

# World Food Safety Guidelines for Airline Catering

## Preface

Food safety has long been recognized by the Airline Catering Industry as a matter of paramount importance and this is reflected in its' ongoing commitment to the development of industry guidelines.

In writing this third edition of the World Food Safety Guidelines for Airline Catering, our objective has been to provide a flexible food safety guideline that can accommodate our rapidly changing industry and ever increasing economic challenges.

The most noticeable difference in this version is the inclusion of both standards and guidelines. Standard in the context of this edition is meant as a minimum requirement. The aim is to focus on the goals that are of paramount importance in achieving food safety whilst giving companies the flexibility to meet those goals. This pragmatic approach recognizes the complexity and dynamics of the industry without compromise to the highest food safety standards.

It has been recognized that to ensure the safety of food and drink when consumed onboard, a food safety management system that encompasses all stages of food production from product design through to service onboard, needs to be in place. As a result, this document is no longer aimed solely at flight caterers but rather at both airlines and suppliers from production until passenger service. It will provide a guideline and a reference document for all parties.

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

- The involvement of a broad spectrum of all stakeholders.
- The inclusion of leading industry food safety experts throughout the revision process.
- The development of simple, practical, risk and science based standards that are outcome based rather than prescriptive.

## Acknowledgement

This revision has been made possible by the support and encouragement of the International Flight Services Association ("IFSA") and Association of European Airlines ("AEA") and the following individuals and their companies whose commitment, time and expertise was so generously provided in order to bring about this publication.

<i>Ulrike Enneking</i>	<i>LSG Sky Chefs</i>	<i>Lin Holcomb</i>	<i>Clear Quality Group</i>
<i>Lionel Wilton</i>	<i>Alpha Catering</i>	<i>Pat Clark</i>	<i>Gate Gourmet</i>
<i>Mike Kelly</i>	<i>Chadwick House Group</i>	<i>Karl Galaba</i>	<i>Gate Gourmet</i>
<i>Araya Charoensupaya</i>	<i>Gate Gourmet</i>	<i>Andrew Trabosh</i>	<i>LSG Sky Chefs</i>
<i>Mary Ann Dowd</i>	<i>Continental Airlines</i>	<i>Robin Swenson</i>	<i>Delta Airlines</i>
<i>Anup Khanna</i>	<i>Alpha Catering</i>	<i>Ben Levine</i>	<i>LSG Sky Chefs</i>
<i>Dawn Sylvester</i>	<i>Alpha Catering</i>	<i>Neil Ylanan</i>	<i>LSG Sky Chefs</i>
<i>Suzanne Fisher</i>	<i>Gate Gourmet</i>	<i>Pam Edwards</i>	<i>British Airways</i>
<i>Dr. Fernando Blanco</i>	<i>Iberia Airlines</i>	<i>Maria Rodriguez Poo</i>	<i>Gate Gourmet</i>
<i>Niels Nielson</i>	<i>SAS</i>	<i>Tom Schwarz</i>	<i>IFSA</i>
<i>Zev Chernilo Muller</i>	<i>LAN Airlines</i>	<i>Anthony Edwards</i>	<i>Cathay Pacific</i>
<i>Pascal Inauen</i>	<i>Gate Gourmet</i>	<i>Mike Nail</i>	<i>Gate Gourmet</i>
<i>Alison Imlay</i>	<i>Qantas</i>	<i>Debbie Chuckman</i>	<i>Cara</i>

We gratefully acknowledge the time and effort by the IFSA / IFCA / AEA and WHO contributors of the former editions and we would like to thank Dean Davidson, FDA, CFSAN Office of Compliance, for the support and direction provided to the committee.

# **World Food Safety Guidelines for Airline Catering**

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# World Food Safety Guidelines for Airline Catering

## 1. Introduction

### 1.1 Purpose and Scope

The World Food Safety Guidelines for Airline Catering describes an effective food safety control concept applicable to the airline industry worldwide and accepted as the basic reference document for all parties involved.

However the World Food Safety Guidelines for Airline Catering are superseded by national food legislation whenever those requirements are stricter.

### 1.2 User Guide

The World Food Safety Guidelines for Airline Catering is written in the following format:

#### 1.2.1 Standard

The Standard specifies the requirements that the company must have in place in order to ensure food safety control in the respective step.

The Standard generally consists of the following information:

- Definition
- Purpose
- Scope

The definition of the Standard is stated in a framed box, an example is as follows,

**This is the World Food Safety Guidelines for Airline Catering**

#### 1.2.2 Guidelines

The Guidelines offer the user a method on how to achieve the standards. The Guidelines are not mandatory, and the operation may use alternative methods based on risk assessment to achieve the standard.

The Guidelines generally consist of the following information:

- Critical limit
- Monitoring
- Corrective action
- Audit guide

Icons indicate in Part 2.3 CCPs and 2.4 SOPs responsibilities as follows:



: Flight Caterer



: Airline

# **World Food Safety Guidelines for Airline Catering**

## **1.3 Food Safety Management System**

Food safety management systems provide a structured approach to ensuring the safety of food and demonstrating due diligence. They enable the operators to identify the points in the food chain that are likely to have the most effective impact on the safety of the final product.

The effectiveness of a system is reliant upon a corporate commitment to the programme. All levels within a company from top management down must be dedicated to its development, implementation and continuous review.

A food safety management system is comprised of two components that are of equal importance – accountability and HACCP principles.

### **1.3.1 Accountability**

A food safety management system must include details of the positions that are accountable for ensuring food safety at each stage of the food chain and the boundaries of their responsibilities. The top management is ultimately responsible for food safety.

The system details must be documented, communicated to the organization and updated whenever changes are made to the company structure.

### **1.3.2 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 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.

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## **2. Standards and Guidelines**

### **2.1 Accountability**

**Top management is responsible for developing and implementing a food safety management system and to allocate resources and expertise as necessary to enable its effective application and continued maintenance.**

#### **2.1.1 Management Responsibility**

Top management have ultimate responsibility of food safety.

They may appoint a suitably trained food safety representative to technically support achievement of the objectives.

#### **2.1.2 Management Commitment**

Top management commitment can be demonstrated by, but not limited to:

- communicating the food safety policies and strategies throughout the organization
- food safety being included into its company objectives
- resource management and budgetary planning supporting various food safety aspects
- ensuring the timely implementation of appropriate corrective action where necessary
- striving for continual improvement

#### **2.1.3 Organizational Structure**

The company shall have an organizational chart demonstrating the structure of the company.

Documented, clearly defined responsibilities shall exist and be communicated to key staff with responsibility for food safety, legality and quality systems.

Appropriate documented arrangements in place to cover for absence of key staff

Company top management shall ensure that a description of general duties or work instructions are in place and communicated to all staff with activities relating to product safety, legality and quality.

#### **2.1.4 Management Review of Effectiveness of Food Safety Management System**

Members of top management shall have regular meetings to review their identified Key Performance Indicators, understand trends and work towards continual improvement of the food safety management system.

There shall be a system in place to ensure that the company is kept informed of all relevant legislative, scientific and technical developments and industry codes of practice applicable in the country of operations.

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### **2.2 HACCP**

**A food safety management system based on the principles of HACCP must be applied by the responsible parties to all stages of the supply chain for which they are accountable.**

#### **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.

##### **2.2.1 Assemble HACCP Team**

Each responsible party should ensure that the appropriate product specific knowledge and expertise is available for the development of an effective HACCP plan. This will be accomplished by assembling a multidisciplinary team. For example the team may include, but not be limited to members from the Airline flight planning, Cabin Crew, 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 hazards to be addressed.

##### **2.2.2 Describe Products**

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

##### **2.2.3 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.

##### **2.2.4 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.

##### **2.2.5 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.

## **World Food Safety Guidelines for Airline Catering**

### **2.2.6 Implement the Seven Principles of HACCP**

#### **Principles of HACCP**

Airlines and 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.


##### **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.**

## World Food Safety Guidelines for Airline Catering

### 2.3 Critical Control Points



CCP 1 Control at Food Receiving 	
Standard	
<b>The company must have a food temperature control system for safe receipt of potentially hazardous food.</b>	
<b>Purpose</b>	To verify safe food temperature control during transport from the supplier
<b>Scope</b>	Deliveries of refrigerated and frozen potentially hazardous foods.
Guidelines	
<b>Critical Limit</b>	<p><i>Refrigerated foods shall be delivered at a maximum of 8 °C / 46 °F.</i></p> <p><i>Frozen foods shall be hard frozen and without signs of previous thawing at time of delivery.</i></p>
<b>Monitoring</b>	<p><i>Food temperature to be monitored and recorded for each delivery of refrigerated potentially hazardous food.</i></p> <p><i>Note: Each delivery of refrigerated and frozen food must be controlled, but not necessarily each food of a given delivery</i></p>
<b>Corrective Action</b>	<i>Reject deliveries where temperatures do not meet the critical limit.</i>
<b>Audit</b>	<p><i>Verify control and control documentation on possible deliveries taking place at the time of the audit.</i></p> <p><i>Select at random in refrigerators and freezers foods having been delivered and verify control of corresponding deliveries.</i></p>

## World Food Safety Guidelines for Airline Catering

CCP 2 Control of Cold Storage Temperature 	
Standard	
<b>The company must have a food temperature control system for safe storage of potentially hazardous food.</b>	
<b>Purpose</b>	To prevent growth of pathogenic micro-organisms to harmful levels during storage.
<b>Scope</b>	Refrigerators for food storage.
Guidelines	
<b>Critical Limit</b>	<i>Critical limit product: 5 °C / 41 °F</i>
<b>Monitoring</b>	<i>Refrigerator gauges monitored and recorded at a frequency considered effective.</i>
<b>Corrective Action</b>	<p><i>Where refrigeration temperature rises above 8 °C / 46 °F check temperature of a representative sample of food items</i></p> <p><i>Where food temperature rises above 5 °C / 41 °F evaluate the appropriate corrective action to be taken and document it accordingly- allowance must be made for food which has been returned following recent handling at higher temperatures.</i></p>
<b>Audit</b>	<p><i>Check temperatures of randomly selected refrigerators.</i></p> <ul style="list-style-type: none"> <li><i>Check gauge temperatures during tour of unit. If significant deviations are noticed, verify over next 1-2 hours that corrective action is initiated.</i></li> <li><i>Where Electronic surveillance systems exist: Verify that a procedure/schedule for monitoring screen or print-outs are in place and / or that an alarm system is active.</i></li> </ul> <p><i>Verify completion of documentation for randomly selected refrigerators.</i></p>

Reference to 5 °C: USDA ARS, Pathogen Modeling Program Version 7.0  
<http://www.arserrc.gov/mfs/pathogen.htm>

## World Food Safety Guidelines for Airline Catering

CCP 3 Control of Food Cooking  															
Standard															
<b>The company must have a food temperature control system for safe cooking of high risk foods</b>															
<b>Purpose</b>	To ensure destruction/reduction to safe levels of pathogenic bacteria, viruses and parasites.														
<b>Scope</b>	High-risk raw foods.														
Guidelines															
<b>Critical Limits</b>	<p><i>Minimum required core temperatures:</i></p> <table> <tr> <td><i>Poultry</i></td><td>74 °C / 165 °F</td></tr> <tr> <td><i>Meats<sup>1</sup></i></td><td>65 °C / 158 °F</td></tr> <tr> <td><i>Meats, comminuted<sup>2</sup></i></td><td>74 °C / 165 °F</td></tr> <tr> <td><i>Fish, Shell fish, Crustaceans</i></td><td>65 °C / 149 °F</td></tr> <tr> <td><i>Fish, shell fish, comminuted<sup>2</sup></i></td><td>70 °C / 158 °F</td></tr> <tr> <td><i>Un-pasteurized Eggs<sup>3</sup></i></td><td>74 °C / 165 °F</td></tr> <tr> <td><i>Un-pasteurized Dairy<sup>3</sup></i></td><td>72 °C / 161 °F</td></tr> </table> <p><i>Whole-muscle<sup>4</sup> beef, lamb, fish seared on all external surfaces to effect a cooked color change.</i></p>	<i>Poultry</i>	74 °C / 165 °F	<i>Meats<sup>1</sup></i>	65 °C / 158 °F	<i>Meats, comminuted<sup>2</sup></i>	74 °C / 165 °F	<i>Fish, Shell fish, Crustaceans</i>	65 °C / 149 °F	<i>Fish, shell fish, comminuted<sup>2</sup></i>	70 °C / 158 °F	<i>Un-pasteurized Eggs<sup>3</sup></i>	74 °C / 165 °F	<i>Un-pasteurized Dairy<sup>3</sup></i>	72 °C / 161 °F
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<i>Un-pasteurized Dairy<sup>3</sup></i>	72 °C / 161 °F														
<b>Monitoring</b>	<i>Check and record food core temperature of each batch upon completion of cooking or surface color change where food has been seared.</i>														
<b>Corrective Action</b>	<i>If critical limit is not met, continue cooking until limit is met.</i>														
<b>Audit</b>	<p><i>Select at random some foods being cooked and verify compliance by end core temperature monitoring.</i></p> <p><i>Select at random some foods and verify control documentation.</i></p>														
<b>Note: parasite destruction</b>	<p><i>Parasites are destroyed in pork and fish by recommended temperatures above.</i></p> <p><i>In the exceptional case that the customer wishes to serve raw fish, the alternative process to destroy possible parasites is by freezing according to the following standards:</i></p> <p><i>-20°C/-4°F for 7 days</i></p> <p><i>-35°C/-31°F until solid and stored at -20°C/-4°F for 24 hours</i></p>														


<sup>1</sup> include beef, pork, lamb and other meats, which are not whole-muscle or comminuted. Ref: Temps 157°F with zero time

<sup>2</sup> include ground, minced, re-formed, tumbled meats.


<sup>3</sup> use of these products is not recommended, see SOP Hazardous Meal Ingredients

<sup>4</sup> includes filet (tenderloin), sirloin, loin of lamb etc.

## World Food Safety Guidelines for Airline Catering

CCP 4 Control of Food Chilling 	
Standard	
<b>The company must have a control system for safe chilling of high risk foods after cooking</b>	
<b>Purpose</b>	To prevent growth of vegetative pathogenic bacteria during post-cook chilling process.
<b>Scope</b>	Potentially Hazardous Foods, cooked in-house.
Guidelines	
<b>Critical Limit</b>	<i>Food temperature (core) to pass temperature interval of 60 °C / 140 °F to 10 °C / 50 °F within 4 hours <b>Or</b> 57 °C / 135 °F to 21 °C / 70 °F within 2 hours and from 21 °C / 70 °F to 5 °C / 41 °F in a further 4 hours. (FDA)</i>
<b>Monitoring</b>	<i>Check and record time and food core temperature at the thickest part of the product at start and finish of process.</i>
<b>Corrective Action</b>	<i>Dispose of product.</i>
<b>Audit</b>	<i>Select at random some foods (preferably dense) being chilled and verify compliance.</i>
	<i>Select at random some foods in refrigerator having been cook/chilled within the past 24 hours and verify control documentation.</i>

## World Food Safety Guidelines for Airline Catering

CCP 5 Control of Food Processing 	
Standard	
<b>The company must have a time/temperature control system for safe handling of potentially hazardous ready-to-eat foods.</b>	
<b>Purpose</b>	To prevent growth of pathogenic micro-organisms to harmful levels during handling.
<b>Scope</b>	Potentially Hazardous ready-to-eat foods.
Guidelines	
<b>Critical Limit</b>	<ol style="list-style-type: none"> <li>1. Ambient temperature is <math>&lt; 5^{\circ}\text{C}/41^{\circ}\text{F}</math> No time or temperature control/record is required.</li> <li>2. Ambient temperature is <math>&gt; 5^{\circ}\text{C}/41^{\circ}\text{F}</math> but <math>\leq 15^{\circ}\text{C}/59^{\circ}\text{F}</math> Food exposure time must not exceed 90 minutes.</li> <li>3. Ambient temperature is <math>&gt; 15^{\circ}\text{C}/59^{\circ}\text{F}</math> but <math>\leq 21^{\circ}\text{C}/70^{\circ}\text{F}</math> Food surface temperature must not exceed <math>15^{\circ}\text{C}/59^{\circ}\text{F}</math> <b>or</b> Food exposure time must not exceed 45 minutes.</li> <li>4. Ambient temperature is <math>&gt; 21^{\circ}\text{C}/70^{\circ}\text{F}</math> Food surface temperature must not exceed <math>15^{\circ}\text{C}/59^{\circ}\text{F}</math> <b>and</b> Food exposure time must not exceed 45 minutes.</li> </ol>
<b>Monitoring</b>	<ol style="list-style-type: none"> <li>1. Check and record ambient temperature (as in CCP 2).</li> <li>2. Check and record ambient temperature. Check and record food exposure time.</li> <li>3. Check and record ambient temperature. Check and record food surface temperature <b>or</b> food exposure time at end of process.</li> <li>4. Check and record food surface temperature <b>and</b> food exposure time at end of process.</li> </ol>
<b>Corrective Action</b>	If critical limit is exceeded, discard food.
<b>Physical Audit</b>	Randomly select foods/meals batches and verify compliance. Randomly select foods in refrigerators and verify control documentation.



Reference to  $5^{\circ}\text{C}$ : USDA ARS, Pathogen Modeling Program Version 7.0  
<http://www.arserrc.gov/mfs/pathogen.htm>

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### **2.4 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 generalized 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. This document refers to these support programs as Standard Operating Procedures (SOPs).


