: none"> - Breakage policy to be followed which includes instructions for disposal of glass and food that may be affected, identification of sources. - Staff training.
Equipment such as airline equipment, personal equipment (e.g. glass thermometers)	<ul style="list-style-type: none"> - Prohibit the wearing of watches in food production areas. 	<ul style="list-style-type: none"> - Invert crockery and do not stack too high. - Dispose of chipped glassware. 	<ul style="list-style-type: none"> - Breakage policy. - Staff training.
Building / Premises – items such as light bulbs, wooden shelves, glass windows.	<ul style="list-style-type: none"> - Design and layout of premises. - Replace wooden shelves with a variety that is more easily cleaned. 	<ul style="list-style-type: none"> - Light bulbs are to be shielded or protected or coated with an anti-shatter film. 	<ul style="list-style-type: none"> - Breakage policy. - Staff policy.

This list is not exhaustive.

Audit:

Check for effective foreign object policy and procedures in place.

N. Complaints Handling Procedure

Purpose:

To ensure customer complaints are investigated effectively with timely advice to customers and appropriate corrective action implemented when needed.

Scope:

Customer complaints related to food safety.

Procedure:

Receipt and recording of customer complaints should be developed and documented control procedures implemented

1. Primary and secondary contact staff identified and communication methods established
2. Document responsibilities of investigation.
3. Process to investigate complaints are defined (will be site specific)
4. Implement corrective action and respond to customer as appropriate.

Audit:

Check and verify an active procedural approach to investigation and corrective action of passenger food safety claims.

O. Instrument Calibration

Purpose:

To maintain accuracy of thermometers and temperature gauges.

Scope:

Temperature monitoring devices relevant to food safety.

Procedure:

Monitor accuracy of thermometers on a regular basis by methods relevant to use of thermometers.

In general sensitivity of control of +/- 1 °C (+/- 2 °F) and for Infrared +/- 2 °C (+/- 4 °F) is considered sufficient.

Thermometers shall be identified by numbers, user names or similar to ensure traceability of control.

Audit:

Verify documentation of a procedure for calibration/validation of thermometers with minimum annual frequency.

Verify the effectiveness of the procedure by comparison of the temperature shown by some selected hand held thermometers, chosen at random, with the temperature shown by the auditor's reference thermometer.

Verify the effectiveness of the procedure by comparing the temperature shown on the gauges of some selected refrigerators or freezers, chosen at random, with the temperature shown by the auditor's reference thermometer.

P. Pest Control

Purpose:

To prevent food contamination with pest, rodent and rodent droppings.

Scope:

Prevention and eradication of flying and crawling pests.

Procedure:

1. Ensure that openings from outside are inaccessible to pests.
2. Establish exterior and interior check points by use of monitoring and eradication devices.
3. Establish documented programme of control of check points.

Audit:

Verify absence of pests and pest droppings.

Verify documentation of organized and regular prevention and eradication measures by pest controller, and that these measures are effective.

Q. Waste Management

Purpose:

To ensure safe storage and disposal of airline catering waste.

Scope:

Waste management refers to two different kinds of waste, namely:

- Food waste from incoming flights (external food waste)
- Food waste from production, (internal food waste)

Procedures:

1. Handling and disposal of Food Waste from incoming flights Disposal of waste from incoming flights may be regulated by the local government (e.g. incineration, sterilization, land fill etc).
2. Waste storage
 - The catering unit must have suitable provision for storage of waste designed to minimize attraction of pests.
 - Frequency of waste pick-up and the cleaning program for the area must be adequate to avoid accumulation of debris.
3. Food Waste from production (*Solid Food waste*)
 - Waste must not be allowed to accumulate in food handling, food storage and other working areas.
 - Waste bins must be available, regularly emptied, and cleaned according to a schedule.
 - Waste bins with lids must be foot-operated.

Appendices

Appendix I: HACCP Record Examples

CCP 1 – Receiving Checks

Potentially Hazardous Food:

Meat, seafood, poultry, egg, dairy, cream/custard desserts, cooked pasta / rice, soup, sauce, stew, cooked vegetables.

Receiving Temperature:

Refrigerated food: reject if more than 8 °C / 47 °F.

Frozen food: Frozen solid with no signs of prior thawing.

Verification Signature: _____

Date	Supplier	Product	Temp (°C)			Employee Initial	Corrective Action If shipment is rejected, record package codes to ensure same batch is not re-shipped at a later date.
				Accept	Reject Reason		

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CCP 2 – Cold Storage Temperatures

Date of Calibration (D / M / Y): _____

Date of Check of Cleanliness of Fan / Evaporator _____

REFRIGERATOR CRITICAL LIMIT:
8 °C / 47 °F

Month: _____

Verification Signature: _____

Date	Unit No _____		Check (ü) if Refrigerator _____ or Freezer _____							Corrective Action
	Time	Temp1	Initials	Time	Temp2	Initials	Time	Temp3	Initials	
1										
2										
3										
4										
5										
6										
7										
8										
9										
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CCP 3 and 4 – Cooking / Chilling Checks

Quick Chilling of Potentially Hazardous Foods (e.g. meat, seafood, poultry, egg, pasta, rice, soup, sauce, stew)

Chill from

60 °C / 140 °F to 10 °C / 50 °F in 4 hours or less **Or**

60 °C / 140 °F to 5 °C / 41 °F in 6 hours or less

Verification Signature: _____

Food Item	Airline	Cooking Temperature			Quick Chilling of Potentially Hazardous Foods						Corrective Action
					Check No. 1			Final Check (6 hr. or less total time)			
		Time	Temp	Initial	Time	Time	Teammate Initial	Time	Temp	Teammate Initial	

Insert probe into thickest part of food.
 Use only shallow products (5 cm / 2 inch or less) and place in quick chill unit immediately after cooking.

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CCP 5 – Food Preparation, Assembly and Tray Set-Up
Ambient Room Temperature greater than 15 °C / 59 °F

CRITICAL LIMIT
 Preparation / Handling time must not exceed 45 minutes

Potentially Hazardous Food

Meat, seafood, poultry, egg, pasta, rice, dairy, custard/cream
 desserts, soup, sauce, stew, cooked vegetables, pre-cut melon

Date: _____

Verification Signature: _____

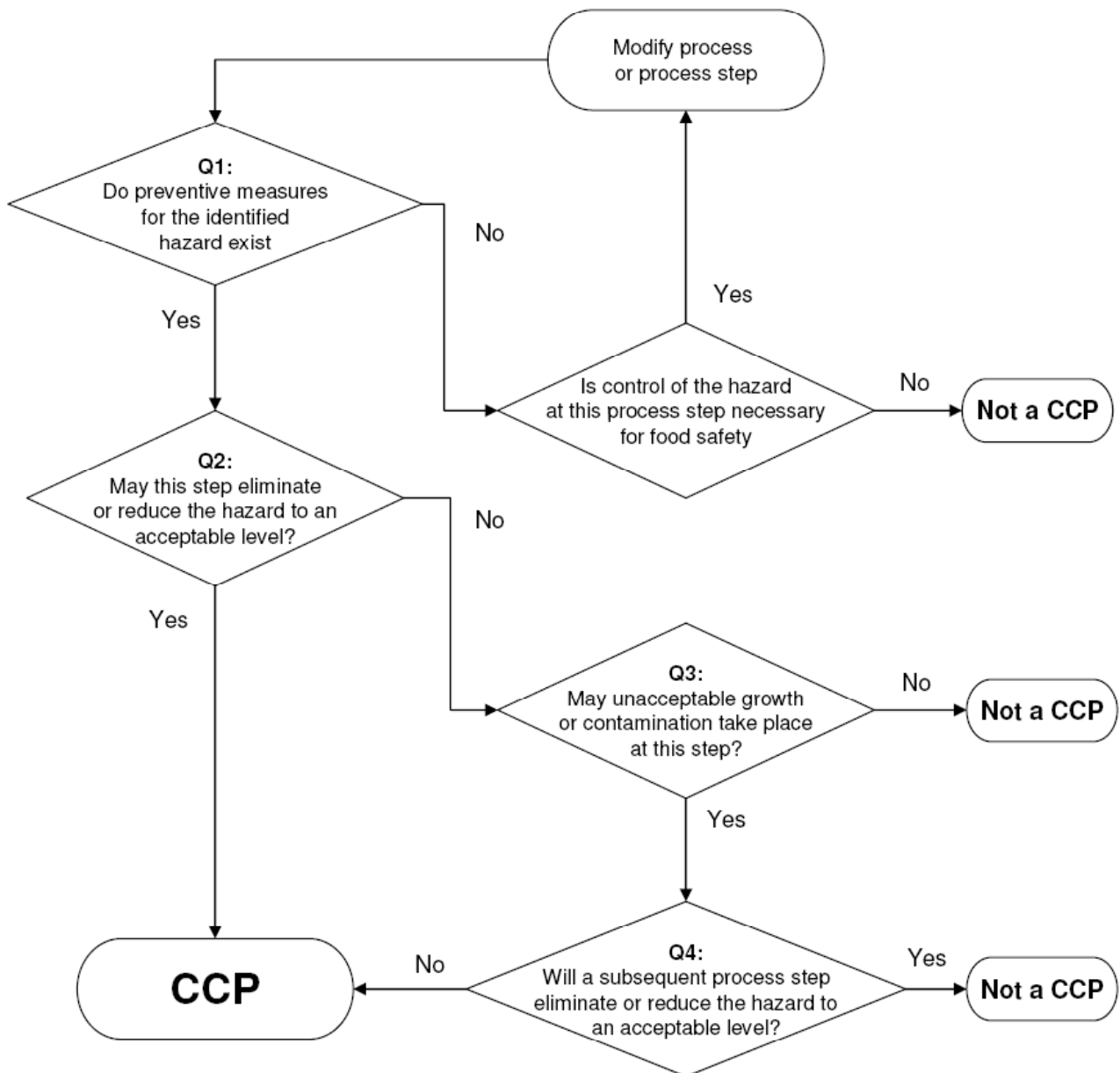
Food Item	Airline / Class	Time		Employee Initial	Corrective Action
		Time Out	Time In		

