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ESWATINI NATIONAL STANDARD

GENERAL REQUIREMENTS FOR PROCESSED MEAT PRODUCTS

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Table of changes

Clause Changed	Date	Change

NATIONAL FOREWORD

This Eswatini National Public Review Draft Standard was prepared by Technical Committee *SWASA/TC 31 Meat and meat products in* accordance with procedures of the Eswatini Standards Authority, in compliance with Annex 3 of the WTO/TBT Agreement.

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GENERAL REQUIREMENTS FOR PROCESSED MEAT

1. Scope

This standard specifies the general requirements for the handling, preparation, processing, packaging, refrigeration, transportation and storage of processed meat products, and includes microbiological and compositional requirements.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated, references, the latest edition of the referenced document (including any amendments) applies.

AOAC official method 960.39, Fat (crude) or ether extract in meat.
SZNS SANS 241-1, Drinking water – Part 1: Microbiological, physical, aesthetic and chemical determinands.
ISO 4833-1, Microbiology of the food chain – Horizontal method for the enumeration of microorganisms – Part 1: Colony count at 30 °C by the pour plate technique.
ISO 4833-2, Microbiology of the food chain – Horizontal method for the enumeration of microorganisms – Part 2: Colony count at 30 °C by the surface plating technique.
ISO 5761, Examination for the presence of viable spores of mesophilic *Clostridium* organisms in foods.
SANS 885 Processed meat products
SANS 5763, Efficacy of cleaning plant, equipment and utensils: swab technique.
SANS 6317, Methods of chemical analysis of meat and fish products.
SANS 6579, Microbiology of food and animal feeding stuffs – Horizontal method for the detection of *Salmonella spp. S*
ISO 6888-1, Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of coagulase-positive *staphylococci* (*Staphylococcus aureus* and other species) – Part 1: Technique using Baird-Parker agar medium.
ISO 6888-2, Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species) – Part 2: Technique using rabbit plasma fibrinogen agar medium.
ISO 7937, Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of Clostridium perfringens – Colony-count technique.
ISO 11290-1, Microbiology of food and animal feeding stuffs – Horizontal method for the detection and enumeration of Listeria monocytogenes – Part 1: Detection method.
ISO 11290-2, Microbiology of food and animal feeding stuffs – Horizontal method for the detection and enumeration of Listeria monocytogenes – Part 2: Enumeration method.
ISO 16649-1, Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of beta-glucuronidase-positive Escherichia coli – Part 1: Colony-count technique at 44 °C using membranes and 5-bromo-4-chloro-3-indolyl beta-D-glucuronide.
ISO 16649-2, Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of beta-glucuronidase-positive Escherichia coli – Part 2: Colony-count technique at 44 °C using 5-bromo-4-chloro-3-indolyl beta-D-glucuronide.

3 Definitions

For the purposes of this document, the following definitions apply.

3.1 acceptable

adequate appropriate suitable acceptable to the authority administering this standard, or to the parties concluding the purchase contract, or to parties implementing this standard, as relevant

3.2 actual lean meat
percentage mass percentage of nitrogen represented by subtracting the nitrogen contribution from non-meat proteinaceous material present in the product, from the total percentage nitrogen analyzed, multiplied by a factor of 30

3.3 actual total meat content
percentage actual total meat percentage lean meat percentage (including mechanically recovered meat, except where the latter is specifically excluded), plus fat percentage

3.4 ambient temperature
not less than 10 °C and not higher than 25 °C

3.5 batter liquid
preparation from water, ground cereals with or without spices, salt, sugar, starch and other ingredients or additives (or both)

3.6 breading
dry breadcrumbs or other dry preparations, coarse or fine (mainly from cereals with colorants) that are used for the coating of meat products

3.7 by-product
product not intended for human consumption

3.8 cleaning
actions dealing with the removal of soil, food residue, dirt, grease and other objectionable matter

3.9 chilled storage
temperature of −1 °C to 7 °C of which the maximum core temperature is 7 °C

3.10 chiller
insulated and refrigerated room that is specifically designed for the storage of foods at temperatures not lower than −1 °C and not higher than 7 °C that has sufficient refrigeration capacity to maintain the desired storage temperature, and that also has sufficient refrigeration capacity to ensure that products placed in the chiller are cooled to that temperature

