KERRY GROUP PLC

Kerry Group Supplier Requirements Manual

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This document has been created by the VP Global Supply Quality; Supply Quality Assurance Manager and Global Supply Quality CI and Sustainability Manager.

This document has been authorized by the Global Chief Procurement & Risk Management Officer, and the Global Chief Food Safety & QHSE Officer.

Kerry Supplier Requirements Manual is effective as of January 2017.

Contents

Introduction

This document, the Kerry Group Supplier Requirements Manual (SRM), outlines Kerry's expectations of its suppliers of raw materials (ingredients and packaging) and services.

It is based on, and in line with, the recognized schemes of Global Food Safety Initiatives (GFSI),[1] and conforms to good manufacturing standards and regulations.

As a current or potential supplier to the Kerry Group, it is your responsibility to meet these requirements at all times, and to update all the appropriate verification documentation at least annually.

These are essential requirements to assure food safety, food defence, chain of custody (see Glossary) and compliance with regulations. They are not intended to alter or eliminate any requirements that may be set forth in any contracts or product specifications issued by any Kerry Group business unit. These requirements take the place of any general supplier requirements previously issued by units of the Kerry Group and are common throughout all of the Kerry Group. By reference, these requirements become part of our purchasing contracts.

Kerry may modify the SRM document from time to time. It is your responsibility as a supplier to periodically check that you have the most up-to-date version. Please refer to kerrygroup.com in order to confirm that you have the up-to-date version.

The document has two main sections:

- Section A: Quality Management System (QMS)
- Section B: Food Safety Management System (FSMS)

These two sections outline what Kerry expects and requires of its suppliers.

Section A has 9 sub-sections, from 'Management commitment' to 'Sustainability / Corporate social responsibility'.

Section B has 13 sub-sections:

- Food Safety System – HACCP
- Good Manufacturing Practices (GMP)
- Facility, Grounds and Operations
- Receiving, Storage and Distribution
- Good Laboratory Practices (GLP) & Testing Programme
- Cleaning & Sanitation
- Pest Management Programme
- Product Control
- Shelf-Life of Product Delivered to Kerry
- Food Defence and Security Programme
- Traceability and Product Recall
- Food Fraud
- Certificate of Analysis for Product Delivered to Kerry

The remainder of the document consists of a Glossary, and Annex I to Annex VIII.

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[1] *These include hazard analysis and critical control points (HACCP), threat analysis critical control points (TACCP), and vulnerability assessment and critical control points (VACCP).*

Definitions of Non-conformance

Kerry defines non-conformance[1] as the non-fulfilment of a requirement specified in the Kerry standard.

Non-conformance is categorised as minor, major or critical.

The term 'clause' below refers to any separate clause or paragraph in this manual, typically outlining a single requirement.

Minor non-conformance: This is when a clause has not been fully met but the food safety risk is minimal. Minor non-conformance relates to up to 4 instances of minor issues against the same clause.

Major non-conformance: This is where there is a substantial failure to meet the requirements, or significant evidence to doubt product conformity. It implies high food-safety risk or the ineffectiveness of a required system.
Major non-conformance relates to 5 instances of minor issues against the same clause.

Critical non-conformance: This is where there is a critical failure to comply with a food safety or legal issue that poses an imminent risk.
Critical non-conformance relates to 2 instances of major issues against the same clause.

Time periods: All time periods mentioned in the document – such as "in an appropriate time frame" – refer to the specific time period that the supplier has agreed in their contract with Kerry.

* *Disclaimer: Both Kerry's and third-party nominated auditors will use their professional judgement when applying the acceptance criteria in a holistic manner, taking into consideration factors such as the nature of the product, further mitigation processes, and intended use.*

Further requirements not detailed in this document may apply according to the nature of the product and the facilities being audited. The auditor will apply both judgement and experience.

Note: To return to the List of Contents at any stage, click on 'List of Contents' in the footer of the page.

A

Quality Management System (QMS)

1. Management Commitment

Summary: Management show commitment to food safety and quality in concrete ways, including a documented policy, a food-safety and quality manual, provision of adequate resources, etc..

Requirements

- The company has a documented policy stating its intentions to meet its obligation to produce safe and legal products, and to comply with its customer requirements.
- The company's processes and procedures are documented in a food-safety and quality manual to enable consistency and training, and to support due diligence.
- Site senior management attend management review meetings.
- Management provides the resources (human and financial) needed to produce food safely, in compliance with the law and Kerry's requirements.
- Management enables and ensures that non-conformances raised during Kerry's audit are addressed as soon as is reasonably possible.
- Management ensures that company staff collaborate and allow Kerry's auditors to verify their adherence to the agreed standard.
- Supply Chain management is accountable and responsible for communicating Kerry supply-chain quality standards. The Standard and Procedure is provided to every divisional director and quality manager for implementation at the site level.
- Suppliers of ingredients, food products and food packaging items must notify the Kerry Group of any change that may affect the quality or integrity of the products.

2. Document Control System

Summary: A document control procedure, defining the control of formulas, specifications, processes and procedures, is established.

All the documents needed to demonstrate the quality management system in place are kept up to date.

Requirements

- The supplier operates a document control system to ensure that the correct versions of all documents are used in the plant.
- Documents covering the following subjects are created as part of the control system:
  - Policies
  - Manuals, including Quality and Food Safety manuals
  - Specifications and formulas
  - Standard Operational Procedures (SOPs)
  - Recording forms
  - All the documents needed to demonstrate that the supply chain is under strict control
- All documents are consistent, clear, unambiguous and detailed enough to enable correct application.
- Other documents deemed necessary may be created as seen fit.

3. Record Control System

Summary: Record control procedures are maintained for all food-safety and quality records, so that evidence of legality and conformity to requirements is available.

Requirements

- The supplier operates a record control system for all food-safety and quality records so that evidence can be provided of legality and conformity to product-safety and quality requirements.
- The records are easy to identify and read, and are retrievable without undue delay.

4. Regulatory Compliance

Summary: Suppliers comply with all laws and regulations that apply to food products and packaging. A documented procedure is maintained.

Requirements

- Suppliers comply with all laws and regulations that apply to food products where they are manufactured and delivered.
- In relation to the law that applies to specific food products and their packaging, the supplier maintains a documented procedure covering the following:
  - List of relevant regulations in the country where the products are manufactured
  - List of relevant regulations in the countries where the products are used or consumed
  - The appointment of personnel responsible for updates
  - An outline of the method used to ensure lists of regulations are kept up to date
- Evidence of local registration or approval, which covers all the activities on site, is available.
- Raw material specifications are used to communicate and agree with suppliers (both existing and potential) and to provide a foundation for inspection and approval of raw materials.
- Suppliers to Kerry will be responsible for completing Kerry's Raw Material Questionnaire (RMQ) for new items, which will facilitate the creation of raw material specifications and enable other regulatory requirements. The Certificate of Analysis (COA) is to be provided to Kerry in accordance with the requirements outlined in Annex II
- Where Kerry raw material specifications are provided, it forms part of the buying contract. In this contract it is clearly indicated that the supplier acknowledges and understands the specifications; the supplier agrees to allow an audit to be performed before the start of supply, and agrees to comply with specifications. The appropriate third-party verification documentation must be provided as part of the specification agreement.

5. System Verification / Internal Audits

Summary: The company operates an internal auditing programme through which it can verify that the quality and food-safety plan is being operated effectively.

Requirements

- The company implements an internal auditing programme that covers all sections of the food-safety management system.
- Through this system, the supplier verifies that the quality and food-safety plan is being operated effectively.
  - The programme includes the areas to be audited and the frequency of the audits.
  - Every area is audited at least once annually.
  - External resources may be used for internal auditing (e.g. consultant or subcontracted experts).
  - Evidence is gathered to show that any required corrective actions have been implemented and verified.
  - All internal auditors are trained: the lead auditor needs formal training; the lead auditor may train the other auditors, using supporting tools such as checklists.
  - An auditor never audits his or her own work.
  - Non-conformances identified in the internal audits are addressed with appropriate corrective actions to prevent re-occurrences. These corrective and preventive actions (CAPAs) along with verification of their efficiency are completed as soon as is reasonably possible.

6. Customer Complaints Procedure

Summary: A written programme is in place to ensure effective response to customer complaints and concerns, and to minimize the number of recurring complaints.

Requirements

- A written customer complaints programme is in place to receive and investigate customer complaints, and enable the facility to respond to customer concerns.
- Customer complaints are handled effectively, and the information assembled is used to reduce the level of recurring complaints.
  - The complaints programme includes a clearly defined method of distributing complaints to the relevant departments to ensure immediate response, especially in cases involving food-safety issues.
  - All complaints received are recorded and investigated, and their root cause is identified.
  - Actions appropriate to the seriousness and frequency of the complaint are taken promptly and effectively.
  - The complaint data is analysed, and used to implement ongoing improvement to avoid recurrence of complaints.

7. Management of Serious Issues

Summary: The company has a documented management plan to effectively manage threats to food safety, legality or quality.

Requirements

- The company has a documented Serious Issues Management Plan to effectively manage incidents and emergency situations that might affect food safety, legality or quality.
- The plan includes detailed measures on how to manage:
  - Disruption of key services
  - Fire, flood or natural disaster
  - Malicious contamination
  - Disease pandemic
- A list is drawn up of key staff and key external contacts (government inspectors, key customers, certification bodies, etc..), and is kept up to date.

8. Training Programme

Summary: The company has a documented training programme, which includes details of the type and frequency of training for all staff.

Requirements

- The company has a documented training programme, which covers induction training (for new and temporary staff), food safety, GMP and personal hygiene, site security and relevant SOPs.
- All staff, including temporary staff, are trained at a predetermined frequency.
- The annual programme includes:
  - Training of all operations staff in food safety/HACCP
  - Specific training for employees involved in the HACCP Plan, i.e. trained in HACCP-related activities in their immediate work areas. Example: employee responsible for monitoring CCP
  - This training is conducted at least annually.
  - Any training carried out is recorded appropriately.
  - Any employee responsible for monitoring CCP receives CCP training before starting to work at the CCP workstation.
  - Upon an employee completing their training for CCP monitoring, they are aware of the following:
    - What is s/he monitoring?
    - What is the critical limit?
    - What action is to be taken in case of critical limit deviation?
  - Allergens (especially of allergens that are handled on-site)
  - Site security for all staff
  - SOPs relevant to the position, and on-the-job training
  - GMP and personal hygiene for all operations staff
  - Training for qualifying sanitizing crew that includes:

- Topics covered, who conducted the training, and exit criteria used to verify skill requirements
- Job skills, job safety (i.e. safe chemical handling, emergency response and food safety)
- Cleaning assignments based on skill qualification
- Keeping of current training records and recording of on-the-job training

> If a contract production cleaning company is appointed for carrying out the sanitation programme, the appointed company must maintain copies of the training records of their entire sanitation crew at the supplier's site. Their training programme must cover the aforementioned material.

> Records of all training that has taken place are kept, including a description of all the information conveyed in the training session.

> Training effectiveness is verified and documented. Verification may be in the form of an exam, observation and comments by the direct manager, etc..

9. Sustainability / Corporate Social Responsibility (CSR)

Summary: The company adheres to Kerry requirements on Environmental, Workplace, Marketplace and Community sustainability, detailed in the Kerry Supplier Code of Conduct.

Requirements / Code of Conduct

> The company should ensure that this Supplier Code of Conduct is communicated and read by all appropriate stakeholders in order to carry out these commitments. Below is the current version of the Supplier Code of Conduct as of the time of sending the Kerry Supplier Requirements Manual.

Introduction

Kerry Group's mission is to create value for all stakeholders. We are committed to the responsible sourcing of goods and services and this Supplier Code of Conduct sets out our expectations of those who provide these goods and services to the Group.

The standards below are part of the Group's broader commitment to upholding human rights and operating responsibly. This code is informed by a number of international standards and guidance documents, including the UN Guiding Principles on Business and Human Rights and the Core Conventions of the International Labour Organisation (ILO).

Purpose and Scope

This Code of Conduct sets out the minimum standards we expect and we encourage all suppliers to go beyond these requirements. The term 'Supplier' as used in this code refers to suppliers, vendors, contractors, consultants, agents and other providers of goods and services who do, or seek to do, business with Kerry Group worldwide.

It is expected that suppliers apply similar levels of compliance to their own suppliers or approved sub-contractors with whom they work to supply goods and services to Kerry Group. These principles form part of the supplier selection process and are subject to continued monitoring. Where there is a pre-existing relationship with a supplier, the requirements of this code are in addition, and not in lieu of, any legal or contractual agreement between that supplier and Kerry Group.

Business Conduct Standards

Kerry Group has always set high standards for the way we conduct business. In turn, we expect suppliers to conduct business responsibly, with integrity and transparency. Furthermore, we expect suppliers to treat all employees fairly, honestly and with respect, in full compliance with the following requirements:

Human Rights

> Suppliers shall not permit child labour to be used in any operation connected with Kerry Group. No child below the age for finishing compulsory schooling, or 15 years of age (whichever is the greater) may be

employed by a supplier, subject to ILO exceptions.

- Where young people under the age of 18 are employed, suppliers will ensure that their work is not likely to be harmful to their health and/or development, including no working under hazardous conditions and ensuring compliance with all applicable laws.
- Suppliers must ensure that all employees have the legal right to work and any migrant workers should be in possession of a valid work permit issued by the relevant authority.
- Suppliers shall not permit the use of forced or involuntary labour of any type (i.e. forced, trafficked, bonded, indentured or involuntary prison labour) and workers shall be free to leave employment without penalty on the provision of reasonable notice.
- The use of physical abuse, verbal or sexual harassment or intimidation of workers shall be prohibited by suppliers.
- Suppliers shall respect the rights of employees to join or refrain from joining worker organisations and will allow workplace access for such organisations to facilitate their representative functions.
- Suppliers shall not discriminate in hiring, compensation, access to training, promotion, termination or retirement on the grounds of race, caste, religion, age, nationality, social or ethnic origin, sexual orientation, gender, gender identity or expression, marital status, family status, pregnancy, union membership, political affiliation, disability or other legally protected class.
- Suppliers shall ensure that their employees are fairly compensated and that, at a minimum, they comply with all applicable wage and hour laws, or industry standards approved on the basis of collective bargaining, whichever is higher. Deductions to wages shall only be made in accordance with applicable law or under collective agreement.
- Suppliers must provide for working hours that comply with national laws and industry standards. Total hours worked shall not exceed the maximum allowable under local legislation.
- All overtime shall be voluntary and compensated in accordance with applicable laws.
- Suppliers shall not seek to avoid obligations to workers under labour or social security laws and regulations arising from the regular employment relationship through the excessive use of fixed-term contracts, labour-only contracting, sub-contracting, home-working or apprenticeship schemes.

Occupational Health & Safety

- Suppliers to Kerry Group shall ensure all employees work within safe and humane conditions, including providing adequate training and effective protective equipment to safely carry out their duties. Suppliers will also provide access to clean toilet facilities, potable water and sanitary facilities for food storage.
- Facilities must be constructed and maintained in accordance with applicable laws and regulations and accommodation, where provided, shall be clean, safe and meet the basic needs of workers while respecting their dignity. Suppliers will also ensure that there are appropriate exits, procedures and equipment in place to deal with emergency situations.

Business Ethics

- In keeping with our commitment to exercising appropriate standards of professionalism and ethical conduct in all business activities, Kerry Group will not tolerate bribery or corruption in any form, or any breach of its Anti-Bribery Policy.
- Suppliers and business partners are not permitted to directly or indirectly promise, offer or provide any improper advantage to any person or entity, including officials of a government or a government-controlled entity. Kerry Group's employees are not allowed to accept any such advantage and we expect the same approach in business dealings from our business partners, suppliers and third parties.

- Suppliers are expected to maintain accurate records of their activities and performance that clearly demonstrate compliance with all applicable standards, regulations and Kerry Group requirements.
- Suppliers must disclose any personal relationships, economic interest or other ties to their business held by an employee or contractor with Kerry Group.
- Suppliers shall provide Kerry Group with high-quality products, ingredients and services that meet all applicable quality and food safety standards, and demonstrate that they have robust food-safety and quality-management systems in place. We expect suppliers to immediately report to Kerry Group any concerns about product safety.
- Suppliers shall take appropriate measures to secure and protect all confidential information related to its relationship with Kerry Group and use it only for the purpose authorised under contractual agreement. This obligation shall remain in force regardless of the status of the business relationship.