## World Food Safety Guidelines for Airline Catering

SOP Product Design  	
Standard	
<b>Food safety must be incorporated into product design by all stakeholders.</b>	
<b>Purpose</b>	To minimize food safety hazards throughout the food chain to the final consumption onboard the aircraft.
<b>Scope</b>	The policy extends from and includes product brief to point of service and includes all applicable elements e.g. food origin, flight duration, ingredients, processing, packaging, airline equipment, labeling, galley design, onboard equipment, onboard storage, etc.
Guidelines	
<b>Procedure</b>	<p><b>The following should be considered when designing food products, equipment, kitchens and galleys.</b></p> <p><b>Food Product design</b></p> <ul style="list-style-type: none"> <li>• <i>Shelf life.</i></li> <li>• <i>Time until consumption (including round catered, multi sector, overnight stop).</i></li> <li>• <i>Labeling.</i></li> <li>• <i>Packaging.</i></li> <li>• <i>Storage environment.</i></li> <li>• <i>Down route shipments.</i></li> <li>• <i>Hazardous food ingredients &amp; dietary requirements.</i></li> </ul> <p><b>Food Contact Equipment &amp; packaging design</b></p> <ul style="list-style-type: none"> <li>• <i>Suitable for purpose (e.g. insulated container).</i></li> <li>• <i>Food grade and non-porous material.</i></li> <li>• <i>Cleanable where appropriate.</i></li> </ul> <p><b>Premises and Galley Design</b></p> <ul style="list-style-type: none"> <li>• <i>Fit for purpose.</i></li> <li>• <i>Consideration of clean and unclean segregation.</i></li> <li>• <i>Provision of hand cleansing facilities.</i></li> <li>• <i>Easily Cleanable.</i></li> <li>• <i>Pest free through design.</i></li> <li>• <i>Waste disposal.</i></li> <li>• <i>Appropriate utility services supply.</i></li> </ul>
<b>Audit</b>	<i>Review of specification.</i>

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SOP Hazardous Meal Ingredients 		
Standard		
Certain foods are deemed by nature, by processing or source, to pose a specific food safety risk and are recommended not to be used for service. A list of such foods needs to be established and considered in the menu design process, procurement and production.		
Purpose	To prevent food-borne illness.	
Scope	<ul style="list-style-type: none"><li>Menu design and planning</li><li>Procurement of semi-finished or finished products</li></ul>	
Guidelines		
Procedure	The following table, which is not exhaustive, provides guidance as to meal ingredients and possible hazards:	
	Food Type	Examples of Possible Hazard(s)
A	Food under recall by a local regulatory authority or food involved in a food-borne illness investigation	Melamine contaminated food
B	Raw or undercooked food of animal origin	
	Raw meat such as carpaccio, raw fish or raw shellfish such as sashimi, poisson cru, oysters, mussels, clams, cockles and fish roe.	Bacterial / viral and parasitic pathogens
	Undercooked shell eggs or any menu item that contains uncooked or lightly cooked shell eggs.	Salmonella species.
	Raw milk, unpasteurized dairy products made from raw milk, such as soft cheese.	E.coli, Salmonella species, Listeria monocytogenes.
C	Raw or undercooked food from plant origin	
	Raw alfalfa sprouts, bean sprouts, any other sprouts or fresh herb garnishes that cannot be readily washed and sanitized.	E.coli, Salmonella species, Listeria monocytogenes.
	Raw fruits and vegetables that are grown by use of fecal contaminated fertilizer.	
	Raw coconut in ready-to-eat foods	Salmonella species
	Unpasteurized juices (fruit or vegetable) with the exception of pH value less than 4	E.coli, Salmonella species, Listeria monocytogenes and viruses.
D	Toxic items	
	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 (Seriola lalandei), Barracuda (Sphyraenidae), Spanish Mackerel (Scromberomorus sierra), Coral Trout, Moray Eel and Flowery Cod. This list is not exhaustive.	Ciguatera toxin.
	Poisonous fungi, inedible flowers and plants.	Toxins.
	Incorrect cooking of raw kidney beans	Haemagglutinating lectins
	Attention should also be focused upon other food products, which may pose a health hazard: <ul style="list-style-type: none"><li>Potentially unsafe food identified locally (e.g. by repeated unacceptable microbiological findings or governmental alerts etc.)</li><li>Food ingredients which may be harmful to specific consumer segments, i.e. allergens, caterers are advised to observe possible governmental directives and the requirements of their individual airline customers on this issue.</li></ul>	
Audit	Verify the presence of an up-to-date “Hazardous meal ingredients” list and a procedure to ensure the absence of the restricted ingredients at time of meals presentation, menu design or similar.	


## World Food Safety Guidelines for Airline Catering

SOP Health Monitoring 	
Standard	
Health monitoring procedures must be in place to prevent contamination of food through contact with infected people.	
<b>Purpose</b>	To prevent transmission of pathogenic microorganisms to food from infected employees and visitors.
<b>Scope</b>	<ul style="list-style-type: none"> <li>New and existing food handlers.</li> <li>Visitors and employees to areas where open food is handled.</li> </ul>
Guidelines	
<b>Procedure</b>	<ol style="list-style-type: none"> <li><b>Control of Food Handlers</b> <ul style="list-style-type: none"> <li><b>Pre-employment Control</b> <i>Prior to employment, new food handlers shall be screened for current health status (e.g. questionnaires) and briefed on infection reporting requirements.</i></li> <li><b>Annual Screening</b> <i>All food handlers are required to report to management whenever suffering from the specified symptoms.</i> <i>Confirm continued compliance by annual screening (e.g. questionnaire)</i></li> <li><b>Corrective Action</b> <i>If a food handler confirms suffering from any of the symptoms specified, the person shall not be employed or assigned for food handling, until examined and subsequently cleared by a medical professional.</i> <i>Provided confirmation by medical professional, the person may be employed or assigned for a non-food handling task while awaiting clearance by the medical professional.</i></li> </ul> </li> <li><b>Control of Visitors</b> <i>Visitors must not touch open food or equipment at any time in food handling areas. They may however touch and/or eat food provided at a menu presentation held outside areas where open food is being prepared or handled.</i> <ul style="list-style-type: none"> <li><b>Visitor Screening</b> <i>Harmful contamination of food from visitors entering food handling areas shall be prevented by one of the following measures:</i> <ol style="list-style-type: none"> <li>Visitor completes a Health Questionnaire for Visitors before entry <b>or</b></li> <li>Visitor is presented with written instruction before entry <b>or</b></li> <li>Visitor is presented with verbal instruction before entry.</li> </ol> </li> <li><b>Corrective Action</b> <i>Visitor who confirms suffering from intestinal infection or flu-like symptoms should not be allowed to enter food production areas.</i> <i>Visitor who confirms suffering from other symptoms specified in the questionnaire may be allowed to enter food production areas, provided that the person agrees to put on proper protective gear, e.g. bandage, glove, etc.</i></li> </ul> </li> </ol>


## World Food Safety Guidelines for Airline Catering

	SOP Health Monitoring (continued)
	Guidelines
<b>Audit</b>	<ul style="list-style-type: none"><li>• <i>By document review, verify that the procedure is in place and being followed.</i></li><li>• <i>Infection control procedure maybe separated or included in training. This should be accepted provided that the message is clear and that employees demonstrate acknowledgement.</i></li><li>• <i>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.</i></li></ul>



## World Food Safety Guidelines for Airline Catering

SOP Pest Control 	
Standard	
<b>The operator must have a pest management system established.</b>	
<b>Purpose</b>	To prevent food and clean food contact surfaces being contaminated by pests.
<b>Scope</b>	Prevention and eradication of pests.
Guidelines	
<b>Procedure</b>	<ul style="list-style-type: none"> <li>• <i>Ensure building design and maintenance prevents ingress of pests.</i></li> <li>• <i>Ensure that the cleaning regime is sufficient to prevent the harboring of pests.</i></li> <li>• <i>Establish an effective documented pest control program that is conducted by competent persons.</i>  <i>This typically includes:</i> <ul style="list-style-type: none"> <li>- <i>location plan and type of interior and exterior bait points</i></li> <li>- <i>location plan, list and type of eradication devices</i></li> <li>- <i>a planned frequency of premises inspection</i></li> <li>- <i>a premises inspection report</i></li> <li>- <i>evidence that corrective action is taken</i></li> </ul> </li> </ul>
<b>Audit</b>	<p><i>Verify that a documented management system is in place for pest control.</i></p> <p><i>Visual observation during Audit.</i></p>

## World Food Safety Guidelines for Airline Catering

SOP Supplier Approval 	
Standard	
<b>An effective approval process must be in place to ensure safe food supply.</b>	
<b>Purpose</b>	To ensure that food is bought from an approved source.
<b>Scope</b>	Suppliers of potentially hazardous ready-to-eat food, other suppliers may be included.
Guidelines	
<b>Procedure</b>	<p><b>Approval process may be performed by:</b></p> <ul style="list-style-type: none"> <li>• An “on-site audit” based on HACCP, which includes an assessment of HACCP control system as well as a physical inspection of premises.</li> <li>• Assessment may also be undertaken by a system audit (“paper audit”), consisting of an assessment of a supplier’s documented food safety management system, without physical inspection of supplier’s premises.</li> <li>• Approval may also be performed by assessment of supplier’s possible certification/authorization by national authorities or by third party audits, to a recognized accreditation standard for food safety.</li> </ul> <p><b>Approval frequency:</b></p> <ul style="list-style-type: none"> <li>• Suppliers of potentially hazardous ready-to-eat food should be approved before deliveries commence.</li> <li>• The audit frequency shall be defined by risk assessment which includes audit results, certificate grading, microbiological analysis, complaints, delivery reliability etc.</li> </ul>
<b>Audit</b>	Identify at random a selection of bought-in ready-to-eat food items and confirm that suppliers have been correctly audited and approved.



## World Food Safety Guidelines for Airline Catering

SOP Personal Hygiene  	
Standard	
A procedure must be in place to ensure personal hygiene standards exist and are maintained in areas where open food or clean equipment is handled.	
<b>Purpose</b>	To prevent microbial and physical food and equipment contamination.
<b>Scope</b>	All employees and visitors.
Guidelines	
<b>Procedure</b>	<p><b>Protective Clothing</b></p> <ul style="list-style-type: none"> <li>• Suitable, clean protective clothing shall be worn.</li> <li>• The company is to ensure that the protective clothing worn by staff handling open food is cleaned to commercial laundry standards (e.g. including mechanical washing and rinse).</li> <li>• Provision should be made for the storage of clean protective clothing to prevent contamination.</li> <li>• Adequate provision should be made for the complete segregation between clean and soiled protective clothing.</li> <li>• A designated area for the returned soiled clothing is to be provided.</li> </ul> <p><b>Employee Change Facilities</b></p> <ul style="list-style-type: none"> <li>• Lockers are to be provided to secure personal possessions away from production areas.</li> <li>• Clean or soiled protective clothing should not be stored inside lockers.</li> <li>• Periodic checks should be carried out by management to ensure compliance.</li> </ul> <p><b>Protective Hair Covering</b></p> <ul style="list-style-type: none"> <li>• Disposable protective hair covering should be worn by all persons working in or entering areas for handling of open food or clean equipment.</li> <li>• Suitable head covering should be provided and worn correctly to ensure complete enclosure of hair.</li> <li>• Beards and moustaches should be covered with snoods.</li> </ul>



## World Food Safety Guidelines for Airline Catering

SOP Personal Hygiene (Continued)	
Guidelines	
<b>Procedure</b>	<p><b>Hand Hygiene</b></p> <ul style="list-style-type: none"> <li>• <i>Employees and visitors should be requested to wash their hands prior to entering food production and clean equipment areas.</i></li> <li>• <i>Fingernails shall be kept short, clean and unvarnished.</i></li> <li>• <i>False fingernails are not permitted.</i></li> <li>• <i>Visitors should be asked to wear gloves if wearing false fingernails or nail varnish.</i></li> <li>• <i>Gloves, if worn, should be suitable, disposable and changed frequently. Their disposal should be controlled to avoid product contamination.</i></li> <li>• <i>Cuts and grazes on exposed skin should be covered with a company-issued blue or appropriate colored waterproof dressing and covered by a disposable glove.</i></li> </ul> <p><b>Jewelry</b></p> <ul style="list-style-type: none"> <li>• <i>All employees and visitors shall follow the company rules on jewelry when working in or entering food production/handling areas.</i></li> <li>• <i>The company rules must be based on risk assessment in regard to physical and microbial contamination.</i></li> </ul> <p><b>Eating, Drinking or Smoking</b></p> <ul style="list-style-type: none"> <li>• <i>Employees and visitors should be advised that eating, drinking and smoking are strictly restricted to designated areas e.g. staff canteen.</i></li> </ul>
<b>Audit</b>	<p><i>Verify that adequate protection and control measures are in place and adhered to by all employees and visitors.</i></p>


## World Food Safety Guidelines for Airline Catering

SOP Food Safety Training  	
Standard	
<b>A job-related food safety training program must be provided for employees and management.</b>	
<b>Purpose</b>	To ensure required knowledge and skills for the safe handling and production of food.
<b>Scope</b>	<ul style="list-style-type: none"> <li>• Employees and management.</li> <li>• New employee training and refresher training.</li> </ul>
Guidelines	
<b>Procedure</b>	<p><b>Management Training</b></p> <ul style="list-style-type: none"> <li>• <i>Management must be trained to have a good understanding of food safety procedures.</i></li> </ul> <p><b>New Employee Training</b></p> <ul style="list-style-type: none"> <li>• <i>Employees must be trained in food safety procedures specific to their jobs.</i></li> </ul> <p><b>Refresher Training</b></p> <ul style="list-style-type: none"> <li>• <i>Provides an on-going reminder of food safety procedures.</i></li> <li>• <i>Updates and confirms knowledge and skills.</i></li> <li>• <i>The training frequency should be determined by the company.</i></li> </ul> <p><b>Effectiveness of Training</b></p> <ul style="list-style-type: none"> <li>• <i>Tests are given to employees and management to ensure correct knowledge and understanding.</i></li> <li>• <i>The test method should be determined by the company.</i></li> </ul>
<b>Audit</b>	<ul style="list-style-type: none"> <li>• <i>Verify existence of an organized training procedure.</i></li> <li>• <i>Verify training records (hard copy or a computer record on a training database).</i></li> <li>• <i>Verify that the training provides correct understanding as well as control competence relevant to the job, for example, by observing or talking to food handlers during inspection.</i></li> </ul> <p><i>If the above elements are verified, the training procedure should be accepted.</i></p>

## World Food Safety Guidelines for Airline Catering

SOP Instrument Calibration  	
Standard	
Measuring equipment used to monitor Critical Control Points and SOPs must be identified and calibrated.	
<b>Purpose</b>	To maintain accuracy of thermometers and temperature gauges.
<b>Scope</b>	Temperature monitoring devices relevant to food safety.
Guidelines	
<b>Procedure</b>	<p><i>Monitoring of the accuracy of hand held thermometers, cold rooms, refrigerators and freezers on a regular basis (minimum annually or more frequently if deemed necessary) by methods relevant to the appropriate equipment.</i></p> <p><i>In general, the tolerance limits are:</i></p> <ul style="list-style-type: none"> <li>• <i>Probe thermometers is +/- 1° C (+/-2°F)</i></li> <li>• <i>Infrared thermometers +/- 2°C (+/-4°F)</i></li> <li>• <i>Refrigerators, cold rooms and freezers +/- 1°C (+/- 2°F)</i></li> </ul> <p><b>or</b> <i>as stipulated in manufacturer's guidelines</i></p> <p><i>Thermometers shall be identified by numbers or user names, or similar to ensure traceability of control.</i></p>
<b>Audit</b>	<i>Verify documentation of a procedure for calibration of thermometers.</i>


## World Food Safety Guidelines for Airline Catering

SOP Cleaning and Sanitizing 	
Standard	
<b>All food contact surfaces must be clean and sanitized.</b> <b>Non-food contact surfaces must be visibly clean</b>	
<b>Purpose</b>	To ensure that food is not contaminated by unclean surfaces.
<b>Scope</b>	<ul style="list-style-type: none"> <li>• All food contact surfaces and equipment of food handling and storage areas.</li> <li>• Airline equipment.</li> <li>• Food production facility.</li> </ul>
Guidelines	
<b>Procedure</b>	<p><i>A cleaning and sanitization program should be drawn up for cleaning for food contact surfaces and non-food contact surfaces. This typically includes specifying detergents and disinfectant concentration used, frequencies, contact times and responsibilities, cleaning instructions for specific equipment, which require dismantling.</i></p> <ul style="list-style-type: none"> <li>• <i>The cleaning and sanitization method must be fit for purpose and could be through the use of manual and/or automatic cleaning systems.</i></li> <li>• <i>Cleaning and sanitization is understood to be effective by an adequate combination of the following parameters:</i> <ol style="list-style-type: none"> <li>1. <i>Mechanical action</i></li> <li>2. <i>Temperature</i></li> <li>3. <i>Chemical:</i> <ul style="list-style-type: none"> <li>- <i>Detergent</i></li> <li>- <i>Sanitizer</i></li> </ul> </li> <li>4. <i>Time</i></li> </ol> </li> </ul> <p><b>Monitoring procedure</b></p> <p><b>Mechanical:</b> <i>surfaces to be visually clean</i></p> <p><b>Temperature:</b></p> <p><i>If temperature is selected as the sole sanitization process, the temperature of the final rinse water, shall comply with recommended temperature minimum of 82 °C (180 °F) and recorded (as e.g. monitored on machine thermometer)</i></p> <p><b>or</b></p> <p><i>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 and recorded.</i></p>


