V. RESULT AND DISCUSSION

A company should have compliance management processes in place to ensure that various requirements are met and the impact of noncompliance is within a tolerable risk level. Company which creates a culture of compliance and risk management throughout the organization to emphasize the importance of compliance has a higher chance of success in compliance. Management can use an information system in the compliance management process for defining, collecting, reporting and monitoring compliance information.

As a leading company, Nestlé have done its compliance management process by establishing its internal instructions through all stages from the upstream, manufacturing and processing, to the distribution of the finished products. Nestlé Internal Instructions will be categorized according to upstream, manufacturing & processing, and consumer expectation & regulatory requirements of the finished products. All instructional parameters related to these standards along the handling and processing sequences are identified and described in the following observations. The instructional practices are referred to and benchmarked with the existing national and national standards/regulations.

A. Upstream
- GI-31.104-3 Vendor Approval Process
- GI-31.134 Hygiene & Food Safety Requirements for the Handling of Raw Materials Transported in bulk by Tankers
- GI-31.110-2 Nestlé Good Laboratory Practice
- GI-31.024 Food Safety Management System for Chemical Contaminants in Raw Materials and Finished Products

B. Manufacture
- GI-31-211 Nestlé Food Safety Management System
- GI-90.007-1 Product Compliance Management
- GI-31.100-2 Nestlé Good Manufacturing Practices (NGMP)
- GI-00.212 Requirements for Water used in R&D and Manufacturing Units
- GI-31.201-4 Standard for HACCP, pHACCP and Model HACCP Studies
- GI-31.006-4 Allergen Management Standard
- GI-31.341 Pathogen Monitoring Standard
- GI-00.232 Pathogen Monitoring in Factories Producing Low Moisture Products - General Principles
- GI-31.024 Food Safety Management System for Chemical Contaminants in Raw Materials and Finished Products
- GI-31.019 Management of Mycotoxins
- GI-00.211-4 Quality Monitoring Scheme
- GI-31.219 Model Quality Monitoring Scheme
- GI-00.321-3 Batch Code Marking and Open Dating of Finished Products
- GI-31.110-2 Nestlé Good Laboratory Practice
Shelf Life Management
- GI-90.551-2 Net Content Management
- GI-90.552-1 Net Content-Legislation and Target Net Content
- GI-90.553-1 Net Content-Monitoring
- GI-90.554-1 Net Content-Product Release

C. Consumer expectation and regulatory requirements
- Halal Policy
- Nestlé Standard for Label Texts Development

The compliance management process applied by Nestlé will be described in more detail in subsequent sections:

5.1 Upstream

Quality and safety requirements in food chains have become strict and rigid in food and feed industry. All industries need to ensure that all stages in the food chain are safe from the upstream to downstream. Outputs again are inputs for downstream businesses in the production chain. In the upstream businesses, the chain stretches out to as far as source inputs businesses (Van der Meulen BMJ 2011). According to Blankinship (2012), the upstream flow refers to the movement of a number of elements, such as material goods, to the supplier, that is, the source of the product supply chain. Downstream refers to movement in the direction of the customer, or even the consumer.

In order to comply with legal obligation, industries depend on how the product has been dealt with in the upstream chain. Therefore they need to ensure themselves with law instrument that legal and regulatory are being complied with, or to impose these regulatory on producers working in countries where different legal requirements apply, thus using private law to bridge the gap between different legal regulatory system. In food and feed industries, there are some legal regulatory which are related to upstream like ISO 22000. ISO 22000 is a standard developed by The International Organization for Standardization dealing with food safety. The ISO 22000 international standard specifies the requirements for a food safety management system that involves the interactive communication along the food chain. It is used to ensure that all relevant food safety hazards are identified and controlled enough at each step within the food chain. This includes communication between organizations both upstream and downstream in the food chain.

Nestlé has applied the ISO 22000:2005 for it’s food safety management system. This is to ensure that all stages in the food chain including the upstream to downstream are safe for human consumption. This Food Safety Management System is applied to all products under brand of Nestlé such as food, beverages, nutrition, health, wellness and petfood products.
5.1.1 Supplier Quality Assurance

Based on Electrolux (2007), Supplier Quality Assurance is the activity to interface with suppliers on quality matters. It is a confidence in a supplier’s ability to deliver a good or service that will satisfy the consumer’s needs. Each supplier should have a system to ensure the quality of goods produced. They must provide the instrument for guaranteeing that the product comply with the specifications defined. Before the company start producing with the ingredients or packaging from the supplier, the suppliers should be approved through Vendor Approval Process.

ISO 22000:2005 mentioned that the organization shall ensure food safety from raw materials, ingredients, and services. Ensuring the food safety from raw materials, ingredients, and services includes approving the suppliers used through Vendor Approval Process. The organization shall also establish an appropriate communicating with all personnel on issue having an impact of food safety (ISO 22000:2005). This is used to evaluate potential risks which can cause harm for human consumption.

Based on Nestlé Internal Instruction, The Vendor Approval Process is a cross-functional program. This aims to provide straightforward and consistent processes and rules to assure long-term sourcing and promote supplier development. Suppliers must be selected in order to ensure that the products safety, quality and traceability are in place for all raw materials sources. It also needs written specifications for raw materials sourced externally. If new sources from new suppliers are used, it must be qualified against the specifications. The suppliers should have scheduled validation testing to confirm they are maintaining specified quality and safety standards.

5.1.2 Transportation

Both raw materials and finished food or feed should be adequately protected during transport. All means of transport, whether owned or contracted, bulk or packed and by water, rail or land should be appropriately cleaned to control and minimize the risk of contamination. The most appropriate method of cleaning will depend on the nature of the loads being carried. As a general rule, load compartments should be kept dry and sweeping or vacuuming used wherever this is effective. It will be necessary to use a pressure washer or steam cleaner where wet or sticky materials are being carried. Vehicles used for the transport of medicated food and feed and other materials that present a high risk should be cleaned completely, sanitized and dried before they are used again. Compliance with the cleaning requirement should be checked regularly. Checks should be made that the previous loads carried in any transport are compatible with the subsequent load. All vehicles used for transport should be subject to regular cleaning and sanitizing programmes to ensure clean transport conditions and no accumulation of residual material.

5.1.2.1 Handling of Raw Materials Transported in Bulk by Tankers

Virtually all food, whether raw materials or finished product is transported by road on lorries, trailers or tankers. When transporting food, the main hygiene considerations depend on the need for
suitable temperature controlled transport. It also can depend on a trailer or bulk tanker if it is to be used. A bulk tanker is like a holding tank on wheels and the same care needs to be taken as for a stationary holding tank. It is used for transporting liquids or powders acts like the primary packaging, so needs to protect the food against contamination. Tankers are used for transporting chemicals, such as oil, and should not be used for transporting food, to avoid chemical contamination. A log book should be kept of the products that the tanker has been carrying, to prevent this happening by mistake.