3.11 coated product
product of which the surface has been covered with a pre-dust, batter or breading (or any combination thereof)

3.12 comminuted product
product comprising of meat pieces that have been reduced in size by either mincing, grinding, chopping, flaking, dicing or emulsifying, with or without other ingredients, which is then either filled into a casing, formed into a mould or preformed

3.13 contamination
occurrence of any undesirable matter in food or in the food environment from a contaminating source which can be physical, chemical, biological or allergenic

3.14 cured product
product with added curing agents (for example, nitrites or nitrates)

3.15 disinfectant
chemical agent that kills most vegetative forms of pathogenic and other micro organisms (but not necessarily all bacteria and fungal spores, mycobacteria, rickettsiae, or viruses) on inanimate surfaces

3.16 edible offal in the case of
a) food animals other than poultry: blood, blood plasma, brain, cow-heels, diaphragm, gut (casings), washed head, kidneys, omentum, pancreas, pluck (oesophagus, trachea, lungs, heart, pericardium, associated lymph nodes, pillars of the diaphragm and liver or part thereof (without the gall bladder)), spleen, tail, thymus, tongue, cleaned tripe, trotters and udder (in the case of a heifer)

b) poultry, giblets (the heart, the clean and stripped gizzard, the liver without the gall bladder)

NOTE 1 Where natural casings are used, it is not necessary to declare unless specific claims such as Halaal are made

NOTE 2 For more information on inedible offal, see 3.28.

3.17 factory processing
facilities premises in which meat (see 3.30) or meat product (see 3.43) is handled or treated to process further for commercial purposes

NOTE This definition excludes shops, hotels, boarding houses, restaurants or other eating establishments.

3.18 fat edible
lipids from animal or plant origin, or combinations thereof

3.19 fermentation
conversion of carbohydrates to organic acids (lactic acid) using micro-organisms, under controlled conditions

3.20 fermented product
product that has been processed through the fermentation process and in addition, might have undergone a process of air drying and be smoked or unsmoked

3.21 formed product
product that has been preformed (see 3.41) or reformed (see 3.46)

3.22 freezer
room or equipment that is specially designed to lower the temperature of a food product through the zone of maximum crystallization and down to an equilibrium temperature of −18 °C in a period of time that is acceptable for the product

3.23 freezer storage
insulated room that is specially designed for the storage of frozen foods, and that has sufficient freezing capacity to maintain a core product temperature of −18 °C when products that have already been frozen to that temperature are being stored

3.24 freezing
process continuous process whereby the temperature of the product is lowered through the zone of maximum crystallization (for most products this is between −1 °C and −5 °C), at a rate of at least 6 mm of product thickness per hour, and that is only completed when the temperature of the entire product, after thermal stabilization, has reached −18 °C or lower

3.25 frozen product
product (see 3.43), cooked or uncooked, that has undergone a freezing process (see 3.24) and has been preserved by storage in the frozen state to a core temperature of −18 °C or lower

3.26 heat treated product
product that has been subjected to a heat treatment which results in a core temperature of at least 72 °C during processing, for the appropriate time, or equivalent process

NOTE Validations should be produced to show that food safety parameters have been achieved.

3.27 heat treatment controlled
process whereby the core and surface temperature, or both, of a product, is increased to temperatures higher than 72 °C 3.28 inedible offal in the case of
a) food animals other than poultry: with the exception of bone, it means all parts of the animal not covered by the definitions of edible offal and meat (see 3.16 and 3.30)

b) poultry: the trachea, lungs, crop, gall bladder, and oviducts

3.29 lean meat equivalent
percentage LME % percentage protein nitrogen multiplied by a factor of 30 (LME % = percentage protein × 4,8 % Protein = Protein N % × 6,25)

NOTE 1 LME % is expressed as a percentage of the product mass as offered for sale.

NOTE 2 The percentage protein nitrogen content may be from a plant or animal source, or both.

3.30 meat sound
skeletal musculature (excluding the musculature of the lips, snout, scalp and ears), of healthy food animals, with or without connective tissue, blood vessels, lymphatic and nerve tissue, bone, fat, cartilage, pork rinds, and defeathered skin (poultry) that are naturally associated with such musculature in situ in the dressed carcass and head and should be qualified by species

3.31 mechanically recovered meat MRM
mechanically separated meat mechanically deboned meat pulped material consisting predominantly of muscular tissue, collagen, marrow and fat recovered by a process whereby bone and meat are mechanically separated

NOTE 1 MRM is synonymous with MSM (mechanically separated meat), MDM (mechanically deboned meat) and MBM (mechanically boned meat).