## World Food Safety Guidelines for Airline Catering

SOP Cleaning and Sanitizing (Continued)	
Guidelines	
<b>Procedure</b>	<p><b>Chemical only sanitization:</b>  <i>If chemical is selected as the sole sanitization process, the disinfection by chemical shall be verified by monitoring and recording of the chemical concentration as defined by the manufacturer.</i></p> <p><b>Thermal &amp; chemical sanitization combination:</b>  <i>When a procedure is chosen to combine both sanitization methods, the process must be validated, procedure documented, monitored and recorded.</i></p> <p><b>Time</b> – specifically contact time - <i>is an important prerequisite to ensure the effectiveness of the above parameters.</i></p> <p><b>Storage of Clean Equipment</b>  <i>Equipment shall be stored as to permit quick drying and in a manner to avoid risk of contamination, i.e. containers shall be stored upside down.</i></p>
<b>Audit</b>	<p><i>Verify by visual observation cleanliness of washed equipment and building.</i></p> <p><i>Understand cleaning/sanitization standard and verify standard application:</i></p> <ul style="list-style-type: none"> <li>• <i>by cleaning schedules</i></li> <li>• <i>by records</i></li> <li>• <i>by review of regular microbiological swab- or impression tests or similar testing</i></li> </ul>


## World Food Safety Guidelines for Airline Catering

SOP Physical Contamination (Foreign Object) 	
Standard	
<b>The company shall have risk-assessment based control measures to prevent physical contamination.</b>	
<b>Purpose</b>	To prevent physical contamination of food and food contact surfaces.
<b>Scope</b>	The company will have a “Foreign Object Policy” as appropriate to the nature of its business.
Guidelines	
<b>Procedure</b>	<p><i>The company will operate procedures designed to either remove or control potential sources of physical contamination of food and food contact surfaces.</i></p> <p><b>Elimination:</b></p> <ul style="list-style-type: none"> <li>• <i>Sources of physical contamination should be eliminated where possible through product design or HACCP based procedures.</i></li> </ul> <p><b>Control:</b></p> <ul style="list-style-type: none"> <li>• <i>Any risk of physical contamination that can not be completely eliminated e.g. glass can be protected against damage, i.e. lighting fixtures, including the electric attractant fly killers, in all production and storage areas can be guarded or sealed, with unbreakable enclosures to retain glass in the event of any breakage.</i></li> </ul> <p><b>Training:</b></p> <ul style="list-style-type: none"> <li>• <i>All staff should be trained in the prevention of physical contamination of food and food contact equipment.</i></li> </ul> <p><i>The Training should ensure compliance with all applicable HACCP procedures and Control measures including monitoring and Corrective Actions.</i></p>
<b>Audit</b>	<i>Verify that a documented “Foreign Object Policy” and Procedure is in place, appropriate to the nature of the business.</i>

## World Food Safety Guidelines for Airline Catering

SOP Food Handling 	
Standard	
Procedures are in place to minimize microbiological, physical or chemical food contamination during handling.	
Purpose	To supply safe food for consumption.
Scope	Raw and ready-to-eat foods.
Guidelines	
Procedures	<ul style="list-style-type: none"> <li> <b>Prevention of Microbiological Contamination of Ready-to-eat Food from Raw Food</b> <ul style="list-style-type: none"> <li>- Designated handling areas - The areas for handling of raw foods and ready-to-eat foods shall be segregated.</li> <li>- Designated equipment/utensils - Work tables, cutting boards, sinks, food preparation machines, etc. for preparation and handling of ready-to-eat foods must be segregated from raw foods, unless a documented procedure of cleaning and disinfection of equipment used for raw foods is in place.</li> </ul> </li> <li> <b>Prevention of Microbiological Contamination of Ready-to-eat Foods from Food Handling Equipment</b> <ul style="list-style-type: none"> <li>- Food handling equipment shall be cleaned and disinfected before use according to SOP Cleaning and Sanitizing.</li> </ul> </li> <li> <b>Prevention of Contamination of Ready-to-eat Foods from Food Handlers</b> <ul style="list-style-type: none"> <li>- Food handlers shall comply with the procedures of SOP Health Monitoring and SOP Personal Hygiene.</li> <li>- Food handlers shall be trained in food safety relevant to their job as required by SOP Food Safety Training.</li> </ul> </li> <li> <b>Prevention of Contamination from Environment</b> <ul style="list-style-type: none"> <li>- The flow shall permit effective segregation between clean and unclean materials and processes.</li> <li>- Food handling environment shall be maintained, kept clean and free of pests.</li> <li>- Outer packaging should not enter food production areas.</li> <li>- Wooden pallets should not be used in food production areas.</li> </ul> </li> </ul>
Audit	<ul style="list-style-type: none"> <li>• Confirm that the documented procedures exist.</li> <li>• Observe the food handling practices during audit to confirm that the procedures are being followed.</li> </ul>


## World Food Safety Guidelines for Airline Catering

SOP Stock Rotation / Date Coding / Time Control 	
Standard	
<b>An effective stock control system is implemented to ensure that food is consumed within its shelf-life.</b>	
<b>Purpose</b>	To ensure identification of 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 consumed before the designated shelf life of product has expired.
<b>Scope</b>	All foods.
Guidelines	
<b>Procedure</b>	<p><i>Stock rotation can be maintained and controlled by the use of various date coding procedures suitable for the specific step in the process.</i></p> <p><i>For example, bulk food items may have a manufacturer's product expiry date, which should be followed and adhered to throughout the complete supply chain.</i></p> <p><i>The process steps typically requiring date coding but not restricted to for stock control purposes are:</i></p> <ul style="list-style-type: none"> <li>- Receiving</li> <li>- Storage prior to use in the kitchen</li> <li>- Thawing</li> <li>- Storage after cooking</li> <li>- "in-process" food items</li> <li>- Assembly / Tray-set</li> <li>- Final Holding</li> </ul> <p>• <b>Shelf life &amp; Time Control:</b></p> <p><i>Operators need to establish internal shelf life standards for foods to protect food safety and quality e.g.</i></p> <ul style="list-style-type: none"> <li>- maximum 72 hours for hot food from cooking to scheduled time of departure.</li> <li>- maximum 48 hours for cold food from start of preparation/end of thawing to scheduled time of departure</li> <li>- Airlines need additionally consider the intended time until consumption depending on their time/temperature regime available on board until service to the passenger.</li> </ul> <p><i>Certain products due to their pH value and / or water activity may have substantially longer shelf-life than above indicated time control.</i></p>


## World Food Safety Guidelines for Airline Catering

SOP Stock Rotation / Date Coding / Time Control (Cont'd)	
Guidelines	
<b>Procedure</b>	<p>• <b>Date coding methods:</b>  <i>The following are suggested methods but are not exhaustive. Many of the label options are commercially available as set out in product catalogues.</i></p> <ul style="list-style-type: none"> <li>- Color coding for the day of the week</li> <li>- Date labeling</li> <li>- Colored marker pens(food grade) that correspond to day of the week</li> <li>- Manufacturers use by or best before</li> </ul> <p><i>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).</i></p> <p><i>Standards must be followed and out-dated food discarded.</i></p>
<b>Audit</b>	<p><i>Randomly select samples from each process step and verify if standards are met.</i></p>


## World Food Safety Guidelines for Airline Catering

SOP Washing Raw Fruit and Vegetables 	
Standard	
<b>A procedure must be in place to reduce contamination on raw unwashed fruit &amp; vegetables.</b>	
<b>Purpose</b>	To ensure raw fruit and vegetables are thoroughly washed in order to reduce physical, chemical and microbiological surface contamination.
<b>Scope</b>	All unwashed fruit and vegetables. It may not be possible to wash 'soft' fruit due to the risk of mould growth.
Guidelines	
<b>Procedure</b>	<p><i>Raw vegetables and fruits should be washed in clean, cold potable water. Where permitted, a suitable chemical wash should be used in accordance with the manufacturer's instructions.</i></p> <ul style="list-style-type: none"> <li>• <i>Raw fruit and vegetables must be washed in clearly labeled, designated sinks.</i></li> <li>• <i>Inspect the final product to ensure it is visually clean, free from debris and dirt. If not, repeat the process.</i></li> <li>• <i>Each batch of product must be recorded to verify washing has taken place.</i></li> <li>• <i>All prepared fruit and vegetables must then be labeled and stored under refrigerated conditions until ready to use.</i></li> </ul>
<b>Audit</b>	<p><i>To verify compliance to this procedure check records of the monitoring of chemical wash batches.</i></p> <p><i>Observe the compliance to the procedure.</i></p>



## World Food Safety Guidelines for Airline Catering

SOP Thawing 	
Standard	
All frozen products must be thawed in such a way that prevents the growth of pathogens and cross contamination.	
<b>Purpose</b>	<p>To control the growth of pathogens during the thawing of raw and ready to eat foods.</p> <p>To prevent contamination of ready to eat foods during thawing</p>
<b>Scope</b>	Thawing of raw and ready-to-eat foods.
Guidelines	
<b>Procedure</b>	<p><i>Raw and ready-to-eat foods must be thawed in an approved and safe manner to ensure that the product surface does not exceed 8 °C/46°F upon completion.</i></p> <p><b>Approved Thawing Methods:</b></p> <ul style="list-style-type: none"> <li>• <i>Under refrigeration below 8 °C/46°F – no record is required under these conditions.</i></li> <li>• <i>At ambient temperature – the surface temperature of the food must not exceed 8 °C/46 °F and must be recorded.</i></li> <li>• <i>Under cold running potable water. The product must be in sealed packaging. The surface temperature of the food must not exceed 8 °C/46 °F and must be recorded. To prevent the risk of cross contamination the sink must be clean and sanitized.</i></li> <li>• <i>Automatic defrosting machines may be used provided the manufacturers instructions are followed and the appropriate records are maintained</i></li> </ul> <p><b>Monitoring procedures:</b></p> <p><i>The company should establish internal shelf life for thawed out products considering that the freezing process leads to cell destruction which causes thawed items to spoil faster than fresh products</i></p> <p><i>For HACCP investigation a list of products taken out of the freezer should be maintained.</i></p>
<b>Audit</b>	<ul style="list-style-type: none"> <li>• <i>Review the thawing process and check product labeling.</i></li> <li>• <i>Check food surface temperatures.</i></li> <li>• <i>Verify control documentation.</i></li> </ul>


## World Food Safety Guidelines for Airline Catering

SOP In-house Freezing 	
Standard	
<b>A process which controls in-house freezing of products must be established.</b>	
<b>Purpose</b>	To ensure quality and to prevent the growth of pathogenic bacteria.
<b>Scope</b>	<p>All products frozen in-house not previously frozen.</p> <p>Ad hoc in-house freezing is not a good manufacturing practice. However where this measure applies below guidelines must be adhered to.</p> <p>Where ad hoc in-house freezing occurs regularly it is strongly recommended to perform root cause analysis to minimize this practice.</p>
Guidelines	
<b>Procedure</b>	<ul style="list-style-type: none"> <li>• From products to be frozen in-house original shelf life as issued by the manufacturer or by the caterer must be known.</li> <li>• Products to be frozen in-house must have a minimum of three days shelf-life remaining.</li> <li>• Where possible the original manufactures date marking must remain on the packaging to provide traceability and demonstrate that the product has not been frozen on the last day of its shelf life.</li> <li>• All products must be fully covered. Raw and cooked products must not be mixed in the same container.</li> <li>• Products must be frozen in small batch sizes to facilitate quick freezing, i.e. single layers, individual components, etc.</li> <li>• Products must be labeled 'Frozen On _____ Use By _____'</li> <li>• As a guideline in-house frozen product must not have longer than 12 weeks shelf life. However the caterer can determine the shelf life of in-house frozen products by shelf life testing or other recognized methods (e.g. through chemical analysis).</li> <li>• A list of all in-house frozen products with the frozen on and use by dates must be kept to ensure stock rotation and that products are used within their allotted shelf life.</li> <li>• Thawing of products must comply with the thawing process outlined in SOP Thawing.</li> </ul> <p><b>Approved methods of freezing</b></p> <ul style="list-style-type: none"> <li>• Conventional freezing under deep freezer conditions.</li> <li>• Accelerated freezing techniques, e.g. blast freezing, cryogenic freezing, nitrogen, etc.</li> </ul> <p><b>Exceptions:</b></p> <ul style="list-style-type: none"> <li>• Once defrosted, previously frozen products of animal origin shall not be re-frozen.</li> </ul>
<b>Audit</b>	<ul style="list-style-type: none"> <li>• Check what is stored in the freezer against the records.</li> <li>• Visually check labels on products.</li> </ul>



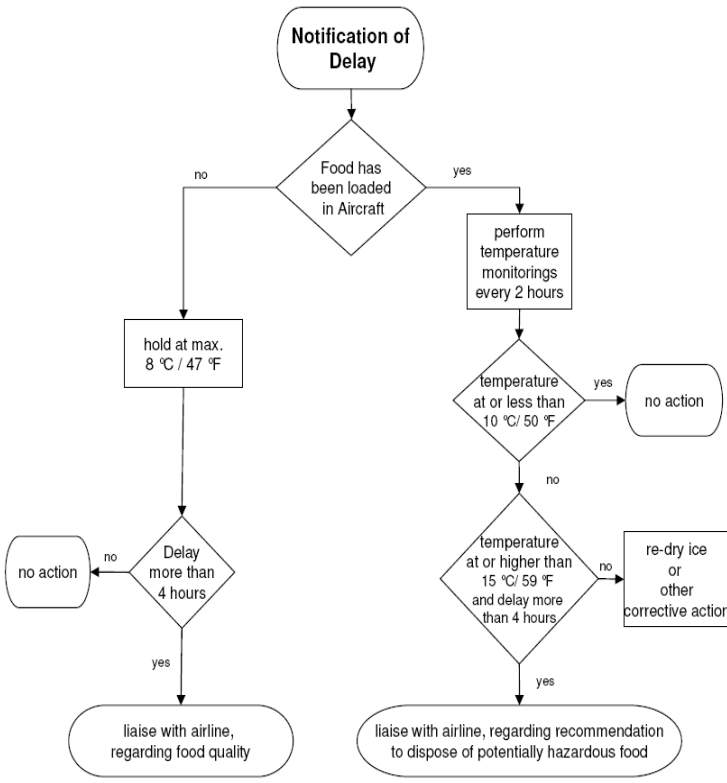
## World Food Safety Guidelines for Airline Catering

SOP Despatch, Transport and Aircraft Loading  	
Standard	
<b>From the point of despatch to aircraft loading food must be transported under controlled conditions.</b>	
<b>Purpose</b>	To prevent growth of pathogens during despatch, transportation and aircraft loading.
<b>Scope</b>	All potentially hazardous food (PHF) for consumption on aircraft.
Guidelines	
<b>Procedure</b>	<p><b>Despatch:</b></p> <ul style="list-style-type: none"> <li>• <i>Cold Food:</i> <ul style="list-style-type: none"> <li>- Ensure that temperature prior to despatch does not exceed 5°C/41°F.</li> </ul> </li> <li>• <i>Hot Food:</i> <ul style="list-style-type: none"> <li>- Ensure that core temperature prior to despatch is not lower than 63°C/145°F.</li> </ul> </li> </ul> <p><b>Transportation and Loading</b></p> <p>Transportation and loading of food is expedited in such a way that:</p> <ul style="list-style-type: none"> <li>• <i>Cold Food:</i> <ul style="list-style-type: none"> <li>- Food surface temperature does not exceed 10°C/50 °F</li> </ul> </li> <li>• <i>Hot Food:</i> <ul style="list-style-type: none"> <li>- Food surface temperature is not lower than 60°C/140°F</li> </ul> </li> </ul> <p><b>Monitoring procedure:</b></p> <ul style="list-style-type: none"> <li>- Temperature is to be taken as close to the point of despatch time.</li> </ul>
<b>Audit</b>	Verify that meal temperature is controlled at time of despatch. Verify that transportation and loading method is risk assessed if temperatures cannot be taken.