Code of Hygiene Practices for the transport of food in bulk is set in CAC/RCP 47-2001. This code identifies additional requirements of food hygiene applicable to the Recommended International Code of Practice – General Principles of Food Hygiene (CAC/RCP 1-1969, Rev 3 (1997)) applicable to the condition of the food transportation unit and the loading, transport, in-transit storage and unloading of bulk and semi-packed foods to ensure that food remains safe and suitable for human consumption. It also covers the condition of the food transportation unit, loading, transport, in-transit storage and unloading of bulk, semi-packed foods and fresh products from the points of shipment to the points of receipt. Before being filled the tanker needs to be cleaned and disinfected. Like holding tanks, bulk tankers should be made from stainless steel or surface coated with food-grade epoxy resins. As a safety precaution against human pests, tamper proof seals should be used on bulk tanker seals and trailer doors. Tankers are normally used to transport covered food. Sometimes, exposed food, such as sides of meat, is also transported by tankers. The tankers should still be kept clean, even if the food is protected by packaging, otherwise dust or debris could coat food containers and contaminate the food when the containers are opened. If the tankers use inner surface materials, it must be suitable for direct contact with food. It should be non-toxic, or at least compatible with the transported food.

Nestlé has implemented the recommended international code for transportation based on Codex Alimentarius Commission at its sixth session in 1969 and CAC/RCP 47-2001. This is used to avoid food from potential sources of contamination, from damage likely to render the food unsuitable for consumption, and from an environment which effectively controls the growth of pathogenic or spoilage microorganisms and the production of toxins in food. These procedures can be applied before and after loading of transportation for transport suitability.

5.1.3 Raw Materials

Raw materials used for human consumption should be got from trusted food producers. The trusted food producers shall be evaluated through the Vendor Approval Process. Raw material used must not contain substances at a level that will exceed the maximum allowed contaminant level in the final product.

In Indonesia, food producers must comply with the European Union’s food regulation “from Farm to Fork”, which is based on a process-oriented system in which each business operator in the food chain is responsible for ensuring that food placed on the EU market meets the required food safety standards. At present, Indonesian small and medium size farmers are unable to provide reliable supplies to processors. In order to address this problem the Indonesian Ministry of Agriculture has developed a strategy to improve the agriculture sector in Indonesia. It focuses on increase of production quantity; reduction of losses due to non-conforming product; quality and safety of the food; and sustainability of supply (Lord M, Oktaviani R, and Ruehe E 2010).
Nestlé has applied European Union’s food regulation by applying Good Agricultural Practices (GAP). Good Agricultural Practices used to ensure that raw materials from producers do not make harm for consumers. Good Agriculture Practices should be applied in farming to avoid contamination arising from soil, water, fertilizer, plant protection and biocides.

5.1.3.1 Laboratory Analysis

All analytical methods used in the laboratory to analyze raw materials or ingredients shall be written and documented in procedures. The analytical methods shall be an updated methods based on accurate standards and regulations. The laboratory head shall be approved all analysis methods before they used to analyze raw materials or ingredients.

ISO 17025 General Requirements for the competence of testing and calibration laboratories is an International Standard established a sampling procedure for analyzing by laboratories. The requirements for competence for analysis in laboratory are specified by this standard. Laboratories use this ISO to implement a quality system. This aimed to improve the ability for producing valid results.

Nestlé has applied the basic requirements methods for analysis based on ISO 17025 in spite of raw materials have been got from the trusted suppliers, farmers, or producers who have applied Good Agricultural Practices. Raw materials still need to be checked and analyzed in order to prevent harm in next processing. The appropriate methods of analysis used can meet the needs of raw materials sufficient to support the production processes effectively and efficiently. After the result of analysis is established, only suitable raw materials and ingredients should be used.

5.1.4 Storage

Food and feed industry must understand the ingredients and the storage requirements. They shall take steps in order to ensure that appropriate food safety principles are followed for all ingredients under storage conditions. Appropriate storage conditions can avoid damage or contamination for food and feed.

Codex Alimentarius CAC/RCP 1-1969 Rev.4-2003 explains about adequate storage conditions of food, ingredients, and non-food chemicals. Food storage shall be designed and constructed in order to enable food to be effectively protected from contamination during storage, permit adequate maintenance and cleaning. In addition to apply the Codex Alimentarius, Good Warehousing Practices shall be applied in storage area. Storage areas for raw materials and finished products should be separated. This is addressed in order to prevent cross contamination. These facilities should be free of chemicals, fertilizers, pesticides and other potential contaminants. Raw materials which are approved and according to specifications, should be stored in suitable packaging materials or containers. Storage facilities should be designed and constructed to prevent the entry of pests. Storage areas should be cleared completely and cleaned on a routine basis.

Nestlé has applied requirements for storage based on CAC/RCP 1-1969 Rev.4-2003 and Good Warehousing Practices. Raw materials from suppliers are kept cool and dry to prevent mould growth. Temperature and humidity should be controlled where necessary. Stock control measures should be
adequate to ensure that raw materials deteriorate prior to use or during storage. In order to make sure raw materials do not expire before they are used, the First-to-Expand, First-Out policy known as FEFO, or the First In, First Out policy known as FIFO is also followed by Nestlé. The principal of these two policies is to always use the oldest stock first. Raw materials should be clearly marked with the date of expiration and stacked by the date so that the used of these materials are on top of or in front of the newer supplies. The raw materials are also ensured that they are not near or past their expiration date.

5.2 Manufacture

5.2.1 Good Manufacturing Practices

Good Manufacturing Practices (GMP) is part of quality assurance, but every function has responsibilities on it. It is a system which is used to ensure that products meet food safety, quality and legal requirements. GMP ensures that products are consistently produced and controlled to the quality standards appropriate to their intended use and as required by the marketing authorization (MA) or product specification. GMP is concerned with both production and quality control and it should be applied along the food chain.

The Recommended International Code of Practice General Principles of Good Manufacturing Practices is set on CAC/RCP 1-1969, Rev.4-2003 which covers about food hygiene. In addition to this standard, another Code of Practices on Good Animal Feeding is set on CAC/RCP 54-2004. Both of these standards have the same basic principle to ensure that all products meet the appropriate requirements for safety.

Nestlé has applied the CAC/RCP 1-1969, Rev.4-2003 for food hygiene and CAC/RCP 54-2004 for feed hygiene in manufacturing process. These standards cover establishment about design and facilities, control of operations such as water used for processing, maintenance and sanitation, and personnel hygiene. The requirements for these standards will be described in these following sections.