Appendix II: Decision Tree Example

Example of Decision Tree to Identify CCPs

For the Airline Catering Industry

(answer questions in sequence)



Decision Tree adapted from FAO (Food and Agriculture Organization of the United Nations)

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Appendix III: Cooking Temperatures from Literature

Food Group	Pathogens that may be present in raw product	Most likely and hardest to kill target organism and rationale for recommended cooking treatment	Cooking treatment *	References
Dairy Products	<i>Salmonella</i> <i>Campylobacter</i> <i>Listeria monocytogenes</i> <i>E. coli</i> <i>Staphylococcus aureus</i>	Salmonella – readily destroyed at milk pasteurisation time/temperatures. Minimum pasteurisation treatments allow sufficient safety margins to ensure destruction of pathogens likely to be present initially in raw milk.	71.7 °C / 161 °F, 15 secs	ICMSF (1998) Jay (2000)
Poultry & Eggs	<i>Salmonella</i> <i>Campylobacter</i> <i>Listeria monocytogenes</i> <i>Staphylococcus aureus</i> <i>Clostridium perfringens</i>	Salmonella – minimum pasteurisation treatments allow sufficient safety margins to ensure destruction of pathogens	74 °C / 165 °F 15 secs for <u>poultry</u> 70 °C / 158 °F, 15 secs for <u>eggs & omelettes</u> 75 °C / 167 °F core temp.	FSIS (2001) FDA (2005) FDA (2005) Boulton & Maunsell (2004); Food Standards Agency Scotland (2005)
Fin Fish	<i>Clostridium botulinum</i> <i>Vibrio spp</i> <i>Parasites</i> <i>Salmonella</i> <i>Campylobacter</i> <i>Listeria monocytogenes</i>	Parasites – pasteurisation temperature to allow sufficient time to ensure destruction.	65 °C / 149 °F core for <u>raw fish</u> 63 °C / 145 °F, 15 secs 70 °C / 158 °F for <u>comminuted fish</u>	ICMSF(1996) AIFST (1997) ICMSF (1996) AIFST (1997) FDA (2005)
Shell Fish / Crustaceans	<i>Listeria monocytogenes</i> <i>Clostridium botulinum</i> <i>Salmonella</i> <i>Vibrio spp. especially V.parahaemolyticus</i> <i>Campylobacter</i>	V. parahaemolyticus – predominant pathogen in seafood	≥ 65 °C / 149 °F core 63 °C / 145 °F, 15 secs > 60 °C / 140 °F	ICMSF(1996) AIFST (1997) FDA (2005) FDA/CFSAN (2000)
Meats	<i>E. coli O157:H7</i> <i>Salmonella</i> <i>Staphylococcus aureus</i> <i>Parasites</i> <i>Campylobacter</i> <i>Clostridium perfringens</i> <i>Yersinia</i>	Salmonella – FSIS suggests a 6.5D reduction. VTEC – for a 6D reduction 70 °C / 158 °F for 2 minutes or 80 °C / 176 °F for 6 secs	Salmonella: > 70 °C / 158 °F for <u>comminuted meats</u> VTEC: 80 °C / 176 °F EHEC: ≥ 68 °C / 154 °F Searing: 63 °C / 145 °F surface temp. or seared on all external surfaces to effect a cooked colour change for intact, whole muscle	FSIS, (2001) FDA, (2005) Jay, (2000) ACMSF (1995) Codex CX/FH 03/5 (2003) FDA (2005)
Rice/Pasta / Cereals	<i>Bacillus cereus</i> <i>Clostridium perfringens</i>	FDA does not specify cooking process for starches. As cooking will not destroy spores of Bacillus or C. perfringens – adequate cooling is imperative to prevent germination and growth of spores.	N/A	FDA/CFSAN (2000) ICMSF (1996)

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Food Group	Pathogens that may be present in raw product	Most likely and hardest to kill target organism and rationale for recommended cooking treatment	Cooking treatment *	References
Vegetables & Fruit	<i>Listeria monocytogenes</i> <i>E. coli</i> <i>Salmonella</i> <i>Clostridium botulinum</i> <i>Bacillus cereus</i>	Blanching at 95-99 °C/ 203-210 °F for 1-5 minutes should destroy non-spore forming pathogens. Pasteurisation temperatures (71,7 °C / 161 °F, 15 sec) will destroy <i>Listeria spp.</i> Adequate cooling is imperative to prevent germination and growth of spore forming pathogens.	N/A	FDA/CFSAN (2001) Jay (2000) ICMSF (1996)

* Temperatures are based on core temperatures at the slowest heating point, unless otherwise specified. An "instantaneous" time was assumed to be less than 10 seconds.

References:

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12. UK Food Standards Agency (2005) Guide to Food Hygiene. P 14 .Minimum cooking times for meat: WWW.food.gov.uk
13. USFDA (1999) Food Code
14. USFDA (2005) Food Code
15. USFDA/CFSAN (2000) Kinetics of Microbial Inactivation for Alternative Food Processing Technologies. Overarching Principles: Kinetics and Pathogens of Concern for all Technologies.

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Appendix IV: Glossary of Terms

Word	Definition	Source No.
Additives (food additives)	Any natural or synthetic material, other than the basic raw ingredients, used in the production of a food item to enhance the final product, e.g. colouring, preservative.	10
Aerosols	A gas containing solids and / or liquids in an extremely disperse form. Airline catering context: An aerosol is an accumulation of microscopic liquid droplets in the air, with or without tiny solid particles such as microorganisms. Aerosols may cause microbial cross contamination in catering establishments, particularly when using high pressure cleaning methods.	3
Allergen (food allergen)	A specific food protein, which causes allergic reactions by stimulating the immune system of sensitive persons, e.g. peanuts. A single food can contain multiple food allergens. Carbohydrates or fats are not allergens.	10
Allergy (food allergy)	The adverse reaction by a sensitive person to an allergen. To avoid confusion with other types of adverse reactions to foods, it is important to use the terms "food allergy" or "food hypersensitivity" only when the immune system is involved in causing the reaction.	10
Ambient Temperature	Refers normally to air temperature in a food preparation area (syn: room temperature) or to the temperature of the air outside the catering building.	1
Amendment	Any change or event or other matter that means that the programme is no longer appropriate, or will no longer be appropriate to the animal material or product, processes or premises or place covered by the programme.	2
Anaerobic Bacteria	Bacteria, which cannot grow in the presence of oxygen but will survive in the absence of oxygen.	1
Analytical Method	A detailed description of the procedures to be followed in performing tests for conformity with specification.	3
Approved	Acceptable to the regulatory authority based on a determined conformity with principles, practices, and generally recognized standards that protect public health.	11
Approved Supplier	A supplier who by an approval audit has demonstrated the ability to consistently meet purchasing specifications, including food safety requirements and service delivery requirements.	3
Aseptic Filling	A method of filling product into a sterile container, within a sterile environment.	3
Assembly	The placing of prepared food into airline dishes. Also may be referred to as "meal assembly", "portioning", "hot pack", plating.	16
Audit	A systematic and independent examination to determine whether activities and related results comply with planned arrangements and whether these arrangements are implemented effectively and are suitable to achieve set objectives.	2
a _w (water activity)	A measure of the free moisture in a food is the quotient of the water vapour pressure of the substance divided by the vapour pressure of pure water at the same temperature. See also Water Activity	11
Bacterium (bacteria pl.)	A living organism, which is invisible to the naked eye, some forms of which can cause food poisoning. (Often called a 'bug' or 'germ'). Most bacteria need to grow to high numbers in order to cause illness.	4
Bank Meals	(Also called top-off meals, supplementary meals or standby meals): Extra meals that are made for last minute additional passengers, supplied at the gate area either in one of that caterer's trucks or in a permanent location used by the caterer, and boarded as needed at the last minute prior to the aircraft's departure.	1
Batch	The quantity of product, which has been produced during a defined period of manufacture. A 'batch' may actually have been produced by a batch-wise process, or may correspond to a particular time duration during the run of a continuous process. See also Lot.	3
Batch Manufacturing Record	A document giving details of the raw materials used and operations carried out during the manufacture of a given batch, including details of in-process controls and the results of any Corrective Action taken. It should be based on agreed manufacturing instructions, and be compiled as the manufacturing operation proceeds.	3
Batch Number	A unique combination of numbers or letters, or both, used to identify a batch of product and to permit its history to be traced.	3
Beverage	A liquid for drinking, including water.	11
Blast Chiller	A cooling unit used for fast chilling of cooked food after cooking has been completed and before subsequent storage or handling. The cooling medium is usually air, liquid nitrogen or liquid carbon dioxide.	1
Blast Freezer	A freezer unit used for fast freezing of cooked or cook-chilled food before subsequent freeze storage. The freezing medium is usually air, liquid nitrogen or liquid carbon dioxide.	
Bottled drinking water	Potable water that is sealed in bottles, packages, or other containers and offered for sale for human consumption, including bottled mineral water.	11
Buffer meals	See Bank meals.	1