## World Food Safety Guidelines for Airline Catering

SOP Flight Attendant/ Cabin Crew Training 	
Standard	
<b>Flight Attendant / Cabin Crew shall be adequately trained in safe food handling practices applicable to their work.</b>	
<b>Purpose</b>	To ensure that flight attendant/ cabin crew have sufficient knowledge to enable them to handle food safely.
<b>Scope</b>	Flight Attendant / Cabin Crew training.
Guidelines	
<b>Procedure</b>	<p><i>Food Safety handling procedures to be included in flight attendant training and refresher course as necessary.</i></p> <p><i>Training can be delivered by a variety of methods including lecture, written material, computer based training etc.</i></p> <p><i>All training should include recorded assessment/testing.</i></p> <p><b>Points to be covered:</b></p> <ul style="list-style-type: none"> <li>• <i>Personal Hygiene including proper hand washing prior to beverage service and meal service, reporting illness.</i></li> <li>• <i>Maintaining method of cooling on board the aircraft until all food service(s) is complete.</i></li> <li>• <i>Cooking, re-heating and/or maintaining hot food temperatures</i></li> <li>• <i>Prevention of food and equipment contamination (e.g. rims of cups/glasses, service equipment, food, ice.)</i></li> <li>• <i>Food complaint procedures.</i></li> </ul>
<b>Airline Audit</b>	<i>Review on training procedures and available documents.</i>



## World Food Safety Guidelines for Airline Catering

SOP Delay Handling  	
Standard	
<b>The company shall have a food safety based risk-assessment in place in the event of an aircraft delay.</b>	
<b>Purpose</b>	To determine whether the food will be safe at the point of service in the event of an aircraft departure delay.
<b>Scope</b>	All flights where departure has been delayed and where the delay may lead to risk of harmful growth of pathogens in PHF on board.
Guidelines	
<b>Procedure</b>	<p><i>The guidelines for assessment of food safety risk in case of aircraft delay and proper actions to be taken are provided along the lines of the diagram shown below.</i></p> <p><i>The information relating to times, food temperatures, actions taken and decisions made shall be documented.</i></p> <p><i>The final decision is the responsibility of the airline</i></p> <ul style="list-style-type: none"> <li>- to notify the caterer of the delay for consultation</li> <li>- for the decision to serve or not to serve the food</li> <li>- through recording of corrective action</li> </ul>
<b>Delay Handling Process Flow</b> <i>A: For meals loaded chilled</i>	 <pre> graph TD     Start([Notification of Delay]) --&gt; D1{Food has been loaded in Aircraft}     D1 -- no --&gt; Hold[hold at max. 8 °C / 47 °F]     D1 -- yes --&gt; Monitor[perform temperature monitorings every 2 hours]     Hold --&gt; D2{Delay more than 4 hours}     Monitor --&gt; D3{temperature at or less than 10 °C/ 50 °F}     D2 -- no --&gt; NA1([no action])     D2 -- yes --&gt; Liaise1([liaise with airline, regarding food quality])     D3 -- yes --&gt; NA2([no action])     D3 -- no --&gt; D4{temperature at or higher than 15 °C/ 59 °F and delay more than 4 hours}     D4 -- no --&gt; ReDry[re-dry ice or other corrective action]     D4 -- yes --&gt; Liaise2([liaise with airline, regarding recommendation to dispose of potentially hazardous food])     </pre>

## World Food Safety Guidelines for Airline Catering

SOP Delay Handling (Continued)	
Guidelines	
<p><b>Delay Handling Process Flow</b>  <i>B: For meals loaded hot</i></p>	<pre> graph TD     A([Notification of Delay]) --&gt; B{Hot Food has been loaded in Aircraft}     B -- no --&gt; C[maintain above 60 °C / 140 °F]     C --&gt; D{Delay more than 4 hours}     D -- no --&gt; E([load food])     D -- yes --&gt; F([liaise with airline regarding food quality])     B -- yes --&gt; G[regular temperature monitoring]     G --&gt; H{temperature at or higher than 60 °C / 140 °F}     H -- yes --&gt; I([no action])     H -- no --&gt; J{Delay more than 4 hours}     J -- no --&gt; K([no action])     J -- yes --&gt; L([liaise with airline regarding recommendation to dispose of potentially hazardous food])           </pre>
<b>Audit:</b>	Verify that a documented Delay Procedure is in place.
<b>Airline audit:</b>	Verify recording of delayed departures and corrective action taken.



## World Food Safety Guidelines for Airline Catering

SOP Product Recall  	
Standard	
<b>A company shall have a defined Plan and System in place to effectively manage food incidents that result in product recall of the affected food from the supply chain.</b>	
<b>Purpose</b>	To prevent consumption of contaminated food, that could pose a safety risk to the consumer.
<b>Scope</b>	Following internal or external notification of possible contamination of food.
Guidelines	
<b>Procedure</b>	<p><i>A comprehensive product recall procedure shall be established. This typically includes:</i></p> <ul style="list-style-type: none"> <li>• <i>A Recall Team.</i></li> <li>• <i>A communication plan with internal and external contacts.</i></li> <li>• <i>A plan of action to withdraw the offending item from the supply chain (this may include on board the aircraft.)</i></li> <li>• <i>Actions taken in each case of product recall should be documented.</i></li> <li>• <i>Training on the product recall procedure shall be given to Recall Team members and other relevant staff.</i></li> </ul> <p><i>It is recommended that a mock recall is exercised at a frequency determined by the operator to ensure that the procedure works effectively and timely. The company reviews results of the trials or actual recalls for continuous improvement of its food safety procedures (including recall procedure if not fully effective in removing product involved).</i></p>

## World Food Safety Guidelines for Airline Catering

SOP Product Recall (Continued)	
Guidelines	
<b>Recall Procedure Process flow</b>	<pre> graph TD     A([Notification of a contaminated product]) --&gt; B[Inform Management; Call in recall team]     B --&gt; C{Has affected batch been received?}     C -- no --&gt; D([no action])     C -- yes --&gt; E{Has affected food being loaded on aircraft}     E -- no --&gt; F[Identify internal use of products for quarantine]     E -- yes --&gt; G[Notify airline of recall]     F --&gt; H([Dispose or send back to supplier and document action taken])     G --&gt; H     </pre> <p>The flowchart illustrates the recall procedure process flow. It begins with a notification of a contaminated product, leading to informing management and calling in the recall team. A decision is made on whether the affected batch has been received. If not, no action is taken. If yes, another decision is made on whether the affected food is being loaded on the aircraft. If not, internal use of products is identified for quarantine. If yes, the airline is notified of the recall. Both paths lead to the final step: dispose or send back to supplier and document action taken.</p>
<b>Audit</b>	<p><i>Verify that a documented procedure for product recall is in place and tested in accordance with the frequency determined by the operator.</i></p> <p><i>Confirm that the contact information of all concerned parties is available and up-to-date.</i></p> <p><i>The operator shall demonstrate preparedness of the recall team.</i></p>

## World Food Safety Guidelines for Airline Catering

SOP Food Safety Complaints  	
Standard	
<b>The company shall have a documented system for the effective receipt, recording and management of food safety related complaints.</b>	
<b>Purpose</b>	To take necessary action to avoid reoccurrence.
<b>Scope</b>	Customer complaints related to food safety.
Guidelines	
<b>Procedure</b>	<p><i>A procedure for customer complaints handling should be developed and documented.</i></p> <p><i>The procedure typically includes:-</i></p> <ul style="list-style-type: none"> <li>• <i>A system for receipt and recording of customer complaints.</i></li> <li>• <i>Investigations shall be performed by competent persons.</i></li> <li>• <i>The process for the investigation of complaints is clearly defined and communicated through the business unit.</i></li> <li>• <i>Corrective action is taken when necessary and investigation findings communicated to the customer as appropriate.</i></li> </ul> <p><i>The complaints handling procedure should ensure regular reviews of the complaints data are conducted to identify potential trends; to avoid recurrence and to aid continuous improvement of product safety.</i></p>
<b>Audit</b>	<p><i>Check that a documented procedure of food safety related complaints is in place.</i></p> <p><i>Confirm that the procedure is being implemented and followed.</i></p>

## 2.5 Verification

Food Safety Management System (FSMS) Verification	
Standard	
A verification process must be in place for each stage, incl. HACCP.	
<b>Purpose</b>	The purpose of verification activities is to confirm that the FSMS is implemented and operating according to plan.
<b>Scope</b>	Effectiveness, management and control of the FSMS.
Guidelines	
<b>Procedure</b>	<p><i>Verification may be achieved by various tools and techniques of which auditing, observation and monitoring (including records review) are among the most important.</i></p> <p><b>Audits</b></p> <p><i>Audits are systematic and independent examinations to determine whether activities and results comply with procedures; also whether these procedures are implemented effectively and are suitable to achieve the objectives. Examples are:</i></p> <ul style="list-style-type: none"> <li>• <b>Internal Audits</b> <ul style="list-style-type: none"> <li>- Internal audit elements include review of the FSMS, Process Flow Diagram, CCP and SOP procedures as well as monitoring of control procedures.</li> <li>- Recommended audit frequency depends upon the type of operation and shall be based on risk assessment. The audit may take place in full or in parts over a certain time period.</li> </ul> </li> <li>• <b>External Audits</b> <ul style="list-style-type: none"> <li>- External audits by customers, regulatory agency or third parties may independently provide information relevant to the verification process, but may not replace the internal audit as a verification tool.</li> </ul> </li> </ul> <p><b>Records Review</b></p> <p><i>Review of control records is important in order to assess whether the records have been maintained, at the appropriate frequency and whether the result is reliable and in compliance with critical limits and demonstrates corrective action has been taken.</i></p>
<b>Audit</b>	<p><b>Paper audit:</b></p> <ul style="list-style-type: none"> <li>- review of internal audits,</li> <li>- microbiological analysis and test results</li> <li>- adequacy of record reviews and record data reliability.</li> </ul> <p><b>Physical audit:</b></p> <p><i>Auditors should confirm that the procedures and records reflect the operation's actual performance.</i></p>

# World Food Safety Guidelines for Airline Catering

## Appendix I Microbiological Testing & Microbiological Guidelines

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 verification for the HACCP plan.

Scope of analysis includes:

1. In-house produced ready-to-eat foods
2. Purchased ready-to-eat foods
3. Potable water and ice from caterer or aircraft
4. Cleaning effectiveness

### **a) 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.

### **b) 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.

### **c) Potable Water & ice from caterer or aircraft**

Microbiological analysis is the most appropriate method of verification of safety of potable water and ice. Ice may be made in-house, at catering units or may fall into the “purchased ready-to-eat foods” category and therefore maybe sourced with certificates of analysis from the supplier. Analysis of water and ice may be performed by health authorities or by the caterer or the airline. Refer to WHO guidelines for drinking water quality

### **d) Cleaning effectiveness**

Various testing methods are available to verify the effectiveness of the cleaning procedures for direct food contact surfaces and hands.

*Examples are swab tests, impression tests, ATP etc.*

# World Food Safety Guidelines for Airline Catering

## Microbiological Guidelines

Type	Aerobic <sup>3</sup> Plate Count cfu/g	Enterobacteriaceae cfu/g	** E.Coli cfu/g	S.aureus cfu/g ( Coag + ve )	B.Cereus cfu/g <sup>7</sup>	C. Perfringens cfu/g	Salmonella in 25g	Listeria Monocytogenes in 25g	Campylobacter <sup>5</sup> Jejuni in 25g	Vibrio <sup>6</sup> parahaemolyticus cfu/g
<b>RTE Cold Foods</b> e.g. Cold meals, Salads, Appetisers, Sandwiches, Canapes, Sushi, Snacks etc. containing raw Veg / Fruit, Lettuce Fresh Herbs, Fermented Meats /Fish /Cheese etc.			< 10	< 100	< 1,000	< 1,000	Absent in 25g	< 100/g	Absent in 25g (if Poultry / Eggs unwashed Herbs present )	Absent in 25g (if Fish, Shrimp or Seafood from tropical waters )
<b>Cooked Meal components -</b>  <b>- To be served Cold as part of RTE Foods .</b>	< 10 <sup>6</sup>	< 10,000	< 10	< 100	< 1,000	< 1,000	Absent in 25g	< 100/g	Absent in 25g (if Poultry / Eggs/ unwashed Herbs present )	Absent in 25g (if Fish, Shrimp or Seafood from tropical waters )
<b>Cooked Meal components -</b>  <b>- To be served Hot</b>	< 10 <sup>6</sup>	< 10,000	< 10	< 100	< 1,000	< 1,000	Absent in 25g	< 100/g	Absent in 25g (if Poultry/Eggs present )	Absent in 25g (if Fish, Shrimp or Seafood from tropical waters )
<b>Cooked Meals</b> with lightly or partially cooked components , a fermented ingredient , raw garnish or with raw ingredients added after cooking - <b>To be served Hot .</b>			< 10	< 100	< 1,000	< 1,000	Absent in 25g	< 100/g	Absent in 25g (if Poultry / Eggs/ unwashed Herbs present )	Absent in 25g (if Fish, Shrimp or Seafood from tropical waters )
<b>Desserts</b> ( e.g. Cheesecakes or those with raw components ie raw fruit , unwashed fruit )			< 10	< 100	< 1,000	< 1,000	Absent in 25g	< 100/g	Absent in 25g (if unwashed Fruit )	
<b>Desserts</b> Hot or Cold (other than cheesecakes & with fully processed components )	< 10 <sup>6</sup>	< 10,000	< 10	< 100	< 1,000	< 1,000	Absent in 25g	< 100/g		
<b>Hand Swabs</b>			Absent	< 20						
<b>Surface Swabs</b> (Direct Food contact Surfaces)			Absent							
<b>Water</b> <sup>4</sup> (Cold water for food use)	N/A	0 / 100ml	0/100ML							
<b>Ice</b> <sup>4</sup>		0 / 100ml	0/100ML							
<b>In - coming Raw Materials :</b> <b>e.g. Bought-in RTE Foods &amp; Products to be Processed in -house :-</b>	<b>Tests as per Supplier Microbiological Specification ( or as above with additional tests as applicable i.e. Listeria on long shelf-life chilled products )</b>									

1 Ready to Eat include heat -treated (cooked ,baked ,pasteurised ) foods of animal and vegetable origin ,cleaned raw vegetables and fruits & or smoked foods ,water and ice .

2 It should be noted that where legally required standards are available for a country ,then that country's standards must apply .

Where a country's standards or criteria are more strict ,then the country's criteria take precedence .

3 Aerobic Plate Count at 30c , 48 hrs .

4 As per Guidelines for Drinking water Quality ,World Health Organisation & AEA Guidelines

5 Campylobacter jejuni Test as part of complaint investigation or based on risk assessment e.g. if Fruit /Veg from Organic soils , unwashed Fresh Herbs , unwashed fruit (ie soft berry fruits ) .

6 Vibrio parahaemolyticus testing as part of complaint investigation or if Seafood ,Shrimps or Fish from warm /Tropical waters .Not necessary if sourced from Northern waters .

7 Bacillus cereus test on Rice /Pasta/ Cereals/ Dairy based Desserts but can be included on Cooked Vegetables and ready meal components (i.e. cooked meat ) .

\*\* E.Coli Test - Hygiene Indicator( if general E.Coli Test ), Pathogenic (Food Safety criteria) if 0.157 Test or as part of complaint investigation.

Key

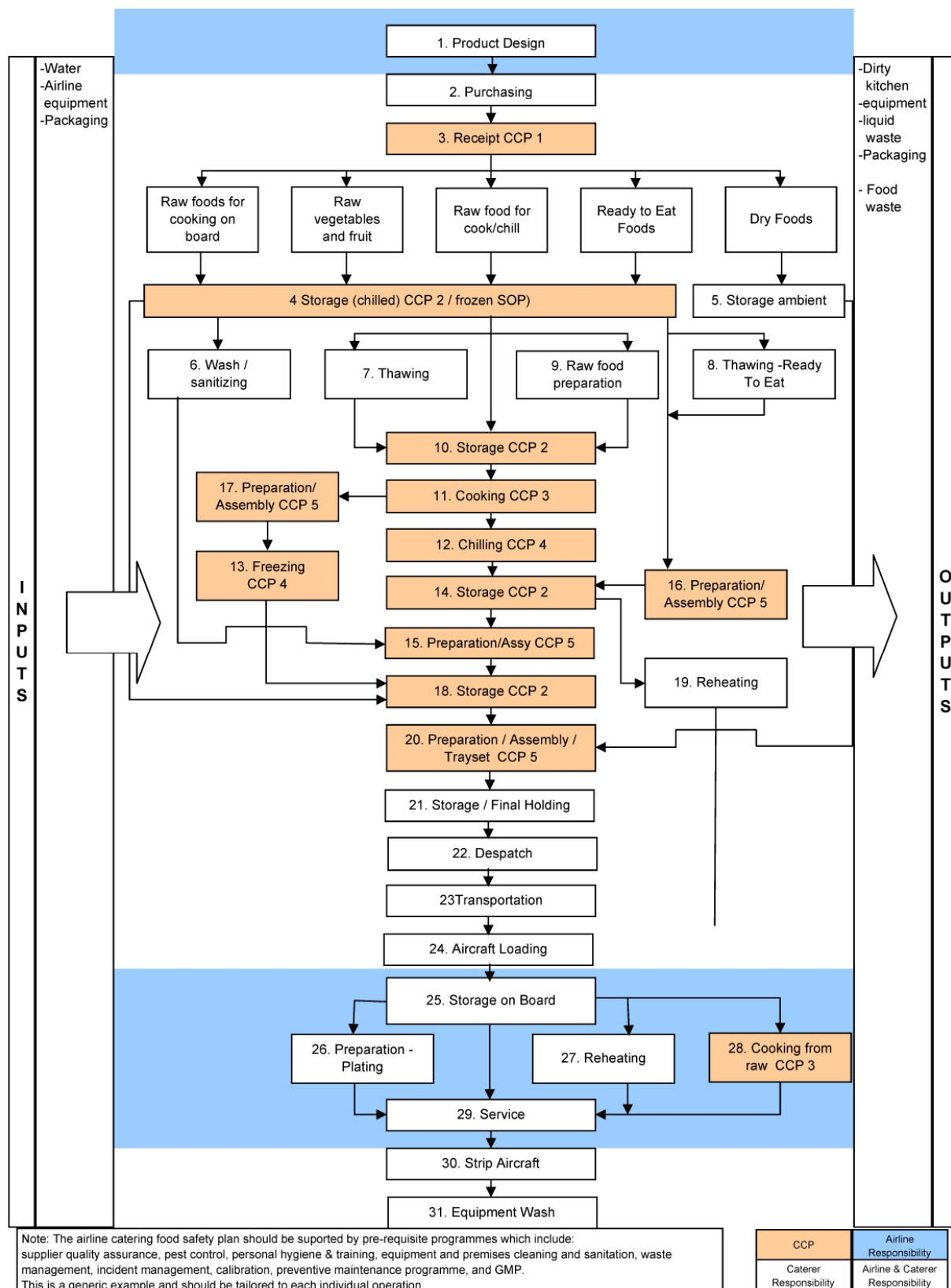


**Food Hygiene Criteria for Food Stuffs no 1441/2007 (amending EC Reg no 2073/2005 ) / Public health RTE Guidelines / AEA Micobiological Guidelines**  
**Food Safety Criteria for Food Stuffs no 1441/2007 (amending Reg no 2073/2005 ) / Public health RTE Guidelines / AEA Micobiological Guidelines**