5.2.1.1 Air Quality, Temperature and Ventilation

In manufacturing process, airborne contamination of food and feed should be minimized from aerosols and condensation droplets. This should be minimized specially in open production systems. Temperature and humidity at the manufacturing process should be controlled because it may adversely affect the safety and suitability of food and feed. In order to prevent cross contamination of products, equipment or utensils from exhaust vents or air intake, heating and cooling or air conditioning systems should be designed and installed. The ventilation system should be provided, designed and constructed to prevent grease and condensation from collecting on walls and ceilings and ensure intakes draw only clean air. Ideally, ventilation system design should ensure that air flows from clean areas to contaminated areas.
5.2.1.2 Personnel

People in process area who are known or suspected to be suffering from or to be a carrier of a disease or illness should not be allowed to enter any process area if there is a likelihood of their contaminating food and feed products. Any person should be assigned suitable duties or sent home if they are suffering from illness. Food and feed handlers should maintain personal cleanliness and wear suitable protective clothing, head covering and safety footwear that have to be kept in a hygienic condition. Clothing should be designed to not only protect the personnel where necessary but also to avoid contamination of food and feed products by personnel. Controls also should be in place to ensure that flies do not get into the food and feed products where people wear it.

There should be clear rules on smoking and eating or drinking on site. Designated facilities should be provided away from areas where food and feed products are handled, stored or processed. Personal effects, such as items that might fall out of pockets and which may pose a threat to the safety and suitability of food and feed, should not be used and carried into areas where food and feed is stored, processed or handled.

In order to ensure that food and feed remain safe, good training is essential and should be documented. Those engaged in food and feed manufacturing and handling operations should be trained in food and feed hygiene as well as production protocols and handling of its products. All personnel should be aware of their roles and responsibilities in maintaining the safety. Training is done by the managers and supervisors who have the knowledge of food and feed hygiene principles. They also should be able to judge potential risks and take corrective actions.

5.2.1.3 Building

The layout of the building shall ensure a forward preparation or manufacturing process flow such that cross-contamination from earlier steps in the process is avoided in the later step. The layout of the building includes the floor, walls, ceilings, windows and doors used. The floor, walls, and doors of food and feed processing or service area shall be made of impervious, nonabsorbent, washable and non-toxic materials. The surfaces shall be maintained and shall be easy to clean and disinfect where necessary. Floors shall be sloped appropriately to facilitate adequate drainage and the drainage shall flow in a direction opposite to the direction of preparation or manufacturing process flow. The walls require a smooth surface up to a height appropriate for the operations. Wall surfaces shall be maintained in a sound condition and they shall be easy to clean and, where necessary, disinfect. Ceilings and overhead fixtures shall be designed, constructed, finished and maintained in order to prevent the accumulation of dirt, condensation and growth of undesirable molds. Windows and exhaust openings shall be constructed in order to prevent the accumulation of dirt. Windows shall remain closed and fixed during production where open windows would result in contamination of foodstuffs and feedstuffs.
5.2.1.4 Machine

All food and feed machines and equipments shall be such located, designed and fabricated that it permits adequate maintenance and cleaning, functions as per its intended use and facilitates good hygiene practices, including monitoring. All machines and equipment that come in contact with food or feed and used for food or feed handling, storage, preparation, processing, packaging and serving shall be made of materials, which do not impart any toxicity to the material. They also shall be specifically identifiable and suitably constructed if they used for waste, by products or dangerous.

5.2.1.5 Water

Any water coming into contact with food and feed products should be of potable quality. There should be an adequate supply of potable water with appropriate facilities for its storage, distribution and temperature control which specified in the latest edition of WHO guidelines for drinking water quality. Water quality is an important point in production process and the industry need to make sure the water quality. Non-potable water or water which is not used for processing should have a separate system. The systems should be identified and should not connect or allow reflux into, potable water systems. When water treatment chemicals used, it should be food compatible and be monitored and controlled in order to ensure the correct dosage is well used. Recirculated water should be treated, monitored and maintained as appropriate for its intended purpose when it used. It should also have a separate distribution system which is clearly identified and monitored.

In Indonesia, water quality should meet with the government regulation and standards. One of the standards released by Minister of Health Regulation No. 492/MENKES/PER/IV/2010 about Drinking Water Quality Policy, and the other one is based on National Indonesia Standard (SNI) No. 01-3553-2006 about Drinking Water in Package. These both standards have applied in Nestlé manufacturing process.

5.2.1.6 Waste

Food and feed industry shall have management for the removal and storage of waste. Waste from manufacturing process must not to be allowed to accumulate in processing, storage or other working areas. Waste and material those are not appropriate for food and feed have to be identified kept separate and removed.

Waste should be collected and stored in clearly identified containers. Containers used to hold waste should not be used for food or feed products. It used to store waste that is attractive to pests should be covered. Waste should be disposed of according to any applicable environmental regulations. The industry shall also have a waste management in case where waste is harmless or is unavoidable and have proper functioning of the business.
5.2.2 Hazard Analytical and Critical Control Points (HACCP)

HACCP is a management system in which food safety is addressed through the analysis and control of biological, chemical and physical hazards from the raw material to processing, distribution and consumption of the finished product (NACMCF 1997). It was developed nearly 30 years ago by the Pillsbury Company working together with the National Atmospheric and Space Agency (NASA) in USA, with the objective of finding a method to provide safe food for astronauts. The system focuses on preventing hazards that could cause food-borne illnesses, by applying controls to the production line, from raw material to the finished products (FDA 2001).

HACCP is a tool to assess hazards and to establish control systems that focus on prevention rather than relying on end-product testing. HACCP is needed in order to control any area or point in the food production system that could contribute to a hazardous situation, whether from contaminants, pathogenic micro-organisms, raw materials, a process, consumer use directions, the distribution system, or storage conditions. According to an article in *Tourismos: an International Multidisciplinary Journal of Tourism* (Georgakopoulos 2010), the Hazard Analysis portion of HACCP was intended to identify sensitive ingredients and sensitive areas in the processing of ingredients or food where critical points must be monitored to assure product safety. From this information, the Critical Control Points (CCPs) in the system that had to be monitored could be determined. Critical Control Points (CCPs) mean as those areas in the food production chain, from raw materials to finished product, where the loss of control could result in an unacceptable food safety risk.