Environment / Land Rights

- Suppliers to Kerry Group shall carry out operations with care for the environment and at a minimum will comply with all applicable environmental laws and regulations.
- Kerry Group expects suppliers to support its sustainability commitments through the adoption of good operating practices. In particular, suppliers should seek to optimise their use of natural resources and minimise the generation of waste.
- Suppliers will endeavour to secure their raw materials from fully traceable, sustainable sources and where required, will be members of relevant multi-stakeholder initiatives or reporting platforms that support Kerry Group's responsible sourcing ambition (e.g. Roundtable on Sustainable Palm Oil).
- Suppliers shall also comply with any additional category specific requirements regarding the goods or services provided to Kerry Group, for example our requirements in respect of animal welfare.
- Suppliers shall respect the rights to land tenure of local communities and indigenous peoples impacted by its operations, including its raw material sourcing, and will adhere to the principle of Free, Prior and Informed Consent.

Compliance

Kerry Group expect suppliers to ensure their operations comply with all applicable laws and regulations at a minimum. Furthermore, we expect that all suppliers adhere to Kerry Group requirements, including the standards as laid out in this Code of Conduct.

Suppliers shall have the appropriate processes and systems in place to do so, including a means for the confidential reporting of concerns about misconduct or unethical behaviour and an appropriate mechanism for addressing any issues identified. Where issues are identified through internal reporting, whistle-blowers will be protected from any negative repercussions.

Suppliers shall cooperate with Kerry Group to allow the Group, or any authorised third party, to conduct audits to verify compliance with these standards or other required certifications. In the event deficiencies are identified, the supplier will take the steps necessary within an acceptable time frame to correct any deficiency to Kerry Group's satisfaction. Suppliers shall immediately report any concerns about compliance with legal requirements or any aspect of this code, to their designated point of contact or through our confidential reporting facility: www.kerrygroup.ethicspoint.com.

Where suppliers are found to have contravened the requirements set out in this Code, Kerry Group reserves the right to terminate any associated agreement or business relationship.

- Kerry's Supplier Code of Conduct may be updated from time to time and the most up to date version can be found at Annex I and the Kerry Group corporate sustainability website link www.kerrygroup.com/sustainability/policies-statements/.

B

Food Safety Management System (FSMS)

1
Food Safety System (HACCP)

1. Food Safety System – HACCP

1.1 HACCP Programme

Summary: A documented HACCP system is established and signed by senior management.

Requirements

- A documented, effective HACCP plan is established.
- The HACCP plan covers the Codex Alimentarius HACCP principles.
- The HACCP plan includes food-safety policy and objectives, and is endorsed by senior management.

1.2 HACCP Team

Summary: A multidisciplinary HACCP team is established and team members are formally trained.

Requirements

- The HACCP team includes personnel from an appropriate range of disciplines – i.e. quality/technical, production, engineering and other relevant functions.
- The team leader is appropriately trained, has undergone formal training on the HACCP system, and is qualified to lead the HACCP team. A record of formal training is available.
- The rest of the team has HACCP training, either internally by the team leader or externally. Their training records are available.
- The HACCP plan documents each team member's specific knowledge of HACCP and relevant knowledge of product, process and associated hazards.
- If the company lacks appropriate in-house knowledge, external expertise may be used. However, day-to-day management of the HACCP programme remains the responsibility of the company.

1.3 Product Description

Summary: Product description and intended use includes all relevant information on food safety.

Requirements

- The description includes at a minimum:
  - Raw materials and ingredients (including origin of)
  - Important product characteristics – i.e. biological, chemical & physical
  - Storage condition
  - Shelf-life
  - Packaging type
  - Method of distribution
  - Intended use and intended consumers

1.4 Flow Diagram

Summary: A process flow diagram or chart is created for each product.

Requirements

> A process flow diagram or chart for each product is created, covering all aspects of the food process operation within the HACCP scope, from receiving raw materials to processing, reworks, packing, storage and distribution.

> The chart is dated, signed and verified as accurate.

1.5 Principle 1: Hazard Analysis

Summary: Hazard analysis is carried out for each raw material and process step, including control measures.

Requirements

> Hazard analysis is conducted for all raw materials and process steps, to identify significant food-safety hazards and measures to control these hazards.

> The hazard analysis is based on scientific or technical data, and covers specific hazards relevant to products and processes, including allergen cross-contamination where applicable.

- The hazard analysis analyses physical, chemical, biological and intrinsic hazards. Generally, intrinsic hazards are allergens, but these may be considered as chemical. Still, it is important to recognize that allergens have been considered in the hazard analysis. For biological hazards, not only generic but specific micro-organisms of concern for the product must be detailed (e.g. in the case of eggs, analyse the risk of not only pathogens but also of salmonella).
- Consideration is also given to the form of the hazard that presents the biological hazard (whether vegetative cell, spore or toxin).

1.6 Principle 2: Critical Control Points (CCPs) Identification

Summary: All steps are rigorously reviewed to identify critical control points.

Requirements

> Every step is reviewed to identify those points that are critical. A logical approach is required; using a CCP decision tree may help.

CCPs are the control points required in order to prevent, eliminate or reduce to an acceptable level the hazards identified.

1.7 Principle 3: Critical Limits Identification

Summary: Identify critical limits, and validate these scientifically.

Requirements

> An appropriate critical limit is established for every CCP in order to specify clearly whether the process is within or out of control. The critical limit should be:

- Measurable wherever possible – time, temperature, pH, etc.
- Supported by clear guidance or example where the measures are subjective – e.g. by photographs
- Scientifically established and validated – e.g. through testing, by scientific or legal reference (bibliography)

> The performance objective of all processes or technologies used to eliminate or target pathogenic organisms is defined and validated.
The performance objective is the number of logarithmic reduction for the pathogen of concern; for example, peanut processors in the Americas must validate their thermal process/roasting to ensure they are able to achieve a five-log reduction of salmonella.

> For microbiological CCP, revalidation is required at a minimum every 2 years, or when major changes occur.

1.8 Principle 4: CCP Monitoring

Summary: A monitoring procedure ensures compliance with the critical limits.

Requirements

> A monitoring procedure is established for each CCP to ensure compliance with the critical limit. The monitoring procedure can detect processes out of control of CCP, and covers:
  - What to monitor:
  - Frequencies
  - Personnel responsible for the monitoring
  - Personnel responsible for dealing with non-conformances.

1.9 Principle 5: Corrective Actions

Summary: Corrective actions are established in case of deviation in critical limit.

Requirements

> Appropriate corrective actions for each CCP are established. These describe all steps needed to identify, quantify and segregate affected products when monitored results indicate loss of control or failure to meet critical limit.

> Records of corrective action taken when critical limits are not met are maintained.

1.10 Principle 6: Verification Procedures

Summary: Verification procedures are established to confirm that the HACCP plan is effective.

Requirements

> Verification procedures are established to confirm that the HACCP plan, including the controls managed by the prerequisite programmes, are effective.

> Examples of verification activities are (the list is not exhaustive):
  - Review of records – CCP records, IPQC records, etc.
  - Signing of CCP records by an authorized person capable of verifying that the person undertaking the check has been properly trained and has completed the records correctly
  - Internal audits
  - Review of complaints or non-conformances raised by an enforcement authority or customers
  - Review of incidents such as product withdrawal or recall

> Records of related verification activities are maintained.

1.11 Principle 7: Record-keeping

Summary: Records are kept of monitoring, deviation and verification activities.

Requirements

> Records are kept of monitoring, deviation and verification activities. These are sufficient to demonstrate and to enable the company to verify that the HACCP controls are in place and maintained. These records are well maintained and legible.

> Records associated with monitoring include, as a minimum:
  - Date

- Time
- Result of the measurement
- Signing by the person who undertook the check

> Where records are recorded electronically, there is evidence that these have been monitored and verified at a prescribed frequency.

1.12 Monitoring Adherence to the Plan

Summary: The CCPs identified are monitored.

Requirements

> The CCPs identified are monitored according to the monitoring procedure established to ensure compliance with critical limits.

> The records of CCP monitoring are in compliance with the monitoring procedure (as per 1.8 'Principle 4: CCP monitoring', above).

> Records are kept of corrective action taken in cases of deviation of critical limit.

1.13 HACCP Review

Summary: A programme for reviewing the HACCP plan is established.

Requirements

> A written programme for the review of the HACCP plan is in place.

> A review is carried out at least annually, or whenever there has been process, product or ingredient changes.

> The HACCP team carries out the HACCP review. It is acceptable to seek consultation or external help.

> A review is carried out when there is:

- Change in raw material or supplier of raw material
- Change in ingredients or recipe
- Change in processing condition or equipment
- Change in packaging, storage or distribution conditions
- Change in consumer use
- Emergence of new risk – e.g. adulteration of an ingredient
- Development in scientific information that relates to ingredients, process or products, or a change in regulatory requirements

> The results of the review are documented and recorded. A revision history is maintained.

1.14 HACCP Internal Audit

Summary: HACCP verification is carried out to confirm the efficiency and suitability of the plan.

Requirements

> HACCP verification (internal audit) is carried out at least annually – preferably before the annual HACCP review – so that results can be fed into the review for consideration.

2

Good Manufacturing Practices (GMP)

2. Good Manufacturing Practices (GMP)

2.1 GMP Programme

Summary: A GMP programme is established.

Requirements

> A written GMP programme, which applies to all employees, visitors and contractors, is established, and covers the following:

> The GMP procedure covers appropriate dress code and personal hygiene:

- Outer garments policy: personnel who work in direct contact with food, food contact surfaces or food packing materials must:
  - Wear clean outer garments to cover street clothing while working
  - Wear protective coverings where bare skin may come in contact with exposed food or food contact surfaces (e.g. arm sleeve covering)
  - Remove protective garments when leaving a workstation (e.g. when going to the rest room, going for a break, going outside the building) and put the protective garments back on when re-entering the workstation.
- Hair and beard (including moustache): restraints are used, unless clean-shaved or trimmed near skin.
- Do's and don'ts inside manufacturing area:
  - No gum-chewing
  - No eating
  - No smoking
  - No jewellery or wristwatches, including exposed body jewellery (piercing)
  - Restriction on make-up (see Annex III), false eyelashes, long/false fingernails, body glitter, strong perfumes, etc.
    - Exceptions: Items worn for medical or religious purposes and plain wedding bands are allowed in so far as the company has a daily control in place.
  - The hand-washing procedure is adequately defined.

> The GMP requirements are posted in appropriate GMP zones (including entrances) for employees, visitors and contractors to refer to.

> Signage that defines personal hygiene requirements applicable to employees must be in a language or languages that employees can understand.

> All employees undergo GMP training at least annually (see A8: Training programme).

> The criteria for pre-employment medical screening are clearly defined (different countries have different legislation requirements). A communicable disease policy, including management of open lesions, is implemented. Personnel health cards are current.

> Work garments must not have buttons or external pockets at waist level or above.

2.2 Hand-washing Facilities

Summary: Adequate hand-washing facilities are provided.

Requirements

> The employer provides adequate hand-washing facilities in all rest rooms, at production entrances and in high-risk areas, to include:
  - Hands-free operation – i.e. foot pedals, knee pedals or automated
  - Drying device – i.e. disposable hand paper towel
  - Antibacterial and unscented liquid hand soap specifically designed for the food industry
  - Hand disinfectant specific for the food industry – use of bleach is strictly prohibited
  - A sufficient quantity of potable (drinking quality) water at a suitable temperature
  - Bins that do not require lids to be opened by hand

> Hand-wash sinks are used for hand-wash only, and for no other use. Paper towel dispensers do not require hands to touch the dispenser for towel retrieval. Cloth towels of any sort are not acceptable.

2.3 GMP Programme Adherence

Summary: All employees, visitors and contractors comply with the GMP requirements.

Requirements

> Employees, visitors and contractors comply with:
  - the outer garment policy
  - the hand-washing procedure
  - the do's and don'ts inside the manufacturing area

> Personal items are stored away from processing areas – e.g. caps, coats/jackets, radios, fans, etc..

> Any employee with an open lesion or any other abnormal source of microbial contamination is excluded from any operation. Bandages are covered with a non-porous covering such as latex or plastic gloves.

> Hand-wash signs are posted as appropriate.

> Tools and processing supplies (including cleaning tools and supplies) are properly stored when not in use.

> Areas are kept free of clutter to enable workers to perform their duties efficiently.

2.4 Staff and Visitor Health Assessment

Summary: All visitors have a health assessment signed before entering the plant and have been trained in GMP requirements.

Requirements

- Any person entering the plant (specially controlled areas) has had a health assessment carried out beforehand:
  - All staff (permanent or temporary) have had a health assessment carried out in advance, stating their suitability to work in contact with food. This assessment is preferably renewed annually.
  - All visitors sign a health assessment in which their suitability to access the plant has been evaluated. The review and authorization to enter the plant are documented too.
    see Annex IV: Communicable diseases
- If the visitor/contractor is on-site often, an annual record may be sufficient given that the reason for yearly training instead is clearly stated.
- A 'back to work after sickness' procedure is in place.

2.5 Waste Management

Summary: A waste management programme is implemented.

Requirements

- Waste is collected and stored in packaging or bins that are different from those used for products, and these are labelled or colour-coded.
- An adequate number of trash receptacles are available in the manufacturing facility and are kept in good repair.
- Waste containers are emptied daily.
- When removed from production and storage areas, waste is kept in designated trash receptacles, is covered, and does not attract pests.
- Substandard, trademarked materials are destroyed (are not reusable), preferably by a specialist third party, to ensure they do not return to the food chain either by chance or because of fraud.
- Records are available that state the quantity of waste collected and disposed of.

2.6 GMP Inspections

Summary: A self-audit on GMP elements is conducted regularly and a record of the audit results and any corrective actions is available on file.

Requirements

- A self-audit on GMP elements is conducted at least quarterly to check for any deviation from the required standards.
- The self-audit GMP checklist covers all elements specified in the GMP programme.
- Any corrective actions needed are taken and their status is recorded.
- A record of the audit results and of any corrective actions – including their status, verification of their effectiveness, and their completion – is available on file.

2.7 Laundry

Summary: An effective laundry programme or subcontracted laundry service is in place.

Requirements

> Laundering can be sourced out to an approved laundry provider. An in-house laundry is acceptable if criteria to validate the effectiveness of the laundering process are defined, and its effectiveness is verified accordingly. The programme includes:

- If outsourced:
  - Name and contact details of the appointed contractor
  - Method of delivering cleaned garments – i.e. use of covers of bags
  - Contractor's on-site inspection and report maintained

In-house laundry:

- The laundry procedure defines the method of dirty-garment collection, washing and drying, the method of delivering cleaned garments, and the personnel responsible.
- Washing of protective clothing by employees is acceptable where it is worn in low-risk areas or where the product is in an enclosed system.

3

Facility, Grounds and Operations

3. Facility, Grounds and Operations

3.1 Grounds and Building Exterior

Summary: The plant grounds and building exterior are adequately maintained so as to protect against pests, and avoid contamination of food or of the facility.

Requirements

> Grounds and building exterior:
  - The plant's exterior perimeters (roads, yards, grounds, parking lots) are maintained in good condition. The areas are clean and litter-free.
  - The area within the immediate vicinity of the building (as a reference: 6 metres / 20 feet) is free from weeds, tall grass or any idle equipment. This is to prevent harbourage of pests.
  - Idle equipment and pipes stored outside the 6-metre (20-feet) area must be stored in a clean and organized condition, and at least 15cm (6 inches) above the ground to prevent rodent/pest breeding and harbourage. Pipe ends are sealed.
  - Areas are free from standing or pooling water that can serve as a source of contamination and breeding place for pests or insects. There is adequate drainage.
  - Loading docks are free from debris and spilled products. Any items or equipment stored in this area must be clean and arranged in an organized way.
  - The building is pest-proof. Any openings or gaps (e.g. gaps under doors) are sealed or screened adequately.
  - Doors and windows are closed at all times.
  - Cracks and crevices are sealed.
> Neighbouring activities must not pose any risk of product contamination or compromise legal status, such us Halal, Kosher or GMO-free.