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Word	Definition	Source No.
Building services	Includes ventilation, water, drainage, lighting, process air and other gases, and associated pipes and fittings.	12
Bulk Product	Refers normally to a ready-to-eat food batch not yet portioned out into meals.	3
Calibration	Checks to ensure that critical items such as scales and thermometers are accurate and precise.	3
Carrier, healthy	A person who harbours and may pass on harmful bacteria without showing signs of illness themselves. (Also known as an asymptomatic excreter)	4
CCP	See Critical Control Point.	
CCP Decision Tree	A sequence of questions to assist in determining whether a control point is a CCP.	9
Certificate of Analysis (COA)	Signed document showing results of analysis carried out on a product.	3
Chilled Foods	Perishable foods, which are kept under refrigeration temperature to extend the time during which they remain wholesome.	3
CIP	Cleaned in place. By the circulation or flowing by mechanical means through a piping system of a detergent solution, water rinse, and sanitising solution onto or over equipment surfaces that require cleaning, such as the method used, in part, to clean and sanitise a frozen dessert machine.	
Clean	Free of extraneous visible matter and objectionable odour.	13
Cleaning	The removal of soil, food residue, dirt, grease or other objectionable matter.	15
Codex Alimentarius	The Codex Alimentarius Commission - a body set up by WHO to co-ordinate food standards internationally.	8
Colour Coding	Refers to the practice of affixing coloured stickers coded to the day of the week a product is produced or otherwise handled on all freshly prepared or purchased items. Colour coding may be done in accord with industry wide colour codes for the seven days of the week.	1
Comminuted	Reduced to small fragments such as ground meat/minced meat.	11
Confirmation	Is the validation that a programme is adequate in delivering the stated out-come	2
Confirmed food poisoning	A food-borne disease outbreak in which laboratory analysis of appropriate specimens identifies a causative agent and epidemiological analysis implicates food as the source of the illness.	11
Consumer	A person (passenger or crew-member) who consumes an airline catering meal.	11
Contaminant	Any microbiological or chemical agent, foreign matter, or other substance not intentionally added to food, which may compromise food safety or suitability.	15
Continuous towel dispenser	Dispenser intended to provide each user with an area of cloth to be used once only, as it remains after its use in a separate part of the dispenser, which is inaccessible to the users. The towel, once entirely used, can be laundered and reused.	12
Control (noun)	The state wherein correct procedures are being followed and criteria are being met, e.g. under control.	3, 6
Control (verb)	To take all necessary actions to ensure and maintain compliance with criteria established in the HACCP plan.	3, 6
Control measure	Any action or activity that can be used to prevent or eliminate a food safety hazard or reduce it to an acceptable level.	3, 6
Control point	Any step at which biological, chemical, or physical factors can be controlled.	9
Controlled atmosphere packaging	A packaging method in which the composition of the atmosphere in the pack is different from air. Continuous control of that atmosphere may be maintained, such as by using oxygen scavengers or a combination of total replacement of oxygen, non-respiring food, and impermeable packaging material. See also MAP.	11
Convection Oven	An oven that heats (or re-thermalizes) products by means of rapid circulation of heated air.	1
Cook-chill (cook-freeze)	On completion of the cooking process foods are rapidly chilled or frozen, either in bulk or as pre-plated meals.	1
COP	Code of Practice.	8
Corrective Action (Applicable to HACCP)	Any action to be taken for re-establishing control when the results of monitoring at the CCP indicate a loss of control	3, 6
Covered	Sufficiently wrapped, packaged or enclosed to prevent the introduction of contaminants. See also Protected.	12
Criterion	A requirement on which a judgement or decision can be based.	9
Critical Control Point (CCP)	A step at which control can be applied and which is essential to prevent or eliminate a food safety hazard or reduce it to an acceptable level.	3, 6, 9
Critical Ingredient	Ingredient added to food, which may cause contamination of product, high risk.	7
Critical item	A provision of this Code that, if in non-compliance, is more likely than other violations to contribute to food contamination, illness, or environmental health hazard.	11
Critical Limit	A criterion, which separates acceptability from unacceptability.	3, 6
Cross-contamination	Direct or indirect transfer (syn: contamination, spread) of micro-organisms, foreign bodies, chemicals from raw foods, food handlers, food contact surfaces and equipment to ready-to-eat foods. Direct transfer takes place primarily by direct contact between the source and the ready-to-eat food, while indirect transfer takes place by contact primarily via contaminated surfaces and utensils or via hands of food handlers.	4

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Word	Definition	Source No.
Danger Zone	The temperature range between 41°F and 140°F (5°C to 60°C). Many food poisoning as well as many food spoilage bacteria will multiply in food held within this range.	1
Defective Product	Product that does not fully meet the product specification as defined by the client. This invariably also includes product that does not fully meet internal product/process specification.	3
Delay	The failure of a scheduled passenger flight to depart at the scheduled time. A delay that is caused by an inflight caterer could result in the caterer being assessed a substantial monetary penalty by the airline.	1
Detergent	Mixture of chemicals designed to remove a given soil (dirt) from a surface.	3
Deviation	Failure to meet a critical limit.	3, 6, 9
Disinfectant	A chemical, which reduces harmful bacteria to a safe level.	4
Disinfection	The reduction, by means of chemical agents and / or physical methods, of the number of micro-organisms in the environment, to a level that does not compromise food safety or suitability.	15
Document Control	The controls necessary to ensure only current documents are used.	3
Documentation	All the written production procedures, instructions and records, quality-control procedures, and recorded test results involved in the manufacture of a product.	3
Dry food	Food that has a low water activity (aw), being less than the minimum growth water activity of the micro-organisms of significance for the particular food.	12
Dry Ice	Carbon dioxide (CO ₂) solidified by great pressure or as a result of rapid evaporation of liquefied CO ₂ . Used as a refrigerant.	1
Dry storage area	A room or area designed for the storage of shelf stable packaged or containerised bulk food that is not potentially hazardous and dry goods such as single-service items.	11
Easily Cleanable	a) "Easily cleanable" means a characteristic of a surface that: (i) Allows effective removal of soil by normal cleaning methods;	11
Easily movable	a) Portable; mounted on casters, gliders, or rollers; or provided with a mechanical means to safely tilt a unit of equipment for cleaning; and b) Having no utility connection, a utility connection that disconnects quickly, or a flexible utility connection line of sufficient length to allow the equipment to be moved for cleaning of the equipment and adjacent area.	11
Equipment	Any machine, instrument, apparatus, utensil or appliance, other than a single-use disposable item, used or intended to be used in or in connection with food handling and includes any equipment used or intended to be used to clean food premises or equipment.	13
Establishment	Any building or area in which food is handled and the surroundings under the control of the same management.	15
Filling	Transfer of product into the primary packaging.	3
Final Holding	The last storage period for food products that have been prepared and packaged or packed into boarding equipment for later transport to an aircraft. Generally, the final holding area for food products is a holding refrigerator where products are thoroughly chilled prior to transport to the aircraft.	1
Finished Product	A product, which has undergone all stages of manufacture including filling into the primary packaging.	3
Flight Kitchen	A production kitchen facility operated by an inflight caterer for the purpose of preparing food products for boarding onto passenger aircraft.	1
Flight-Type Dishwasher	– Finger belt conveyor dishwashers where dishes, glassware etc. can be placed directly onto the fingers belt and passed through the machine. – Rack-type conveyor dishwashers in which dishes, glassware etc. pass through the machine in racks.	1
Flow Diagram	A systematic representation of the sequence of steps or operations used in the production of manufacture of a particular product.	3, 6
Food	Any substance, whether processed, semi-processed or raw which is intended for human consumption, including drinks, chewing gum and any substance which has been used in the manufacture, preparation or treatment of "food" but excluding cosmetics, tobacco and substances used only as drugs.	14
Food business	A business, enterprise or activity (other than primary food production) that involves: a) the handling of food intended for sale, or b) the sale of food, regardless of whether the business, enterprise or activity concerned is of a commercial, charitable or community nature or whether it involves the handling or sale of food on one occasion only.	13
Food establishment	An operation that stores, prepares, packages, serves, vends, or otherwise provides food for human consumption.	11
Food handler	Any individual working with unpackaged food, food equipment or utensils, or food contact surfaces and is therefore expected to comply with food hygiene requirements	11
Food handling area	An area for handling of open food	
Food handling operation	Any activity involving the handling of food.	13

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Word	Definition	Source No.
Food Hygiene	All conditions and measures necessary to ensure the safety and suitability of food for human consumption at all stages of the food chain.	15
Food irradiation	The exposure of food to sufficient radiant energy (gamma rays, x-rays and electron beams) to destroy micro-organisms and insects. Effect of food irradiation is comparable to pasteurization.	10
Food Poisoning/ Foodborne Illness	Illness associated with consumption of food, which has been contaminated, particularly with harmful micro-organisms or their toxins.	3
Food Safety	Assurance that the food will not cause harm to the consumer when it is prepared and / or eaten according to its intended use.	15
Food Safety Programme (FSP)	A documented (and HACCP-based) system that clearly outlines how things are done in food premises to achieve food safety.	3
Food Spoilage	The deterioration of food including that caused by the growth of undesirable micro-organisms, which may result in fermentation, mould growth and development of undesirable odours and flavours.	3
Foodborne disease	Disease, usually gastrointestinal, caused by organisms or their toxins carried in ingested food. Also commonly known as "food poisoning".	10
Foodborne disease outbreak	The occurrence of two or more cases of a similar illness resulting from the ingestion of a common food.	11
Food-Borne Illness	Any illness, the cause of which - whether bacteria, viruses, toxins, or other contaminants - is passed to victims through the food they eat.	1
Food-contact surface	A surface of equipment or a utensil with which food comes into contact.	11
Foreign Matter	Anything physical that should not be in the product.	3
FSP	see Food Safety Programme.	
Good Manufacturing Practice (GMP)	That combination of manufacturing and management procedures aimed at ensuring that products are consistently manufactured to meet specifications and customer expectations.	3
GRAS (Generally Recognized as Safe) (Applicable to the US only)	GRAS is the regulatory status of food ingredients not evaluated by the FDA prescribed testing procedure. It also includes common food ingredients that were already in use when the 1959 Food Additives Amendment to the Food, Drug, and Cosmetic Act was enacted.	10
HACCP (Hazard Analysis and Critical Control Points)	A system, which identifies, evaluates, and controls hazards, which are significant for food safety.	6, 15
HACCP - Step	A point, procedure, operation or stage in the food chain including raw materials, from primary production to final consumption.	3
HACCP Plan	A document prepared in accordance with the principles of HACCP to ensure control of hazards, which are significant for food safety in the segment of the food chain under consideration.	3, 6
HACCP Team	The group of people who are responsible for developing, implementing and maintaining the HACCP system.	9
Handling of food	Includes the making, manufacturing, producing, collecting, extracting, processing, storing, transporting, delivering, preparing, treating, preserving, packing, cooking, thawing, serving or displaying of food.	13
Hazard	A biological, chemical or physical agent in, or condition of, food with the potential to cause an adverse health effect.	3, 6, 12, 15
Hazard Analysis	The process of collecting and evaluating information on hazards and conditions leading to their presence to decide which are significant for food safety reasons and therefore should be addressed in the HACCP plan.	6
Hazard Identification	The identification of known or potential health effects associated with a particular agent.	14
Hermetically sealed	Air-tight, completely sealed and impermeable to gas.	12
Hermetically sealed container	A container that is designed to be and intended to be secure against the entry of micro-organisms and, in the case of low acid canned foods, to maintain the commercial sterility of its contents after processing.	11
High Risk foods	Foods, which have a high protein content and readily support bacterial growth and will not be cooked again before eating.	4
High susceptible population	A group of persons who are more likely than other populations to experience food-borne disease because they have low immune systems or older adults and in a facility that provides health care or assisted living services, such as a hospital or nursing home; or pre-school age children in a facility that provides custodial care, such as a day care centre.	11
Holding Oven	An oven designed to maintain a near-constant temperature level, which will hold preheated meals at temperatures at least equal to 140°F from the time they are loaded into the oven until they are served to the passengers on board the aircraft.	1
Incubation period	The length of time between eating infected food and the first signs of illness. Syn: Onset period.	
Inflight Food Safety Auditor	A representative of an airline or an inflight catering firm that goes to a product supplier's facility for the purpose of conducting a food safety audit on the products, practices and processes used by the airline or the caterer.	1