ISO 22000:2005 defines more detail about preliminary steps to enable hazard analysis that must be carried out before implementation of HACCP. All the information needed about preliminary steps shall be collected, maintained, updated and documented. Nestlé follows Codex Alimentarius and ISO 22000 as a guide of HACCP that are carried out in 12 steps, with additional requirements for a quality management system. The twelve steps of HACCP study set up by Codex are:

1. Set up the HACCP team and define the scope
2. Product characteristic
3. Intended use of product
4. Flow diagram
5. Hazard Analysis and selection of control measures
6. Identify Critical Control Points and Operational Prerequisite Programmes
7. Establish limits for Critical Control Points and Operational Prerequisite Programmes
8. Establish a monitoring system
9. Establish corrective actions
10. Establish verification procedures
11. Establish documentation and record keeping
12. Validation of control measures

ISO 22000:2005 also defines seven HACCP principles:

1. Principle 1 - Conduct a hazard analysis.
2. Principle 2 - Determine the Critical Control Points (CCPs).
3. Principle 3 - Establish critical limit(s).
4. Principle 4 - Establish a system to monitor control of the CCP.
5. Principle 5 - Establish the corrective action to be taken when monitoring indicates that a particular CCP is not under control.
6. Principle 6 - Establish procedures for verification to confirm that the HACCP system is working effectively.
7. Principle 7 - Establish documentation concerning all procedures and records appropriate to these principles and their application.

Based Codex CAC/RCP 1-1969, rev.4-2003, the food industry shall control food hazards by undertaking the following steps:

a. Identifying any stages in their operations which are critical to the safety of food
b. Implementing effective control procedures at those stages to prevent or minimize hazards
c. Monitoring control procedures to ensure their continuing effectiveness and
d. Reviewing control procedures periodically, and whenever the operations change

The First Step relates to the process of hazard analysis (HACCP Principle 1) and determining Critical Control Points (HACCP Principle 2). The food hazards may be controlled by the implementation of the prerequisite food hygiene requirements in certain cases. In certain other cases, the hazard analysis may demonstrate that there are no hazards that need to be controlled. In such an event a formal hazard analysis and the development of HACCP procedures would become unnecessary. The second step relates to the process of establishing Critical Limits for identified Stages or Critical Control Points (HACCP Principle 3). The requirement of establishing a critical limit does not always imply that a numerical value must be fixed. This is in particular the case where monitoring procedures are based on visual observation. The third step relates to the processes of establishing monitoring system for identified stages or CCPs (HACCP Principle 4) and establishing corrective actions (HACCP principle 5) in case the norms get deviated. The fourth step relates to the processes of establishing verification procedures (HACCP Principle 6) for ensuring that HACCP system is working correctly and establishing documentation and record keeping (HACCP Principle 7) for demonstrating the effectiveness of HACCP implementation. The need for record keeping should be well balanced and limited to what is essential.

### 5.2.2.1 Hazard Identification

The followings are the identified hazards being controlled in the industry that relevant to Nestle's factories:

A. **Allergen**

Allergen and sensitive ingredient control program shall be developed and maintained because it may be able to cause harm for human. The effective program shall direct the facility in assessing where allergens and sensitive ingredients are received, stored, handled. The program shall also identify potential
avenues for cross-contamination. The program for allergen management is also a part of Food Safety Management System, which must be effective and fully addressed in HACCP studies.

The most common food allergens in European Union are listed in the current allergen labeling legislation which include cereals containing gluten – wheat, rye, barley, oats, spelt, kamut; crustaceans; egg; fish; peanuts; milk; nuts – Almond (Amygdalus communis L.), Hazelnut (Corylus avellana), Walnut (Juglans regia), Cashew (Anacardium occidentale), Pecan nut (Carya illinoensis (Wangenh.) K. Koch), Brazil nut (Bertholletia excelsa), Pistachio nut (Pistacia vera), Macadamia nut and Queensland nut (Macadamia ternifolia); soya; sesame; celery; mustard; and sulphur dioxide and sulphites. There are some international standards for gluten free products although currently there are no established legal standards for any residual levels of allergens in products labelled as ‘Free-from’ those allergens. The European Commission has produced a list of such derived ingredients that are exempt from the labeling requirements of Directive 2003/89/EC. This is to be found in Commission Directive 2005/26/EC.

Based on Nestlé Internal Instruction related to Allergen Management Standard, Nestlé has its own guidelines about allergen management instruction and practices. In addition has internal instruction related to allergen management, Nestlé has complied with European Union about the most common food allergens which are listed in the current allergen labeling. The most common food allergens shall be labeled in package for all Nestlé products unless the local legislation has another requirements.

B. Physical

Physical contaminants, for example from pests put forward a major threat to the safety and suitability of food and feed. Pest contaminants can occur where there are breeding sites and a supply of food. Another common source of physical contaminants in food processing are glass (light bulbs, glass containers, and glass food containers); metal (fragments from equipment such as splinters, blades, needles, utensils, staples); plastics (material used for packaging, fragments of utensils used for cleaning equipment); stones (incorporated in fields crops, such as peas and beans, during harvesting); wood (splinters from wood structures and wooden pallets used to store or transport ingredients or food products) and natural components of food (hard or sharp parts of a food such as shells in nut products) (Anonim 2012).

The food and feed industry shall have a documented pest control program which is designed to prevent pest activity within the facility and its surrounding area. The program shall include supporting documentation indicating trap and bait station locations along with chemical usage and storage. Good hygiene practices including good sanitation, inspection of incoming materials and good monitoring, should be employed to avoid creating an environment conducive to pests. In addition Good Hygiene Practices, Good Manufacturing Practices should be applied to prevent another physical contaminants.

In order to avoid pest contaminants, Nestlé has kept food and feed establishment in good repair and condition to prevent pest access and to eliminate potential breeding sites. Food and feed materials have stored in pest-proof containers and/or stacked above the ground and away from walls. In order to prevent another physical contaminants such as glass, metal, wood, etc., Nestlé has also applied standard for Good Manufacturing Practices through CAC/RCP 1-1969 Rev.4-2003.
C. Chemical

The HACCP concept for food safety requires control over hazardous materials and other materials in foods which would render them injurious to the human health. In the process of developing a food safety program or HACCP plan, it is important to include microbiological, physical and chemical contaminants. Chemical contaminants are most often associated with raw materials, ingredients and personnel practices. Chemical contaminants are more difficult to detect and exclude from a manufacturing process. The food safety plan must also include food allergens when considering chemical contaminants. It is necessary to consider the toxicology of the substance under review and the likelihood that it will be harmful to the consumers in evaluating chemical contaminants. In order to identify sensitive ingredients, raw materials packaging components or sanitation chemicals that may be agents in the transmission of chemical residues along the food chain, the risk assessment procedures used in the HACCP should also be applied.

Packaging materials may also represent a significant source of undesirable chemical contaminants. In order to determine compatibility with finished products, these packaging materials must be closely reviewed. The risk assessment and risk management of food safety must be extended to all forms of packaging, including metal cans, metal closures, flexible packaging, and corrugated packaging materials.