3.2 Building Interior

Summary: The interiors of buildings are designed, constructed and maintained so as to facilitate GMP. Interior housekeeping is maintained to ensure cleanliness. All areas are properly maintained to prevent product contamination.

Requirements

> Walls and ceilings are constructed with materials that permit easy cleaning, and are kept in good repair:
  - The walls and ceilings are not constructed of wood.
  - Any cracks, crevices or other openings are sealed.
  - Floors are smooth, cleanable, and non-slip, and adequately sloped to drains.
  - There is no evidence of condensation on ceilings or walls, or of standing or pooled water on floors.
  - Walls, floors, drains and ceiling are clean and free from any build-up of old and dusty cobwebs.
> There is adequate lighting in all areas of the manufacturing facility: receiving, processing, storage, packing, shipping, locker-rooms, rest rooms, break areas, etc..
> No overflowing trash receptacles and no offensive odours are evident. Any spillage is promptly cleaned up.
> Aged ice or frost build-up in freezers and mould or mildew in chillers or coolers are not evident.
> Aisles and workspaces between processing equipment are kept unobstructed and of adequate width to allow employees to perform their duties and protect against contamination.
> Adequate ventilation is made available. The ventilation units such as fans and air conditioners are properly maintained and kept clean to minimize the potential for contaminating food products, packaging materials

and other processing equipment.

> Extractor fans and canopies are provided in areas where cooking operations are carried out or a large amount of steam is generated.

3.3 Equipment and Utensils

Summary: Equipment and utensils are designed and constructed so as to prevent contamination of food products.

Requirements

> Wooden equipment and wooden food surfaces are not used in food processing areas. Only flour mill processing equipment – such as purifiers, sifter components including boxes and sieves, roll-stand cabinet, etc.. – are exempted from the 'no wood' requirement, as long as the wood used is in good condition and lacks any cracks or splinters.

> Equipment is kept in good repair. It is free from rust, is not broken and does not have any pieces that may fall into a product.

> Mould or rust is not evident on equipment. Contact surfaces resist corrosion.

> Equipment is constructed from food-grade materials, e.g. food-grade stainless steel (304/316). Belts have a food-grade statement provided by their supplier.

> Equipment is used for the task it is intended for.

> Equipment is placed so as to allow enough room for cleaning and maintenance.

> Equipment and food contact surfaces have smooth seams to avoid product residues or micro-organisms growing.

3.4 Hygienic Zoning

Summary: The hygienic zoning programme is designed to reduce the potential for cross-contamination of materials and products.

Requirements

> High-care and high-risk zones are physically segregated or separated.

> The supplier carries out risk assessment to identify potential sources of cross-contamination between processing areas and/or products (e.g. product handling areas, storage areas, processing areas, raw materials), and document findings.

> The outcome of the risk assessment is documented in a site plan of the facility. The site plan should indicate:

  - Access points for personnel, and travel routes: employees are not allowed to move freely from low-risk/low-care zones to high-risk/high-care zones (or vice versa) unless they change outer garments to avoid any risk of cross-contamination.
  - Location of staff facilities and routes to the facilities from places of work: the location of transfer points must not compromise segregation or pose any risk of contamination. Materials and packaging transfer should involve a disinfection process if necessary.
  - Production process flow (raw materials, work in process, packaging, finished product)
  - Routes for removal of waste
  - Routes for the movement of rework
  - High-risk/high-care zones and hygiene junctions – it is recommended that areas where use of wood is banned be also indicated in the site plan.

> High-risk zones are supplied with sufficient change of filtered air (see Annex V: Environmental testing – 'Air

quality required').

> The following items are documented:
  - Specification of filter used
  - Frequency of air change
  - The risk assessment

Zones definition

> Non-manufacturing zone: Low-care
  - There is no open product in this zone.
  - Product may be stored but not manufactured here.
  - This zone may include offices, cafeteria, locker-room, laboratory, utilities room, etc..

> Low-risk zone
  - This zone includes areas for receiving and storing raw materials that have been contaminated and require controls to prevent contamination of higher-hygiene zones.
  - These areas may have dedicated employees and may be physically separated from controlled or high-control zones.

> Controlled zone: High-care
  - Product that is not highly sensitive can be exposed to the environment and the operators.
  - GMP practices are implemented.
  - The controlled zone may also serve as a transition from non-manufacturing and high-risk zones to high-control zones.
  - Products of higher sensitivity may be present if they are completely enclosed.

> High-control zone: High-risk
  - Product of high sensitivity can be exposed to the environment and or the operators.
  - Additional GMP practices, such as captive footwear and clothing, may be necessary, and more stringent equipment and building sanitary design requirements are followed.

Examples of production zones

Product	Low-Risk Zone	High-Care Zone	High-Risk Zone
Milk processing / dairy plant	Raw milk receiving	Processing area after pasteurization	Cold-filled area
Peanut and tree nuts processing	Raw nut receiving and handling	Processing and filling after kill step	n/a
IQF vegetables	Raw vegetable receiving area	Processing/packing after microbial reduction step (e.g. final rinse,validated blanching)	n/a
Spices	Spice receiving	Processing and filling after kill step	n/a
RTE meat	Raw meat receiving and handling	Processing after kill step	Packing area

3.5 Preventive Maintenance

Summary: A written preventive maintenance programme is established to ensure proper preventive maintenance of all equipment and of relevant areas of the facility.

Requirements

> The preventive maintenance programme includes:
  - A procedure to ensure the proper cleaning and sanitizing of equipment after maintenance activity, before it is used in product processing
  - Notification to sanitation crew by production personnel of the need for cleaning and sanitizing after maintenance work is completed
  - A procedure for reconciling parts and tools after maintenance is performed. All parts and tools must be accounted for (by checking against a list to ensure all parts and tools are reconciled).
  - Verification and sign-off by designated personnel (operations staff, production staff or quality staff taking the responsibility from maintenance staff) that food contact zones have been cleared of any parts and tools before being released to production. Management must be notified immediately if any parts, tools or pieces of equipment are found to be missing. Corrective action(s) are documented. No loose or unaccounted-for parts or tools are found in the processing areas.
  - A procedure to protect exposed and non-exposed products during maintenance activities is documented. Guidelines must be in place to remove products known to have been contaminated by any missing parts or tools, to prevent their entrance into the final product.
  - Records that must be available to review:
    - Records of equipment parts and tools reconciliation checklist following maintenance activities (before and after)
    - Records of notification to sanitation crew of cleaning and sanitizing required after maintenance work is completed
      - Records of food contact zones that have been cleaned and sanitized before being released to production
      - Records of corrective actions (if any).

3.6 Corrective Maintenance

Summary: Equipment and structure repairs are properly completed.

Requirements

> The corrective maintenance system must ensure:
  - All equipment and structures are properly maintained.
  - Equipment repairs or modifications are professionally completed without the use of strings, tapes, wires or other improvised materials.
  - Should temporary repair be required to complete the shift's production run, the temporary repair does not pose any risk to food safety. Permanent repair should be completed within one month or as early as possible.
  - If a repair must be completed during production time, preventive measures are taken to prevent product contamination (e.g. use of screens).

3.7 Walkways, Permanent Ladders and Conveyors

Summary: All walkways, permanent ladders and conveyors over exposed products or open bins or ingredients are shielded to protect product and packing materials from possible contamination.

Requirements

- At least 10cm (4inches) kick plates are used to shield walkways and ladders over product conveying belts or open bins of ingredients, to prevent dirt or foreign matter from falling onto food or food contact surfaces, or into packing materials.
- Plant refrigeration units – including high-velocity air-conditioning units (HVAC) have catch pans for condensate control.
- Electric motors located over exposed product are shielded.
- No condensate is observed dripping onto food or food contact areas.

3.8 Staff Facilities

Summary: Break areas, locker-rooms, rest rooms and wash stations are maintained in a clean and sanitary condition.

Requirements

- All areas are kept clean, with no rubbish or spillage residue, and mould is not evident on walls, ceilings and floors.
- Break areas are separated from processing areas, and employees comply with the outer-garment policy.
- Brought-to-work meals are not kept in lockers; temperature-controlled refrigeration units and reheating units are provided.
- Drains function properly and are free of standing water.
- Hand-washing stations located at break areas and in rest rooms are sufficiently stocked with antibacterial liquid hand soap, water of a suitable temperature, paper towels, a hand sanitizer, and a rubbish bin.
- No offensive odours are present.
- Ladies rest rooms have covered sanitary receptacles.
- Lockers and storage in the locker-room must allow street clothing and personal belongings to be completely segregated from work clothes and shoes.
- Proper ventilation is available, and rooms are equipped with self-closing doors.

3.9 Vehicles and Moving Equipment

Summary: Vehicles and equipment, used for moving raw materials, finished products and packaging materials such as forklifts, are kept clean and maintained in good condition.

Requirements

- Forklifts are well maintained. Batteries are properly stored.
- Storage and charging stations are located away from food products and packaging materials (at least 6 feet / 2 metres away) and maintained in a clean condition.
- No leaking batteries or other fluids are present.
- Access is made available behind battery storage areas for pest-control monitoring.
- Gasoline- (petrol) or diesel-powered forklifts are not used indoors.

3.10 Container Labelling

Summary: All containers in the manufacturing facility are properly labelled.

Requirements

- All containers for manufacturing use, including trash receptacles and spray bottles, are properly and legibly labelled, and specify the intended contents.
- Where colour coding is used for identification, adequate signage is posted in relevant areas, indicating the colour-coding interpretation. Kerry prefers colour-coding, but accepts any other system if full identification is possible and there is no risk of mistakes.

3.11 Facility Inspections

Summary: A facility inspection programme is established.

Requirements

- Facility inspection, based on risk assessment, is carried out regularly, at a predetermined frequency.
- Areas of inspection include production areas, non-production areas and surrounding grounds.
- The programme covers:
  - Frequency of inspection
  - Personnel responsible for conducting the inspections (may be individual or group)
  - Checklist of areas inspected
  - Record of findings, corrective actions, and follow-up actions.

4

Receiving, Storage and Distribution

4. Receiving, Storage and Distribution

Summary: Receiving, storage and distribution methods are used to protect food from contamination through food safety hazards, pests or objectionable substances.

4.1 Reception of Incoming Materials

Summary: A written procedure on the receiving of incoming materials is established.

Requirements

The programme includes:

- Defined procedures on inspection and documentation of incoming raw materials (ingredients & packaging materials)
  - All of the truck, sealing and packaging integrity must be inspected and documented.
  - The personnel responsible for inspection must be identified.
  - The criteria for the inspection of the delivery vehicle and load must be defined: cleanliness, signs of pest infestation, temperature, physical condition, quality, tamper evidence, off odours, etc..
- Packed incoming raw materials labelling should include the following:
  - Supplier details (Name, address, contact details, supplier manufacturing site address etc..)
  - Product (Name and code)
  - Quantity
  - Lot code
  - Dates (manufacturing, shelf life)
- Verification of compliance with specification either by Certificate of Analysis (CoA) furnished by the supplier for each batch of material or by conducting internal testing for key attributes upon receipt of every batch
- Whichever method is used, compliance with the agreed specification must be determined prior to arrival and release. Special care is given as regards GMO, Kosher, Halal or Allergens compliance declarations.
- Incoming material sampling plan, frequency and testing methods (this is part of the raw-material testing programme)
- Minimum life on receipt (MLOR) – a percentage of the original shelf life available at the end of manufacture
  - Local products – 75% of manufacture shelf life
  - International product – 50% of manufacture shelf life
- The site quality team is responsible for a compliance verification check upon receiving raw materials, and decides disposition by accepting or rejecting, and raising non-conformance (NC) in case of deviation.

  Requirements:
  - Any sensitive material automatically goes on QA hold and requires the QA manager, or designate, to review each Certificate of Analysis (CoA) or applicable verification documentation prior to use.
  - Parcel shipment – any shipment received is placed in the quarantine area until verification documentation has been received, reviewed and accepted by QA. Material will not be placed into inventory until the accepted CoA is on file.
  - Procedure for product 'on hold' – this is a required method to prevent release prior to verification of compliance with approved specification.
  - Procurement must be notified of all shipments without verification documentation.
  - Any CoA is verified against the packing slip and bill of lading (BL).
  - Verification is needed to ensure that any CoA matches the specifications for both tests and results.

  - Sensory and laboratory analysis must be carried out, when applicable.
  - Dairy raw materials must originate from non-FMD (foot-and-mouth disease) and approved countries only, and appropriate verification documentation and, where legislated for, veterinary certificates must be provided.

> Appropriate control should be in place if ingredients are received in bulk (such as by tanker, rail, etc.). A transfer procedure is in place to protect product from contamination; hoses are clean, capped and stored above the ground, and connection ports into the building are capped and locked when not in use.

> All liquid bulk raw materials are filtered with an inline filter strainer.

> The Certificate of Analysis (CoA) must accompany each load if it is used for specification compliance.

> The Letter of Guarantee or Certificate of Conformance is a general statement of wholesomeness. It may also contain a general statement on conformance to specific requirements.

> Contact packaging must have a food contact certificate, Material Safety Data Sheet (MSDS) and migration test results for the type of material to be packed in; e.g. migrations from packaging to product may vary depending on whether the product is solid, liquid, oil, colourants, flavours, etc..

4.2 Materials and Packaging Identification

Summary: Raw materials and packaging materials are identified and clearly labelled.

Requirements

> All raw materials and packaging materials are identified and clearly labelled.

> The receiving date is recorded, or there is a verifiable system in place that ensures first in first out (FIFO) or first expired first out (FEFO) product rotation.

> Ingredients and primary packaging are traceable by the supplier's lot number or by the processing facility's assigned system.

4.3 Raw Materials and Packaging Storage

Summary: Raw materials and packaging materials are stored according to the product's storage requirement, and in clean storage areas.

Requirements

> All materials stored are in good condition – dry, intact, clean, and free from contamination or spoilage.

> All materials are covered to prevent contamination.

> All materials are stored in appropriate storage conditions and at the correct temperature, according to manufacturer instructions, which generally are as follows:
  - Dry storage: ambient temperature
  - Freezer: minus 18C and below
  - Chiller: 0C to 4C

> Any product on hold for specification compliance verification that is rejected due to damaged package, is out of specification, out of shelf-life or does not conform in quality, etc.., is properly segregated, clearly identified and labelled, and held in appropriate condition.

- Storage areas are kept in a clean and sanitary condition, with no evidence of spills or other litter within the facility. Spillages are immediately cleaned up.
- An inspection perimeter is maintained along all storage walls (46cm / 18 inches from the wall) to allow for inspection of pest-activity cleanliness. In addition, materials are stored off the floor (at minimum of 15cm / 6 inches, or pallet height).
- If an inspection perimeter (as specified above) is physically impossible (e.g. small storage room), the area is cleaned and inspected at least monthly, and the inspection is recorded.
- Part-used ingredients or packaging are kept clean and protected against dust and other forms of contamination.

4.4 Storage of Finished Goods

Summary: There is a procedure for adequate management and control of finished product during storage and dispatch (FIFO, expired product control and FEFO).

Requirements

- A procedure is set up to ensure that finished product is adequately managed and controlled during storage and dispatch, to avoid any product safety risk, or quality risk.
- At a minimum, the procedure during finish product storage includes:
  - Temperature control of storage areas when necessary
  - Segregation of products where necessary to avoid cross-contamination
  - Storing of materials off the floor
  - Specific handling or stacking requirements to avoid product damage.

4.5 Transport Inspection and Verification

Summary: including vehicles, carriers and transporters are inspected for loading, palletizing, sealing and traceability to ensure food safety.

Vehicles and trailers or containers delivering to Kerry are in good condition, roadworthy, compliant with all local regulations, fit for purpose (e.g. road tankers carrying food are used exclusively for food), fitted with all necessary equipment to provide security of vehicle (e.g. lock-in gates, restraints, seals and other methods) and fully operational (refrigeration systems or controlled temperature conditions), clean and sanitary.