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Word	Definition	Source No.
Ingredients	All materials, including raw materials, air addition, water, additives, and compounded foods, which are included in the formulation of the product.	3
Injecting	Manipulating a meat through tenderising with deep penetration or injecting the meat by processes, which may be referred to as "injecting", "pinning", or "stitch pumping" may cause infectious or toxigenic micro-organisms to be introduced from its surface to its interior.	11
In-Process Control	A system of measurements and checks taken during the course of manufacture to ensure that materials at any stage comply with the specification for that stage, and that the process and processing environment comply with the conditions stated in the processing specifications.	3
Label	Any tag, brand, mark or statement in writing or any representation or design or descriptive matter on or attached to or used in connection with or accompanying and food or package.	5
Late upcount meals	Meals prepared and supplied at short notice due to an increase in the number of passengers estimated for a particular flight. Also referred to as "Top off meals", "up-counts".	16
Lot	A quantity of food, which is prepared or packed under essentially the same conditions usually - a) from a particular preparation or packing unit; and b) during a particular time ordinarily not exceeding 24 hours. See also Batch.	5
Lot Identification	Information which indicates, in a clearly identifiable form, the - a) premises where the food was packed or prepared; and b) lot of the food in question.	5
Low-risk foods	Foods which do not readily support bacterial growth and which do not commonly contain microbial pathogens in harmful amounts.	
Manufacture	The complete cycle of production of a food product from the acquisition of raw materials through all stages of subsequent processing, packaging and storage to the despatch of the Finished Product.	3
Menu Cycle (Cycle Menu)	A period of time for which a particular set of menus is planned (or the menu set planned for that period). At the end of the predetermined time period, or cycle, the menu set is repeated. This cycling of menus continues until a new menu set is prepared; then it starts anew.	1
Menu Presentation	1) The preparation of a sample meal or a spare tray for a particular menu on an airline's menu cycle. This spare tray is then presented to the other employees and management for study and evaluation. Errors in the tray set-up noted during the presentation period are noted for correction through employee training. 2) Also refers to major presentations could be for a system menu project or at a particular kitchen, usually for international service, where an airline may rely on locally developed and prepared menus.	1
Microbial Barriers	Actions or conditions, such as lowering the pH or the water activity level of products, regulating the cooking or storage temperatures used, that will prevent further microbial development in the particular food product.	1
Modified atmosphere packaging (MAP)	The atmosphere of a package of food is modified so that its composition is different from air but the atmosphere may change over time due to the permeability of the packaging material or the respiration of the food. Modified atmosphere packaging includes: reduction in the proportion of oxygen, total replacement of oxygen, or an increase in the proportion of other gases such as carbon dioxide or nitrogen. See also controlled atmosphere packaging.	11
Monitor	The act of conducting a planned sequence of observations or measurements of control parameters to assess whether a CCP is under control.	3, 6
Non-potable water	Any water that does not conform to the definition of potable water and is not suitable for human consumption.	12
Off-Loading (also referred to as <i>Stripping or strip</i>)	The complete removal of catering equipment, including trash and garbage stored in this equipment, from the galleys in an aircraft.	1
Onset Period	See incubation period.	4
Open-Coding System	A coding system used by a manufacturer to indicate the expiration date of food and beverage products which uses readily understandable calendar time or dates.	1
Outer packaging	The final packaging layer that will protect the wrapping of, or the direct contact of, any food, equipment, packaging, thing, from the introduction of contaminants.	12
Outsourcing	Buying goods or services from an external company.	1
Package	The wrapping or container used to encase a food, but does not include - a) containers used for the purpose of transporting bulk foods; b) pallet overwraps; c) crates and packages which do not obscure labels on the food; or d) transportation vehicles.	5
Packaged	Bottled, canned, cartoned, securely bagged, or securely wrapped, whether packaged in a food establishment or a food processing plant.	11
Pasteurisation	A heat process that kills most pathogenic bacteria in food and slows down the growth of others. Food is heated to a specific temperature for a specified length of time.	3
Pathogen	Any disease-producing organism.	1
Pest Management Programme	A documented programme/system that covers all pest control activities on a site, including records of visits, chemicals, bait station locations etc., relating to the control and / or management of pests.	3
Pests	Birds, rodents, insects and arachnids.	13

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Word	Definition	Source No.
PET	An acronym for polyethylene trichloride, the soft plastic that is used to make items such as 2-litre soda bottles or 1-gallon milk containers.	1
pH	The symbol for the measure of the degree of acidity or alkalinity of a solution. Values between 0 and 7 indicate acidity and values between 7 and 14 indicate alkalinity. The value for pure distilled water is 7, which is considered neutral.	11
Physical facilities	The structure interior surfaces and facilities of a food establishment including accessories such as soap and towel dispensers and attachments such as light fixtures and heating or air conditioning system vents.	11
Poisonous or toxic materials	Substances that are not intended for ingestion and may include (but not exhaustively): a) Cleaners and sanitizers, which include cleaning and sanitising agents and agents such as caustics, acids, drying agents, polishes, and other chemicals; b) Pesticides, except sanitizers, which include substances such as insecticides and rodenticides; Substances necessary for the operation and maintenance of the establishment such as non-food grade lubricants and personal care items that may be deleterious to health.	11
Pop-Out Meals (pop-outs)	Frozen individual entrees pre-prepared to airline specifications by commercial food product manufacturers that are packaged in plastic formed to the shape of the entree dish. When the entree is plated for use, it is pushed out, or popped out of the plastic form onto the serving plate or casserole.	1
Portion Packs	Small items, such as condiments, crackers, nuts, etc., that are packed into individual portions. They are generally served to the diner in unopened packages. Sometimes also called <i>PCs</i> .	1
Potable Water	Water that does not contain chemical substances or micro-organisms in amounts that could cause a hazard to health. Refer WHO, Geneva, 1971 and NZ Standards.	3
Potentially Hazardous Food	A food that is natural or synthetic and which requires temperature control because it is capable of supporting the rapid and progressive growth of infectious or toxigenic micro-organisms.	11
Premises	a) The physical facility, its contents, and the contiguous land or property under the control of the occupant; or b) The physical facility, its contents, and the land or property not described under paragraph (a) of this definition if its facilities and contents are under the control of the permit holder and may impact food establishment personnel, facilities, or operations, and where a food establishment is only one component of a larger operation such as a health care facility, hotel, motel, school, recreational camp, or prison.	11
Preparation	Activities carried out on raw or cooked foods that include but are not limited to the following: slicing, dicing, chopping, mixing, piping, blending, mincing, coating, marinating, cutting.	16
Prerequisite	Procedures, including Good Manufacturing Practices that address operational conditions providing the foundation for the HACCP system.	9
Preservatives	Methods of destroying, delaying or inactivating the enzymes and micro-organisms responsible for food spoilage.	3
Process (verb)	Includes kill, slaughter, dress, cut, extract, manufacture, pack, preserve, transport and store.	2
Process Specification	A document or documents identifying the raw materials, with their quantities, to be used in the manufacture of a product. Includes a description of the manufacturing operations and procedures including identification of the plant and facilities to be used, processing conditions, in-process controls, packaging materials to be used and instructions for the removal of Finished Product to storage.	3
Process Step	See Step.	
Processing	The separate operations involved in the manufacture of a product.	3
Protected	Sufficiently wrapped, packaged or enclosed to prevent the introduction of contaminants.	12
Protective Clothing	Clothing provided for wear in the workplace, i.e. overalls, coats, hat, gloves, shoes, boots etc. to protect food from risk of contamination.	7
Quality Assurance	Activities undertaken by a firm or organisation to control the quality level of a product or service provided or received. Quality assurance activities are designed to ensure that the performance is in accord with product or service quality standards established at the beginning of the relationship.	1
Quarantine	The status of any materials or product set aside while awaiting a decision on its suitability for its intended use or sale.	3
Raw Material	Any material, ingredient, starting material, semi-prepared or intermediate material, packaging material, etc., used by the manufacturer for the production of a Finished Product.	3
Raw food	Foods of animal or vegetable origin, which normally require <u>cooking</u> (meats, poultry, eggs, fish, shell fish, certain vegetables) or <u>washing</u> (vegetables, fruit) prior to consumption.	
Ready-to-eat food	Food that is in a form that is edible without washing, cooking, or additional preparation by the food establishment or the consumer and that is reasonably expected to be consumed in that form.	11
Reduced oxygen packaging	The reduction of the amount of oxygen in a package by removing oxygen; displacing oxygen and replacing it with another gas or combination of gases; or otherwise controlling the oxygen content to a level below that normally found in the surrounding 21% oxygen atmosphere.	11
Refuse	Solid waste not carried by water through the sewage system. Syn: garbage	11