Mycotoxins are secondary fungal metabolites that contaminate agricultural commodities and can cause sickness or death in humans and animals. Mycotoxicoses are diseases caused by mycotoxins (Choudhary AK and Kumari P 2010). Mycotoxins can be acutely or chronically toxic or both depending on the kind of toxins and dose. In order to reduce the risk of mycotoxins contamination, it needs strategies to address the food safety and economic issues employ both preharvest and post harvest measures. Preharvest control includes good cultural practices, biocontrol and development of resistant varieties of crops through new biotechnologies. Post harvest measures, such as adequate storage, detection and decontamination or disposal as well as continuous monitoring of potential contamination during processing and marketing of agricultural commodities, have proved to be critical and indispensable in ensuring food and feed safety. The post harvest contamination is usually the result of preharvest presence of fungal contamination. Processed food cannot be safe if prevention, control, good manufacturing practices and quality control are not used at all stages of production. The Hazard Analysis and Critical Control Point (HACCP) approach to processing mycotoxins contaminated commodities should be considered.

The hazards associated with toxin must be managed through post harvest procedures, if the product is to be used for food and feed purposes even if the contamination occurs or persists after pre harvest phase. Storage and processing are the major areas where contamination can be prevented. Post harvest Good Storage Practice (GSP) applies to both storage and transport at Nestlé factories. Following harvest, storage and transport, moisture management becomes the key control measure in the prevention of mycotoxin formation on post harvest phase. Post harvest strategy on post harvest phase can include removal of damaged grain and drying of grain to the minimal moisture level, control of insect and rodent activity and maintenance of appropriate moisture levels and temperature, appropriate packaging, and also frequent cleaning of food/feed delivery systems and short term storage (Choudhary AK and Kumari P 2010).
Nestlé Management is strongly committed to applying the Codex Alimentarius HACCP Principles. All mycotoxins must be considered as potential hazards in the HACCP study of all susceptible products under brand of Nestlé. Nestlé has also established a few internal limits for mycotoxins in raw materials at risk based on Codex Alimentarius recommendations at a minimum. Codex Alimentarius Commission through its committee on Food Additives and Contaminants (CCFAC) and other relevant commodity Committee is considering the establishment of international guidelines for levels of mycotoxins in food. This is set on Codex Stand 193-1995, Codex General Standard for Contaminants and Toxins in Food and Feed. Since mycotoxins can occur both in raw products and finished products, this is necessary to have test of mycotoxins at various stages in food chain.

D. Microbiological

Microbiological contaminant, such like pathogens, can be transferred from one food to another. It is either by direct contact or by food handlers, contact surfaces or the air. In order to prevent these contaminants, raw materials and/or unprocessed food should be effectively separated, either physically or by time, from ready-to-eat foods, with effective intermediate cleaning and where appropriate disinfection. Access to processing areas may need to be restricted or controlled and should be only via a changing facility where risks are particularly high. Personnel may need to be required to put on clean protective clothing including footwear and wash their hands before entering. Surfaces, utensils, equipment, fixtures and fittings used, should be thoroughly cleaned and where necessary disinfected after raw food, particularly meat and poultry, has been handled or processed (Codex CAC/RCP 1-1969, Rev.4-2003).

According to the European Commission Regulation (EC) No. 852/2004 of the European Parliament and of the Council of 29 April 2004 on the hygiene of foodstuffs, the food industry has a duty to ensure that microorganisms are eliminated or minimized to the extent that they cannot cause harm to human health. European or national regulations are a legal requirement and compliance is mandatory. Microbiological criteria in the EU have been harmonized in Community legislation by the European Commission (EC) Regulation on microbiological criteria for foodstuffs No. 2073/2005 which came into force in January 2006. This supports the Regulation on the Hygiene of Foodstuffs, EC No. 852/2004, that also applies from January 2006, and the General Food Law Regulation, EC No. 178/2002, that came into force in February 2002, although certain key provisions applied only from January 2005. In addition, the Regulation laying down specific rules for food of animal origin, EC No. 853/2004, contains criteria for marine biotoxins, for live bivalve molluscs, and raw milk. The 24th Session of the Codex Committee on Nutrition and Foods for Special Dietary Uses (CCNFSDU) requested the CCFH to revise the Recommended International Code of Hygienic Practice for Foods for Infants and Children (CAC/RCP 21-1979) in order to address concerns with pathogens that may be present in infant formula, including *E. sakazakii* infections.
5.2.3 Quality Monitoring Scheme

Based on Nestlé Internal Instruction related to Quality Monitoring Scheme, Quality Monitoring Scheme takes the forms of quality control frameworks that sets out key indicators relating to products and its processes. It is used to confirm that the product is compliant with the laws and regulations or another standard. ISO 9001 describes Quality Monitoring Scheme as Quality Planning, the part of quality management focused on setting quality objectives and specifying necessary operational processes and related resources to fulfill the quality objectives.

ISO 9001 provides detail about Quality Monitoring Scheme as Quality Planning. Quality Planning results Quality Plan. This Quality Plan is procedures and associated resources which shall be supplied by whom and when to a specific project, product, process or contract.

Nestlé Quality Monitoring Scheme document is needed to access products, by whom, where, which method to be used. This has complied with Quality Planning described by ISO 9001. Nestlé Quality Monitoring Scheme is used in order to corrective actions can be taken when there are some problems with the products. The Nestlé Quality Monitoring Scheme is also used to ensure the products produced comply with regulations, laws, or another legal standards.

5.2.4 Batch Code and Traceability

The barcode or batch code on every package of finished product is an element for ensuring optimum and consistent traceability and stock status control along the supply chain. Batch code is also used for identifying consumer goods (Tomlin 2008). Based on Nestlé Internal Instruction, the batch code is an alphanumeric code, which together with the material number, identifies a batch of finished product. The batch code alone may not be sufficient to uniquely identify a material batch. All finished products must be associated with a batch code. To avoid ambiguous batch for identifying, a batch code is combined with a material number. The code is the key elements that enable the traceability of the material in extended supply chain. The batch code can be changed, but the change must be traceable. The quantity of leftover pre-printed material must be kept as small as possible when the batch code is pre-printed on the consumer or sales unit, wrapper or sticker before the actual filling and packaging. Each company must adopt a consistent and uniform procedure for printing the batch codes. They also must define the rules for each finished product and document the batch codes.