A contract/specification is agreed with the carrier that details the applicable food safety, quality expectations and requirements. Carriers are audited as necessary to verify compliance. Carrier performance is scored by Supply Chain and communicated to management.

Requirements

- All vehicles are inspected before loading, and the inspection is documented. Containers are inspected internally and externally for holes, dents, excessive rust, and damage in seals or locks. They are free from odours, soil, mud, debris, pest, any non-food or food item that may contaminate the load (allergen, raw meat, etc.), and any other form of contamination.
- The inspection includes:
  - Cleanliness
  - Lack of odours or other residues
  - No evidence of pests and pest-resistance
  - Suitability to avoid damage to the load
  - Temperature control equipment when necessary
- At a minimum, the procedure during loading and palletizing includes:

- Use of covered bays for vehicle loading and unloading
- Securing of the load on pallets to avoid movement and damage in transit
- Inspection of loads and packaging integrity before distribution
- Palletizing is done using slip-sheets, and avoids any kind of cross-contamination or damage to product

> Pallets

- Pallets are in good condition to avoid any health and safety or product contamination risk. Good palletizing practices are in place to physically secure the load and enable easy identification. The criteria for wooden pallets are:
  - All boards are intact and secured to bearers.
  - There are no broken boards, missing boards, or protruding nails.
  - No foreign objects are present, such as soil, oil, chemicals, powders or other contaminants.
- Pallet weight
  - To ensure safe handling, transportation and storage, maximum pallet weights are specified (unless mutually agreed otherwise):
    - 1,250kg (gross weight of pallets, packaging and product)
- Pallet height
  - Maximum pallet height is set at:
    - Unit in the pallet >16kg (and chilled/frozen food) – 1.3m
    - Unit in the pallet <16kg – 1.8m
- Pallet configuration
  - The configuration TIxHI is used – for stock control and efficient, safe storage:
  - Ti = number of units per layer
  - Hi = number of layers
  - The pallet must be interlocked, unless specifically required not to be in such a case, or when column stacking is unavoidable, it is recommended to use cardboard sheets at internals through the pallet to improve stability. *(see Annex VI)*
- Pallet use & overhang
  - For safety and efficiency, the pallet configuration should be designed to use the whole surface of the pallet, without product protruding over the pallet.
  - Underused or overhang pallets present a risk during transportation or storage, and do not allow for safe double stacking.
- Wrapping
  - When wrapping is used to secure goods, it should be done in a safe manner, with clear stretch film that allows the goods to be seen. If airflow needs to be maintained to keep the goods in optimum conditions, perforated stretch film can be used.

In general, the wrapping should:

- be firmly secured, not be loose or trailing, but the tension should not risk damage to the goods
- be applied in a sufficient number of passes to hold the goods
- anchor the product to the pallet, allowing sufficient binding area
- Pallet labels must be applied after the pallet is wrapped.

- Pallet labelling
  - Pallet labels must contain the minimum information:
    (a) Supplier details (Name, address, contact details, supplier manufacturing site address etc..)
    (b) Product (Name and code)
    (c) Quantity
    (d) Lot code
    (e) Dates (manufacturing, shelf life)
  - Labels should be printed on white, non-glossy/non-reflective labels, be free from printing defects and be positioned correctly.
  - When bar codes are used, those must be in high-quality print, to allow them to be scanned. Labels need to be applied smoothly, not warped or folded-over, and quality stock should be appropriate for the temperature environment (chilled and frozen chambers).
  - Two labels should be applied per pallet, one at each fork entry side. The labels should be at a height of between 40cm and 80cm (16 and 31 inches).
- Multi-SKU pallet (consolidation of pallets)
  - Multiple-part layer pallets are not safe or efficient. It is acceptable to consolidate different products into one pallet if the following criteria are met:
    (a) All of the products have been ordered in less-than-layer quantities.
    (b) All of the products are part of the same purchase order.
    (c) Each of the products or items is clearly segregated, to allow for easy identification.
    (d) Each product has its own 'pallet' label.
    (e) Pallets are stretch wrapped.
    (f) No more than 4 products are to be consolidated in a single pallet.
    (g) High-visibility labels are applied to the finished pallet (fork entry sides), indicating 'mixed pallet'.
- Multi-lot pallets
  - Consolidating product (2 or more lot numbers of the same product) into a single pallet is permitted, if the following rules are applied:
    - Build the pallet in the correct stock rotation order – with fresher stock (longer expiry date) at the bottom and oldest (shortest expiry date) at the top.
    - The combined quantity of units should be indicated in a single pallet label (not different labels for different codes).
    - Ensure that the TIxHI is not exceeded.
    - Apply a label indicating Multi-Lot Pallet.
    - Ensure that traceability of all dates/lots can be maintained.
- Pallet slip-sheets, pads and corners
  - Use of cardboard slip-sheets and pallet pads is permitted and is a good practice. These slip-sheets must be made of cardboard or paper only. Plastic, wood or any other material is not permitted. The slip-sheets must remain confined to the pallet footprint.
  - Cardboard corner posts are also permitted to improve stability, but, since they lead to extra waste, they should only be used when necessary.

> At a minimum, the procedure for sealing trucks and containers involves inspection to ensure that the truck and container have been correctly loaded and sealed, including in those instances where Kerry has

arranged the freight and the carrier is under a Kerry contract.

- Traceability is ensured during transportation. Distribution records demonstrating sufficient checks are completed and kept current.
- The transport company is provided with a vehicle breakdown procedure to ensure correct product handling should an incident occur. Evidence of this consists of transport company sign-off or contract. Drivers sign off is required when internal transport is involved.
- Cold chain management
  - The term 'cold chain' covers all the means used to maintain the temperature of temperature-sensitive products as they move through the chain of custody, from production to final user.
    - To ensure the safety and quality of the temperature-sensitive products, the supplier must ensure that the cold chain is maintained at every point of the chain of custody.
    - Chilled product should not exceed 5C (avoiding formation of crystals) at any point in the chain of custody.
    - Frozen product should not exceed -18C at any point in the chain of custody.
    - Product rejected due to temperature breaches must not be redelivered.
    - When delivering temperature-controlled products, the vehicle refrigeration unit must remain running until directed to unload.
    - The use of data loggers is encouraged to verify, at least annually, that the cold chain is unbroken.

4.6 Supplier Approval Programme

Summary: A supplier approval programme is established for all raw materials and packaging materials, clearly defining processes by which a supplier is approved.

Requirements

- The supplier has in place a written supplier approval programme, which includes:
  - A current and accurate list of approved suppliers
  - Supplier evaluation and selection criteria
  - A supplier audit programme that includes the following food-safety elements:
    - HACCP programme
    - Cleaning & sanitation
    - Pest control programme
    - GMP
    - Process control
    - Traceability and recall
    - Food security
- Third-party audit is acceptable; preferably, GFSI benchmarked certification.
- The frequency of the supplier performance evaluation and supplier audit is determined based on product risk to the facility.
- The supplier performance criteria include:
  - Number of complaints
  - Delivery performance
  - Specification compliance
  - Corrective actions when issues are identified
  - Defined method of supplier monitoring and tracking

- Criteria for disqualification

> In the case of agricultural-based raw materials:

- The use of pesticides is documented, with full traceability per field.
- There is a documented and up-to-date list of pesticides and fertilizers permitted, and documented proof that all agricultural suppliers are informed about this requirement.
- It must be demonstrated that agricultural suppliers handle agrochemicals according to local regulations and security (including doses, harvest intervals, quantity in each application).

5

Good Laboratory Practices (GLP) and Testing Programme

5. Good Laboratory Practices (GLP) & Testing Programme

5.1 GLP Programme

Summary: A written GLP programme is established. Only approved official test methods or established methods that have been validated are used. All test methods are documented.

** This section is not applicable to a manufacturing site that does not have an in-house laboratory.*

Requirements

> If the laboratory is ISO 17025 or CLAS (Campden)-certified, it can be accepted as complying with the whole section; only general laboratory practices need to be verified. The programme includes or covers the following:
  - A written standard operating procedure for all test methods in use. Approved official test methods (e.g. AOAC) are followed.
  - Handling and storage of reagents, media, prepared media and chemicals – to be used within their shelf life, labelling of all containers (primary and secondary) including distilled water, labelling of bottle/container opened date, prepared date and use-by date
  - A written procedure for internal and external calibration, which includes calibration schedule, methods and frequency of calibration, identifying appropriate reference standards
  - A written procedure for controlling cross-contamination between laboratory and manufacturing areas (applicable if the laboratory is testing for procedures)
  - Assessment of the competency of the laboratory technician, at least annually, for each of the tests that s/he performs
  - A training programme for all laboratory staff, including sampling technique

> Laboratory compliance:
  - The laboratory has sufficient working and storage space and overall facilities to handle workload.
  - The laboratory is well organized, clean and free from clutter.
  - No personal items, food and beverage are stored in the laboratory. No eating, gum-chewing, drinking or smoking take place in the laboratory.
  - The microbiological and chemical laboratories are segregated, and measures are in place to avoid cross-contamination of microbiological lab staff into production.
  - Especially in microbiological laboratories where pathogens are tested, access to staff is controlled, and entry is limited to authorized personnel only.
  - Designated laboratory coats and/or other protective clothing for laboratory use are worn in the laboratory only. Microbiological lab garments are clearly differentiated from garments worn in the chemical or production areas (e.g. red collar).
  - Calibration results are recorded.
  - Laboratory results are documented and signed.

5.2 Testing Programmes and Procedures

Summary: The testing programmes and procedures developed are comprehensive, and all important elements are included.

Requirements

> Testing procedure for the following programmes (if applicable) are established, with test parameters, acceptable limits, frequency, personnel responsible, etc.., all incorporated:
  - Raw Material, Ingredients, Packaging Testing programme: other than microbial test, other parameters to be considered are allergens, GMO, pesticides and heavy metals.
  - Finished Product Testing programme: testing parameters include all those stipulated in the agreed specifications.
  - Environmental Testing programme: this should be unique to the product and production environment, and include swabbing of food contact surfaces (after sanitization), of any relevant surfaces in high-care or high-risk zones, and workers' hand swab (during food handling) (see Annex V).
  - Utilities Testing programme (water, gas, steam and ice)

> Shelf-life assessments are carried out regularly.

> Water testing takes place at least once a year, from different sampling points. The water analysis results meet the local regulatory standard. At a minimum, water is analysed for:
  - Total plate count
  - Coliforms
  - E coli (not necessary if none detected in coliform count)
  - Heavy metals: lead and mercury
  - Off-flavours and odours

> Retention samples are kept for every batch produced for at least 1.5 times the shelf-life time in order to set up and verify the shelf-life of products.

5.3 In-house Pathogen Testing

Summary: Control measures are established for plants that test pathogens on-site.

Requirements

> Strict controls are in place, for both entries to and exit from the laboratory; e.g. air shower, negative air pressure in the laboratory and filtered outlet, complete garment change, shower change, full hand-wash, etc..

5.4 Third-party Laboratories

Summary: Appointed third-party laboratories that perform critical analysis are accredited, and operate in accordance with ISO 17025.

Requirements

> Appointed third-party laboratories that perform analysis that is critical to product safety and/or legality are accredited, and operate in accordance with the requirements and principles of ISO 17025.

> The scope of accreditation is available, and covers all the critical tests performed on product quality and safety (ISO 17025 certifies each test, not the whole laboratory system).

6

Cleaning and Sanitation

6. Cleaning and Sanitation

6.1 Master Sanitation Programme

Summary: A written master sanitation programme is established and all critical elements are adequately addressed to prevent cross-contamination. This programme lists all equipment, utensils and areas requiring cleaning and sanitizing.

Requirements

- The master sanitation programme specifies the following:
  - All areas and equipment to be cleaned
  - Frequency of cleaning
  - The methods and procedures for each cleaning task – these are adequately defined in the Sanitation Standard Operating Procedure (SSOP)
  - The cleaning products used, the concentration required, and instructions for use
  - The personnel responsible for the designated tasks
  - The individual accountability for each task, with signing-off for each completed task
- Cleaning equipment and utensils are specific to one area (e.g. raw vs. cooked) or are thoroughly cleaned and sanitized before they are moved to a different area.
- For the Clean-In-Place (CIP) system, the sanitation programme and records include the following:
  - Monitoring of all automatic cleaning systems, with cleaning chemicals and concentrations documented
    - A CIP system is defined by 4 parameters:
      - Temperature of the water or solution
      - Mechanical agitation (m/s)
      - Chemical concentration
      - Circulation time
  - Frequency and method to monitor temperature, flow rates or velocity in open systems, and pressure and/or cycle times in closed systems.
  - The dosage of the CIP chemical is verified and recorded.
  - Corrective or follow-up actions are documented.
- Where external service providers are employed for cleaning and disinfection, they fulfil all of the above requirements.

6.2 Use of Cleaning Chemicals

Summary: The concentration of sanitizer and cleaning chemical is verified, and complies with the manufacturer's recommended concentration.

Requirements

- The dilution, concentration and application of sanitizer and cleaning chemical used comply with the manufacturer's recommendation for effective cleaning and sanitation.
- The automatic cleaning chemical mixing station is routinely calibrated and the chemical concentration is verified by the system supplier. A service report that indicates system functionality and concentration verification is maintained on file and kept current.
- The dilution of cleaning chemical as well as the dilution and concentration of sanitizer are recorded, signed and dated each time a manual mixture is made.

- To verify the concentration of a sanitizing solution, obtain a sample of already mixed solution and test it with test strips or a test kit.
- If test strips or test kit are not made available by the supplier at the point of concentration verification, this will be interpreted as "systematic failure to use correct concentration".

6.3 Cleaning Chemicals Documentation

Summary: A Material Safety Data Sheet (MSDS) and a copy of labels, for all cleaning chemicals and sanitizers used, is maintained.

Requirements

- The labels and any other supporting documents must state clearly that all cleaning and sanitizing chemicals are approved for use in a food manufacturing facility, and/or that they meet regulatory guidelines.
- A copy of labels and the MSDS are kept on file, and kept current, for all cleaning and sanitizing chemicals in use.

6.4 Pre-operational Sanitation Inspection

Summary: A pre-operational sanitation Inspection programme is established and records are maintained.

Requirements

- The pre-operational sanitation Inspection programme includes all production-related areas. Pre-start-up inspection records are maintained.
- Pre-operational inspection includes visual inspection to confirm that equipment is cleaned and sanitized before start-up of production.
- All equipment is cleaned after use to avoid increased microbial levels and pest attraction. Leaving equipment dirty until a new run and only cleaning it before the run is not acceptable.
- If visual inspection reveals failure, follow-up is assigned and corrective action is recorded and adequately implemented.

6.5 Cleaning Effectiveness Verification

Summary: An environmental monitoring programme (EMP) is established and the effectiveness of cleaning and sanitation procedures is monitored.

Requirements

- The environmental monitoring programme focuses on specific pathogens; for example, Salmonella spp. and Listeria monocytogenes, using indicator organisms *(see Annex V)*.
- The programme includes:
  - A systematic sampling plan to test all food contact surfaces on all food-processing equipment. The plan covers the following zones:
    - Zone 1 – direct or indirect product contact surfaces

      Direct product contact surfaces are surfaces exposed to product during normal equipment operation.

      Indirect product contact surfaces are surfaces from which liquids, dust, or other material may drain, drop, diffuse or be drawn into the product or into the container, and other surfaces that touch product contact surfaces or the container.

      Examples include (but are not limited to): conveyor surfaces, product chutes, pipeline interior and storage fill hoppers, nozzles, formers, cut & wrap equipment, product scrappers/utensils, product contact gloved hands, etc..

- Zone 2 – non-product contact surfaces but adjacent to product contact surfaces

  Such surfaces are close to product contact surfaces and, under normal operating procedures, do not directly contact the product or the product contact surfaces of the container, including the exterior of processing equipment.