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Word	Definition	Source No.
Regulatory authority	The local, state, or federal enforcement body or authorised representative having jurisdiction over the food establishment.	11
Reheat	To heat a food product that has been previously cooked, portioned, and chilled or frozen for storage back to the proper temperature for service to the foodservice's clientele. Common regeneration procedures include the use of microwave ovens, convection ovens, or specialised equipment (sometimes referred to as high-tech transport equipment in the inflight foodservice industry) that reheats products by conduction. Also referred to as reconstitution or re-thermalization.	1
Risk	A function of the probability of an adverse effect and the magnitude of that effect, consequential to a hazard(s) in food. Risk of a hazard may in a simple way be expressed as the probability with which a hazard may occur.	14
Risk Analysis	A process consisting of three components: risk assessment, risk management and risk communication.	14
Risk Assessment	The scientific evaluation of known or potential adverse health effects resulting from human exposure to foodborne hazards.	14
Risk Characterisation	Integration of hazard identification, hazard characterisation and exposure assessment into an estimation of the adverse effects likely to occur in a given population, including attendant uncertainties.	14
Risk factor	A risk factor is anything statistically shown to have a relationship with the incidence of a disease, however it does not necessarily infer cause and effect.	10
Risk Management	The process of weighing policy alternatives to accept, minimise or reduce assessed risks and to select and implement appropriate options.	14
Rotable Equipment	Equipment, such as china, glassware, or reusable plasticware that can be washed and reused as serviceware for inflight food and beverage service.	1
Safe and suitable food	For the purposes of the Food Safety Standards, food is not safe if it would be likely to cause physical harm to a person who might later consume it, assuming it was: a) after that time and before being consumed by the person, properly subjected to all processes (if any) that are relevant to its reasonable intended use; and b) consumed by the person according to its reasonable intended use.	13
Safe material	An article manufactured from or composed of materials that may not reasonably be expected to result, directly or indirectly, in their becoming a component or otherwise affecting the characteristics of any food.	11
Sanitary design	Designed and constructed so that an area, conveyance, or equipment: meets the requirements appropriate to its use; can be readily maintained, cleaned, sanitised and sterilised where required to ensure that it is free from contaminants and vermin; and in relation to any equipment or access way in any food area, also means that the equipment or access way is easily accessible for maintenance, cleaning, operation, checking and inspection; and does not allow contaminants to come in contact with any food or other equipment; and precludes the harbouring of accumulation of any contaminants or vermin.	12
Sanitation	The application of cumulative heat or chemicals on cleaned food-contact surfaces that, when evaluated for efficacy, is sufficient to yield a reduction of 5 logs, which is equal to a 99.999% reduction, of representative disease micro-organisms of public health importance.	11
Sanitise	The process of freeing a surface or object from dirt and micro-organisms.	1
Sanitizer	A substance, that reduces the microbial contamination on inanimate surfaces to levels that are safe from a public health stand point. The European equivalent to the US expression sanitizer is disinfectant.	3
Sealed	Free of cracks or other openings that allow the entry or passage of moisture.	11
Separate by distance	To separate to such an extent so as to avoid any possible contact, splash, contamination, etc., between specific functions, processes or personnel.	12
Separate by time	To end one function or process prior to starting a different function or process, with a cleaning operation in between.	12
Separate physically	To separate by floor to ceiling solid walls and doors, or to fully protect product by pipelines, enclosed vats, etc.	12
Servicing area	An operating base location to which a mobile food establishment or transportation vehicle returns regularly for such things as vehicle and equipment cleaning, discharging liquid or solid wastes, refilling water tanks and ice bins, and boarding food.	11
Severity	The seriousness of the effect(s) of a hazard.	9
Sewage	Liquid waste containing animal or vegetable matter in suspension or solution and may include liquids containing chemicals in solution.	11
Shelf life	Period of time during which a food remains fit for consumption if maintained throughout the period under controlled conditions pre-designated by the manufacturer.	
Shelf-Stable	Able to be stored at room temperature without spoiling. Shelf-stable products do not require refrigeration or freezing, they are typically canned products or products packaged in a way that micro-organisms cannot grow in the product-either too dry (rice, flour, noodles, etc.).	1

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Word	Definition	Source No.
Single-service articles	Tableware, carry-out utensils, and other items such as bags, containers, placemats, stirrers, straws, toothpicks, and wrappers that are designed and constructed for one time, one person use after which they are intended for discard.	11
Single-Use Articles	"Single-use articles" means utensils and bulk food containers designed and constructed to be used once and discarded.	11
Single-use item	An instrument, apparatus, utensil or other thing intended by the manufacturer to only be used once in connection with food handling, and includes disposable gloves.	13
Slacking	The process of moderating the temperature of a food such as allowing a food to gradually increase from a temperature of -23°C (-10°F) to -4°C (25°F) in preparation for deep-fat frying or to facilitate even heat penetration during the cooking of previously block-frozen food such as spinach (see tempering).	11
Smooth	a) A food-contact surface having a surface free of pits and inclusions with a cleanability equal to or exceeding that of (100 grit) number 3 stainless steel; b) A non food-contact surface of equipment having a surface equal to that of commercial grade hot-rolled steel free of visible scale; and c) A floor, wall, or ceiling having an even or level surface with no roughness or projections that render it difficult to clean	11
Solid Waste	For the inflight caterer, solid waste generally refers to non-hazardous materials such as paper, paperboard, corrugated cardboard, glass, plastics, metals, textiles, or wood. It is essentially the trash that results from the caterer's operations. There is also hazardous solid waste, which is composed of items such as light fixtures, chemicals, and medical or biological waste. The inflight caterer would normally generate only a low level of hazardous waste and most of that would be chemicals, such as paint or some cleaning compounds.	1
SOP	Standard Operating Procedure. A detailed description of how a particular task is to be carried out. See also GMP.	3
Special Meals	Meals prepared especially for a passenger's diet, taste or religious preference and prepared under the airline's specifications. International special meal codes and guidelines have been agreed upon by the airline industry in an effort to improve the consistency of special meals for passengers.	1
Specification	A document giving a description of material, machinery, equipment, process or product in terms of its required properties or performance. Where quantitative requirements are stated, they are either in terms of limits or in terms of standards within permitted tolerances.	3
Spoilage	A process in food, which makes the food unsuitable for human consumption through incorrect or prolonged storage.	4
Spoilage Organisms	Micro-organisms, which cause food spoilage when present in perishable food in high numbers.	3
Spores	A resistant resting-phase of bacteria, which protects them against effects of extreme temperatures. Resistant resting phase of some bacteria e.g. B. cereus, Cl. perfringens, Cl. botulinum, which protects them against the effects of extreme temperatures. Spores of such pathogens may survive normal cooking temperatures for many minutes or hours, depending on the type of pathogen.	4
SSOP	Standard Sanitation Operating Procedure. (equivalent to SOP)	
STD	Scheduled Time of Departure.	
Steam Autoclave	A piece of equipment in which steam, under pressure, reaches high enough temperatures to sterilise the material placed inside the equipment.	1
Step	A point, procedure, operation or stage in the food chain including raw materials, from primary production to final consumption.	3, 6
Sterilisation	The process of destroying micro-organisms.	1
Store	A facility used for the storing of containers, ingredients, chemicals, and finished shelf-stable or chilled and frozen foods that are protected by outer packaging. A store may be refrigerated or non-refrigerated and may utilise wet or dry cleaning procedures dependent upon construction standards.	12
Supplier (Vendor)	The packer, manufacturer, vendor or importer of the food in question.	5
Temperature measuring device	A thermometer, thermocouple, thermistor, or other device that indicates the temperature of food, air, or water.	11
Tempered	Refers to a product that has been gradually thawed to refrigerator temperature. The purpose of tempering a product is to reduce the time required to reheat (rethermalize) it when it is to be used for meal service. Generally, products are tempered in refrigerator units. In the inflight industry, most portioned frozen items are tempered for approximately 24 hours prior to boarding on the aircraft for meal service. Also called <i>slack</i> or <i>slacking</i> .	1
Thawing	A controlled process for defrosting frozen products.	
Thermal processing	The application of heat that will result in complete or partial preservation of products.	12
Trayset	The placement of assembled food and other airline equipment such as glassware, cutlery, and condiments onto individual trays prior to stowage into airline carts / trolleys etc.	16

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Word	Definition	Source No.
Utensil	A food-contact implement or container used in the storage preparation, transportation, dispensing or service of food, such as kitchenware or tableware that is multiuse, single-service, or single-use; gloves used in contact with food; food temperature measuring devices.	11
Vacuum packaging	Air is removed from a package of food and the package is hermetically sealed so that a vacuum remains inside the package, such as sous vide.	11
Validation	Obtaining evidence that the elements of the HACCP plan are effective.	3, 6
Verification	The application of methods, procedures, tests and other evaluations, in addition to Monitoring to determine compliance with the HACCP plan. In airline catering Verification may commonly be made as <u>part of audits</u> or <u>by microbiological analysis</u> .	3, 6
Warewashing	The Cleaning and sanitising of utensils and food-contact surfaces of equipment.	11
Water Activity	The relationship between the moisture content of the product and the relative humidity of the air surrounding it. Must not be confused with water content	3
Water Activity Level	A factor, which represents a ratio of the vapour pressure of food to that of pure water. It indicates how much available water is in a product that micro-organisms can use for growth. Products that have very low water activity levels, or are very dry, will not support microbial growth.	1
Water reticulation	The system of water supply throughout the premises from the source to the point of use. It includes the source of supply, means of treatment, storage, temperature modifying devices, distribution pipework, backflow protection devices etc.	12
Wet Ice	Frozen water. It is called <i>wet ice</i> because it turns to a liquid (water) as it melts, as opposed to dry ice, which passes directly from a solid to a gas.	1
Wrapping	Any material that is intended to protect food, equipment, packaging or thing and comes into immediate contact with the food, equipment, packaging or thing. Wrapping can include rigid materials, such as cartons and containers.	12
%	Percent.	5
°C	Degrees Celsius	5
°F	Degrees Fahrenheit	
cfu/g	Colony forming units per gram	5
mg/l	Milligrams per litre, which is the metric equivalent of parts per million (ppm)	11
ppm	Parts per million	5