According to ISO 9000: 2000, traceability is defined as the ability to trace the history, application or location of that which is under consideration. In terms of products it relates to the origin of materials and parts, the processing history, and the distribution of the product after delivery (ISO 9000). In other words traceability means the ability to trace and follow a food through all stages of production and distribution (Tall 2001). Based on the European Council regulation (EC) 178/220, traceability means the ability to trace and follow a food, feed, food-producing animal or substance intended to be, or expected to be incorporated into a food or feed, through all stages of production, processing and distribution. In commercial practice, traceability includes details of what has happened to the food as well as the source of the raw materials and the recipient of the finished product.
Traceability should be established for food and any other substance intended to be, or expected to be, incorporated into a food, including all ingredients used in the preparation, manufacture or treatment of a food, including grain, gases, water or any other substance to be incorporated into a final product and veterinary drugs, plant protection products and fertilizers are not included in the scope, though other controls may apply under separate legislation relating to the traceability of such compounds (Etrace 2007). ISO 22000 described that the organization shall establish and apply a traceability system. The traceability program described by ISO 22000 identifies incoming material from the immediate suppliers to the distribution of finished products.

Nestlé has a product traceability program, complete with 24/7 emergency contact information, capable to effectively trace specific lots of ingredients (including bulk ingredients), packaging and finished products through shipping and distribution channels. This traceability program is based on ISO 22000 which also has the ability to trace ingredients or component product-in-process, carryover product and rework. Mock recalls shall be regularly conducted minimum of once a year to validate traceability program. Traceability program shall be documented and prepared for each mock recall describing the recall process and the results, with corrective actions addressing any discovered deficiencies.

5.2.5 Shelf Life and Expiry Date

Shelf life is how long foods, beverages, pharmaceutical drugs, chemicals, and many other perishable items are given before they are considered unsuitable for sale, use, or consumption. Gyesley (1991) describes shelf life as the recommendation of time that products can be stored, during which the defined quality of a specified proportion of the goods remains acceptable under expected or specified conditions of distribution, storage and display. Shelf life date is mostly used as guideline according to normal and expected handling and exposure to temperature. The expiry date does not guarantee the safety of a food or drug. It does not also guarantee that a product is not always dangerous or ineffective after the expiration date. Nestlé describes shelf life as the time period during which all quality, functional, safety and legal requirements of the batch can be guaranteed; the time period during which the batch of raw material, packaging material, rework and semi-finished product can be used for manufacture and packing of products; or the time during which the batch of finished product can be sold. The shelf life serves as a basis for Shelf Life Expiry Date calculation based on the production date. Process ensuring that all batches are associated with correct shelf life information is called shelf life management. Shelf life management ensures that all batches is managed appropriately to ensure timely consumption.

Codex regulates about shelf life on Codex Standard 1-1985, the General Standard for the Labeling of Prepackaged Foods. Shelf life is an informal term which is not used in the regulations of all countries. In Codex, the Date of Minimum Durability represents the end of a marketing life and is appropriately labeled “best before”. Labeling a food product with the date of minimum durability is required if the food is prepackaged.

All raw and packaging materials, semi-finished products and rework, and finished products in the Nestlé system must have a Shelf Life Expiry Date (SLED). Nestlé regulates its Shelf Life Expiry Date on the prepackaged foods based on Codex Standards 1-1985. All semi-finished products, rework, and finished products also have a production date which are based on Codex. The Shelf Life Expiry Date
information must be physically marked on the packaging or storage container, and must be consistent with the Shelf Life Expiry Date information in the corresponding batch record in the system.

5.2.6 Net Content

Every product under brand of Nestlé or not, which is sold to the market, must have the net quantity information on the label. The net quantity of contents (net quantity statement) is the statement on the label which provides the amount of food in the container or package. It must be mentioned in weight, measure or numeric count. Generally, if the food is solid, semi solid or viscous, it should be expressed in fluid measure (eg. fl oz). Food labels printed must show the net contents in both U.S. Customary System (ounces, pounds, fluid ounces) terms and metric (grams, kilograms, milliliters, liters). Controlling net content of food package has two goals. First, the food processing company must be able to evaluate performance. This is used to assure that production is within the governmental limits for net package content. The second is optimize overfill, which really means is to minimize it.

Federal regulations for net content of foods are covered by the U.S Department of Health and Human Services, Food and Drug Administration, and by the U.S Department of Agriculture Food Safety and Inspection Service. Alcoholic beverages are controlled by the U.S Department of the Treasury Bureau of Alcohol, Tobacco and Firearms. Nonfood consumer commodity net content regulations are covered by the Federal Trade Commission, and pesticides are under the jurisdiction of the Environmental Protection Agency. Legal reference of net content management in Indonesia is set up on Decree of the Minister of Industry and Trade of Republic of Indonesia No. 31/M-DAG/PER/10/2011. The type and the number of requirements per legislation vary from one country to another.

Nestlé has set up general requirements for net content based on Codex Stan 1-1985, General Standard for the Labeling of Prepackaged Foods. Net content shall be mentioned in packaged foods, for liquid, solid and semi solid foods. Nestlé has also applied the Decree of the Minister of Industry and Trade of Republic of Indonesia No. 31/M-DAG/PER/10/2011, regarding prepackaged goods. This regulation is applied to prepackaged goods that are produced in the country, imported packaged goods and domestically produced or imported goods or commodities which are prepackaged in Indonesia.

5.2.7 Laboratory and Analysis

Good Laboratory Practice or GLP refers to a quality system of management controls for research laboratories and organizations. Good Laboratory Practices is used to ensure the uniformity, consistency, reliability, reproducibility, quality, and integrity of chemical (including pharmaceuticals) non-clinical safety tests; from physio-chemical properties through acute to chronic toxicity tests. GLP is a quality system concerned with the organizational processing process and conditions under which non-clinical health and environmental safety studies are planned, performed, monitored, recorded, archived and reported.

ISO/IEC 17025 General requirements for the competence of testing and calibration laboratories is the main ISO standard used by testing and calibration laboratories. ISO/IEC 17025 applies directly to
organizations that produce testing and calibration results. ISO/IEC 17025 includes information about personnel, accommodation and environment conditions, methods, equipment, measurement, sampling and reporting results.

Nestlé has implemented GLP based on ISO/IEC 17025:2005 and it is mandatory for all laboratories of the Nestlé group. Nestlé uses these general requirements for developing its management system for quality. All laboratories and technical operations shall use ISO/IEC 17025 for confirming or recognizing the competence of their laboratories. ISO/IEC 17025 used by Nestlé as basic requirements for methodology, laboratory and equipment and personnel in laboratory.

5.2.7.1 Methodology

The laboratory shall use standards and procedures for all methods used in sampling, handling, transport, storage and preparation of items. All instructions, standards, and procedures should be ensured up to date and readily available. International, regional, or national instructions, standards and procedures shall be used.

If the laboratory use methods which not covered by standard, it shall include a clear specification of the customer and consumer’s requirements. The method not covered by standard shall have been validated before use. A new validation method should be carried out if some changes are made in the validated non-standard methods. The validation may include the procedures for sampling, handling and transportation. The results obtained from validation process shall be recorded and documented.