  Examples include (but are not limited to): non-product contact gloves, equipment supports, frames, outside of tunnels, outside of enclosed filling cabinets or below filling equipment, control panels, weight scales, motor housings, catwalks, scrap carts, HVAC vents, vacuum cleaners if used near product contact surfaces, air filters, etc..
- Zone 3 – non-product contact; environmental surfaces in the processing room that are more remote from product contact surfaces

  Examples include (but are not limited to): hand trucks, forklifts, walls, drains, floors, equipment legs, ductwork, ceilings, fork truck and cart wheels, tools, brooms, squeegees, floor scrubbers, debris from vacuum collection points, floor debris, trash cans, traffic pathways into processing area, ceiling drain pipes, wall/floor junctures, wash stations, ingredient storage areas, etc..
- Zone 4 – sites that are remote from product contact surfaces outside the processing room but could affect processing areas through the movement of people, equipment or materials

  Examples include (but are not limited to): warehouses, hallways, break areas, locker rooms, maintenance rooms, offices, cafeteria, rest rooms, coolers, floors, wheeled vehicles and materials, trash/recycle collection areas, etc..

- Frequency of swab and when to swab – e.g. after sanitation
- A master sampling plan to determine areas for swabbing
- Description of media and sponges used for swabbing – e.g. sponge with neutralizing buffer, cotton swab
- Method for swabbing, including how to handle swabs once taken, how long before swabs are processed, how swabs are collected specific to the size of areas swabbed
- Confirmation method if growth of indicator organism is positive
- Final rinse water reference samples (just before inlet)
- Definition of acceptable criteria or standards
- Recording of corrective actions and follow-up actions, with plans for retesting if results do not comply with standards
- Method of investigation in case of pathogen being detected
- Procedure for recommissioning a processing room or a piece of equipment
- Training of technical staff on swabbing as well as training and qualification of individuals overseeing the EMP (i.e. microbiologist, food technologist or science-based); keeping of records, and refresher training conducted at least annually
- Records are maintained and results are reviewed and trended on a routine basis to identify areas for continuous improvement.
- Whenever product surfaces are tested for pathogens, the affected product lot(s) is placed 'on hold' pending the test results.

> The verification of the cleaning procedures may be visual (when the product cannot support micro-organisms and evidence of this can be provided) or may need to be done based on allergens residues.

see Annex VII: Sanitation verification parameters.

6.6 Cleaning Equipment Storage

Summary: Storage of cleaning equipment is adequate to prevent cross-contamination.

Requirements

> All cleaning equipment and chemicals are neatly stored and organized.

> Mops are stored in a dry condition.

> All cleaning equipment is colour-coded according to its designated area or use, and stored in a hygienic manner, off the floor and segregated by different areas or uses.

7

Pest Management Programme

7. Pest Management Programme

7.1 Pest Control Programme

Summary: A pest control programme is established.

Requirements

- A documented pest control programme is implemented. The pest control service is provided by a licensed and certified Pest Control Operator (PCO) or a licensed, insured and certified Pest Control Service (PCS).
- A PCO within the supplier's organization who is licensed and certified can apply pesticides, or a PCO trainee can apply pesticides if authorized under local laws to do so.
- A licence and certificate may be one and the same in some locations; the relevant name must be identical to the name signed on service reports.
- If an on-site employee is certified, s/he may supervise someone else applying pesticides.
- In either scenario, copies of all documents must be maintained at the facility. The license, insurance and certification must be current.
- The programme includes:
  - Designated PCO or designated PCS company
  - PCS's proof of liability insurance
  - Updated licence for PCS
  - PCO certification (internal PCO and/or external PCO)
  - Frequency of scheduled service intervals – it is recommended that services take place at least monthly
  - Labelling of all traps, bait station, glue boards and insect glue light traps (insect zappers that cause the insects to explode are not allowed inside the facility) to include PCO initials and inspection date on the label
  - Master list of all approved pesticides used in the plant, including where and how they are applied, and concentration or recommended dilution
  - Up-to-date schematic map of pest control devices, showing the location of traps, bait stations, glue boards and insect glue light traps, both interior and exterior of plant. The devices are identified – e.g. a numbering system – for ease of tracking and trending.
  - Explanation of how unit inspections will be tracked. For example, the date and initials are on the final report of electronic scanning of units or punch cards
  - In production and storage areas, no bait devices are allowed, to avoid rodents dying inside the facility.
  - Only traps and glue boards are placed inside the manufacturing facility. Glue boards are placed in non-manufacturing areas only (e.g. storage), and are placed inside a secured box or station.
  - No food baits are allowed internally.

7.2 Pesticides

Summary: Material Safety Data Sheets (MSDS), handling & mixing procedures and pesticide labels are on file.

Requirements

- All pesticides used meet the applicable regulations and approvals (EPA, USDA, OSHA, etc.) and are approved for use in a food manufacturing facility.
  - MSDS for all pesticides used are readily available and maintained on file.
  - A copy of the label for each pesticide, indicating the name, mix procedure and application instruction, is maintained on file and kept current.

- All pesticides are stored in the recommended storage condition (as specified in the MSDS), in a locked, secured area, and are accessible to authorized personnel only.
- All pesticides stored are properly labelled. Any secondary bottle or container is labelled 'for insecticide use only'.
- Glue boards are not classified as pesticides but are stored away from food products.
- Pest-control chemicals are used in their original packaging and containers are not reused.

7.3 Inspection Reports

Summary: Service reports or pest-control inspection records are kept on file and are current.

Requirements

> Duly completed service reports (by PCS) or pest-control inspection records (if the service is performed by an internal PCO) are kept on file and are current. Reports include, at a minimum, the following:
  - Name of pesticide applied
  - Quantity and concentration or dosage applied
  - The name of the individual conducting the service
  - Date of service
  - Application method used
  - Specific area where pesticide was applied
  - Signs of any pest activity observed
  - Type of services performed
  - Corrective action(s) documented for frequent activity
  - Records of follow-up, completion and verification of actions, requested by the pest-control technician to avoid or resolve infestation problems – these are available on file.

7.4 Pest-control Devices

Summary: Pest-control devices are adequately placed to avoid pest infestation as well as contamination.

Requirements

> The locations of pest-control devices are adequate to effectively control pest infestation and to avoid any contamination to product, packing materials or equipment.

> The following restrictions are observed:
  - Rodent control
    - All bait stations are secured to the wall or floor and are tamper-resistant, so as to minimize movement of the device.
    - The bait used must not be of a loose or granular type. It is secured inside the bait station by a rod (horizontal or vertical) above the floor of the station to avoid the bait being removed by a rodent or floating away in the event of heavy rain.
    - The bait station is located at a maximum of 50 metres/ 15 ft intervals around the exterior of the building parameter.
    - Traps or glue boards are located between 7–12 metres /23–40 ft apart, and located on either side of any entrance into the building facility. Traps are not placed on curbing.
    - Traps are placed so that openings are parallel with and closest to the wall.
  - Insect control
    - All insect glue light traps are fitted with catch trays.
    - Insect glue light traps are located at least 1.5 meters/ 5 ft from protected or exposed product or packing material.

- Insect glue light traps are not located above dock doors.
- All insect glue trap light bulbs are shatterproof (with metallic ring). Covering the bulb with sticky plastic is not acceptable as it decreases the effect of the light.

The above-specified intervals only serve as a guide. Pest-control evaluation is required depending on the size of the facility.

7.5 Pest-activity Trend Analysis

Summary: Pest-activity trend analysis is carried out. Corrective actions and areas for improvement are identified.

Requirements

> Pest-activity trend analysis is carried out by the PCO or plant.

> Corrective actions and areas for improvement are identified.

> Trend analysis is carried out for all pest-control devices in the plant.

> Trend analysis is done at least annually.

> Trend analysis is carried out per device.

7.6 Pest Activity

Summary: Pest activity is not evident either inside or outside the building.

Requirements

> All areas are free from any reoccurring or existing pest activities, including:
  - Rodent activity – evidence of burrows, trails, excreta, tracks, gnawed bags or cases
  - Bird activity – nesting around the interior perimeter of the plant, droppings or feathers in the internal areas of the warehouse
  - Live animals inside the plant perimeter – cats, dogs, etc.
  - Insect activities inside the plant – flying insects, cockroaches (smell, excreta), spiders (with active webs)
  - Decomposed rodent(s) or other animals (such as lizards, frogs) on glue boards, traps and bait stations.

8

Product Control

8. Product Control

8.1 Temperature Control

Summary: Temperature control measures for temperature-sensitive products or ingredients are effective.

Requirements

- All temperature-sensitive product and its processing rooms are monitored with a calibrated thermometer in the warmest part of the room.
- Facility temperature (where temperature-sensitive products or ingredients are stored) is monitored and recorded at least twice daily.
- Docks are enclosed and cooled to less than 10C if temperature-sensitive items are shipped.
- Thawing of product is undertaken in equipment and rooms appropriate for the purpose. Water overflow is directed to the drainage and not onto the floor.

8.2 Contamination control

Summary: Steps are taken to prevent the introduction of foreign material or contamination of any kind into the product.

Requirements

- No evidence of imminent contamination – physical, chemical or microbiological – is noticed during the audit.

Foreign body control

Requirements

- Foreign body control is documented. The site has equipment in place to detect or remove foreign objects. The procedure includes the following:
  - Typical equipment to be considered as foreign-material control devices may include:
    - Filters
    - Sieve
    - Metal detection
    - Magnets
    - Optical sorting equipment
    - X-ray detection equipment
    - Other physical separation equipment – e.g. gravity separation, fluid bed technology
- The foreign-material control device must be working and placed as close as possible to the final packing.
- For products packed in foil packaging, an in-line metal detector is placed before packing, or else an imaging system is used after packing.
- Verification of the sensitivity of metal detectors and imaging devices is conducted by passing metal pieces through the middle of the metal detection area, as it is the least sensitive, resulting in the worst-case scenario. It is best to pass each test piece three times in the normal flow of the product, with the standard at the leading, middle and trailing edge of the product, where possible.
- Verification frequency is not less than:
  - every 8 hours if the plant runs 3 x 8 hour shifts a day
  - start and end of shift if the plant runs 2 shifts a day or less (even if they are 12-hour shifts)
- The metal detector or x-ray equipment is calibrated externally by a competent organization at least

annually. Magnets are calibrated at least annually, but this can be done internally with a Gauss meter traceable to the national standard.

- The metal detector (including in-line) or imaging device may incorporate one of the following:
  - An automated rejection device for continuous line systems, which either diverts contaminated product out of the product flow or to a secure unit accessible only to authorized personnel
  - A process line or conveyor belt stop system with an alarm where the product cannot be automatically rejected (e.g. for very large packs)
- The sensitivity of the detector is set as low as possible and based on the location of the detector, packaging size and anything else that may affect the sensitivity.
  - The metal detection verification should target a size as follows:
    - 1.5mm ferrous
    - 1.5mm non-ferrous
    - 2.5mm stainless steel (316 grade)

    Where the target is not achievable, the sensitivity use must be derived from HACCP analysis.
  - UHT milk products are exempted from the metal detection standards as long as rare-earth magnets are used.

Points for attention

- At a minimum, metal detection and imaging system testing must be conducted:
  - at start-up
  - at breaks
  - after maintenance
  - at the end of a production run
- For metal detection without a positive rejection device, but with an alarm, warning light or belt shut-off mechanism, a written procedure on how the system is restarted and the disposition of suspected products must be in place.
- A product rejection log is kept, including analysis and corrective actions for any foreign materials.
- The internal auditor is to observe that the positive reject device is operating correctly. If the metal detector or imaging device fails, the auditor observes if the product was handled according to written procedure.
- The internal auditor is to observe how the operator conducts the verification according to procedure, without management interference.

Metal Utensils Control and Policy

Requirements

- Specific controls are applied for sharp metal utensils that entail a potential risk to health in the event of contamination.
- These utensils include (but are not limited to): knives, needles, sieve wires, cutting devices, blades.
- A procedure to define accountability, periodic control (frequency and records) and disposal measures is implemented.

Wood Policy

Requirements

> A wood policy is in place. Wood is banned from high-risk or high-care zones. Other production and storage areas may have wooden pallets under risk assessment.

> A map showing 'wood allowed' and 'wood banned' areas is recommended.

> Some exceptions may exist; e.g. in flour mills it is traditional to have wooden framed sieves. In the case of such exceptions, it is important to check that the wood does not pose a risk to the safety of the product and is in optimum condition (no splinters, not wet, etc.).

Glass and Brittle/Hard Plastic Contamination Control

Summary: A written procedure on glass and brittle/hard plastic is established. All lights and glass are shielded so as to prevent product or packing contamination in the event of any bulb or glass breakage.

Requirements

> The policy or procedure includes the following:

- No glass or brittle/hard plastics are used in the factory, except where this is necessary.
- A list is maintained of all essential glass and brittle/hard plastics within the manufacturing facility including all lights, glass and brittle/hard plastics in production, warehousing and storage areas.
- All glass and brittle/hard plastics are shielded with plastic film to prevent shattering during breakage. However, tamper-proof glass does not require a plastic film. Plastic film cannot be used in UV lights for microbiological load decrease or electronic fly killers, as this may decrease efficiency.
- Usage of shatterproof bulbs in UV lights or pest-control devices is necessary. A manufacturer certificate is available.
- Employees are strictly prohibited from bringing in any personal effects that are made from glass, except for eyeglasses.
- Any breakage of eyeglasses or loss of contact lenses is immediately reported to management.
- Guidelines are provided for reporting any broken glass or brittle/hard plastic incidents, as well as instructions for disposal.
- A log of broken glass and hard plastic incidents is kept, logging what, where, when and if any action has been taken in regard to any compromised product.
- If any receptacle (such as a bottle or beaker) is required for sampling, it must not be made of glass or hard plastic.
- A brittle and glass programme is required.

Examples of brittle plastics are: Acrylic, Lucite, Optix, Plexiglas and Polycast. Brittle plastic shatters in a manner similar to glass.

Example of soft plastics are: Polycarbonates, Lexan, Tuffak and Unicar. Soft plastic cracks but does not shatter.

Chemical Control (Including Cleaning Agents, Lubricants, etc.)

Summary: The use, storage and handling of non-food chemicals is controlled to prevent chemical contamination.

Requirements

> Controls include:

- All chemicals are kept in locked storage to prevent unauthorized use. The key is kept by authorized personnel only. Storage of cleaning chemicals is segregated from food and packing materials. The storage area is in a clean condition.
- Material Safety Data Sheets (MSDS) are available.
- There is confirmation of suitability for use in a food-processing environment.

- The sanitizer bottle in the production area is adequately labelled, with the word 'sanitizer'.
- Cleaning chemicals and sanitizers may be in production areas if they are secured and do not pose a risk of product contamination (e.g. sanitizer bottle on wall racks, drums of chlorine on pallets for automatic dispensing systems or hand dip stations).

Lubricants

> Only food-grade lubricants are used in all product or packing contact surfaces.

> Risk assessment is carried out to identify which equipment requires the use of food-grade lubricant or grease, and this is documented.

> Containers and grease guns of food-grade lubricants are clearly labelled or colour-coded.

> Food-grade lubricants are segregated from non-food-grade items to avoid confusion between the two.

> There is evidence of food-grade declaration – via label, MSDS, etc..

8.3 Allergen and Sensitive Ingredient Control

Summary: An allergen management control procedure is established to prevent cross-contact from allergenic material to non-allergenic material.

To prevent possible cross-contact contamination or adulteration to ensure authenticity of ingredient, a sensitive ingredient programme is in place through the chain of custody.

Requirements

> The allergen and sensitive ingredient control procedures are effective and include the following:
  - A master list of ingredients identified as food allergens is kept, and is updated when ingredients identified as food allergens are brought into the facility.
  - A master list of sensitive ingredients is kept, and is updated when sensitive ingredients are brought into the facility.
  - Ingredients identified as food allergens or sensitive ingredients are identified in all records of formulation, batch or raw material production.
  - At a minimum, the following food allergens and sensitive ingredients are addressed:
    - Cereals containing gluten & products thereof
    - Eggs & products thereof
    - Fish & products thereof
    - Soybeans & products thereof
    - Milk & products thereof
    - Sesame seeds & products thereof
    - Celery & products thereof
    - Mustard & products thereof
    - Crustaceans & products thereof
    - Molluscs & products thereof
    - Sulphur dioxide & sulphites > 10 ppm
    - Peanuts
    - Nuts
    - Lupin
    - Halal
    - Kosher
    - GMO / Non-GMO
    - Authenticity claim (species, variety, organic, etc.)