References for Glossary of Terms:

<u>Source No.</u>	<u>Reference</u>
1	Inflight Catering Management, Audrey C. McCool, 1995
2	Draft Risk Management Programme Manual
3	Food Industry Guide to Good Manufacturing Practice (NZ Institute of Food Science and Technology (Inc))
4	Hygiene - A Complete Course for Food Handlers (Hazelwood & McLean)
5	Australia New Zealand Food Standards Code
6	Hazard Analysis and Critical Control Point (HACCP) System and Guidelines for its application annex to CAC/RCP 1 - 1969, Rev 3 (1997), Codex Alimentarius
7	MAF Quality Management
8	Code of Practice for the development of a Food Safety Programme for a Foodservice Operation
9	National Advisory Committee on Microbiological Criteria for Foods (US)
10	IFIC Foundation (International Food Information Council)
11	Food and Drug Administration 1999/2005 Food Code (US Dept of Health and Human Services)
12	MAF RA (Ministry of Agriculture Regulatory Authority)
13	ANZFA Food Safety Standards
14	Application of Risk Analysis to Food Standards Issues (FAO/WHO)
15	Recommended International Code of Practice - General Principles of Food Hygiene CAC/RCP 1 - 1969, Rev 3 (1997), Codex Alimentarius.
16	Pers. Com. - Ms Lin & Parrish 2001

Appendix V: Guidelines for Food Safety Auditing in Airline Catering

Contents:

1. Introduction
2. Audit Principles for individual CCPs and SOPs
3. Scope, basic requirements to food safety audits
4. Steps of a Food Safety Audit
5. Rights and Duties of Caterers and Customer Auditors
6. Definition: Foods for Control

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1. Introduction

In-flight meals for passengers and crew must be safe, for which reason airline caterers are required, primarily to establish, operate and maintain documented programs of food safety control. Control programs should be effective, simple and understandable in order to support consistent and reliable implementation.

Principles and procedures for auditing of airline catering control programs need to be simple, fact-based and transparent in order to ensure understanding and respect between auditor and auditee.

This is the background for the production of the present guidelines.

2. Audit Principles for Individual CCPs and SOPs

The objective of the audit is to verify compliance with these World Food Safety Guidelines as applicable to the individual facility.

The preferred approach is to conduct a planned series of measurements on randomly selected foods of representative batches.

Verify overall compliance to the standard.

Isolated failures may not represent systematic non-compliance, where corrective actions have been carried out in response.

Final scores for the facility should reflect the overall compliance and include a positive response from the auditor for corrective action taken.

This may be done for most of the critical control points because CCPs have a critical limit. Unfortunately the standard operating procedures are not necessarily correlated with food and food batches and critical limits, so control of SOPs must be done by a planned evaluation of procedural elements.

3. Scope, Basic Requirements to Food Safety Audits

The food safety audit shall verify that:

1. *Relevant** microbial, physical and chemical hazards have been *identified* in caterer's control program by a transparent and simply structured Hazard Analysis.
2. *Relevant** microbial, physical and chemical hazards are *controlled* at identified Critical Control Points and by necessary Standard Operating Procedures, in practical compliance with the framework of the *World Food Safety Guidelines* (as well as possible local/national legislation superseding the guidelines).
3. Caterer's control procedures, including methods, frequencies, hardware, investments etc are based on, common sense approach, so that mutual understanding of control programs is consistently ensured.
4. **Relevant hazards* are hazards, which by analysis, as well as by historical experience are considered likely to occur.

4. Steps of a Food Safety Audit

For practical reasons the audit is split up into consecutive steps as follows:

1. Setting Date and Time of Audit.
2. Opening Meeting to set the agenda.
3. "Paper Audit" - an assessment of control system and control documentation
4. "Physical Audit" – an on-site verification of operating standards, procedures including an interview with staff
5. Auditor's summary of information, observations and check results, including summary of the above activities, identification of relevant and significant non-conformities, summary of additional and less significant issues and observations.
6. Closing meeting, discussion with caterer of the above summaries, seeking mutual agreement of identified non-conformities, as well as agreement on necessary corrective action.
7. Caterer's (post-audit) confirmation of corrective action initiation and / or implementation.

5. Rights and Duties of Caterers and Customer Auditors

The main purpose of the World Food Safety Guidelines is to provide industry standards against which audits should be conducted. It is recognized that differences of opinion regarding audit findings and related control requirements may occur.

It is therefore relevant to summarize duties and rights of supplier and customer, as this may contribute to mutual understanding and thereby to a more constructive and positive relationship between the parties.

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Duties and Rights of Caterers and Customer Auditors		
Caterer	Duties	Rights
1.	Caterer must identify food safety hazards relevant to the business and control these hazards by a HACCP-based control system, which includes the CCPs and SOPs specified in the World Food Safety Guidelines.	Caterer may choose preferred design, layout etc of control system
2.	Caterer must ensure that control is effective, reliable and consistent.	Caterer may choose preferred methods, staff, equipment, procedures, control frequencies (SOP) and corrective action.
3.	Caterer must allow auditor reasonable access to catering facility.	Caterer may defer the time of the audit due to obvious operational problems.
4.	Caterer must allow the auditor to conduct audit activities within a reasonable frame of time and resource allocation.	Caterer may charge for special audit activities, which by their nature require significantly increased time and / or manpower.
5.	Caterer must accept identified <u>justifiable</u> * non-conformities and to perform the necessary corrective action in a suitable or prescribed timescale.	Caterer may reject auditor's identified non-conformities, requirements and recommendations <u>if not objectively justified</u> .

Auditor	Duties	Rights
1.	Auditor must arrange, conduct and communicate audit activities in a rational, effective and respectful manner, with due consideration to time and resource allocation.	Auditor should have access to catering facility (within sensible frames of time and resource allocation) with the purpose of assessing caterer's control system.
2.	Auditor must conduct audit in such a way that only identified <u>justifiable</u> * non-conformities are included in audit and related rating. Auditor should acknowledge the caterers reasonable comments at closing meeting and if necessary adjust conclusion on the actual issue of debate.	Auditor should identify and communicate to caterer all relevant and justified non-conformities, which might pose a realistic food safety hazard to the food supply of auditor's airline. Auditor may give comments and recommendations to caterer (outside audit and related rating) regarding issues which auditor consider relevant but for which the need cannot be objectively justified by measurement, reference etc.

Non-conformities must be justifiable by reference to International standards, National standards or World Food Safety Guidelines.

It is not sufficient just to refer to the auditor company standard.

6. Definitions: Foods for Control

“High-Risk Foods” are foods known to harbour commonly microbial pathogens and / or support growth of microbial pathogens.

The term **“Potentially Hazardous Foods” (PHF)** includes cooked vegetables in addition to high-risk foods.

The term high-risk is better defined than PHF, but as the World Food Safety Guidelines already operate with the term PHF, it is maintained here.

It is common to group foods into:

1. Raw foods, which need to be cooked or washed prior to service.
2. Ready-to-eat (RTE) foods, which are in principle ready for consumption.
3. It is likewise common to split each of the 2 groups into:
4. Potentially hazardous foods (PHF), known to harbour commonly microbial pathogens and / or support growth of microbial pathogens.
5. Non-PHF, known not commonly to harbour and / or support growth of microbial pathogens.
6. Foods originating from areas where international food safety standards do not prevail may pose additional risks, which should be assessed by caterer and airline jointly.

- **Raw PHF include**

- Raw foods of animal origin (e.g. poultry, raw eggs, meats, fish, shellfish), to be cooked before service.
- Raw fruit and vegetables for service and consumption *in the raw state*, if grown by use of faecal contaminated fertilizer.

- **Ready-to-eat PHF** are ready-to-eat foods, which support rapid growth of pathogens when exposed to unsafe temperatures.

Main groups of ready-to-eat high-risk foods include:

- Cooked poultry, eggs, meat, fish, shellfish, rice, pasta, sauces, soups
- Composite products which contain such foods, e.g. meals, pâtés, tureens, salads
- Dairy foods, e.g. pasteurized milk, cream, soft cheeses.
- Cream and custard desserts and pastries
- Mayonnaise and dressings with pH above 4,5
- Cold-smoked foods, e.g. fish
- Dried foods, e.g. dried meats with a_w above 0,9
- Hot-smoked foods, e.g. fish, poultry

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As the name indicates, high-risk foods are the targets of control whereas the low-risk foods, as the name confirms, are of far less importance in a safety context, as they do not support growth of bacterial pathogens.

- ***Raw and ready-to-eat non-PHF***

This group includes foods which in general do not harbour vegetative pathogens in harmful amounts and which do not support rapid growth of such pathogens.

Non-PHF include a variety of commonly used foods, e.g. bread, sweets and pastries, jam and marmalades, fruit and vegetable (except if grown by/being in contact with faecally contaminated fertilizer/matter), pasteurized fruit juices, blanched/cooked vegetables, various preserved retail foods e.g. mustard, ketchup, acid dressings, canned foods, well dried meats ($a_w < 0,9$) etc.

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Appendix VI: Audit Tool

World Food Safety Guideline Checklist

STATION:
CATERING:
FINAL SCORE:
CARRIED OUT BY:
DATE:

Compliant

All Non-Compliant C.C.P.s require immediate action.

All Non-Compliant S.O.P.s require attention

✓ (Tick appropriate box/es)

THIS AUDIT CHECKLIST IS BASED ON THE IFCA/IFSA WORLD FOOD SAFETY GUIDELINES FOR AIRLINE CATERING. IT'S PURPOSE IS TO VERIFY THAT A CONTROL PROGRAM BASED ON H.A.C.C.P. PRINCIPLES IS IN PLACE WHICH CONTROLS RELEVANT FOOD SAFETY HAZARDS DURING PURCHASE, TRANSPORT, STORAGE, PROCESSING AND HANDLING. IT ALSO AIMS TO DETERMINE THAT ADEQUATE CORRECTIVE ACTION IS TAKEN AND RECORDED WHEN CRITICAL LIMITS ARE EXCEEDED OR SERIOUS DEVIATIONS FROM S.O.P.S OCCUR.