5.2.7.2 Laboratory and Equipment

The working areas in laboratory must support for testing and/or calibration, it is not limited to energy sources, lighting and environmental conditions, shall be such as to facilitate correct performance of the tests and/or calibrations. The laboratory shall ensure that the environmental conditions do not invalidate the results or adversely affect the required quality of any measurement. The laboratory areas must have stable temperature and relative humidity that are suitable for both the personnel and laboratory equipment. The temperature, relative humidity, biological sterility, dust, electromagnetic disturbances, radiation, electrical supply, and sound & vibration supply must be monitored to keep the environment stays on the general environmental conditions.

The laboratory shall be furnished with all items of sampling, measurement and test equipment required for the correct performance of the tests and/or calibrations including sampling, preparation of test and/or calibration items, processing and analysis of test and/or calibration data (ISO/IEC 17025: 2005). It shall ensure that the requirements of International Standard are carried out when the laboratory using equipment from outside. Equipment and its software used for testing, calibration and sampling shall be capable of achieving the accuracy required. It also shall comply with specifications relevant to the tests and/or calibrations concerned. Equipment shall be calibrated or checked to establish that it meets the laboratory's specification requirements and complies with the relevant standard specifications before being placed into service and before use.
5.2.7.3 Personnel

The laboratory shall specify the responsibility, authority and interrelationships of all personnel who manage, perform or verify work affecting the quality of the tests and/or calibrations. The responsibility, authority, and interrelationships of all personnel are mentioned in written documents or job descriptions. The laboratory must also have policies and procedures to ensure the protection of its customers' confidential information and proprietary rights, including procedures for protecting the electronic storage and transmission of results, and to avoid involvement in any activities that would diminish confidence in its competence, impartiality, judgment or operational integrity.

The management of laboratory shall ensure the competence of all personnel who work and operate specific equipment, calibrations, and evaluate results. Appropriate supervision shall be used and provided when using personnel who are under training program. If the management of laboratory uses personnel who performs specific task, they shall be first qualified. This qualification can be based on education, experience or training.

The laboratory shall use personnel who are employed by the laboratory or under contract to the laboratory. In case when additional technical or key support personnel are used, they should be supervised. They also shall work in accordance with the laboratory’s management system.

5.3 Consumer And Regulatory Requirement

Food chain industries increasingly face two types of specific constraints, consumer expectations and regulations. Regulations focus on food safety. It more focus on practices and standards, including the traceability and/or hazard analysis and critical control points (HACCP) for food and feed ingredients, and products. In parallel with regulation requirements, responses to consumer expectations also increasingly determine industry practices and standards.

Most available studies paradoxically suggest that a majority of consumers remain little aware or little interested in labels, while consumer organizations are increasingly vocal about obtaining detailed product information. On the other hand, consumer perception of food safety crises such as Bovine Spongiform Encephalopathy, dioxin, etc., in recent years has also resulted in lower risk tolerance or acceptance. A culture of zero risk is becoming more and more widespread. (Amerongen AV, Barug D, and Lauwaars M 2007).

In this section all related practices that relevant to the consumer’s concerned and needs are discussed that includes labeling, halal and other national requirements.

5.3.1 Labeling

Every product which is sold to the customer and consumer must have a label. Label means any tag, brand, mark, pictorial or other descriptive matter, written, printed, stenciled, marked, embossed or
impressed on, or attached to, a container of food (Codex Stan 1-1985). In addition, labeling also includes any written, printed or graphic matter that is present on the label, accompanies the food, or is displayed near the food, including that for the purpose of promoting its sale or disposal. Label provides information related to the safety of the consumer or purchaser.

All products under brand of Nestlé have label which comply with regulatory requirements (Codex Stan 1-1985), internal standards and policies. The product label must comply with each regulation required by the markets and the internal standards where the product is sold. According to the Nutrition Labeling and Education Act, all food labels at least must contain the following information:

- Common name of the product
- Name and address of the product’s manufacturer
- Net contents in terms of weight, measure or count
- Ingredient List – lists the ingredients in descending order of predominance and weight.
- Serving Sizes – each package must identify the size of a serving. The nutritional information given on the label is based on one serving of the food.
- Nutrition Facts – each package must identify the quantities of specified nutrients and food constituents for one serving.

Not all country use English as their language in the label, and Nestlé has its own regulations for product which is sold in another country which do not use English as main language. Multilingual labels for food and drug labels are necessary for countries which have another language. This has become a critical issue for corporations and the Food and Drug Administration. Regulation of food labels in the United States has four main purposes. First, the label gives the consumer nutritional information about the product, and the consumer can make decisions based upon dietary concerns. Second, the ingredient list on the label avoids the consumer to purchase products with unwanted ingredients, based on allergies, for example (Hutt PB and Merrill RA 1991). Third, regulations prevent labels from carrying misleading information. Fourth, warnings on food labels remind consumers to possible risks caused by the product. With the exception of the third purpose, these FDA labeling objectives are not met for consumers who cannot read English.

In Indonesia, standard for labeling is set on Government Regulation No.69/1999 on Label and Food Advertisement which also applied by Nestlé. Foreign languages in addition to the mandatory Indonesian language may be used. In general, foreign expressions are discouraged since they are seen as potentially misleading to a majority of the population. Some products need product specific requirements to prevent misleading for the consumer such as products derived from swine, sweetened condensed milk, alcoholic beverages, products with irradiated packaged food, products derived from genetic engineering, and product with specific regulated or prohibited claims.

Products derived from swine should have the words “MENGANDUNG BABI.” (Contains pork). This is written in red ‘universe medium corps 12’ font and enclosed in a red rectangle together with a drawing of a pig. Sweetened condensed milk should have the words “PERHATIKAN! TIDAK COCOK UNTUK BAYI.” (Beware! Not suitable for babies). This is written in Indonesian in red ‘universe medium corps 8” font and enclosed in a red rectangle.

Alcoholic beverages must have “MINUMAN BERALKOHOL”, DIBAWAH UMUR 21 TAHUN ATAU WANITA HAMIL DILARANG MINUM (Prohibited for use by people under 21 years or pregnant woman) on the label. Products with irradiated packaged food, must indicate the words
“RADURA: PANGAN IRADIASI” (Irradiated food), the reason for irradiation, the logo of irradiated food, name and address of the radiation facility, the month and year of irradiation, and the country in which the process was carried out. If the food cannot be re-irradiated, then the label should include the word: “TIDAK BOLEH DIRADIASI ULANG” (Not to be re-irradiated).