- Potential adulterant substance, e.g. illegal

> A production scheduling or change-over procedure is in place to ensure that allergens are not transferred to a non-allergen-containing product. Verification of change-over activity is conducted and records of this are maintained.

> Allergen control includes allergen separation in storage with clear labels, the clean-up procedure for allergenic ingredient spills, utensils and storage containers control, etc..

> There is specific sanitation and practices that prevent cross-contamination of allergens to non-allergen products.

> Verification of sanitation is implemented to ensure no allergens cross-contaminate.

> Ingredient handling practices are in place; e.g. weighing does not leave scope for cross-contamination of allergens to non-allergen products and ingredients.

> There is a defined procedure on the rework handling of product containing allergen – e.g. proper labelling of rework to identify product and type of allergen present, etc..

8.4 Water Contamination

Summary: A procedure is in place for preventing contamination from water or ice.

Requirements

> The procedure to prevent contamination from water or ice, when this is used as an ingredient or comes in contact with food ingredients, includes:

- A 10-micron water filter (or smaller) is used at point of use or earlier in the flow.
- All filtration devices are included in the preventive maintenance programme, and records are maintained. The report includes:
  - Date of last check
  - Condition of equipment and filter
  - Corrective action where filters need repair or replacement
  - Names of personnel who performed the maintenance
- If UV light is used to sterilize water, records are kept of the hours of use of the bulbs, and the changes. Bulb maximum hours of use for efficiency are certified by the manufacturer.
- Back-flow devices are installed where necessary, especially in CIP systems and where processing water is recycled.
- Water or ice used as an ingredient or in a direct-contact surface complies with drinking water regulations.

8.5 Control of Non-conforming Product

Summary: Control of non-conforming product is established.

Requirements

> Non-conforming product (NCP) is identifiable and poses no risk of confusion. Acceptable ways of segregating or identifying NCP are:
  - Red stickers with the wording: ON HOLD, QUARANTINED or NON-CONFORMING (in each pallet if shrink-wrapped, otherwise in each box/bag)
  - Stock control system (SAP) or similar where it is impossible to load non-conforming product as every pallet or unit is controlled
  - If segregated, non-conforming areas exist, they are clearly delimited, with no room for confusion.
  - For branded or trademarked product, procedures are in place to demonstrate destruction of packaging as well as product to avoid fraud or mistakes in bringing it back to the market.
  - Decision-making responsibilities are clearly defined, and actions taken have supporting documentation as evidence.

8.6 Finished Product Release

Summary: A procedure for release of finished product is established to ensure proper release.

Requirements

> When products require a positive release, there is a recorded procedure showing that the product was not dispatched until the release criteria had been applied, and release was authorized.
  - The roles and responsibilities for effective implementation are clearly defined.
  - All criteria or test parameters to be met prior to release are listed.

> Certificate of Analysis is provided in accordance with Kerry Group policy.

8.7 Operations Control

Summary: Operations control is adequate, with work instructions and process specification in place.

Requirements

> Documented process specifications and work instructions are available to staff as a training and support tool. The instructions include:
  - Recipes or formulas, mixing instructions
  - Equipment process settings
  - Cooking/cooling times and temperatures
  - Labelling instructions
  - Coding or batch definition
  - Shelf-life marking
  - Any specific food safety requirements in the process (CCP, OPRP)
  - Packing procedures to ensure product is properly closed for safety and quality during at least its shelf-life

- When important to the process, parameters are recorded – such as temperatures, times, pressure, conductivity, etc..
- In the event of specifications deviation, procedures are in place to establish the quality or safety of the product.

8.8 Quantity Control

Requirements

- Weight, volume and number control checks are carried out at a predetermined frequency to ensure appropriate weight labelling (minimum weight, net weight, etc..). The checks and method are documented.

8.9 Calibration Programme

Summary: All instruments critical to safety, quality or legality are calibrated.

Requirements

- All instruments critical to safety, quality or legality are calibrated at a predetermined frequency based on risk.
- All calibrations are traceable to the national or international standard.
- Records of all the calibrations are kept (in a schedule or procedure).
- Calibration records include:
  - Instrument ID or serial number
  - Range of calibration
  - Date of calibration
  - Validity of the certificate (if external certificate is issued)
  - Name of technician conducting the calibration
  - Reference instrument used in the calibration, for traceability purposes
  - As found and definitive findings (before and after)
- A qualified member of staff must review the calibration and verify that it is in line with agreed contractual parameters.

9

Shelf-life of Product Delivered to Kerry

9. Shelf-life of Product Delivered to Kerry

9.1 Shelf-life of Product Delivered to Kerry

At time of delivery, ingredients shipped to Kerry shall not have less than the following minimum life on receipt (MLOR), as a percentage of the original shelf life available at the end of manufacture:

- Local products – 75% of manufacture shelf life
- International product – 50% of manufacture shelf life
- By exception material outside of these parameters may be received where all regulatory requirements are still met with respect to the goods supplied to Kerry.

For the specific shelf-life details of sensitive products, please refer to the purchasing contract and the Kerry raw material specification.

10

Food Defence and Security Programme

10. Food Defence and Security Programme

10.1 Food Security Programme

Summary: A food security programme is established based on risk or threats to prevent intentional harm to employees, products and processes.

Requirements

- All entrances to the facility are monitored to protect from unauthorized intrusion, and equipped with appropriate control devices.
  - Examples of monitoring: use of security guards, CCTV system.
  - Control devices may include simple locking mechanism, self-locking door, access control system, etc..
- Visitors (including contractors) to the facility are managed and controlled.
- It is mandatory to seal trucks and containers of all loads to Kerry. All shipments of truckloads or full-load orders, including any transfer between facilities and warehouses, are properly sealed with numbered trailer seals. The seal number is recorded in the bill of lading, the invoice or other sales document accompanying the load. All 'less than truckload' shipments (LTLs) are required to be locked with a padlock between deliveries.
- Supplier records – whether incoming ingredients, packaging or finished product – are received in locked and/or sealed vehicles or containers. Seal numbers are recorded.
- Staged vehicles containing food products remain locked while on the supplier's premises.
- All outbound vehicles are locked and/or sealed before leaving the supplier's dock.
- Access to the laboratory is restricted, including sensitive materials such as reagents and bacteria, drugs, toxin positive control, etc..
- Access to the computer process control system and formulation or recipe is restricted.
- Water-handling facilities, water storage and water wells are secured with locks.
- The interior and exterior of the facility are adequately lit.
- Access is secured to air intake points for facilities with direct pneumatic conveyance of ingredients or products (flour, dry mix, etc.).
- Tamper-evident packaging is used.
- All staff are trained in site security, including the need to report immediately to management or security any unknown or suspicious person on the premises. (See A8: Training programme.)
- Designated personnel manage the food security programme.

10.2 Food Security Programme Review

Summary: The food security programme is reviewed at least annually. Corrective actions are recorded.

Requirements

> The food security self-audit programme includes:
  - A list of personnel responsible for the review.
  - The personnel responsible for updating the programme when a new risk or area needs to be included.
  - A checklist that includes all areas relevant to food security.
  - Annual review.

11

Traceability and Product Recall

11. Traceability and Product Recall

11.1 Traceability Procedure

Summary: A traceability procedure is established for all ingredients, finished product and product packaging.

Requirements

> A traceability procedure is established that allows all ingredients, finished product and product packaging to be traced to their lot numbers and throughout their entire history from receiving to distribution, enabling identity preservation when required.

> The traceability procedure includes:

- All incoming materials, including bulk, are adequately identified and labelled with material name, and distinct codes are assigned to the material.
- The traceability coding system is not limited to raw materials. All types of packaging, processing aids, intermediate or semi-processed products, partly used materials, finished products and materials pending investigation are also included.
- Types of records involved and how each record is used are defined.
- The specific traceability information available on each record, including the personnel responsible, is defined.
- How the coding system is interpreted is defined.
- Method to link each ingredient and food contact packaging material to finished product lots or identification
- Method to track production codes shipped to each external customer
- Methods to maintain full traceability of rework and/or repack that allow trace back to the original production lot
- Traceability is challenged and records are kept (traceability exercise) at least annually, backwards and forwards.
- Systems of traceability and identification ensure that claims relating to provenance or assured status can be substantiated. These claims or status may be Kosher, Halal, GMO-free, allergens declaration, etc..

11.2 Traceability Coding and Identification

Summary: Raw materials, work in progress, finished products and packing materials are properly identified.

Requirements

> All raw materials, work in progress (including any receptacle in containers), finished products and packaging materials are clearly labelled and identified in such a way that they can be easily tracked.

> The coding complies with the coding system as defined in the product traceability procedure (see 11.1: Traceability procedure).

> All containers for manufacturing use, including trash receptacles and spray bottles, are properly labelled with the intended contents.

> If colour-coding is used for identification, adequate signage is placed in relevant areas, indicating the colour-coding interpretation.

> Records of training on colour-coding usage are available on file.

11.3 Product Recall Programme

Summary: The product recall programme defines the steps, personnel and communication plans for effective execution.

Requirements

> A written product recall programme is established. It defines all the steps, personnel and communication needed to ensure effective execution.

The term 'recall' here includes 'withdrawal'.

The programme includes:

- Key personnel on the supplier's recall team are identified, and their responsibilities are clearly outlined.
- Guidelines are provided on deciding whether a product needs to be recalled or withdrawn.
- An updated emergency contact list is maintained and readily available. The contact list includes the recall team, suppliers, customers and regulatory authorities.
- The reconciliation and disposal of recovered product.
- The communication plan includes the provision to inform customers, consumers and regulatory authorities in a timely manner.

11.4 Mock Recall

Summary: The product recall procedure is tested at least annually, and records are maintained.

Requirements

> The product recall procedure is tested at least annually to ensure that it operates effectively. Records are kept of the tests and their results.

The term 'recall' here includes 'withdrawal'.

- The mock recall exercise is conducted from raw material and primary packaging (food contact) to finished products delivered.
  - Finished products can be traced from lot code BACKWARDS, up to raw material and primary (food contact) packaging.
  - Raw material / primary packaging can be traced from lot code FORWARD to finished product.
- The mock recall exercise is completed within a target of 2 hours and a maximum of 4 hours.
- The summary of the traceability results includes:
  - Identification of the raw material, packaging material or finished product traced
  - Date and time of mock recall exercise – when started and completed
  - List of records reviewed to obtain the amount of products involved
  - Summary of calculation – i.e. amount of material received at plant, amount of material located in storage, total product (disposed of, in use, etc..), percentage of material recovered, total amount of product produced, total amount of product recovered, percentage of product located, etc..
  - Documented review by the recall team, including test effectiveness based on amount of product recovered, any issues uncovered and opportunities to improve the system

- List of who should be notified in case of actual product recall
- Documented retest within 60 days of any mock recall that fails
- The formulas in Annex VIII are used to calculate the mass balance and capacity of recovering all the product.

  Note: A failure is defined as taking longer than 4 hours to complete and/or recovering <95% or >105% of the product.

11.5 Traceability (Chain of Custody) Verification Programme

Summary: A traceability verification programme must be in place to verify that the supplier can identify, track and locate 100% of raw material, ingredients and packaging material to finished product sold to Kerry within 2-4 hours.

Requirements

- A traceability exercise is conducted to verify chain of custody forward and backwards to a farm/grower and primary process, to demonstrate that they are able to trace back through each step in the chain of custody and to country of origin.
- Traceability forward to Kerry.
- Traceability backwards preferably starts from a Kerry PO already delivered. In this case, customers receiving the same batch being traced back or similar must be identified.
- The traceability verification either backwards or forward must identify all raw materials, ingredients, packaging rework, work in progress, product on hold or non-conforming, as well as product disposed of.
- Supporting documents are required for verification and must include mass balance. The formulas in Annex VIII are used to calculate the mass balance and capacity of recovering or locating the totality of product.

12

Food Fraud

12. Food Fraud

12.1 Food Fraud Programme

Summary: A food fraud programme, based on vulnerability assessment, is established and documented. This programme must list and define all control measures, frequency and responsibilities throughout the chain of custody.

Requirements

- A food fraud programme is established and documented, based on vulnerability assessment, to prevent intentional adulteration of products or processes, for economic reasons and with the intention to defraud.
- The programme takes into consideration authenticity, food claims (identity preservation) and chain of custody.
- Examples of the potential fraudulent activities to be considered are:
  - Substitution – e.g. a food-grade oil partially substituted with mineral industry-grade oils
  - Concealment – e.g. harmful colouring added to some food to conceal or mask defects
  - Mislabelling – e.g. extended expiry dates, incorrect provenance to cover up an unsafe origin
  - Grey market production, theft or diversion – e.g. sale of unsafe unreported product
  - Unapproved enhancements – e.g. addition of toxic or unapproved ingredients to falsely enhance some chemical or nutritional property in the product
  - Counterfeiting – e.g. copying of popular products and not manufacturing in safe conditions
  - Dilution – e.g. water addition into liquid products to augment volume, especially when the added water is of poor quality or not of drinkable standard
- A system is in place to ensure access to information on historical or new threats. This system may be, among others, trade association membership, or government official communications.
- The main responsibility is to keep up-to-date, centralized and communicated information when required about the new threats.
- A vulnerability risk assessment is completed for all the raw materials (or categories of raw materials, when appropriate) to identify possible threats (potential adulteration or substitution).
- The vulnerability risk assessment is reviewed at least annually or more frequently if required, according to the information on new threats in the industry.
- When a raw material has been identified as involving high risk of adulteration, control measures are defined and implemented to verify claims and eliminate such risk. These measures may include (but are not limited to):
  - Certificate of authenticity to support food claims
  - Composition testing
  - Test for specific adulterants
  - Random test for other known potential adulterants
  - Non-targeted analytical approach to identify unexpected risks

13

Certificate of Analysis for Product Delivered to Kerry

13. Certificate of Analysis for Product Delivered to Kerry

13.1 Certificate of Analysis Requirements

Summary: A Certificate of Analysis (CoA) is a mandatory document issued by the supplier attesting to the quality of the supplied material according to specified quality attributes defined in the agreed specification. The CoA is a specifically-related testing results document from a representative sample of each specific delivered material lot

Requirements

- As a minimum, the certificates of analysis must list all criteria listed in Annex II
- As a minimum, vendors must provide a hard-copy of the Certificate of Analysis in line with Annex II for each delivery and lot number
- In addition, the vendors can also email copies of the Certificate of Analysis.

References

References

Second-party supplier requirements or standards

- ConAgra – Supplier and Co-Manufacturers Expectations Manual version 01, rev 07.2012
- PepsiCo Global Supplier Code of Conduct 1/23/13
- Kraft Foods SQE Manual, issue March 10, 2014
- McDonald's Global SQMS Audit SOP (V1.1 16 May 2016)
- McDonald's Code of Conduct (released November 2012)
- Yum! Corporate Governance – Supplier Code of Conduct (online 2/June/2014
- Yum's checklist (Food safety audit, 2013 version)

Third-party industry standards

- BRC issue 7
- FSSC 22000
- Joint IPEC–PQG Good Manufacturing Practices Guide for pharmaceutical excipients 2006
- SQF Code Edition 7.2

Others

- Codex Alimentarius, link: http://www.codexalimentarius.org/
- Subject-matter experts in Kerry.

Glossary

Glossary

Allergen

A known component of food that causes physiological reactions due to an immunological response (e.g. nuts and others identified in legislation relevant to the country of production or sale).

Audit

A systematic examination to substantiate whether activities and related results comply with planned arrangements, and whether these arrangements are implemented effectively and are suitable to achieve objectives.

Calibration

A set of operations that establish, under specified conditions, the relationship between values of quantities indicated by a measuring instrument or measuring system, or values represented by a material measure or reference material, and the corresponding values realized by standards.

Certificate of Analysis (CoA)

A document provided by the supplier that indicates the results of specific tests or analysis performed on a defined lot of the supplier's product. The tests are done either by the supplier or by an external testing firm, and must be based on protocols or methods that have been approved and agreed by Kerry technical experts.