# World Food Safety Guidelines for Airline Catering

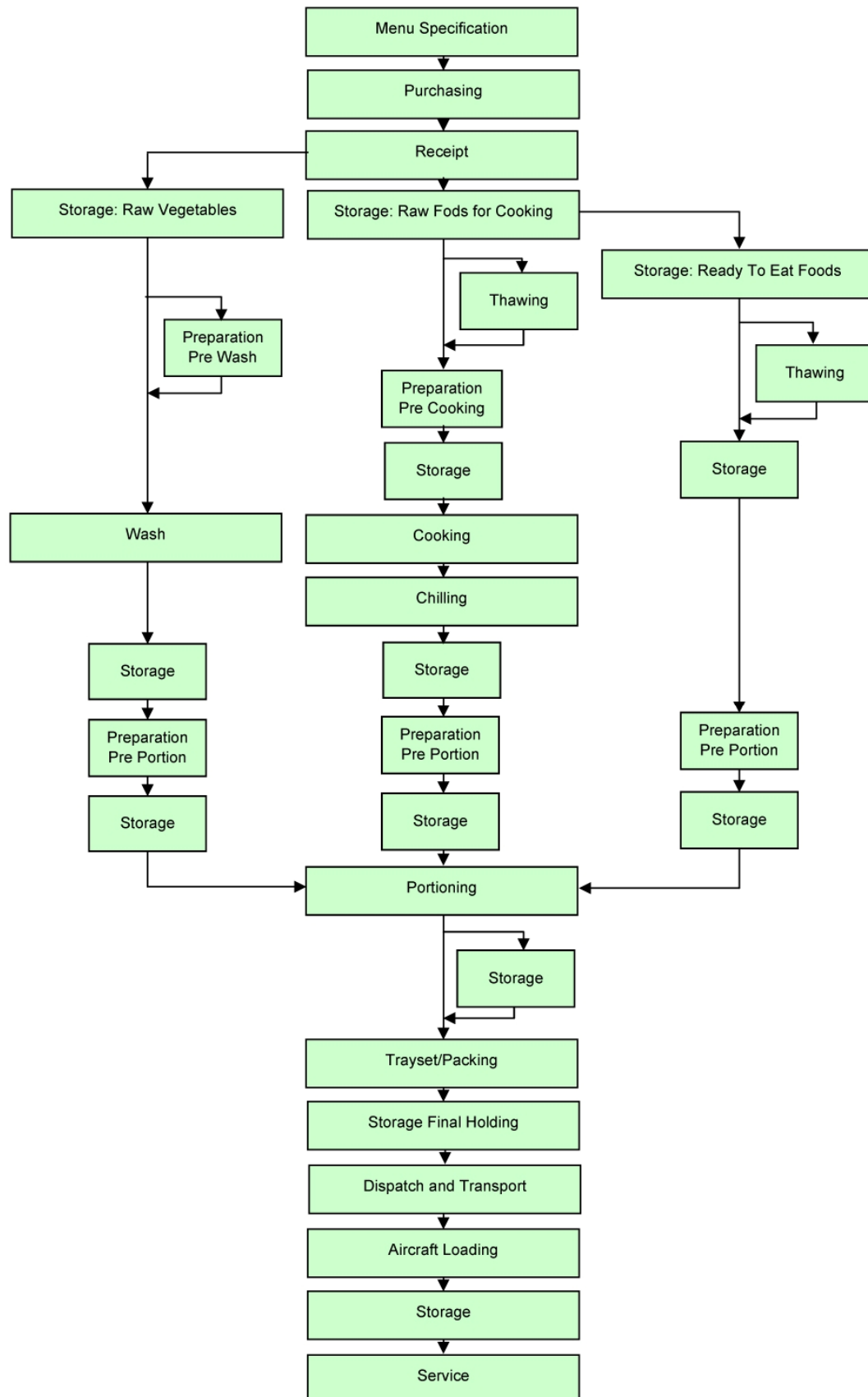
## Appendix II Flow Diagrams

### Flow Diagram 1



## World Food Safety Guidelines for Airline Catering

### Flow Diagram 2



## World Food Safety Guidelines for Airline Catering

### Appendix III Hazard Analysis Table Risk Assessment

#### (Risk Assessment example for guidance Purposes)

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, decision should be made on how the process step should be controlled based on the likelihood and justification of the potential hazard(s). The Decision Tree (Codex 1997) can be used to determine whether the hazards identified at a particular step shall be controlled by a Critical Control Point (CCP). If not, it may be controlled as 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.

Standard Operating Procedures (SOPs) are defined as steps or procedures that control the operational conditions within a food establishment. When documenting SOPs the frequency of monitoring and corrective action must be included. The controls of both CCPs and SOPs in the HACCP plan form the foundations for food safety.

Table 1 summarizes a typical hazard analysis process for airline and airline catering operations.

Step No	Process Step	Hazard Type	Potential Hazard and Cause	Justification	Example Control Measures	Control By
1 (A)	Product Design Food Product Design	Biological	Microbiological growth due to improper time/temperature conditions  Contamination with pathogens by the nature of the product and unsuitability for airline catering.	<ul style="list-style-type: none"> <li>- Increased storage time on board until consumption due to round catering, multi sector flights, long haul flights and overnight stops.</li> <li>- Increasing customer request for hazardous meal ingredients such as raw fish.</li> </ul> <p>Likelihood of occurrence if hazards are not identified either in the risk assessment or menu development stage.</p>	<p>Menu selection acc. to outcome of</p> <ul style="list-style-type: none"> <li>- Route assessment</li> <li>- Cooling assessment</li> <li>- Restrict hazardous meal ingredients from the menu.</li> </ul> <p>Control of liability : Inform customers of potential risk and agree on disclaimer</p>	<p>SOP Product Design</p> <p>SOP Hazardous Meal Ingredients</p> <p>Advice on the menu card handed out to the passenger</p>
		Chemical	Chemical contamination from meal ingredients such as toxins in fish	Scientific literature or supplier information reported presence of toxin in foods.	Restrict hazardous meal ingredients or products under recall from the menu.	SOP Hazardous Meal Ingredients
		Physical	Physical contamination not removed by subsequent processing.	Likelihood of occurrence resulting from product selection and type.	Restrict high risk products with limited control from physical contamination at product design stage.	SOP Physical Contamination SOP Supplier Approval

## World Food Safety Guidelines for Airline Catering

Step No	Process Step	Hazard Type	Potential Hazard and Cause	Justification	Example Control Measures	Control By
1 (B)	Product Design Food contact Equipment & Packaging design	Biological	Bacterial harborage due to uneven surfaces, design and material (e.g. soup flasks).	Introduction of new types of packaging or equipment due to trends, innovation or marketing.	Equipment or packaging specification suitable for purpose and for effective cleaning and sanitization	SOP Product Design
		Chemical	Chemical contamination of food due to non-food grade equipment or packaging.	Introduction of new types of packaging or equipment due to trends, innovation or marketing.	Equipment or packaging specification suitable for purpose	SOP Product Design
		Physical	Physical contamination due to nature of equipment and packaging.	Introduction of new types of packaging or equipment due to trends, innovation or marketing.	Equipment or packaging specification suitable for purpose	SOP Product Design
2	Purchasing	Biological	Survival and contamination of pathogens in high-risk ready-to-eat foods.	Ineffective supplier food safety controls at all stages to point of delivery.	Purchase high-risk ready-to-eat foods from approved suppliers.	SOP Supplier Approval
		Chemical	Antibiotics, growth hormones and pesticides in foods.	Incorrect use of antibiotics, growth hormones or pesticides may result in unsafe level of residues in food.	Purchase foods from approved suppliers.	SOP Supplier Approval
		Physical	Physical contamination not removed by subsequent processing.	Likelihood of occurrence resulting from insufficient supplier controls.	Purchase from approved suppliers acc. to specifications.	SOP Supplier Approval
3	Receiving	Biological	Growth of pathogens in chilled foods due to temperature abuse during transportation.	Insufficient temperature control during transportation causes pathogen growth.	Measure temperature of chilled foods at receiving.	<b>CCP 1</b> Control at Food Receiving
		Chemical	Chemical contamination of open food if segregation of food and chemicals is not adhered to.	Likelihood of occurrence resulting from insufficient procedures and controls.	Visual inspection of delivery and evidence of any taints and odors.	SOP Supplier Approval SOP Product Handling
		Physical	Physical contamination of food	Likelihood of occurrence resulting from insufficient transport procedures and delivery controls.	Visual inspection of integrity of packaging	SOP Supplier Approval SOP Product Handling

## World Food Safety Guidelines for Airline Catering

Step No	Process Step	Hazard Type	Potential Hazard and Cause	Justification	Example Control Measures	Control By
4 (A)	Storage (chilled) - ready-to-eat foods	Biological	Growth of pathogens in ready-to-eat foods due to exceeding storage temperature or time.	<ul style="list-style-type: none"> <li>- Improper storage temperature and/or time exceeding acceptable shelf life can allow pathogen growth.</li> <li>- No subsequent step to eliminate or reduce the hazard to acceptable level.</li> </ul>	<ul style="list-style-type: none"> <li>- Control storage temperature.</li> <li>- Control storage shelf life/ time.</li> </ul>	<b>CCP 2</b> Control of Cold Storage Temperature  SOP Date Coding and Stock Rotation
		Chemical	No significant hazard identified.	Low likelihood of product contamination.	Good Manufacturing Practice.	None
		Physical	No significant hazard identified.	Low likelihood of product contamination.	Good Manufacturing Practice.	SOP Physical contamination
4 (B)	Storage (frozen) frozen products	Biological	No hazard identified.	None	None	None
		Chemical	No significant hazard identified.	Low likelihood of product contamination.	Good Manufacturing Practice.	None
		Physical	No significant hazard identified.	Low likelihood of product contamination.	Good Manufacturing Practice.	SOP Physical contamination
5	Storage - dry foods	Biological	No hazard identified.	None	None	None
		Chemical	Chemical contamination of food if segregation of food and chemicals is not adhered to.	Likelihood of occurrence resulting from insufficient procedures and controls.	Clear Segregation Policies. Good Manufacturing Practices.	None
		Physical	Physical contamination of food.	Likelihood of occurrence resulting from insufficient procedures and controls.	<ul style="list-style-type: none"> <li>- Effective pest control measures.</li> <li>- Storage procedures.</li> </ul>	SOP Physical contamination SOP Pest control

## World Food Safety Guidelines for Airline Catering

Step No	Process Step	Hazard Type	Potential Hazard and Cause	Justification	Example Control Measures	Control By
6	Washing of raw fruits and vegetables for raw service	Biological	Survival of surface pathogens due to ineffective washing processes.	<ul style="list-style-type: none"> <li>- Incorrect washing processes can allow pathogen survival.</li> <li>- No subsequent step to eliminate or reduce the hazard to acceptable level.</li> </ul>	Effective washing and /or washing with chemicals (where permitted) procedure.	SOP Washing of Raw Fruits and Vegetables
		Chemical	Contamination with chemical washes where used incorrectly.	Likelihood of occurrence if correct procedures are not followed.	Follow chemical manufacturer's instruction and procedure.	SOP Washing of Raw Fruits and Vegetables
		Physical	Contamination with foreign objects due to ineffective washing process.	Likelihood of occurrence if incorrect washing and insufficient agitation causes incomplete removal of foreign objects.	Effective washing procedure.	SOP Washing of Raw Fruits and Vegetables
7	Thawing - raw foods	Biological	Growth of pathogens in raw foods due to exceeding time and temperature.	<ul style="list-style-type: none"> <li>- Increasing time and temperature during thawing allows pathogen growth.</li> <li>- Subsequent step eliminates the hazard (except for raw fish).</li> </ul>	Products should be thawed under refrigeration.	SOP Thawing
		Chemical	No significant hazard identified.	Low likelihood of product contamination.	Good Manufacturing Practice.	None
		Physical	Physical contamination of food.	Likelihood of residues from packaging / labels	Visual inspection.	SOP Physical contamination
8	Thawing - ready-to-eat foods	Biological	Growth of pathogens in ready-to-eat foods due to exceeding time and temperature.  Contamination of pathogens.	<ul style="list-style-type: none"> <li>- Increasing time and temperature during thawing allows pathogen growth.</li> <li>- No subsequent step to eliminate or reduce the hazard to acceptable level.</li> </ul>	Products should be thawed under refrigeration.	SOP Thawing SOP Product Handling
		Chemical	No significant hazard identified.	Low likelihood of product contamination	Good Manufacturing Practice.	None
		Physical	Physical contamination of food.	Likelihood of residues from packaging / labels.	Visual inspection.	SOP Physical contamination

## World Food Safety Guidelines for Airline Catering

Step No	Process Step	Hazard Type	Potential Hazard and Cause	Justification	Example Control Measures	Control By
9	Preparation - raw foods	Biological	Growth of pathogens in raw foods due to exceeding preparation temperature and time.	<ul style="list-style-type: none"> <li>- Increasing preparation temperature and time allows pathogen growth.</li> <li>- Subsequent step eliminates the hazard.</li> </ul>	Good Manufacturing Practices.	SOP Product Handling
		Biological	Contamination or cross contamination of pathogens from unclean food contact surfaces and poor hygiene practices.	Poor hygiene practices and unclean food contact surfaces allow pathogen contamination.	<ul style="list-style-type: none"> <li>- Food contact surfaces to be cleaned and sanitized as required per standard.</li> <li>- Control cross contamination.</li> <li>- Effective personal hygiene control.</li> </ul>	SOP Cleaning and Sanitizing SOP Product Handling SOP Personal Hygiene
		Chemical	No significant hazard identified.	Low likelihood of product contamination.	Good Manufacturing Practice.	None
		Physical	Physical contamination of food.	Contamination during butchering and preparation.	Visual inspection and awareness of specific risks.	SOP Physical contamination SOP Product Design
10	Storage (chilled) - raw foods	Biological	Growth of pathogens in raw foods due to exceeding storage temperature and time.	<ul style="list-style-type: none"> <li>- Increasing storage temperature and time allows pathogen growth.</li> <li>- Subsequent step eliminates the hazard.</li> </ul>	<ul style="list-style-type: none"> <li>- Correct food storage procedure.</li> <li>- Control of Refrigerator temperatures.</li> <li>- Control storage time.</li> </ul>	SOP Date Coding and Stock Rotation SOP Product Handling <b>CCP 2</b> Control of Cold Storage Temperature
		Chemical	No significant hazard identified.	Low likelihood of product contamination.	Good Manufacturing Practice.	None
		Physical	No significant hazard identified.	Low likelihood of product contamination.	Good Manufacturing Practice.	SOP Physical contamination
11	Cooking	Biological	Survival of pathogens due to too low cooking temperature.	<ul style="list-style-type: none"> <li>- Undercooking results in survival of pathogens.</li> <li>- Incorrect temperature measurement (e.g. surface temperature) causes undercooking.</li> </ul>	<ul style="list-style-type: none"> <li>- High risk raw foods shall be cooked to safe core temperatures.</li> <li>- Measure food core temperature upon completion of cooking to meet standards.</li> </ul>	<b>CCP 3</b> Control of Food Cooking
		Biological	Contamination of pathogens from unclean food contact surfaces and unclean handling.	Unclean handling and unclean food contact surfaces cause pathogen contamination.	Food contact surfaces to be cleaned and sanitized.	SOP Cleaning and Sanitizing
		Chemical	No significant hazard identified.	Low likelihood of product contamination.	Good Manufacturing Practice.	None
		Physical	Physical contamination of food.	Contamination during cooking.	Foreign object risk assessments.	SOP Physical contamination

## World Food Safety Guidelines for Airline Catering

Step No	Process Step	Hazard Type	Potential Hazard and Cause	Justification	Example Control Measures	Control By
12 13	Chilling Freezing	Biological	Growth of pathogens in cooked foods due to slow cooling process.	Slow cooling allows spore germination and toxin production.	- Foods shall be cooled rapidly after cooking.	<b>CCP 4</b> Control of Food Chilling
		Chemical	No significant hazard identified.	Low likelihood of product contamination	Good Manufacturing Practice.	None
		Physical	Physical contamination of food.	Contamination during chilling.	Foreign object risk assessments.	SOP Physical contamination
14	Storage (chilled) - ready-to-eat foods	Biological	Growth of pathogens in ready-to-eat foods due to exceeding storage temperature and time.	Increasing storage temperature and time allows pathogen growth.	- Control storage temperature. - Control storage time.	<b>CCP 2</b> Control of Cold Storage Temperature SOP Date Coding and Stock Rotation
		Chemical	No significant hazard identified.	Low likelihood of product contamination.	Good Manufacturing Practice.	None
		Physical	No significant hazard identified.	Low likelihood of product contamination.	Good Manufacturing Practice.	SOP Physical contamination
15 16 17	Preparation and assembly - ready-to-eat foods	Biological	Growth of pathogens due to exceeding food temperature or exposure time.	Increasing food temperature or prolonged preparation time allows pathogen growth.	Control food temperature or exposure time.	<b>CCP 5</b> Control of Food Processing
		Biological	Contamination or cross contamination of pathogens from unclean food contact surfaces and poor hygiene practices.	Poor hygiene practices and unclean food contact surfaces allow pathogen contamination.	- Food contact surfaces to be cleaned and sanitized as required per standard. - Control cross contamination. - Effective personal hygiene control.	SOP Cleaning and Sanitizing SOP Product Handling SOP Personal Hygiene
		Chemical	No significant hazard identified.	Low likelihood of product contamination.	Good Manufacturing Practice.	None
		Physical	Physical contamination of food.	Contamination during preparation / assembly.	Foreign object risk assessments.	SOP Physical contamination
18	Storage (chilled) - ready-to-eat foods	Biological	Growth of pathogens in ready-to-eat foods due to exceeding storage temperature and time.	Increasing storage temperature and time allows pathogen growth.	- Control storage temperature. - Control storage time.	<b>CCP 2</b> Control of Cold Storage Temperature SOP Date Coding and Stock Rotation
		Chemical	No significant hazard identified.	Low likelihood of product contamination.	Good Manufacturing Practice.	None
		Physical	No significant hazard identified.	Low likelihood of product contamination.	Good Manufacturing Practice.	SOP Physical contamination