CHECK POINTS	CCPs		SOPs		COMMENTS
	4	1	2	2	
TRAINING					
1 Are staff trained in food safety to a level appropriate to their job? - Induction and refresher training - Includes test - Training records available for each member of staff					
INFECTION CONTROL					
2 Is there a robust and documented procedure for control of intestinal infections?					
3 Are wounds properly covered? - Conspicuous, waterproof dressings					
HACCP VERIFICATION					
4 Is there a verification programme for the H.A.C.C.P. system?					
5 Is corrective action taken when necessary and recorded?					
SUPPLIER APPROVAL					
6 Is there a Supplier Approval Process in place including controls as per the IFCA / IFSA guidelines?					
PRODUCT RECALL / HOLD / WITHDRAWAL					
7 Are there documented recall plans available in line with the IFCA/IFSA guidelines?					
CONTROL OF HAZARDOUS MEAL INGREDIENTS					
8 Is there a procedure for control of potentially hazardous meal ingredients in place? - Hazardous meal ingredients list available & adhered to (inc. Sp. Meals)					
CLAIMS/COMPLAINTS PROCEDURE					
9 Is there a documented incidents and complaints procedure? - Investigations carried out and recorded - Action taken as a result of investigation & recorded					
PEST CONTROL					
10 Is there adequate pest control? - Building properly proofed to prevent access of flying and crawling pests. - Recorded control procedures in place for rodents, insects and birds. - Records kept including unit plan, pesticide used, bait locations, what was found, action taken. - No signs of pest infestation.					
Subscore (minus points)					

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CHECK POINTS	CCPs	SCPs	COMMENTS
	4	1	2
FOOD HANDLING PRACTICES			
RECEIPT OF GOODS			
11 Is each delivery of potentially hazardous food checked? - Temperature of high risk foods monitored & recorded: Chilled: Critical: 8°C/47°F Frozen: Solid Hot: Critical: 60°C/140°F - Records kept and corrective action taken when necessary	CCP 1		
FOOD STORAGE			
12 Are foods covered to protect from contamination?			
13 Are foods date marked or colour coded and correctly rotating (no out-of-date foods)?			
14 Are potentially hazardous foods stored at correct temperature? - Refrigerators: Critical: 8°C/47°F - Records kept and corrective action taken when necessary	CCP 2		
FRUIT & VEGETABLE WASHING			
15 Documented cleaning process - Correct sanitiser concentration used where appropriate - Segregation of washed and unwashed products			
THAWING			
16 Is thawing performed under controlled conditions (eg. Refrigeration)? - Effective stock rotation - Foods unopened if thawed in water - End Temp: Target: 8°C/47°F			
HOT KITCHEN / HOT MEAL PRODUCTION			
17 Are foods cooked to correct core temperature & records kept? - <u>Unpasteurized Dairy</u> : 72°C / 161°F - <u>Unpasteurized Eggs</u> : 74°C / 165°F - <u>Poultry</u> : 74°C / 165°F - <u>Meats (Whole intact muscle)</u> : seared on all surfaces to effect a cooked colour change - <u>Fish / Shellfish / Crustaceans</u> : 65°C / 149°F seared on all surfaces to effect a cooked colour change - <u>Comminuted meats</u> : 74°C / 165°F - <u>Comminuted fish</u> : 70°C / 158°F	CCP 3		
18 Are foods cooled safely? Core temperature from: - 60°C / 140°F to 10°C / 50°F in 4 hours, or - 60°C / 140°F to 5°C / 41°F in 6 hours, provided it reaches 21°C in 2 hours. - Final core temperature <5°C within 6 hours - Records kept & corrective action taken when necessary	CCP 4		
COLD KITCHEN / READY-TO-EAT FOOD PRODUCTION / PORTIONING / TRAYS / SET ONE-TIME ASSEMBLY			
19A If ambient temperature is controlled at 15°C / 59°F or less, is ... - Ambient temperature recorded - Batch times recorded - Preparation does not exceed Critical limit of 90 Mins. - Records kept & corrective action taken when necessary	CCP 5		
OR			
19B If ambient temperature is above 15°C / 59°F: - Food Temperature is recorded - Ready to eat foods do not exceed: Critical 15°C/59°F Or: - Batch times recorded - Preparation does not exceed Critical limit of 45 mins - Records kept & corrective action taken when necessary	CCP 5		
Subscore (minus points)			
DESPATCH			

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DESPATCH		
20 Are despatch controls implemented? - High risk cold food: Maximum : 8°C/47°F; (or national standard where stricter) - Temp recorded at despatch. - Records kept & corrective action taken when necessary		
21 Are ice machines and scoops clean and well-maintained?		
DELIVERY TO AIRCRAFT		
22 Are uplift temperatures measured? - Food 8°C /47°F or less - Regular monitoring and recording of uplift temperatures sufficient to show compliance with S.O.P.		
23 Is there a documented delay procedure available?		
CONTROL OF PHYSICAL & CHEMICAL HAZARDS		
24 Is there control of physical & chemical contamination inc. Glass breakage procedure?		
PREVENTION OF CROSS CONTAMINATION		
25 Is there clear segregation of raw and ready-to-eat food during storage?		
26 Is there clear segregation of raw and ready-to eat food during preparation?		
27 Is there clear segregation of clean and dirty equipment?		
28 Is there regular & correct sanitising of food contact surfaces & equipment?		
29 Are there effective controls to ensure correct production of special meals e.g. avoidance of allergens.		
PERSONAL HYGIENE		
30 Are uniforms suitable, clean, commercially laundered & correctly worn? Is jewellery worn in compliance with company rules?		
31 Are there hand wash facilities in each area with hot water, filled soap dispenser and single-use towels & signs for handwashing suitably placed?		
32 Are hand wash facilities correctly used?		
33 Wherever possible are tools (including gloves) used for portioning of food to minimise direct food contact?		
34 When worn, are disposable gloves changed after use for unclean handling processes?		
35 Are toilets and changing rooms clean and well maintained?		
CLEANING, WASTE DISPOSAL & EQUIPMENT		
36 Is there a written cleaning and disinfection programme in operation?		
37 Is there adequate and suitable cleaning equipment? - Separate chemical stores with chemicals correctly labelled - Food grade detergents and sanitisers available in all working areas.		
38 Cleanliness - Are all areas of unit free from visible dirt and debris?		
39 Waste Bins - Are waste bins well maintained, emptied and cleaned when necessary? - Are lidded bins foot operated?		
40 Waste collection station: - Is it clean and well maintained? - Is it covered and/or enclosed to deter pest activity?		
41 Food Preparation Equipment and Food Contact Surfaces - Are food preparation equipment and food contact surfaces made from appropriate materials and maintained in good condition? - Are thermometers calibrated annually with records kept?		
Subscore (minus points)		

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CHECK POINTS	GGPs	SEPs		COMMENTS
	4	1	2	
<ul style="list-style-type: none"> - Do equipment washing machines achieve equipment surface temperatures of 71°C / 160°F or Final Rinse Temp of 82°C/180°F? - Are dishwasher temperatures monitored & recorded at beginning of each shift using thermometers or data loggers? - Manual washing procedures includes some form of disinfection? - After cleaning, is equipment visibly clean? 				
43. Equipment Storage <ul style="list-style-type: none"> - Is cleaned equipment stored in a way which ensures quick drying and prevents contamination? 				
UNIT STRUCTURE, SIZE, LAYOUT AND DESIGN				
44. Does unit size & layout permit effective segregation of clean and unclean materials and processes?				
45. Does the building design permit effective cleaning and finishes? <ul style="list-style-type: none"> - Floors, walls and ceilings have a smooth surface, are washable, well maintained and clean. Floors to fall (incline) to drain. - Floor drains open, clean and with grates. - All areas well lit - Adequate ventilation to prevent excessive rises in air temperature in food preparation rooms. 				
	Subscore (Minus Points)			
	Minus points from Page 1			
Final Score (100 less total number of minus points)				

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Appendix VII: Audit Reference Tool (April 2006)

The checklist is based on the Food Safety Guidelines for Airline Catering published in February 2003 and updated March 2006.

Its purpose is to facilitate verification that a control programme based on HACCP principles is in place and that this programme will control relevant food safety hazards during the production, storage, handling and delivery of aircraft meals, including corrective action on identified non-compliance with CCPs and SOPs.

Whilst the World Food Safety Guidelines for airline catering are the standards set for compliance, where National standards are more strict then Caterers must comply with their National standards.

Where a non compliance of a critical control point (CCP) is noted then 4 points will be deducted from the score and the flight kitchen will be deemed to have failed the audit, since there is no place for compromise where food safety is at risk.

Standard operating procedures (SOPs) differ from Critical Control Points. Whereas CCPs are food specific, SOPs deal with other issues related to food handlers, the food premises etc. Although some SOPs are essential for safety (e. g meal component restrictions, food handler infection control) SOPs generally control the food environment rather than the food and it is therefore appropriate to allow some room for compromise or tolerance for minor SOP discrepancies noted during an audit. Hence the checklist allows a choice of three scores for SOPs, these being:

- acceptable - all areas within the SOP are correct so no points deducted
- tolerable - the majority of the SOP is correct but a minor deviation is noted, e.g. one wash hand basin is found which is not correctly equipped with soap, then 1 point may be deducted from the score
- unacceptable - when a large proportion of an SOP is incorrect, e.g. the majority of wash hand basins in a flight kitchen do not have soap then two points will be deducted

In deciding the level of non-compliance with the SOP the auditor must exercise a level of common sense and experience in understanding whether the failure of the SOP is a regular occurrence or a single failure on the day caused by a genuine mistake.

Auditors should remember that decisions thought by the Caterer to be too harsh will not help in fostering a good working relationship, which would otherwise benefit both auditor and Caterer.