Certificate of Authenticity

A document provided by the supplier that authenticates the food claims in accordance with country regulations.

Chain of Custody

This refers to every link in the supply chain back to farm, field or ocean, covering every time the raw material is moved, paid for, handled, stored or processed.

Reviewing the full chain of custody should include a supply-chain map detailing all additional processes, handlers, agents and storage, such as freezing and defrosting, paying particular attention to the long, convoluted supply chains and where the raw material or ingredient is no longer recognisable from its original format.

Cleaning in Place (CIP)

The process of cleaning and sanitizing food-processing equipment in its assembled position without the need for dismantling and cleaning the individual parts.

Code of Conduct

The supplier code of conduct outlines the social norms and rules and responsibilities of, or proper practices for, an individual, party or organization.

Codex Alimentarius

The body responsible for establishing internationally recognized standards, codes of practice and guidelines. HACCP is one such standard.

Competence

Demonstrable ability to apply skill, knowledge and understanding of a task or subject, to achieve intended results.

Contamination

Introduction or occurrence of an unwanted organism, taint or substance in food or the food environment. Types of contamination include physical, chemical, biological and allergenic. Contamination can also mean incorrect mixing of packages.

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.

Cook

A thermal process designed to heat a food item to a minimum of 70 degrees Celsius for 2 minutes, or equivalent.

Corrective Action

Action to eliminate the cause of a detected non-conformity deviation.

Country of Manufacture

The country of manufacture (Kerry also refers to this as Goods Supplier Location) is where the goods produced in accordance with national laws.

Country of Origin

Place of provenance of the primary ingredient of a product.

Critical Control Point (CCP)

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

Critical Limit

A criterion that separates acceptability from unacceptability.

Customer

A business or person to whom a product has been provided, either as a finished product or as a component of the finished product.

First in First Out (FIFO)

A method of stock rotation in which new supplies are shelved behind old supplies, so that the old supplies are used first.

First Expired First Out (FEFO)

A method of stock handling of perishable products, or with a specified expiry date in which the product with the deadline for the next intake will be the first to be served or removed from stock.

Flow Diagram

A systematic representation of the sequence of steps or operations used in the production or manufacture of a food item.

Food Handler

Anyone who handles or prepares food, whether open (unwrapped) or packaged.

Food Safety

Assurance that food will not cause harm to the consumer when it is prepared or eaten according to its intended use.

Genetically Modified Organism (GMO)

An organism whose genetic material has been altered by the techniques of genetic modification so that its DNA contains genes not normally found there.

Global Food Safety Initiative (GFSI)

Managed by the Consumer Goods Forum, a project to harmonize and benchmark international food safety standards: www.mygfsi.com

Good Manufacturing Practice (GMP)

Implemented procedures and practices undertaken using best-practice principles.

Hazard

A biological, chemical, physical or allergenic agent in food, or a condition of food, that has the potential to cause an adverse health effect.

Hazard Analysis and Critical Control Points (HACCP)

A system that identifies, evaluates and controls hazards that are significant for food safety.

Heavy Metal

Silver, arsenic, barium, selenium, lead, mercury, cadmium and hexavalent chromium. The list is not exhaustive and compliance to regulation as per country of manufacturing should be documented.

High-care Area or Zone

An area designed to a high standard where practices relating to personnel, ingredients, equipment, packaging and environment aim to minimize product contamination by pathogenic micro-organisms.

High-care Product

A product that requires chilling or freezing during storage, is vulnerable to the growth of pathogens, has undergone a process to reduce microbiological contamination to safe levels (typically 1-2 log reduction) and is ready to eat or heat.

High-risk Area or Zone

A physically segregated area, designed to a high standard of hygiene, where practices relating to personnel, ingredients, equipment, packaging and environment aim to prevent product contamination by pathogenic micro-organisms.

High-risk Product

A chilled ready-to-eat or heat product or food where there is a high risk of growth of pathogenic micro-organisms.

Identity Preserved

A product that has a defined origin or purity characteristic that needs to be retained throughout the food chain (e.g. through traceability and protection form contamination).

Indicator Organisms

Micro-organisms that may not themselves be considered pathogenic, but whose presence may indicate unsanitary conditions and/or potential presence of specific pathogens. For the purposes of this manual, indicator organisms for salmonella in wet environments would include total enteric bacteria or coliforms. Indicator organisms for L. monocytogenes would be of the Listeria genus.

Internal Audit

The general process of audit, for all activities of the company, conducted by or on behalf of the company for internal purposes.

Letter of Guarantee

A document confirming ongoing conformance to agreed specifications and business requirements.

Lot or Batch (lot number)

A unique identity given to a defined quantity of a material, usually based on time and location of manufacture. For continuous processes, a lot may not exceed the amount of material produced in one 24-hour period. For non-continuous processes, the batch, blend, shift or other time segment may be used to identify a lot. For materials received in bulk, the lot is usually identified as the contents of the bulk vehicle.

Low-risk Area or Zone

An area where the processing or handling of foods presents minimum risk of product contamination or growth of micro-organisms, or where the subsequent processing or preparation of the product by the consumer will ensure product safety.

Mock Recall

A simulated recall process. This exercise helps to ensure that traceability procedures are adequate and to identify opportunities for improvement in the event of a real recall situation.

Potable Water

Water that is safe to drink, is free from pollutants and harmful organisms and conforms to local legal requirements.

Prerequisite

The basic environmental and operational conditions in a food business that are necessary for the production of safe food. These control generic hazards covering good manufacturing practice and good hygienic practice, and are considered within the HACCP study.

Primary Packaging

Any packaging that is in direct contact with the product, e.g. soft-drink bottles, sweet wrappers or the inner bag of cereal boxes.

Procedure

An agreed method of carrying out an activity or process that is implemented and documented in the form of detailed instructions or process description (e.g. a flowchart).

Process

Set of interrelated or interacting activities that transform inputs into outputs. Processes in an organization are generally planned and carried out under controlled conditions to add value.

Processing Aid

Any substance not consumed as a food by itself, intentionally used in the processing of raw materials, food or their ingredients to fulfil a certain technological purpose during treatment or processing, and which may result in the unintentional but technically unavoidable presence of the residues of the substance or its derivatives in the final product – provided that these residues do not present any health risk and do not have any technological effect on the finished product.

Product Recall

Any measures aimed at achieving the return of an unfit product from customers and final consumers.

Product Withdrawal

Any measures aimed at achieving the return of an unfit product from customers but not final consumers.

Quality

Quality consists of those product features that meet the needs of customers. It is the degree to which a set of inherent characteristics fulfils requirements. Food safety is an integral part of the quality.

Quality Management System

A management system that directs and controls an organization with regard to quality and food safety, including the establishment of quality and food safety policies and objectives, planning, control, and continuous improvement. A management system approach encourages an organization to analyse customer requirements, define the processes that contribute to the achievement of a product that is acceptable to the customer, and keep these processes under control.

Quantity Check / Mass Balance

A reconciliation of the amount of incoming raw material against the amount used in the resulting finished products, also taking into account process waste and rework.

Ready-to-eat Food

Food intended by the manufacturer for direct human consumption without the need for cooking or other processing, effective to eliminate or reduce to an acceptable level micro-organisms of concern.

Recognized Laboratory Accreditation

Laboratory accreditation schemes that have gained national and international acceptance awarded by a competent body and recognized by government bodies or users of the standard (e.g. ISO 17025 or equivalents).

Rework

Material left over from production, which is reused to make the same or a similar product. This can be part processed material or finished product.

Risk Analysis

A process consisting of three components: risk assessment, risk management and risk communication.

Risk Assessment

The identification, evaluation and estimation of the levels of risk involved in a process, to determine an appropriate control process.

Root Cause

The underlying cause of a problem that, if adequately addressed, will prevent a recurrence of that problem.

Seasonal Production Sites

A product harvested and processed on a site that is opened specifically for the duration of the short term of that harvest (typically 12 weeks or less) during a 12-month cycle.

Supplier

The person, firm, company or other entity to whom a company's purchase order to supply is addressed.

TACCP

Threat analysis and critical control points

Traceability

The ability to trace and follow a food, feed, food-producing animal or raw material that is intended to be, or expected to be, incorporated into a food, through all stages of receipt, production, processing and distribution.

Trend

An identified pattern of results.

Utilities

A commodity or service, such as electricity or water, that is provided by a public body.

VACCP

Vulnerability assessment and critical control points

Validation

Confirmation – by providing objective evidence – that the requirements for the specific intended use or application have been fulfilled.

Verification

Confirmation through the provision of objective evidence that specified requirements have been fulfilled.

Work in Process

Partially finished goods waiting for completion; product that is held over or removed from the natural production flow to be blended later into production.

Annex

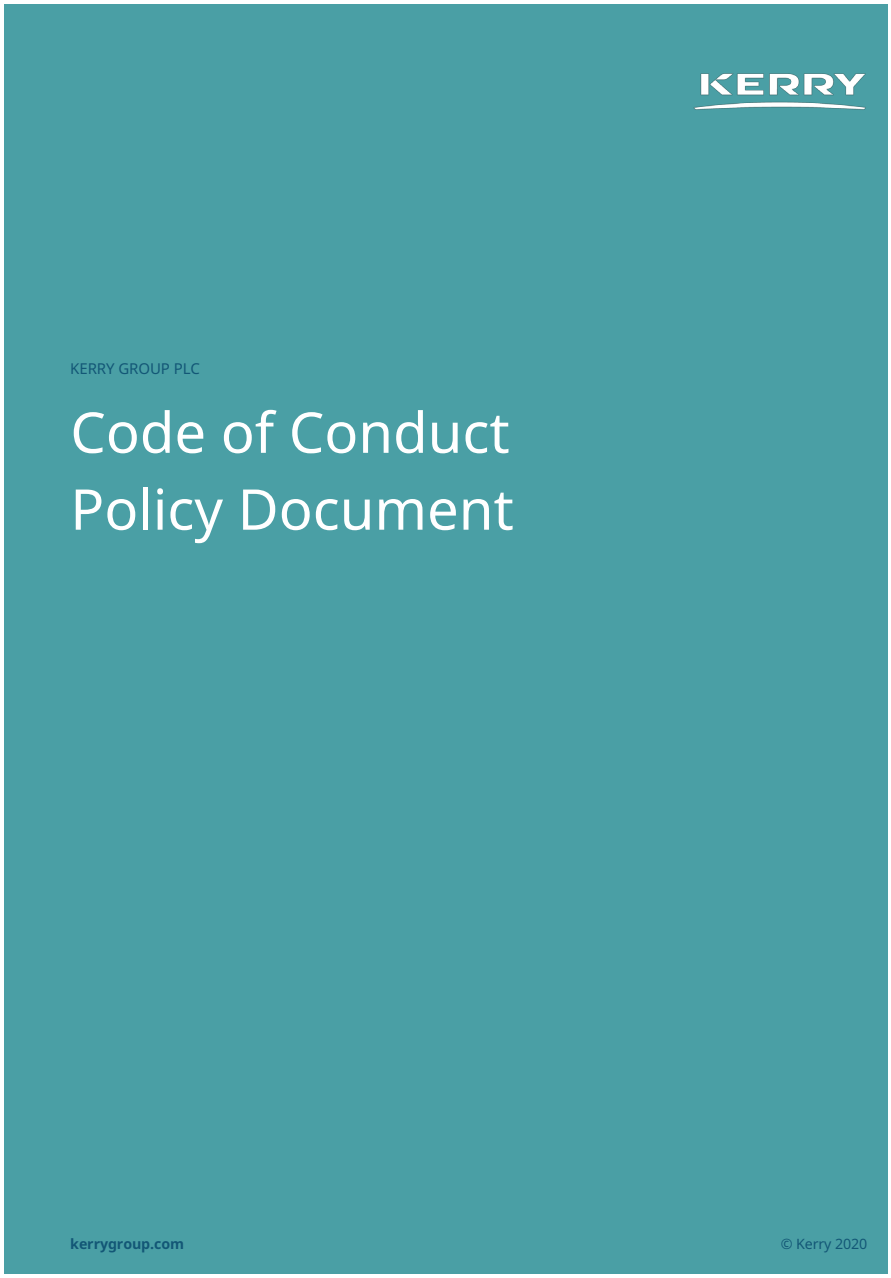
I

Annex

Annex I

Supplier Code of Conduct

Kerry's Supplier Code of Conduct may be updated from time to time and the most up to date version can be found at the Kerry Group corporate sustainability website link http://www.kerrygroup.com/sustainability/policies-statements/



II

Annex

Annex II

Certificate of Analysis (CoA) Requirements

A Certificate of Analysis (CoA) is a mandatory document issued by the supplier attesting to the quality of the supplied material according to specified quality attributes defined in the agreed specification.

The CoA is a specifically-related testing results document from a representative sample of each specific delivered material lot.

A CoA must have the following minimum information for the Kerry Group:

General Information	
Supplier Name	<<Name of company providing the certificate>>
Supplier Address	<<Address of the company providing the certificate>>
Contact Details	
Quality Contact	<<primary quality contact and/or CoA creator>>
Phone Number	<<Phone number of the company providing the certificate>>
Email Address	<<Email address of the primary quality contact or COA creator>>
Supplier Manufacturing Site Name	<<Should be identified if different from the supplier name>>
Supplier Manufacturing Site Address and Country	<<Address of the manufacturing site if different to supplier address>> <<Country of manufacturing site>>
Approved Supplier Manufacturing Site Number	<<Kerry Supplier Manufacturing Site Number as noted on the Contract / PO>>
Customer	<<Kerry's factory that will receive the certified material>>
Kerry Purchase Order Number	<<Kerry Purchase Order number for the certified material>>
Material Name	<<Name of the raw material / finished product>>
Kerry Material Number	<<Kerry material code>>
Product Code	<<Supplier material code>>
Manufacturing LOT Code	<<Code assigned to a batch to identify the certified material>>
Quantity	<<Amount of material supplied in units, KG, etc..>>
Date of Manufacture	<<Date of manufacturer or production of the material certified>>
Minimum Shelf Life	<<Minimum shelf life of the certified material>>
Best Before Date	<<Date by which material is best before>>
Country of Origin	<<Country of Origin of primary raw material>>
Stability Statement	<<Transportation and storage conditions (e.g. store at 10 degrees C) – if required>>
Analysis Section	
Critical Property	<< Critical quality property identified in the agreed specification >>
Test Method	<< Test method used and test method revision number.>>
UOM	<<Unit of measure (e.g. Kg, L)
Minimum Limit	<<This acceptance range must be Kerry criteria unless the manufacturer range falls within the Kerry range>>

Maximum Limit	<<This acceptance range must be Kerry criteria unless the manufacturer range falls within the Kerry range>>
Test Result	<<Actual values of the batch/lot in same metrics as Kerry specification>>
Certificate of Compliance / Status	<<This material complies with the Kerry specification set forth in reference specification>>
Date of Approval	<<Date when the material was approved by the supplier>>
Name of the Analyst	<<Printed name(s) and signature(s) of the analyst(s) who performed the analysis / analyses>>
Name of the Approver	<<Printed name(s) and signature(s) of the approver(s) or authorizer(s)>>

<<Supplier Name>>

<<Supplier Address>>

Certificate of Analysis

GENERAL INFORMATION

Supplier Manufacturing Site Name: **Supplier ABCD Co. Ltd.**
Supplier Manufacturing Site Address and Country: **Supplier ABCD Co. Ltd.**

Customer: **Kerry** Address: **Kerry Address, PO Box, Phone Number**

1. Contact Details

Quality Contact: Assigned primary quality contact
Phone number: Phone number of the company providing the certificate
Email Address: Email address of the primary quality contact

2. Purchase Information

Approved Supplier Manufacturing Site Number: XXXXXX (as noted on contract or PO)
Kerry Purchase Order Number: XXXXXX

3. Material Information

Material Name: Pepper Black Cracker 12# HT
Kerry Material Number: 20008806
Product Code: XXXXXX
Manufacturing LOT Code: 123456789
Quantity: 25kg
Date of Manufacture: 2 Dec 2016
Minimum Shelf Life: 60% of declared shelf life
Best Before Date: 2 Dec 2017
Country of Origin: Vietnam
Stability Statement: Temperature less than 30°C (or 86°F). Relative humidity less tha 60%. All products shall be stored at appropriated condition and must be transported in hygenic conditions and must be such that it protects the goods from contamination and adverse conditions.