NOTE 2 MRM is included in "meat" as defined with the provision that where MRM is used it should be declared in the relevant order in the list of ingredients, should be qualified by species MRM and should have a maximum calcium content not exceeding 1,5 %, based on dry matter.

NOTE 3 MRM should not be abbreviated on the packaging.

3.32 name of the product
product name word or words giving a true description of the nature of the food product concerned, sufficiently precise to avoid misleading or confusing the consumer with regard to the true nature, physical condition, type of packing medium, style, condition, content and type of treatment it has undergone and to enable such product to be distinguished from products with which it could be confused with and, if necessary, including a description of the product where the name of a food is not self-evident or self-explanatory

3.33 no or partial heat treated product
processed meat product that has undergone no or partial heat treatment (see 3.34)

3.34 no or partial heat treatment
processing of any processed meat product which is either heated to a core temperature of below 72 °C or unheated

3.35 outer container
box, carton or case into which packages of meat products (with or without wrappers) are packed for storage or distribution

3.36 partial heat treated
product processed meat product that has undergone partial heat treatment (see 3.37)

3.37 partial heat treatment
processing of any processed meat product to a core temperature of below 72 °C

3.38 fat percentage
percentage solvent extractable fat

3.39 percentage protein
percentage protein nitrogen multiplied by 6,25

3.40 pre-dust
blend of finely ground breadcrumbs or other dry preparations (mainly from cereals) with other ingredients that is used as the first coating layer to improve breading adhesion

3.41 preformed product
meat mixture which has been shaped or formed by mechanical or manual means into shapes resembling drumsticks, schnitzels or any other suitable shape

3.42 processed meat
meat that has undergone any action that substantially altered its original state (including, but not limited to, heating, smoking, curing, fermenting, maturing, drying, marinating (surface application), extraction or extrusion or any combination of all these processes)

3.43 product
meat intended for human consumption, which is in the course of handling, preparation, processing, packaging or storage indicated by the context of this standard

3.44 production
handling, preparation, processing, or packaging of product for heating, drying, chilling or freezing (or a combination thereof) in the course of being or having been heated, dried, chilled or frozen, including the process of suitable storage, as indicated by the context of this standard

3.45 ready-to-eat meat product
RTE meat product food which is normally consumed without further processing

3.46 reformed product
processed meat product of which the individual visible meat pieces are no smaller than 13 mm, with or without the addition of finely comminuted meat and other permitted ingredients, of which the soluble proteins bind the meat pieces together and upon cutting, has the typical appearance of meat muscle

3.47 suitable corrosion-resistant
material impermeable material that has smooth surfaces (free from pits, crevices and scale), that is non- toxic, is unaffected by ice and any other substance with which it is likely to come into contact, and is capable of withstanding exposure to repeated cleaning, including the use of detergents

3.48 total meat protein equivalent
TME lean meat equivalent plus any fat or edible oils, edible offal or combination thereof, expressed as a percentage of the product mass as offered for sale

3.49 uncured product
product the processing of which does not include curing agents (for example, nitrites or nitrates)

3.50 whole muscle products
processed meat product with the whole muscle still intact and which might have been subjected to a process resulting in protein extraction and might, in addition, have been placed into a mould to shape the product

NOTE Whole muscle processed meat products can contain bone, rind, show pieces, batter or crumbs, or not, and can be smoked or unsmoked, as well as cured or uncured.

4 Requirements for the factory or processing facility

4.1 General

4.1.1 All the factory or processing facility requirements contained in the relevant national legislation shall be complied with.

4.1.2 Management shall have documented methods and procedures, based on the requirements of 4.2 that can prove that an acceptable product safety management system has been implemented and maintained.

4.1.3 The factory and equipment used in the preparation of the product shall comply with the requirements given in 4.2 to 4.4, inclusive.

4.1.4 The employees engaged in the preparation and processing of the product shall comply with the requirements given in 4.5.