Food derived from genetic engineering must have “PANGAN REKAYASA GENETIKA” (Genetically Engineered Food) on the label. For processed foods containing genetically modified ingredients, identifying the genetically modified product in the ingredient list is sufficient. Processed food for infants, children below five, pregnant or breast feeding mothers, people on special diets, elders, and sufferers or certain diseases should be informed of the portion size, method of use and other necessary instructions, including the impact of the food on human health. There are some regulations related with the Genetically Modified Organisms (GMOs), such as Act Number 21 of 2004 concerning Cartagena Protocol on Biosafety to the Convention on Biological Diversity, Government Regulation No.21 of 2005 concerning Biosafety of Genetically Modified Product, and Decree of the Head of Drug and Food Control No HK 00.05.23.3541 of 2008 on the Guideline for Food Safety Assessment of Genetically Modified Products.

5.3.2 Halal

Halal food means that food which is safe, hygienic and not harmful to health. Food does not contain any component regarded as najis under Syariah or constituents which are not safe for consumption. This also refers to food which is free of any forbidden parts of animal origin according to the Islamic Law (Syariah). Halal does not cover only the religious aspects but it adheres to very strict quality and hygiene compliance which are in line with GMP (Good Manufacturing Practices), covers everything from farm to fork, or from raw materials to distribution of products. All raw materials have to fulfill the conditions of the Islamic Law according to the definition given by Codex.

All materials, equipment and utensils used in the preparation, handling, filling and packing of the food must be ensure that it do not come into contact with pork and alcohol. It must be a clear separation between Halal lines and lines manufacturing products containing pork or alcohol. Production lines for Halal products cannot be used for the manufacture of products containing pork meat and alcohol. Halal and non-Halal covers all sides of Muslim life, not limited to foods and drinks only. Halal and Tayibb themselves portray the symbol of intolerance in hygiene, safety and quality.

In order to meet the Halal requirement, Nestlé are encouraged to adapt and maintain standards which meet global benchmarks such as ISO 9000, Codex Alimentarius, Quality Assurance, HACCP, Good Hygienic Practice (GHP), and its internal instructions. ISO 9000 is a suitable management standard to be bases as management system for food production (Manning L and Baines RN 2004). In Indonesia, list of approval halal certifying bodies is regulated by The Indonesian Council of Ulama (MUI). As a leading Nutrition, Health and Wellness company, Nestlé has always been at the forefront of the Halal food and beverage industry in Indonesia. Nestlé’s interest in Halal was borne out of social responsibility and
respect for its Muslim employees and consumers. The Nestlé Halal Policy must clearly state that all food and beverage products which are produced, marketed, imported and distributed by Nestlé Indonesia must be certified Halal by the relevant authorized bodies. Producers, imports and distributes only products that have been certified Halal by authorized Islamic certification bodies. All food processing and preparation facilities in the exporting and importing markets have to be submitted to an official certification.

5.3.3 Other Regulatory Requirement

Consumer need more detail about products information in addition to labeling requirement and Halal Certificate. In Indonesia, there are some regulatory authorities that provide further requirements about products information and consumer expectation. National Agency of Drugs and Food Control or BPOM (Badan Pengawas Obat dan Makanan), regulated package food for retail and further processed foods including food additive and processing aids. Products standardization is regulated by National Standardization Agency or BSN (Badan Standardisasi Nasional). Regulation about fresh fruit and vegetable is set by Agency for Agricultural Quarantine or Department Pertanian.

In addition some regulatory authorities, there are three organizations providing supporting services to the food industry: Gabungan Pengusaha Makanan dan Minuman Seluruh Indonesia (GAPMMI); Ministry of Industry (MOI); and Balai Besar Industri Agro (BBIA-MOI). In order to create a conducive business climate for the food and beverage industry, GAPMMI promotes Indonesian food business. It seeks to strengthen its members’ competence in the field of food safety, processing, health and nutrition. GAPMMI also acts as a spokesman for the food industry before the Indonesian Government.

5.4 Resume of Compliance of Internal Instructions

After identifying and mapping all the instructional practices in Nestlé followed by analyzing the gap with the relevant national and international standards/regulations, a brief status compliance of Nestlé internal instructions is explained on the below table:

<table>
<thead>
<tr>
<th>Nestlé internal instructions</th>
<th>Standard or Regulatory Requirements</th>
<th>Indonesian Council of Ulema</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ISO</td>
<td>Codex Alimentarius</td>
<td>EFSA</td>
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<tr>
<td>Upstream Supplier Quality Assurance</td>
<td>√</td>
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<tr>
<td>Transportation</td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>Requirement</td>
<td>Compliance Mark</td>
<td>Notes</td>
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<td></td>
</tr>
<tr>
<td>Raw Materials</td>
<td>✓</td>
<td>Nestlé has complied with ISO 22000, ISO 17025, and GAP. Nestlé standard is also stricter and higher.</td>
<td></td>
</tr>
<tr>
<td>Storage</td>
<td>✓</td>
<td>Nestlé has complied with ISO 22000, CAC/RCP 1-1969 Rev.4 2003 and GWP.</td>
<td></td>
</tr>
<tr>
<td>Manufacture</td>
<td></td>
<td>Nestlé has complied with ISO 22000, CAC/RCP 1-1969 Rev.4 2003, and EU standard for hazard identification. Nestlé standard is also stricter and higher for hazard identification.</td>
<td></td>
</tr>
<tr>
<td>Quality Monitoring Scheme</td>
<td>✓</td>
<td>Nestlé has complied with ISO 9001</td>
<td></td>
</tr>
<tr>
<td>Batch Code and Traceability</td>
<td>✓</td>
<td>Nestlé has complied with ISO 22000 and EC 178/220</td>
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<tr>
<td>Shelf Life</td>
<td>✓</td>
<td>Nestlé has complied with Codex Standards 1-</td>
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<tr>
<td>Category</td>
<td>Status</td>
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<td>-------------------------------------------</td>
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<td></td>
<td></td>
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<tr>
<td>Net Content</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laboratory Analysis</td>
<td>✓</td>
<td></td>
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<tr>
<td>Consumer and Halal Policy</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Labeling</td>
<td>✓</td>
<td></td>
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</tbody>
</table>

1985
Nestlé has complied with Codex Standards 1-1985 and Decree of the Minister of Industry and Trade of Republic of Indonesia No. 31/M-DAG/PER/10/2011

Nestlé has complied with ISO/IEC 17025:2005

Nestlé has complied with ISO 9000, Codex Alimentarius, NA-DFC, Indonesian Council of Ulema, GMP, and GHP. Nestlé standard is also stricter and higher for products distributed in Muslim country.

It is very interesting to note that the majority of the compliance mostly based on the international standards and or regulations and there are not too many national regulations are available to be used as reference. This is understandable where as the member of the Codex Alimentarius Commission, Indonesia also follow and adopted most standards established by Codex, therefore when the internal instruction complied with international standards supposedly it also complied with national standards as well. It is also noted that as a country with moslem as majority, consumer’s requirements for having halal products is highly considered by Nestle.