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The following guidelines are offered to help in the completion of the checklist:

1. **Training** – Food handlers and managers shall be trained to ensure that they understand and are able to perform the food safety controls applicable to their job. Training for this purpose shall be documented. Procedures for verification of the success of training such as written or oral tests, or observation of the food handlers performance in the workplace are recommended.
2. **Infection control** - This requires a formal written procedure which investigates the medical history of new employees prior to them commencing work if a regulatory requirement (an example of a suitable format is available in the World Food Safety Guidelines appendices), encourages staff to report incidents of illness such as vomiting and / or diarrhoea, including any which may have occurred when they have been on vacation. It must indicate the corrective action to be taken by management when incidents are reported. It does **not** require stool/faecal specimens to be taken as a regular control measure.
3. Conspicuous waterproof dressings should preferably be coloured in order to be readily visible if they accidentally enter the food. Where metal detection is available on line they should also contain a metal strip.
- 4-5. **Microbiological Verification** - Every HACCP programme should be verified to show that it is working correctly by regularly monitoring the final product via laboratory analysis. Flight caterers should not rely solely on their customer airlines to provide a microbiological sampling programme but should verify their own procedures via a local laboratory where available. Testing should be carried out in accordance with the microbiological guidelines in Section 9 of the World Food Safety Guidelines.
6. **Supplier Approval** - All external suppliers should be audited in order to prove the safety of bought in products, particularly those which are ready to eat and / or potentially hazardous. Primary audit may be by use of a suitable questionnaire, designed to identify the safety controls in place at the suppliers premises, following receipt of which a decision can be made as to whether a full physical audit of the premises is required. No ready to eat (RTE) or potentially hazardous food (PHF) should be used until a satisfactory audit of the supplier has been completed. Verification will be by checking audit reports, HACCP documentation, training records etc., of the supplier company. Whilst supplier approval is of particular relevance to RTE potentially hazardous foods, by virtue of their susceptibility to microbiological contamination, all foods are subject to contamination by foreign bodies thus supplier approval is relevant to the supply of all food products. Approval may be at corporate level for a nation wide supplier or by station for local suppliers.

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7. **Product Recall** - Procedures should be as documented in Section K of the World Food Safety Guidelines.
8. **Control of Hazardous Meal Ingredients** - Caterers should document a procedure for effective control of restricted meal ingredients in accordance with Section D of the World Food Safety Guidelines.
9. **Claims / Complaints Procedure** – Caterers should be able to demonstrate a documented procedure showing responsibility for handling of complaints, investigation and corrective action procedures and is outlined in Section M of the Guidelines.
10. **Pest Control** – Caterer shall document a programme for prevention of access of pests along with a programme for eradication of pests, which may penetrate the premises despite preventative measures. A suggested SOP is Section O of the Guidelines.
11. **Receipt of Goods** - Food should be checked on arrival for compliance with pre-set parameters. This is a CCP as per details in Section 6 of the World Food Safety Guidelines and the critical limits must be complied with. Records of food receiving should be kept including details of corrective action taken when necessary.
12. **Food Storage** - Includes both SOPs and CCPs. Food should be covered during storage to protect it from possible contamination by microbial sources or physical contamination by foreign bodies or chemicals. This CCP is detailed as CCP 2 in section 6.
13. **Date Coding** - can utilise a delivery date, production date (in either case all staff must be aware of the shelf life of the product) or a use by date or best before date. Colour coding may also be applicable in some instances. Whichever system is used, it must be robust and must be identifiable through the kitchen. Staff must fully understand the system in use and be able to demonstrate how it operates.
14. **Temperature Controls** - in storage are relevant for potentially hazardous foods and critical limits must be complied with as per the details in Section 6 of the World Food Safety Guidelines.
15. **Fruit and Vegetable Washing** - The process used must be able to remove soil and dirt from incoming raw materials. Where a sanitizer is used a method for checking concentration in use should be available. Reference Section 8G of the World Food Safety Guidelines.
16. **Thawing** – This is an SOP details of which can be found in Section 4, item 8 and Section 8H of the World Food Safety Guidelines. Thawing should preferably be carried out under controlled conditions. Where thawing of ready to eat foods has to be carried out in running cold water, the packs of

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frozen food must be unopened whilst in the water. Once thawed effective stock rotation must be practised.

- 17. Hot Kitchen / Hot Meal Production** - As CCP so records must be available for all batches of potentially hazardous food to show compliance with critical limits as per the World Food Safety Guidelines Section 7. When corrective action is required to comply with the CCP then it must be recorded.
- 18. Cooling After Completion of Cooking** – Control of chilling of potentially hazardous foods (e. g. meats, poultry, eggs, fish, shellfish, sauces, rice, pasta) must be documented in accordance with Section 7, CCP 4 of the World Food Safety Guidelines.
- 19. Cold Kitchen / Ready to Eat Food Production etc.** - A number of food production areas are included under one heading to allow for the variation of production methods found in flight kitchens. However, this is a CCP so records must be available showing adherence to critical limits in all of the food production areas included. Any necessary corrective actions taken must also be recorded. The CCPs are complicated but allow for flexibility. Firstly, a distinction is made between kitchens which have temperature controlled (e. g. air conditioned / chilled) production areas and those which have not. If the production area is held at a temperature of 15 °C / 59 °F or below and **records are available to prove this**, then there is no need to measure the temperature of the food since it cannot rise above 15 °C / 59 °F. However, the food must not be allowed to stay in the production area out of temperature control for more than 90 minutes so records must be kept of the start and finish time of each batch of food. If production is carried out at an ambient temperature above 15 °C / 59 °F /, then **either** the food temperature is measured and recorded and is not allowed to rise above 15 °C / 59 °F / **or** the start and finish times of production for each batch of food are recorded and it must not be allowed to stay in the production area out of temperature control for more than 45 minutes.
- 20. Despatch** - Records must be available showing despatch temperatures of food on departure to the aircraft. This is a SOP so the records must show adherence to critical limits as detailed in Section 6, of the World Food Safety Guidelines.
- 21. Ice Machines** – should have a regular cleaning and sanitising schedule. Scoops should be kept clean, dry, and protected from contamination or otherwise may need to be sanitised before each use.
- 22. Delivery to Aircraft** - Caterers should be able to demonstrate that monitoring of temperatures on delivery of food to the aircraft complies with the World Food Safety Guidelines and that temperatures on delivery do not exceed the recommended level. Where security issues prevent the taking of temperatures on delivery to the aircraft a delivery time should be indicated.

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- 23. Delay Policy** - Caterers should also be able to demonstrate the procedures they adopt in dealing with delays in aircraft departures. Details of a delay policy are on Section J, of the World Food Safety Guidelines.
- 24. Control of Physical and Chemical Hazards** - Caterers must be able to demonstrate an awareness of relevant physical hazards and the steps taken to avoid possible contamination of the product. It may be advisable to keep records of glass breakage, which occurs in the kitchen in order to be able to deal with subsequent claims of glass in meals.
- 25. Prevention of Cross Contamination** - This is applicable in a number of areas in the kitchen and deals not only with the risk of bacterial contamination but also with the risk of contamination by allergens or unacceptable food items when special meals are being prepared. Raw food or uncleaned food items such as produce, should be separated physically or by distance (when in the same room or area) from ready to eat or cleaned/sanitised produce items by physical storage in separate areas. Separation may also be by location (e.g. clean food stored above unclean food such as in a cabinet refrigerator) in such a way that cross contamination of clean food is prevented. Clean and unclean
- Processes shall be segregated physically or by distance in such a way that contamination from unclean processes is prevented.
- 26. The Handling of Raw Foods During Preparation** - The handling of raw foods and foods which are not clean or sanitized should preferably be carried out using people who are not engaged in the handling of ready to eat foods. Where cross utilisation of food handlers is necessary then food safety training must be robust to ensure that any risk of cross contamination is removed.
- 27. Segregation of Equipment** – Care must be taken to avoid cross contamination risks caused by dirty equipment coming into contact with clean equipment or clean food contact surfaces.
- 28. Sanitizing of Food Contact Surfaces and Equipment** – A regular cleaning and sanitizing schedule must be in place to ensure that all food contact surfaces and equipment are kept clean and free of bacterial contamination. Staff should be able to demonstrate knowledge of correct techniques and the use of suitable cleaning materials and sanitizers.
- 29. Production of Special Meals** – Care must be taken to ensure that special meals such as “nut free” are not accidentally cross-contaminated. They should be made in an area of the kitchen, which has not previously been used for the preparation of allergen related foods such as peanut butter sandwiches for children. Food contact equipment and surfaces should be thoroughly cleaned and sanitised before use and staff should wear clean protective clothing including disposable gloves which have not previously been in contact with any allergen related foods.

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- 30 - 35. Personal Hygiene** - Covers a number of items most of which are self-explanatory and details are in Section B, of the World Food Safety Guidelines. The Company is to ensure that all protective clothing is laundered effectively. Hair must be fully covered and all employees must observe Company rules on the wearing of jewellery in food production areas. The use of disposable gloves should be monitored to ensure that they are worn correctly and do not give rise to risk of cross contamination. Verification will be by visual observation of working practices in the premises.
- 36 - 43. Cleaning, Waste Disposal and Equipment** - Basic principles, most of which are self-explanatory. A good written cleaning programme should detail all areas and items to be cleaned, the frequency and method of cleaning, the chemicals and sanitizers to be used, who is responsible for carrying out the work and who ensures that the finished product meets the required standard. Calibration of thermometers is included in this section as they can be deemed to be part of the food equipment. Frequency of calibration will be dependent upon the equipment and its usage but should not be less than annual. Thermometers can include temperature gauges so long as they have been calibrated. Dish washing and pot washing requires records showing regular temperature verification, preferably by thermolabel or data logger. The dishwasher gauges should only be used for temperature monitoring if they have been calibrated.
- 44 - 45. Unit structure, size, layout and design** - Allows for comment at the end of the audit, when the building has been fully viewed, as to its suitability for use for food production and gives scope for comment on necessary improvements. Verify by visual observation that unit is designed, equipped, maintained and kept clean in such a way that risk of harmful contamination from food environment is prevented.