## World Food Safety Guidelines for Airline Catering

Step No	Process Step	Hazard Type	Potential Hazard and Cause	Justification	Example Control Measures	Control By
19	Re-heating for hot delivery to aircraft	Biological	Growth of pathogens in re-heated food due to slow and/or insufficient heating process.	Food temperature in danger zone allows pathogen growth.	Food products to be re-heated and held at safe temperature close to despatch time.	SOP Despatch, Transportation and Loading
		Chemical	No significant hazard identified.	Low likelihood of product contamination.	Good Manufacturing Practice.	None
		Physical	No significant hazard identified.	Low likelihood of product contamination.	Good Manufacturing Practice.	SOP Physical contamination
20	Preparation, assembly, tray-set (ready-to-eat foods)	Biological	Growth of pathogens due to exceeding food temperature or exposure time.	Increasing food temperature or prolonged preparation time allows pathogen growth.	- Control food temperature or exposure time.	<b>CCP 5</b> Control of Food Processing
		Biological	Contamination or cross contamination of pathogens from unclean food contact surfaces and poor hygiene practices.	Poor hygiene practices and unclean food contact surfaces allow pathogen contamination.	- Food contact surfaces to be cleaned and sanitized as required per standard. - Control cross contamination. - Effective personal hygiene control.	SOP Cleaning and Sanitizing  SOP Product Handling SOP Personal Hygiene
		Chemical	No significant hazard identified.	Low likelihood of product contamination.	Good Manufacturing Practice.	None
		Physical	Physical contamination of food.	Contamination during preparation / assembly and tray-set.	Foreign object risk assessments.	SOP Physical contamination
21	Storage - final holding	Biological	Growth of pathogens in ready-to-eat foods due to exceeding storage temperature and time.	Increasing storage temperature and time allows pathogen growth.	- Control storage temperature. - Control storage time.	<b>CCP 2</b> Control of Cold Storage Temperature  SOP Date Coding and Stock Rotation
		Chemical	No significant hazard identified.	Low likelihood of product contamination.	Good Manufacturing Practice.	None
		Physical	No significant hazard identified.	Low likelihood of product contamination.	Good Manufacturing Practice.	SOP Physical contamination
22	Dispatch	Biological	Growth of pathogens due to exceeding food temperature prior to despatch.	- Increasing food temperature allows pathogen growth. - Final holding time shall achieve correct dispatch and delivery temperature.	- Measure temperature of potentially hazardous foods prior to despatch or security sealing where applicable. - Production planning.	SOP Despatch, Transportation and Loading
		Chemical	No significant hazard identified.	Low likelihood of product contamination.	Good Manufacturing Practice.	None
		Physical	No significant hazard identified.	Low likelihood of product contamination.	Good Manufacturing Practice.	SOP Physical contamination

## World Food Safety Guidelines for Airline Catering

Step No	Process Step	Hazard Type	Potential Hazard and Cause	Justification	Example Control Measures	Control By
23 24	Transport Aircraft loading	Biological	Growth of pathogens due to time/temperature abuse during transport.	Increasing temperature and prolonged transportation time allows pathogen growth.	<ul style="list-style-type: none"> <li>- Potentially hazardous foods to be transported under controlled conditions by caterer, airport handler, airlines.</li> <li>- Measure temperature of potentially hazardous foods at loading if possible or conduct risk assessment.</li> </ul>	SOP Despatch, Transportation and Loading
		Chemical	No significant hazard identified.	Low likelihood of product contamination.	Good Manufacturing Practice.	None
		Physical	No significant hazard identified.	Low likelihood of product contamination.	Good Manufacturing Practice.	SOP Physical contamination
25	Storage on board	Biological	Growth of pathogens due to time/temperature abuse during storage.	Increasing storage temperature and prolonged transportation time allows pathogen growth.	<ul style="list-style-type: none"> <li>- Potentially hazardous foods to be stored under refrigeration on board.</li> <li>- Equipment / Galley Design.</li> </ul>	<b>CCP 2</b> Control of Cold Storage Temperature SOP Product Design SOP Crew Training
		Chemical	No hazard identified.	None	None	None
		Physical	No significant hazard identified.	Low likelihood of product contamination.	Good Manufacturing Practice.	SOP Physical contamination SOP Pest Control
26	Preparation on board	Biological	Contamination of pathogens from cabin crew.	Likelihood of occurrence in case of direct food contact.	Effective personal hygiene procedure.	SOP Crew Training
		Chemical	No hazard identified.	None	None	None
		Physical	Contamination of foreign objects from cabin crew.	Likelihood of occurrence during food handling and service.	<ul style="list-style-type: none"> <li>- Effective personal hygiene procedure.</li> <li>- "Good Service Practice"</li> </ul>	SOP Crew Training SOP Physical contamination
27	Re-heating on board	Biological	No significant hazard identified.	Low likelihood if food is provided cooked acc. to CCP 3.	<ul style="list-style-type: none"> <li>- "Good Service Practice" (e.g. not to load ovens too far in advance of service)</li> <li>- Following heating instructions.</li> </ul>	SOP Crew Training
		Chemical	Contamination by incorrect equipment	Likelihood of occurrence when equipment is not fit for purpose.	Equipment specification.	SOP Product Design
		Physical	Contamination during heating	Likelihood of occurrence when open food is being re-heated.	<ul style="list-style-type: none"> <li>- Design and maintenance of ovens.</li> <li>- Design of product packaging.</li> </ul>	SOP Physical contamination SOP Product Design

## World Food Safety Guidelines for Airline Catering

Step No	Process Step	Hazard Type	Potential Hazard and Cause	Justification	Example Control Measures	Control By
28	Cooking from raw ingredients on board	Biological	Survival of pathogens due to too low cooking temperature.	<ul style="list-style-type: none"> <li>- Undercooking results in survival of pathogens.</li> <li>- Incorrect temperature measurement (e.g. surface temperature) causes undercooking.</li> </ul>	<ul style="list-style-type: none"> <li>- High risk raw foods shall be cooked to safe core temperature.</li> <li>- Measure food core temperature upon completion of cooking.</li> </ul>	CCP 3 Control of Food Cooking
		Chemical	Contamination by incorrect equipment.	Likelihood of occurrence when equipment is not fit for purpose.	Equipment specification.	SOP Product Design
		Physical	Contamination during heating.	Likelihood of occurrence when open food is being heated.	<ul style="list-style-type: none"> <li>- Design and maintenance of ovens</li> <li>- Design of product package</li> </ul>	SOP Product Design
29	Service	Biological	Contamination with pathogens from cabin crew.	Likelihood of occurrence in case of direct food contact.	Effective personal hygiene procedure.	SOP Crew Training
		Chemical	No hazard identified.	None	None	None
		Physical	Contamination with foreign objects from cabin crew.	Likelihood of occurrence during food handling and service.	<ul style="list-style-type: none"> <li>- Effective personal hygiene procedure.</li> <li>- "Good Service Practice"</li> </ul>	SOP Crew Training SOP Physical contamination
30	Aircraft stripping	Biological	No hazard identified.	None	None	None
		Chemical	No hazard identified.	None	None	None
		Physical	Contamination with pests.	Likelihood of occurrence when used food carts are contaminated by pest on aircrafts or inappropriately stored (e.g. container offloaded with delay in returning for washing).	<ul style="list-style-type: none"> <li>- pest control of aircraft</li> <li>- route assessment</li> </ul>	SOP Pest control SOP Product design
31	Equipment washing and sanitizing (kitchen and aircraft equipment)	Biological	<ul style="list-style-type: none"> <li>- Survival of pathogens due to insufficient rinse temperature and/or chemical concentration.</li> <li>- Growth of pathogens due to ineffective cleaning and sanitizing.</li> <li>- Post-sanitizing contamination.</li> </ul>	<ul style="list-style-type: none"> <li>- Too low temperature or chemical concentration allow pathogen survival.</li> <li>- Food residues on washed equipment allow pathogen growth.</li> <li>- Re-contamination due to improper handling and/or storage.</li> </ul>	<ul style="list-style-type: none"> <li>- Food contact surfaces must be cleaned, rinsed then sanitized by heat or chemical sanitization and dry.</li> <li>- Cleaning and sanitizing procedure.</li> <li>- Machines must be designed fit for purpose.</li> </ul>	SOP Cleaning and Sanitizing SOP Product design
		Chemical	Contamination with cleaning chemical.	Likelihood of occurrence when chemicals are not used at the correct concentration or as per manufacturers' instruction.	<ul style="list-style-type: none"> <li>- Concentration controls</li> <li>- Follow manufacturers instruction</li> </ul>	SOP Cleaning and Sanitizing
		Physical	Physical contamination of clean equipment.	Likelihood of occurrence when cleaning procedures are not followed incl. storage after cleaning.	<ul style="list-style-type: none"> <li>- Manufacturers procedures for use of ware wash machines</li> <li>- Visual inspection of cleaned equipment</li> <li>- Cleaning procedure, equipment storage</li> </ul>	SOP Cleaning and Sanitizing

Process step numbers refer to those described on Appendix II: Flow Diagram 1.

## World Food Safety Guidelines for Airline Catering

### Appendix IV Food Safety Process Table Critical Control Points

The table below is an example of how to establish the Critical Control Points for Airline and Airline Catering operations. Please note that the Airline and Airline Caterer should assign a person, or position responsible for Monitoring Frequency, Corrective Action and Verification steps.

CCP	Process Step(s)	Hazard	Control Measures	Critical Limits	Monitoring Procedures and Frequency	Recommended Corrective Actions	Verification
CCP 1	Goods Receipt	<u>Biological</u> - growth of pathogens	Monitor temperature of potentially hazardous foods upon receipt.	<p><b>Chilled Foods</b>  <math>\leq 8^{\circ}\text{C}/46^{\circ}\text{F}</math>.</p> <p><b>Frozen Foods</b>  Solid frozen with no signs of prior defrosting, e.g. soft surface or ice crystals.</p>	<p><b>Chilled Foods</b>  What: Food surface temperature.  How: Measure surface temperature.  When: Each delivery of chilled potentially hazardous foods.</p> <p><b>Frozen Foods</b>  What: State or appearance of food.  How: Physical and visual inspection.  When: Each delivery of frozen foods.</p> <p>Record: Food Receiving Record.</p>	<p><b>Chilled Foods</b>  If food surface temperature is above <math>8^{\circ}\text{C}/46^{\circ}\text{F}</math>, appropriate corrective action must be taken.</p> <p><b>Frozen Foods</b>  If food is not in frozen state or shows sign of defrosting, appropriate corrective action must be taken OR reject food.</p> <p>Record: Record corrective action in Food Receiving Record.</p>	<ul style="list-style-type: none"> <li>Review monitoring and corrective action records.</li> <li>Review thermometer calibration records (according to respective SOP)</li> <li>Routine microbiological analysis of food products sampled at receiving.</li> </ul>

## World Food Safety Guidelines for Airline Catering

CCP	Process Step(s)	Hazard	Control Measures	Critical Limits	Monitoring Procedures and Frequency	Recommended Corrective Actions	Verification
CCP 2	Storage Final Holding <i>(Storage on board)</i>	<u>Biological</u> - growth of pathogens	Store potentially hazardous foods under refrigeration.	Food temperature $\leq 5^{\circ}\text{C}/41^{\circ}\text{F}$ for chilled food.	<p>What: Refrigerator temperature.</p> <p>How:</p> <ul style="list-style-type: none"> <li>Read temperature from thermometer gauges</li> <li>Read temperature from continuous recording equipment.</li> </ul> <p>When: Each shift or at a frequency considered effective.</p> <p>Record: Cold Storage Temperature Record.</p>	<p>When refrigerator temperature is above <math>8^{\circ}\text{C}/46^{\circ}\text{F}</math>, check food surface temperature and if food surface temperature is above <math>5^{\circ}\text{C}/41^{\circ}\text{F}</math>, appropriate corrective action must be taken.</p> <p>Record: Record corrective action in Cold Storage Temperature Record.</p>	<ul style="list-style-type: none"> <li>Review monitoring and corrective action records.</li> <li>Review thermometer calibration records (according to respective SOP).</li> <li>Microbiological analysis of food products sampled from cold storage.</li> </ul>
CCP 3	Cooking <i>(Cooking on board)</i>	<u>Biological</u> - survival of pathogens	<p><b>Cooked Foods</b></p> <p>Cook raw foods of to safe core temperatures.</p> <p><b>Seared Foods</b></p> <p>Sear raw whole muscle meat to achieve color change on all external surfaces.</p>	<p><b>Cooked Foods</b></p> <p>For minimum cooking temperature, refer to CCP 3 Chart or apply national standards where stricter.</p> <p><b>Seared Foods</b></p> <p>Color change on all external surface.</p>	<p><b>Cooked Foods</b></p> <p>What: - Food core temperature.</p> <p>How: - Measure food core temperature.</p> <p>When: - Each batch of high risk food at the end of cooking process.</p> <p>Record: Food Cooking Record.</p> <p><b>Seared Foods</b></p> <p>How: - Visual inspection of food external surfaces.</p> <p>When: - Each batch of seared food at the end of cooking process.</p>	<p><b>Cooked Foods</b></p> <p>If food core temperature is lower than minimum cooking temperature requirement, continue cooking until the required temperature is met.</p> <p><b>Or</b> Discard food.</p> <p>Record: Record corrective action in Food Cooking Record.</p> <p><b>Seared Foods</b></p> <p>If color change is not achieved on all external surfaces of food, continue cooking until food displays color change on all external surfaces.</p> <p><b>Or</b> Discard food.</p>	<ul style="list-style-type: none"> <li>Review monitoring and corrective action records.</li> <li>Review thermometer calibration records (according to respective SOP).</li> <li>Microbiological analysis of food products sampled after cooking process.</li> </ul>

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CCP	Process Step(s)	Hazard	Control Measures	Critical Limits	Monitoring Procedures and Frequency	Recommended Corrective Actions	Verification
CCP 4	Chilling or Freezing (rapid cooling)	<u>Biological</u> - growth of pathogens	Chill foods rapidly after cooking.	<p>Food core temperature must be reduced according to one of the following critical limits.</p> <p><u>Critical Limit 1:</u> From 60 °C/140 °F to 10 °C/50 °F in 4 hours.</p> <p><u>Critical Limit 2:</u> From 60 °C/140 °F to 21 °C/70 °F in 2 hours; and from 21 °C/70 °F to 5 °C/41 °F in the next 4 hours.</p> <p>Or local legislation where stricter.</p>	<p>What: Food core temperature.</p> <p>How:</p> <p><u>Critical Limit 1:</u> Measure food core temperature and time at start and finish of chilling process.</p> <p><u>Critical Limit 2:</u> Measure food core temperature and time at start of chilling, after 2 hours of chilling, and at the end of chilling process.</p> <p>When: Each batch of cooked potentially hazardous foods.</p> <p>Record: Food Chilling Record.</p>	<p><u>Critical Limit 1:</u> If critical limits are not met, re-cook or discard food.</p> <p><u>Critical Limit 2:</u> After 2 hours of chilling, if critical limits are not met, accelerate chilling process. After 6 hours of chilling, if critical limits are not met, re-cook or discard food.</p> <p>Record: Record corrective action in Food Chilling Record.</p>	<ul style="list-style-type: none"> <li>Review monitoring and corrective action records.</li> <li>Review thermometer calibration records (according to respective SOP).</li> <li>Microbiological analysis of food products sampled after chilling process.</li> </ul>

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CCP	Process Step(s)	Hazard	Control Measures	Critical Limits	Monitoring Procedures and Frequency	Recommended Corrective Actions	Verification
CCP 5	Processing of PHF ready-to-eat foods, e.g. meal assembly, portioning, tray-setting	<u>Biological</u> - growth of pathogens	Control of food temperature and/or time of exposure to ambient temperature during processing.	<p>One of the following cases applies:</p> <p><u>Case 1:</u> <u>Ambient temperature is <math>\leq 5^{\circ}\text{C}/41^{\circ}\text{F}</math>.</u></p> <p>Ambient temperature must not exceed <math>5^{\circ}\text{C}/41^{\circ}\text{F}</math>.</p> <p><u>Case 2:</u> <u>Ambient temperature is <math>&gt; 5^{\circ}\text{C}/41^{\circ}\text{F}</math> but <math>\leq 15^{\circ}\text{C}/59^{\circ}\text{F}</math>.</u></p> <p>Food exposure time must not exceed 90 minutes.</p> <p><u>Case 3:</u> <u>Ambient temperature is <math>&gt; 15^{\circ}\text{C}/59^{\circ}\text{F}</math> but <math>\leq 21^{\circ}\text{C}/70^{\circ}\text{F}</math>.</u></p> <p>Food exposure time must not exceed 45 minutes <b>or</b> food surface temperature must not exceed <math>15^{\circ}\text{C}/59^{\circ}\text{F}</math>.</p> <p><u>Case 4:</u> <u>Ambient temperature is <math>&gt; 21^{\circ}\text{C}/70^{\circ}\text{F}</math>.</u></p> <p>Food exposure time must not exceed 45 minutes <b>and</b> food surface temperature must not exceed <math>15^{\circ}\text{C}/59^{\circ}\text{F}</math>.</p>	<p>What:</p> <ul style="list-style-type: none"> <li>Ambient temperature</li> <li>Food exposure time</li> <li>Food surface temperature.</li> </ul> <p>How and When:</p> <p><u>Case 1:</u> Measure ambient temperature each shift or at a frequency considered effective. No monitoring on food is required.</p> <p><u>Case 2:</u></p> <ul style="list-style-type: none"> <li>Measure ambient temperature each shift or at a frequency considered effective.</li> <li>Measure food exposure time for each batch of potentially hazardous ready-to-eat food.</li> </ul> <p><u>Case 3:</u></p> <ul style="list-style-type: none"> <li>Measure ambient temperature each shift or at a frequency considered effective.</li> <li>Measure food exposure time <b>or</b> food surface temperature for each batch of potentially hazardous ready-to-eat food.</li> </ul> <p><u>Case 4:</u></p> <ul style="list-style-type: none"> <li>Measure ambient temperature each shift or at a frequency considered effective.</li> <li>Measure food exposure time <b>and</b> food surface temperature for each batch of PHF ready-to-eat food.</li> </ul> <p>Record: Food Processing Record.</p>	<p>If critical limits are not met, appropriate corrective action must be taken, e.g. if time is not met, verify actual temperature. If both limits are exceeded, discard food.</p> <p>Record: Record corrective action in Food Processing Record.</p>	<ul style="list-style-type: none"> <li>Review monitoring and corrective action records.</li> <li>Review thermometer calibration records (according to respective SOP).</li> <li>Microbiological analysis of food products sampled after cooking process.</li> </ul>

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### Appendix V Foods for Control

“**High-risk Foods**” are foods known to harbor 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.