ANALYSIS SECTION

Critical Property	Test Method	UOM	Minimum Limit	Maximum Limit	Test Results
Water activity	FCC Ed 10			0.65	0.55
Fine Ferrous Metal	FCC Ed 10	ppm	20	100	65
Moisture	FCC Ed 10	% w/w	12	12	12
Ash	FCC Ed 10	% w/w	4.49	7	5.28
Volatile Oil	FCC Ed 10	% w/w	1		2
Pinerine	FCC Ed 10	%	3.9		4.5

Results: this material complies with the Kerry specification set forth in reference specification.

Signature

<<Name of Analyst>>

Signature

<<Name of Approver>>

Raw Material Non Conformane (RMNC)

In instances where a supplier fails to meet the requirements stated above, Kerry will raise a Raw Material Non Conformance (RMNC) for Certificate of Analysis (CoA) or General Information issues, for example:

Defect	Description
Illegible	Document cannot be read (i.e.: print is unclear on CoA)
No CoA provided	Certificate of analysis missing from delivery (e.g.: analysis or general information)
Missing Supplier Plant Location	Document does not include the location of the plant that manufactured the material
Incorrect Supplier Plant Location	Document contains the incorrect manufacturing plant location
Missing Material Name	Document does not contain the material name
Incorrect Material Name	Document contains the incorrect material name
Missing PO Number	Document does not contain the Purchase Order Number of the certified material
Missing Material SAP Code	Document does not contain the Kerry SAP code
Misalignment of Shelf-life	Document contains a different minimum/maximum shelf life of certified material in the agreed specification
Missing Shelf-life	Document does not contain minimum/maximum shelf life of certified mate (i.e.: missing expiry / used-by)
Parameter out of specification	Critical parameter is out of specification on CoA
Missing Signature/System Validation	CoA does not contain signature/system validation
Missing Specification Property	CoA does not contain all critical quality property identified in the agreed specification
Misalignment of Test Methods	CoA contains an incorrect test method that was used
Missing UOM	CoA does not contain unit of measure (e.g. Kg, L)
Missing lot #/DOM/other supplier general information	Ingredient/raw material delivery format does not include label/ data regarding lot number, date of manufacture (DOM), supplier name, supplier address

III

Annex

Annex III

GMP General Requirements

Actions not allowed in GMP areas

- Eating or drinking – permitted in authorized areas of the facility only.
- Chewing gum, candies, throat candies, throat lozenges and tobacco. Holding toothpicks, matchsticks or other objects in the mouth.
- Wearing false eyelashes, fingernails or fingernail polish.
- Carrying objects above the belt or waistline (e.g. flashlight, thermometers, placing pens or cigarettes behind the ears)
- Expectorating (spitting) in production or storage areas.
- Rings (other than wedding bands), watches, earrings, necklaces, or other jewellery (including ornaments or piercing in exposed body areas such as the tongue and the nose).

Other issues to be considered

- If smoking is allowed in the facilities, only in designated areas.
- Badges and clip-on identification cards, if used, must be worn below the waist. Visitors' identification badges must not be a source of contamination.
- Buttons, service pins or similar articles are not permitted on uniforms, smocks, bump caps or hard hats.
- Lunches must be stored in designated areas. Lunches must be completely enclosed in cleanable/reusable containers or in single-use packing.
- Personal lockers must be maintained free of trash and soiled clothing. Food and direct product contact tools must not be stored in employee's lockers.

Clothing and personal equipment

- All clothing must be kept in good repair. Employee clothing should not be a source of contamination.
- GMP areas: Employees who work in GMP areas must wear only company-approved clothing. Clothing provides adequate coverage that ensures hair, perspiration or other foreign materials do not contaminate the product (e.g. no shorts, tank tops, sleeveless shirts).
- Non-production employees, contractors and visitors who enter the GMP area must wear a laboratory coat (or other approved covering) and wear appropriate footwear consistent with the plant policy.
- Pockets above the waist must be removed or sewn shut. Only zippers, grippers or snaps may be used as the fasteners on shirts, coats, laboratory jackets or smocks.
- Restricted uses: Work wear dedicated to specific product areas must be restricted to those areas. Such areas must be defined in local procedures (typically high-care areas where clothing change is required on entry and exit). Such work wear is not permitted in other plant or non-plant areas where they may be subject to allergen or microbiological contamination (e.g. cafeteria, external rest areas, any area not subject to GMP controls).
- Shoes: to help avoid product contamination (and for personal safety) shoes worn in GMP areas should be designed and constructed as follows: fully enclosed (no open toes, open weave, or sandals) made with leather or vinyl outer material (no canvas or nylon mesh), low-heeled; sole groove depth must not be a source of contamination. Shoes in wet microbiologically sensitive areas must not allow passage of water from the base of the shoes (should not trap or absorb water when walking through footbaths at room entrances).
- Safety helmets: These must be maintained in a sanitary condition. Labels or stickers are prohibited. Helmets used in microbiologically sensitive areas must be cleaned and sanitized at a frequency determined by plant quality. Helmets must not be used for storing or carrying objects such as cigarettes, notepads,

food and pens.

- Ear protection devices: These must be secured to prevent product contamination. They include earplugs attached by string worn around the neck, earplugs with rigid attachment worn around the neck, and earmuffs attached by headband.
- If available, particularly in facilities where production lines are equipped with metal detectors, it is recommended that metal detectable earplugs be used. Earplugs must be colourful and easily differentiable from product colour.
- Personnel working in GMP areas must wash hands at the following times: before entering a GMP area; upon re-entering the GMP area; after each visit to the toilet facility, rest room, and lunch and break room facilities; prior to touching product or product contact surfaces; or any time when hands have become soiled or contaminated.
- Personnel working in a microbiologically sensitive area must sanitize their hands after proper washing and after touching non-product contact surfaces. If soil is observed on hands, hands must be washed before re-sanitizing.
- When working in GMP areas, the use of hands for unsanitary practices must be avoided. Especially, hands should not be used to: scratch head or body, touch face or wipe forehead, or place fingers on or in mouth, nose, or ears.
- Hand lotions must not be used if hands are in direct contact with product or product contact surfaces. However, approved gloves may be worn over hands having non-perfumed lotion, if compatible with work conditions and regulatory rules.
- Personnel with minor cuts or injuries on hands must be able to protect the wound and keep it clean and free from infection. They will be allowed to work on production lines provided the cuts are bandaged and covered with an impermeable sanitary material. Adhesive bandages must be metal-detectable in facilities where metal detectors are used.

IV

Annex

Annex IV

Communicable Diseases

Pathogens and diseases from pathogens

Currently recognized pathogens or diseases from pathogens that can be transmitted by food that has been contaminated by an infected person:

Often Transmitted	Occasionally Transmitted
Hepatitis A virus	*Campylobacter jejuni*
Norwalk(-like) viruses (Norovirus)	*Entamoeba histolytica*
Salmonella typhi	*Enterohemorrhagic escherichia coli*
Shigella species	*Enterotoxigenic escherichia coli*
Staphylococcus aureus	*Giardia lamblia*
Streptococcus pyogenes	*Nontyphoidal salmonella*
	Rotavirus
	Taenia solium
	Vibrio cholerae 01
	Yersinia enterocolitica
	Cryptosporidium parvum

V

Annex

Annex V

Environmental Testing

Air quality required

ENVIRONMENTAL AIR				COMPRESSED AIR
Product Category	**Organism**	**Air Exposure**	**Air Sampler**	
Post heat treatment or pasteurization; products with Aw<0.65 (processing, filling and packing)	Yeast and mould	< 100 cfu/15min	< 1000 cfu/ m3	< 1.4 cfu/m3
Dairy powder	Yeast and mould	< 10 cfu/15min	< 500 cfu/m3	
Post heat treatment or pasteurization; products with Aw 0.65 – 0.95 (processing, filling and packing)	Yeast and mould	< 10 cfu/15min	< 500 cfu/m3	
Post heat treatment or pasteurization: products with Aw >0.95 (processing, filling and packing), hot filled	Yeast and mould	< 10 cfu/15min	< 500 cfu/m3	
Post heat treatment or pasteurization: products with Aw >0.95 (processing, filling and packing), cold filled	Yeast and mould	< 5 cfu/15min	< 100 cfu/m3	
Meat products	Yeast and mould	< 5 cfu/15min	< 500 cfu/m3	
Products allowing survival of micro-organisms, but not supporting growth.	Yeast and mould	< 5 cfu/15min	< 1000 cfu/ m3	

Pathogen environmental testing

Indicators: Indicate unsanitary conditions and potential presence of pathogens:

- Coliforms
- E coli
- Enterobacteriaceae (as an alternative to Coliform and E coli)

Quantitative testing – enumeration of these organisms

Note

Salmonella – *Pervasive*[2] *environmental micro-organism, well adapted to dry and warm environments. High tenacity in production of products such as chocolate, dairy powders and dry mixes.*

Qualitative testing – presence /absence

Listeria – *Ubiquitous*[3] *environmental micro-organism, well adapted to wet and cold environments. High tenacity in dairy and meat production.*

Qualitative testing – presence /absence

Areas for pathogen environment testing

- Direct contact surfaces
- Indirect product contact surfaces – surfaces that touch direct product contact surfaces during normal equipment operation, e.g. scrapers
- Non-product contact areas adjacent to product – surfaces that under normal operating procedures do

[2] *Present or noticeable in every part of a thing or place. Tendency to infiltrate or spread. Seeming to be in all places, widespread.*
[3] *Seeming to be in all places, widespread.*

not contact the product or product contact surfaces, e.g. exterior of equipment, chill units, panel buttons, aprons, handles, etc.

- Non-product contact areas in the processing room – more remote surfaces from product, e.g. drains, walls, floors, hand trucks, etc.
- Areas remote from product contact surfaces outside the processing room, e.g. hallways, bathroom door, cafeteria, cooler, etc..

At least five swabs should be taken from each area each month.

Samples within the same area may be a composite of up to five sample points in one composite.

Test results acceptance criteria for Indicator Organisms

Coliforms/Enterobacteriaceae		E coli	
Rating	Cfu/ 100cm^2 (15.5in)	Rating	Cfu/ 100m^2 (15.5in)
Target	< 10	Target	Absent
Acceptable	10 – 20	Acceptable	< 10
Not acceptable	> 20	Not acceptable	>10

VI

Annex

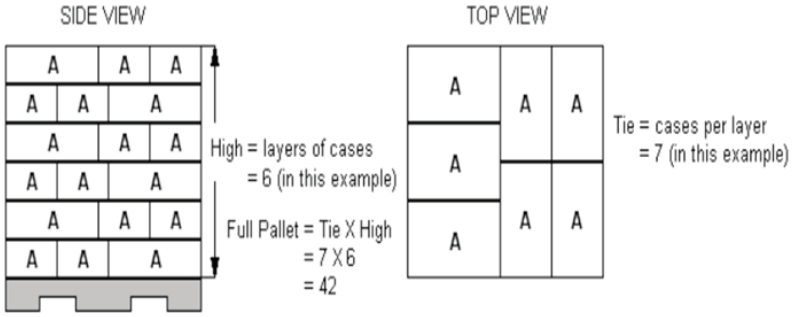
Annex VI

Pallet Configuration

TI-HI, Ti-High, Tie-High, or Ti by Hi is a term often used in the logistics industry. It refers to the number of boxes/cartons stored on a layer, or tier, (the TI) and the number of layers high that these will be stacked on the pallet (the HI). It can also be used in reference to the stacking pattern used to load a pallet in order to generate a relatively stable stack (refer to Figure 1).

Example of Ti-Hi

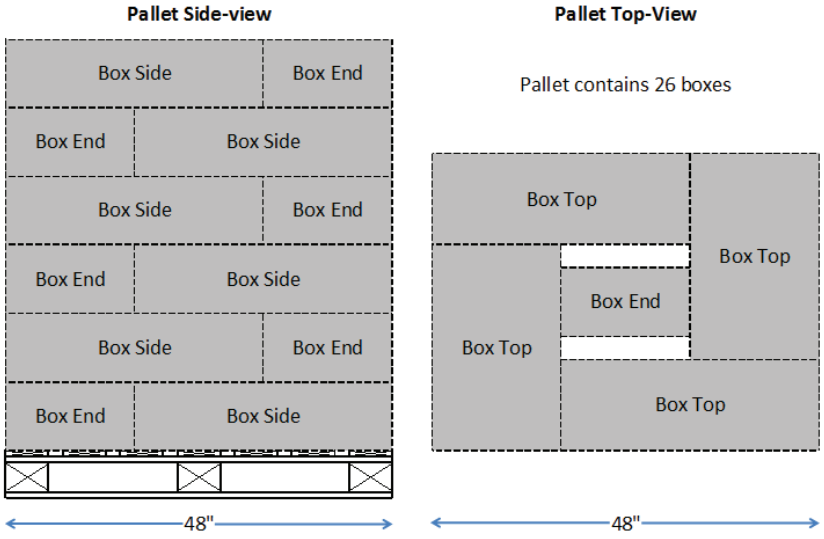
Figure 1



Where manufacturers design and stack boxes/cartons on pallets in non-standard Ti-Hi patterns. This stacking pattern does not compute logically to TI-HI applications. Pallets with non-standard Ti-Hi are unconventional and less stable (refer to Figure 2).

Example of Non-standard Ti-Hi

Figure 2



VII

Annex

Annex VII

Sanitation Verification Parameters

After wet cleaning

Swabbing should be performed after cleaning but before sanitizing procedures.

Swab methods, sampling sites and sample size/ area must be defined for each zone based on the HACCP study which should specify critical points.

At a minimum, the clean equipment swabs should be taken after the microbiological control step where contamination could occur (e.g. heat treatment). If swabs are taken after sanitizing, proper buffer solutions must be used to prevent inaccurate results.

Individuals performing swabbing must receive proper training.

Clean Equipment Swab – Post Heat treatment – taken before sanitize:		Post Heat treatment – taken before sanitize		Post Heat treatment – taken after sanitize	
		Cfu / 100cm²	Cfu / 40in²	Cfu / 100cm²	Cfu / 40in²
APC	Target	<50	< 100	< 5	< 10
	Acceptable	<50	< 1000	< 50	< 100
Coliforms	Target	< 5	< 10	N/A	N/A
	Acceptable	< 50	< 100	< 5	< 10
Lactobacillus	Target	< 5	< 10	N/A	N/A
	Acceptable	< 50	< 100	< 5	< 10
Yeast Moulds	Target	< 5	< 10	N/A	N/A
	Acceptable	< 50	< 100	< 5	< 10

Meat products – others

		APC (aerobic plate count)		Coliform	
		Cfu / 100cm²	Cfu / 40in²		
Operational Swab	Good	< 100	< 1000	N/A	N/A
Brine	Good	< 1000 cfu / ml		Negative / 100ml	

VIII

Annex

Annex VIII

Formulas for Mass Balance Calculation

A. Tracing finished product backwards:

$$PR = \left[\frac{\Sigma A \text{ mass+waste recorded + expected process loss}}{\Sigma \text{ ingredients mass}} \right] x100$$

Where:
PR: product recovered %
A: product delivered to customers

When process does not allow the exact calculation from raw material, alternative formula can be used, as follows:

$$PR = \frac{\Sigma A \text{ mass}}{\text{Total mass produced in the specific batch/lot}} x100$$

Where:
PR: product recovered %
A: product delivered to customers

B. Tracing raw material forward:

$$\text{Ingredient located \%} = \left[\frac{\text{Ing mass in RM storage + Ing mass disposed of + Ing mass transferred to production*}^{1}}{\text{Mass Ing received}} \right] 100$$

$$\text{* 1: Ing mass transferred to production} = \frac{\text{\% of Ing in FP formula x FP mass}}{100} + \text{FP or inprocess waste}$$

+expected process loss

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