It is likewise common to divide each of the 2 groups into:

1. Potentially hazardous foods (PHF), known to harbor commonly microbial pathogens and / or support growth of microbial pathogens.
  2. Non-PHF, known not commonly to harbor and / or support growth of microbial pathogens.
  3. 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 raw state*, if grown by use of fecal 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, terrines, salads.
- Dairy foods, e.g. pasteurized milk, cream, soft cheeses.

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- 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.

As the name indicates, high-risk foods are the targets for 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 harbor 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 fecal 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 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 / 46 °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): \_\_\_\_\_

Refrigerator temperature:

target 5 °C / 41 °F, when temperature is above

8 °C/46 °F check food surface temperature, if food

temperature is above 5°C/ 41°F initiate corrective action

Date of Check of Cleanliness of Fan / Evaporator \_\_\_\_\_

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										
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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 21 °C / 70 °F in 2 hours and from 21 °C/ 70 °F to 5 °C/41 °F in the next 4 hours.

Verification Signature: \_\_\_\_\_

Food Item	Airline	Cooking Temperature			Quick Chilling of Potentially Hazardous Foods						Corrective Action
					Check No. 1			Final Check			
		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 5° C / 41 °F and 15 °C/ 59°F

=> food exposure time may not exceed 90 minutes

or

Ambient Room Temperature greater 15 °C / 59 °F and less than 21 °C / 70 °F:

=> food exposure time may not exceed 45 minutes **or** temperature at or less than 15 °C/ 59 °F

or

Ambient Room Temperature greater than 21 °C / 70 °F:

=> food exposure time may not exceed 45 minutes **and** temperature at or less than 15 °C/ 59 °F

#### 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		

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### Appendix VII 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>	<b><i>Salmonella</i></b> – readily destroyed at milk pasteurization time/temperatures. Minimum pasteurization 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>	<b><i>Salmonella</i></b> – minimum pasteurization treatments allow sufficient safety margins to ensure destruction of pathogens	74 °C / 165 °F 15 secs for <u>poultry</u>  70 °C / 158 °F for <u>eggs &amp; omelets</u>  75 °C / 167 °F core temp.	FSIS (2001) FDA (2009)  FDA (2009)  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>	<b><i>Parasites</i></b> – pasteurization 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 (2009)
Shell Fish / Crustaceans	<i>Listeria monocytogenes</i> <i>Clostridium botulinum</i> <i>Salmonella</i> <i>Vibrio spp. especially V.parahaemolyticus</i> <i>Campylobacter</i>	<b><i>V. parahaemolyticus</i></b> – predominant pathogen in seafood.	≥ 65 °C / 149 °C core  63 °C / 145 °F, 15 secs  > 60 °C / 140 °F	ICMSF(1996) AIFST (1997)  FDA (2009)  FDA/CFSAN (2000)
Meats	<i>E. coli</i> O157:H7 <i>Salmonella</i> <i>Staphylococcus aureus</i> <i>Parasites</i> <i>Campylobacter</i> <i>Clostridium perfringens</i> <i>Yersinia</i>	<b><i>Salmonella</i></b> – FSIS suggests a 6.5D reduction.  <b><i>VTEC</i></b> – for a 6D reduction 70 °C / 158 °F for 2 minutes or 80 °C / 176 °F for 6 secs.	<b><i>Salmonella</i></b> : > 70 °C / 158 °F for <u>comminuted and mechanically tenderized meats</u>  <b><i>VTEC</i></b> : 80 °C / 176 °F <b><i>EHEC</i></b> : ≥ 68 °C / 154 °F  <b><i>Searing</i></b> : Cooked on both the top and bottom to a surface temperature of 63 °C / 145 °F or above and a cooked color change is achieved on all external surfaces. (for whole muscle, intact beef)	FSIS, (2001) FDA, (2009) Jay, (2000)  ACMSF (1995) Codex CX/FH 03/5 (2003)  FDA (2009)

## World Food Safety Guidelines for Airline Catering

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
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 <i>Bacillus</i> or <i>C. perfringens</i> – adequate cooling is imperative to prevent germination and growth of spores.	N/A	FDA/CFSAN (2000)  ICMSF (1996)
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.

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## World Food Safety Guidelines for Airline Catering

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

# World Food Safety Guidelines for Airline Catering

## Appendix IX Guidelines for Food Safety Auditing

### Contents:

1. Introduction
2. Audit Principles for Individual CCPs and SOPs
3. Scope and Basic Requirements to Food Safety Audits
4. Steps of a Food Safety Audit
5. Rights and Duties of Caterers and Customer Auditors

### 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 based on HACCP principles. The control programs should be effective, simple and understandable in order to support consistent and reliable implementation.

**If the airline caterer does not have an HACCP-based food safety management program in place, the caterer is considered “failed”.**

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 the 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 or food 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 critical limits. However, the Standard Operating Procedures are not necessarily correlated with food, food batches and critical limits; thus control of SOPs must be done by a planned evaluation of procedural elements.

## World Food Safety Guidelines for Airline Catering

### 3. Scope and Basic Requirements to Food Safety Audit

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.

\**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 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.

## World Food Safety Guidelines for Airline Catering

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 the control system so long as all identified risks are eliminated or reduced to safe/acceptable levels.
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 justifiable* 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 if not objectively justified. Such objections must include full justification and evidence that any potential risks to food safety have been adequately controlled.

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.	<p>Auditor must conduct audit in such a way that only identified justifiable* non-conformities are included in audit and related rating.</p> <p>Auditor should acknowledge the caterers reasonable comments at closing meeting and if necessary adjust conclusion on the actual issue of debate.</p>	<p>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.</p> <p>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.</p>

\* 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.

# World Food Safety Guidelines for Airline Catering

## Appendix X Audit Tool

### WORLD FOOD SAFETY GUIDELINES

For the Airline and Airline Catering

#### WORLD FOOD SAFETY GUIDELINES AUDIT CHECKLIST

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

☐

Compliant

☐

All non-compliant CCPs  
require immediate action.

☐

All non-compliant SOPs  
require attention.



(Tick appropriate box/es)

THIS AUDIT CHECKLIST IS BASED ON THE IFCA/IFSA WORLD FOOD SAFETY GUIDELINES.

ITS PURPOSE IS TO VERIFY THAT A FOOD SAFETY CONTROL PROGRAM BASED ON HACCP PRINCIPLES IS IN PLACE

WHICH ELIMINATES, REDUCES OR CONTROLS RELEVANT FOOD SAFETY HAZARDS THROUGHOUT THE FOOD CHAIN.

IT ALSO AIMS TO DETERMINE THAT APPROPRIATE CORRECTIVE ACTION IS TAKEN AND RECORDED WHEN CRITICAL LIMITS ARE NOT MET OR IN CASE OF DEVIATIONS FROM SOP REQUIREMENTS.

CHECK POINTS	CCPs		SOPs		COMMENTS
	4	1	2		
<b>FOOD SAFETY MANAGEMENT SYSTEM</b>					
<b>FOOD SAFETY MANAGEMENT SYSTEM</b>					
1 Is there a documented food safety management system based on HACCP principles?					
<b>HACCP VERIFICATION</b>					
2 Is there a verification programme for the HACCP system?					
3 Is corrective action taken when necessary and recorded?					
<b>UNIT STRUCTURE, SIZE, LAYOUT AND DESIGN</b>					
4 Does unit size and layout permit effective segregation between clean and unclean materials and processes?					
5 Does the building design permit effective cleaning and tidiness? - Floors, walls and ceilings have smooth and washable surfaces. - They are clean and well-maintained. - Floors incline to drains. Drains are open, clean and with grates. - All areas are well lit. - Ventilation is adequate to prevent excessive rises in air temperature in food preparation rooms.					
6 Are all areas of unit clean and tidy, no visible dirt and debris?					
7 Hand wash facilities - Are there hand wash facilities in each area with hot water, filled soap dispenser and single-use towels & signs for handwashing suitably placed? - Are hand wash facilities correctly used?					
<b>PEST CONTROL</b>					
8 Is there an effective and documented pest management program? - Building is properly proofed to prevent access of flying and crawling pests. - Unit plan, bait locations, list and type of eradication devices, list of approved insecticides/pesticides, material safety data, are available. - Records are kept for inspection, findings, treatments and corrective actions taken. - No signs of pest infestation.					
<b>EQUIPMENT</b>					
9 Food Preparation Equipment and Food Contact Surfaces - Are food preparation equipment and food contact surfaces made from food grade and non-porous material? - Are the equipment and food contact surfaces clean and in good condition?					
<b>Subscore (minus points)</b>	<b>0</b>	<b>0</b>	<b>0</b>		

## World Food Safety Guidelines for Airline Catering

CHECK POINTS	CCPs	SOPs		COMMENTS
	4	1	2	
<b>CONTROL OF HAZARDOUS MEAL INGREDIENTS</b>				
10 Is there a procedure for control of potentially hazardous meal ingredients in place? - A list of hazardous meal ingredients is available and considered during menu design process, procurement and production.				
<b>SUPPLIER APPROVAL</b>				
11 Is there an effective approval process for high-risk ready-to-eat food suppliers?				
<b>CONTROLS OF FOOD HANDLING</b>				
<b>FOOD RECEIVING</b>				
12 Is there a food temperature control system for safe receipt of potentially hazardous foods? - Temperature of potentially hazardous foods is monitored and recorded: Chilled food: Surface temperature <b>Critical: 8°C / 46°F</b> Frozen food: Solid frozen. - Corrective action is taken and recorded when critical limit is not met.	CCP 1			
<b>FOOD STORAGE</b>				
13 Is there a food temperature control system for safe storage of potentially hazardous foods? - Chilled food: Surface temperature <b>Critical: 5°C / 41°F</b> - Records are kept and corrective action taken when critical limit is not met.	CCP 2			
14 Is there a robust control system to ensure that food is consumed within its shelf-life? - Are foods date-marked or color-coded and correctly rotated (no out-of-date foods)?				
15 Are foods covered to protect from contamination?				
16 Is there a process which controls in-house freezing of products?				
<b>THAWING</b>				
17 Is thawing performed in such a way that prevents the growth of pathogens and cross-contamination (e.g. under refrigeration)? - Product is in sealed packaging if thawed in water. - Product surface temperature is monitored and recorded when thawed outside of refrigeration. - Product surface temperature: Target: 8°C / 46°F				
<b>FRUIT &amp; VEGETABLE WASHING AND SANITIZING</b>				
18 Is there a documented washing process? - Each batch of raw vegetables and fruits are washed in clean and potable water or suitable alternative, with records kept. - Where permitted, sanitiser with correct concentration is used with records kept. - Appropriate segregation of washed and unwashed products.				
<b>HOT MEAL PRODUCTION</b>				
19 Are foods cooked to safe core temperature with records kept? - Refer to CCP 3 of WFSG for minimum cook core temperature requirements.	CCP 3			
20 Are foods cooled safely? Food core temperature is reduced from: - 60°C / 140°F to 10°C / 50°F in 4 hrs, <b>OR</b> - 60°C / 140°F to 5°C / 41°F in 6 hrs, provided it reaches 21°C / 70°F in 2 hrs. - Records are kept and corrective action taken when critical limits are not met.	CCP 4			
<b>Subscore (minus points)</b>	<b>0</b>	<b>0</b>	<b>0</b>	

## World Food Safety Guidelines for Airline Catering

CHECK POINTS	CCPs		SOPs		COMMENTS
	4	1	2		
<b>HANDLING OF READY-TO-EAT FOODS</b>					
21A Ambient temperature is less than or equal to 5°C/41°F. - Is ambient temperature monitored? - Are records kept and corrective action taken when necessary?	CCP 5				
<b>OR</b>					
21B Ambient temperature is higher than 5°C/41°F but less than or equal to 15°C/59°F. - Is ambient temperature monitored? - Food exposure time does not exceed <b>Critical limit of 90 mins.</b> - Are records kept and corrective action taken when necessary?	CCP 5				
<b>OR</b>					
21C Ambient temperature is higher than 15°C/59°F but less than or equal to 21°C/70°F. - Is ambient temperature monitored? - Food surface temperature does not exceed <b>Critical limit of 15°C/59°F</b> or Food exposure time does not exceed <b>Critical limit of 45 mins.</b> - Are records kept and corrective action taken when necessary?	CCP 5				
<b>OR</b>					
21D Ambient temperature is higher than 21°C/70°F. - Is ambient temperature monitored? - Food surface temperature does not exceed <b>Critical limit of 15°C/59°F</b> and Food exposure time does not exceed <b>Critical limit of 45 mins.</b> - Are records kept and corrective action taken when necessary?	CCP 5				
<b>DESPATCH, TRANSPORT AND LOADING</b>					
22 Despatch - High-risk cold food: maximum surface temperature 5°C/41°F. - Hot food: minimum core temperature 63°C/145°F. - Records are kept and corrective action taken in case of deviation from above.					
23 Are ice machines and scoops clean and well-maintained?					
24 Transport and loading - High-risk cold food: maximum surface temperature 10°C/50°F. - Hot food: minimum surface temperature 60°C/140°F. - Is there sufficient regular monitoring and recording of food temperature at loading to show compliance with above requirement?					
25 Is there a food safety based risk-assessment in the event of an aircraft delay?					
<b>CONTROL OF PHYSICAL CONTAMINATION</b>					
26 Is there a documented, risk-assessment based control measures to prevent physical contaminations, e.g. glass breakage?					
<b>PREVENTION OF CROSS CONTAMINATION</b>					
27 Is there clear segregation between raw and ready-to-eat food during storage?					
28 Is there clear segregation between raw and ready-to eat food during preparation?					
29 Are there effective controls to ensure safe production of special meals, e.g. avoidance of allergens?					
<b>PERSONAL HYGIENE</b>					
30 Are uniforms suitable, clean and correctly worn?					
31 Is there a company rule regarding jewellery based on risk assessment?					
32 Are toilets and changing rooms clean and well-maintained?					
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 being used for unclean handling processes?					
<b>INFECTION CONTROL</b>					
35 Is there a monitoring procedure in place to prevent contamination of food through contact with infected employees and visitors?					
36 Are wounds properly covered? - Conspicuous, waterproof dressings.					
<b>Subscore (minus points)</b>	0	0	0		

## World Food Safety Guidelines for Airline Catering

CHECK POINTS	CCPs	SOPs	COMMENTS
	4	1	2

<b>TRAINING</b>				
37 Is there a job-related food safety training program for employees and management? - Induction and refresher training. - Tests are included. - Training records are available for each member of staff.				
<b>CLEANING AND SANITIZING</b>				
38 Is there a documented cleaning and sanitizing program for food contact and non-food contact surfaces?				
39 Cleaning chemicals - Food grade detergents and sanitisers are available in all working areas. - Separate chemical store with chemicals correctly labelled.				
40 Pot wash/Dish wash <u>Thermal sanitizing</u> - Do equipment washing machines achieve equipment surface temperature of 71°C/160°F or final rinse temperature of 82°C/180°F? - Is final rinse temperature monitored and recorded at beginning of each shift by reading temperature display or by using thermolabel? <u>OR Chemical sanitizing</u> - Does manual washing procedure include a disinfection step? - Is chemical concentration monitored and recorded? Are washed equipment visually clean?				
41 Equipment Storage - Is there clear segregation between clean and dirty equipment? - Are cleaned equipment stored in a way which ensures quick drying and prevents contamination?				
<b>WASTE DISPOSAL</b>				
42 Waste bins - Are waste bins well-maintained, emptied and cleaned when necessary? - Are lidded bins foot operated?				
43 Waste collection station - Is the area clean and well maintained? - Is the area covered and/or enclosed to deter pest activity?				
<b>INSTRUMENT CALIBRATION</b>				
44 Are measuring equipment used to monitor CCPs and SOPs identified and calibrated minimum annually with records kept?				
<b>PRODUCT RECALL PROCEDURE</b>				
45 Is there a documented product recall procedure in place? - Procedure is tested to ensure preparedness and effectiveness.				
<b>FOOD SAFETY COMPLAINT PROCEDURE</b>				
46 Is there a documented procedure for effective receipt, recording and management of food safety related complaints? - Investigations are carried out and recorded. - Action to prevent recurrence is taken and recorded.				
<b>Subscore (minus points)</b>	0	0	0	
<b>Total number of minus points</b>	0			
<b>Final Score (100 less total number of minus points)</b>	100			

# World Food Safety Guidelines for Airline Catering

## Audit Reference Tool

The checklist is based on the World Food Safety Guidelines for Airline Catering, 3<sup>rd</sup> version, June 2010.

Its purpose is to facilitate verification that a control program based on HACCP principles is in place and that this program 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 stricter then Caterers must comply with their National standards.

### Scoring Principles

The final score of an audit by use of the WFSG Audit Checklist is based on deductions from the total score of 100.

#### Critical Control Points (CCPs)

CCPs are food-specific and have direct impact on food safety. Each CCP is valued 4 points. No deduction is made if the CCP is found to be in compliance; whereas the full 4 points are deducted when non-compliance is identified in a CCP. The Caterer is thus considered 'failed' in the audit.

#### Standard Operating Procedures (SOPs)

SOPs are generally related to the controls of the food environment, therefore tolerance is allowed for minor discrepancy noted during an audit. Hence there are 3 ways of scoring an SOP:

- Acceptable - All areas within the SOP are correct, so no point is 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 equipped with soap, then 1 point may be deducted.
- 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 2 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.

## World Food Safety Guidelines for Airline Catering

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

No.	Check Points
1	<b>Food Safety Management System (FSMS)</b> <ul style="list-style-type: none"> <li>• Confirm existence of a documented Food Safety Management System including HACCP.</li> <li>• <b>If an adequate system is not in place or is not up-to-date, this is regarded as a “failure”. If the audit shows that a CCP is non-compliant, the audit is regarded as a “critical failure”.</b></li> </ul>
2 - 3	<b>FSMS Verification incl. HACCP verification</b> <ul style="list-style-type: none"> <li>• Confirm existence of regular verification program.</li> <li>• Verify that corrective actions are taken when necessary and recorded.</li> <li>• Refer to FSMS Verification.</li> </ul>
4 - 7	<b>Unit Structure, Size, Layout and Design</b> <ul style="list-style-type: none"> <li>• Confirm that food safety is incorporated into the design of unit e.g. materials used for floors, walls, and ceilings.</li> <li>• Verify by visual observation that unit is clean and well-maintained in such a way that the risk of harmful contamination to food from environment is prevented.</li> </ul>
8	<b>Pest control</b> <ul style="list-style-type: none"> <li>• Verify that a documented management system is in place for pest control.</li> <li>• Visual observation to ensure that building design and maintenance prevents ingress of pests.</li> <li>• Cleaning program is effective to prevent harbourage of pests.</li> <li>• Refer to SOP Pest Control.</li> </ul>
9	<b>Equipment (kitchen equipment)</b> <ul style="list-style-type: none"> <li>• Verify that food safety is incorporated into the design of equipment.</li> <li>• Verify by visual observation that all food contact surfaces and equipment are clean and in good condition</li> </ul>

## World Food Safety Guidelines for Airline Catering

No.	Check Points
10	<b>Control of Hazardous Meal Ingredients</b> <ul style="list-style-type: none"> <li>• Verify the presence of an up-to-date list of “hazardous meal ingredients”</li> <li>• There is a documented procedure to ensure the absence of the restricted ingredients at time of meal presentation, menu design, or similar.</li> <li>• Refer to SOP Hazardous Meal Ingredients.</li> </ul>
11	<b>Supplier Approval</b> <ul style="list-style-type: none"> <li>• Identify at random a selection of bought-in PHF ready-to-eat food items and confirm that their suppliers have been correctly audited and approved.</li> <li>• Refer to SOP Supplier Approval.</li> </ul>
12	<b>Food Receiving</b> <ul style="list-style-type: none"> <li>• Confirm that the caterer has a food temperature control system for safe receipt of potentially hazardous foods.</li> <li>• Verify control and control documentation on possible deliveries taking place at the time of audit.</li> <li>• Select at random in refrigerators and freezers foods having been delivered and verify control of corresponding deliveries.</li> <li>• Refer to CCP 1 Control at Food Receiving.</li> </ul>
13	<b>Food Storage Temperature Control</b> <ul style="list-style-type: none"> <li>• The caterer must have a food temperature control system for safe storage of potentially hazardous foods.</li> <li>• Check temperatures of randomly selected refrigerators. <ul style="list-style-type: none"> <li>- Check gauge temperatures during tour of unit. If significant deviations are noticed, verify over next 1 - 2 hours that corrective action is initiated.</li> <li>- Where electronic surveillance system exists - verify that a procedure/schedule for monitoring screen or print-outs is in place and/or that an alarm system is active.</li> </ul> </li> <li>• Verify completion of documentation for randomly selected refrigerators.</li> <li>• Refer to CCP 2 Control of Temperature of Refrigerators.</li> </ul>

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No.	Check Points
14 - 15	<b>Food Storage</b> <ul style="list-style-type: none"> <li>• There is a documented procedure in regard to date coding method(s) used.</li> <li>• Verify by visual observation that the food storage procedure is controlled in regard to date coding, stock rotation and prevention from possible contamination.</li> <li>• Refer to SOP Stock Rotation/Date Coding/Time Control for guidelines.</li> </ul>
16	<b>In-house Freezing</b> <ul style="list-style-type: none"> <li>• Confirm that a process which controls in-house freezing of products is in place.</li> <li>• Visually check the labels on products stored in freezer.</li> <li>• Refer to SOP In-house Freezing for guidelines.</li> </ul>
17	<b>Thawing</b> <ul style="list-style-type: none"> <li>• Review the thawing process and check stock rotation labeling.</li> <li>• Check <u>food surface</u> temperature if thawing is conducted out of refrigeration.</li> <li>• Verify control documentation if applicable.</li> <li>• Refer to SOP Thawing.</li> </ul>
18	<b>Fruit and Vegetable Washing</b> <ul style="list-style-type: none"> <li>• Confirm that there is a procedure to reduce contamination on raw fruits and vegetables.</li> <li>• Observe the compliance to the procedure.</li> <li>• Check the monitoring records of the washed batches and/or chemical solution used.</li> <li>• Refer to SOP Washing Raw Fruits and Vegetables.</li> </ul>
19	<b>Hot Meal Production</b> <ul style="list-style-type: none"> <li>• The company must have a food temperature control system for safe cooking of high risk foods.</li> <li>• Randomly select some high-risk foods being cooked and verify compliance by monitoring end core temperatures.</li> <li>• Select some high-risk foods at random and verify control documentation.</li> <li>• Refer to CCP 3 Control of Food Cooking.</li> </ul>

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No.	Check Points
20	<b>Food Chilling</b> <ul style="list-style-type: none"> <li>• Confirm that a control system for safe chilling of high-risk foods after cooking is in place.</li> <li>• Select at random some high-risk foods (preferably dense) being chilled and verify compliance.</li> <li>• Select at random some high-risk foods in refrigerator having been cook/chilled within the past 24 hours and verify control documentation.</li> <li>• Refer to CCP 4 Control of Food Chilling.</li> </ul>
21	<b>Handling of Ready-to-eat Foods</b> <ul style="list-style-type: none"> <li>• Confirm that there is a time/temperature control system for safe handling of potentially hazardous ready-to-eat foods.</li> <li>• Randomly select foods/meals batches and verify compliance.</li> <li>• Randomly select foods in refrigerators and verify control documentation.</li> <li>• Refer to CCP 5 Control of Food Handling.</li> </ul>
22	<b>Despatch</b> <ul style="list-style-type: none"> <li>• Verify that meal temperature is controlled at time of despatch.</li> <li>• Review despatch temperature records.</li> <li>• Refer to SOP Despatch, Transport and Aircraft Loading.</li> </ul>
23	<b>Ice Machines</b> <ul style="list-style-type: none"> <li>• Visually observe that the ice machines are clean and well-maintained.</li> <li>• The scoops/paddles are kept clean, protected from contamination and sanitized regularly.</li> </ul>
24	<b>Transport and Loading</b> <ul style="list-style-type: none"> <li>• Review Despatch temperature records.</li> <li>• Verify that meal surface temperature is controlled at time of loading to aircraft if required by customer</li> <li>• Refer to SOP Despatch, Transport and Aircraft Loading.</li> </ul>

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No.	Check Points
25	<b>Delay Handling</b> <ul style="list-style-type: none"> <li>• Confirm that there is a food safety based risk-assessment in the event of an aircraft delay.</li> <li>• Review past records of actions and decisions taken in case of aircraft delay.</li> <li>• Refer to SOP Delay Handling.</li> </ul>
26	<b>Control of Physical Contamination</b> <ul style="list-style-type: none"> <li>• Confirm the presence of control measures based on risk-assessment to prevent physical contamination of food and food contact surfaces.</li> <li>• Review glass breakage records, as well as necessary actions taken on potentially contaminated food and food contact surfaces.</li> <li>• Refer to SOP Physical Contamination.</li> </ul>
27 - 29	<b>Prevention of Cross Contamination</b> <ul style="list-style-type: none"> <li>• Verify by visual observation that there is a clear segregation between raw foods and ready-to-eat foods during storage and preparation.</li> <li>• Segregation maybe made physically (different rooms or areas) or by distance (in same room/area).</li> <li>• Clean and unclean processes shall be segregated physically or by distance in such a way that contamination from unclean processes is prevented.</li> <li>• For special meal preparation - the risk of unacceptable food ingredients is prevented.</li> <li>• Refer to SOP Food Handling.</li> </ul>
30 - 34	<b>Personal Hygiene</b> <ul style="list-style-type: none"> <li>• Confirm that a procedure is in place to ensure personal hygiene standards.</li> <li>• Verify by visual observation that the control measures are adhered to by all employees and visitors.</li> <li>• Check points are self-explanatory.</li> <li>• Refer to SOP Personal Hygiene for guidelines.</li> </ul>

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No.	Check Points
35 - 36	<b>Infection Control</b> <ul style="list-style-type: none"> <li>• By document review, verify that the procedure is in place and being followed.</li> <li>• Infection control procedure may be separated or included in training. This should be accepted provided that the message is clear and that employees demonstrate acknowledgement.</li> <li>• Verification may be done by questioning employees during audit.</li> <li>• Refer to SOP Health Monitoring.</li> </ul>
37	<b>Training</b> <ul style="list-style-type: none"> <li>• Verify existence of an organized training procedure.</li> <li>• Verify training records (hard copy or a computer record on a training database).</li> <li>• Verify that the training provides correct understanding as well as control competence relevant to the job, for example, by observing or talking to food handlers during inspection.</li> <li>• Refer to SOP Food Safety Training.</li> </ul>
38 - 41	<b>Cleaning and Sanitizing</b> <ul style="list-style-type: none"> <li>• Confirm the presence of a documented cleaning/sanitization procedure.</li> <li>• Verify standard application by: <ul style="list-style-type: none"> <li>- Reviewing the cleaning schedules</li> <li>- Reviewing the records</li> <li>- Reviewing the regular microbiological swabs or impression tests or similar testing.</li> </ul> </li> <li>• Verify that washed equipment are cleaned and properly stored.</li> <li>• Verify that food grade detergents and sanitizers are available in working areas.</li> <li>• Verify that chemicals are correctly labelled and stored separate from food.</li> <li>• Refer to SOP Cleaning and Sanitizing.</li> </ul>
42 - 43	<b>Waste Disposal</b> <ul style="list-style-type: none"> <li>• Check points are self-explanatory.</li> </ul>

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No.	Check Points
44	<b>Instrument Calibration</b> <ul style="list-style-type: none"><li>• Verify documentation of a procedure for calibration of thermometers.</li><li>• Review relevant records.</li><li>• Refer to SOP Instrument Calibration.</li></ul>
45	<b>Product Recall Procedure</b> <ul style="list-style-type: none"><li>• Confirm the presence of a documented procedure.</li><li>• Review records of procedure testing.</li><li>• Review past records for actions taken in case of product recall, if applicable.</li><li>• Refer to SOP Product Recall.</li></ul>
46	<b>Food Safety Complaint Procedure</b> <ul style="list-style-type: none"><li>• Confirm that a documented procedure is in place.</li><li>• Confirm that the procedure is being implemented and followed.</li><li>• Refer to SOP Food Safety Complaints.</li></ul>

# World Food Safety Guidelines for Airline Catering

## Appendix XI 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	An aerosol is a suspension of fine solid particles or liquid droplets in a gas. 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 (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 to the business.	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
Bait Point	Physical location of bait station	
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
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	

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Word	Definition	Source No.
	detergent solution, water rinse, and sanitizing solution onto or over equipment surfaces that require cleaning, such as the method used, in part, to clean and sanitize a frozen dessert machine.	
Clean	Free of extraneous visible matter and objectionable odor.	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 colored stickers coded to the day of the week a product is produced or otherwise handled on all freshly prepared or purchased items. Color 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 program 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 (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
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 in-flight 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
Direct Food Contact Surfaces	A surface of equipment with which food comes into contact.	
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
Down Route Shipment	The bulk transportation of meals or meal components for future flight use from another port or catering centre (currently not allowed in the United States).	
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 (CO2) solidified by great pressure or as a result of rapid evaporation of liquefied CO2.	1

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Word	Definition	Source No.
	Used as a refrigerant.	
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
Eradication Device	Equipment used to assist in the elimination of pests, e.g. electronic bug lights.	
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 in-flight caterer for the purpose of preparing food products for boarding onto passenger aircraft.	1
Flight-Type Dishwasher	<ul style="list-style-type: none"> <li>– Finger belt conveyor dishwashers where dishes, glassware etc. can be placed directly onto the fingers belt and passed through the machine.</li> <li>– Rack-type conveyor dishwashers in which dishes, glassware etc. pass through the machine in racks.</li> </ul>	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 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
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 Origin	The actual origin of the food component itself or the Country of origin of a flight containing that specific food item.	
Food Poisoning/ Food-borne 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 Program (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 odors and flavors.	3
Food-borne disease	Disease, usually gastrointestinal, caused by organisms or their toxins carried in ingested food. Also commonly known as "food poisoning".	10
Food-borne 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
FSMS (Food Safety Management System)	An all encompassing food safety program which includes HACCP, SOPs, Pest Control and other pre-requisite components and provides a comprehensive framework by which an operator can effectively control risk factors.	
FSP	See Food Safety Program.	
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

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Word	Definition	Source No.
GRAS (Generally Recognized as Safe) (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. Onset period.	
In-flight Food Safety Auditor	A representative of an airline or an in-flight 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
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 tenderizing 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 up-count 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.	
Manual Washing	Process of cleaning food and beverage equipment by hand.	
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	The Presentation by a Caterer to an Airline of proposed meal services, menus and dishes for evaluation and adjustment in terms of content and cost prior to acceptance.	1
Mechanical Washing	Process of cleaning food and beverage equipment by use of a machine.	
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

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Word	Definition	Source No.
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
Multi Sector	Flight catering boarded at originating city for more than one flight segment.	
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
Overnight Stop	Flight catering boarded at originating city for service on a following day's flight.	
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
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

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Word	Definition	Source No.
Quality Assurance	Activities undertaken by a firm or organization 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. (Garbage/Waste)	11
Regulatory authority	The local, state, or federal enforcement body or authorized 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 specialized equipment (sometimes referred to as high-tech transport equipment in the in-flight 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 food-borne hazards.	14
Risk Characterization	Integration of hazard identification, hazard characterization 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, minimize or reduce assessed risks and to select and implement appropriate options.	14
Rotable Equipment	Equipment, such as china, glassware, or reusable plastic ware that can be washed and reused as service ware for in-flight food and beverage service.	1
Round Catered (Down Line Catered)	Single flight catering components boarded for next immediate return flight	
Safe and suitable food	Food which is fit for human consumption.	13
Safe material	Materials which have been designated as being safe for packaging and wrapping of 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, sanitized and sterilized 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 harboring 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
Sanitize	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.	

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Word	Definition	Source No.
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
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 in-flight 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 in-flight 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.	
Stakeholder	Person, group, or organization that has direct or indirect stake in an organization because it can affect or be affected by the organization's actions, objectives, and policies	
Standard	An established norm or requirement documenting uniform processes or practices.	
Steam Autoclave	A piece of equipment in which steam, under pressure, reaches high enough temperatures to sterilize 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
Sterilization	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 utilize 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 (re-thermalize) it when it is to be used for meal service. Generally, products are tempered in refrigerator units. In the in-flight 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
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.	3, 6

## World Food Safety Guidelines for Airline Catering

Word	Definition	Source No.
	In airline catering Verification may commonly be made as <u>part of audits</u> or <u>by microbiological analysis</u> .	
Ware washing	The Cleaning and sanitizing of utensils and food-contact surfaces of equipment.	11
Waste	Any item which is not fit for human consumption or any product or by-product which was never intended for human consumption which requires safe and legal disposal.	
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 vapor 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 pipe-work, 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 liter, 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