4.1.5 Where a part of the preparation of a product for packaging is done at a factory other than the packaging factory, the other factory concerned and its employees shall also comply with the requirements of 4.1 to 4.5, inclusive.

4.2 Factory construction, layout and conditions

4.2.1 Location, size, hygienic design and conditions

4.2.1.1 The location of the factory shall be such that the buildings can be kept acceptably free from objectionable odours, smoke, dust and other sources of contamination, in order to comply with the relevant national legislation (see foreword) for hygiene and sanitation.

4.2.1.2 The factory and equipment shall be so designed and arranged as to permit the following:
a) an orderly, uninterrupted flow of production without any cross flows that could have an adverse effect on the quality and safety of the product;
b) the processing of raw materials without undue delay;

c) proper maintenance of hygiene; and
d) facilities to carry out functions such as quality control and process control.

4.2.1.3 The factory buildings shall be so designed and constructed as to prevent the entry and harbouring of insects, birds, rodents and other vermin.

4.2.1.4 The buildings shall be of sound construction, in good repair and large enough to prevent crowding of equipment and employees, and to permit adequate cleaning and the maintenance of product quality, safety and hygiene.

4.2.1.5 The factory premises shall be graded, well drained and adequately fenced to keep out larger animals such as cats and dogs, as well as unauthorized persons and vehicles.

4.2.2 Roofs and ceilings
4.2.2.1 The roof shall be weatherproof and made of non-absorbent material and shall be well maintained to prevent contamination of the product and ingredients, and to prevent other structures from becoming damp.

4.2.2.2 Roofs and, where applicable, ceilings, shall fit tightly to the walls and shall be faced with a suitable corrosion-resistant, light-coloured and impermeable material that is so constructed and finished as to minimize condensation, mould development, flaking of paint and the lodgement and accumulation of dirt, and shall be capable of being cleaned without damage.

4.2.2.3 Areas where unprotected processed meat and meat products are handled, or where ingredients and packaging materials are stored, shall have a ceiling.

4.2.3 Walls, windows and doors
4.2.3.1 Outer walls shall be weatherproof and impermeable to water.

4.2.3.2 All interior wall surfaces shall be faced with a smooth, light-coloured material that is washable, water-impermeable and impact-resistant to a height of 2 m above the floor. However, if soiling of the walls can occur above this height, then the facing shall be continued to a higher level.

4.2.3.3 All ledges on the inside of the walls and all windowsills shall be sloped towards the floor.

4.2.3.4 Wall-to-wall and wall-to-floor junctions in production areas shall be closed, curved and covered.

4.2.3.5 Doors and door frames shall be sheathed with, or made from, a suitable corrosion-resistant material and shall have a smooth, seamless, light-coloured, water-impermeable and readily cleanable surface. If wood is used, it shall be sheathed to render it impermeable to water.

4.2.3.6 Doors through which the product is moved between the preparation, processing and packaging areas shall be wide enough to prevent contamination of the product and damage to the doors.

4.2.3.7 All doors that open directly from the outside into the preparation, processing and packaging areas shall be provided with effective air screens or shall, as far as is practicable, be self-closing and tight-fitting. Freezers, chillers and freezer storage room doors shall be tight-fitting.

4.2.4 Floors and drainage
4.2.4.1 Floors shall be constructed of concrete or any other material that is water-impermeable, corrosion-resistant and easy to clean, and shall be of an even surface that is smooth but not slippery, and free from cracks, crevices and open joints.

4.2.4.2 Floors in the preparation, processing and packaging areas and in freezers, chillers and freezer storage rooms shall be suitably sloped and shall drain into external gullies, sumps and sewers. Each outlet shall have, immediately outside the factory walls, a trap that prevents the entry of rodents.

4.2.4.3 Drainage channels shall be of the open type with, where necessary, removable covers, and shall be designed to cope with the maximum expected flow of liquid without overflowing or causing flooding.

4.2.4.4 There shall be no installations in a drainage channel that could obstruct the flow of water or the activities of cleaning. Gully traps shall be fitted with easily removable strainers.

4.2.5 Lift cages and staircases

4.2.5.1 Lift cages shall have a corrosion-resistant inside surface that is smooth, easy to clean and is water-impermeable, and the floor shall be properly drained. Mesh doors may be used, provided that they are not conducive to unhygienic conditions.

4.2.5.2 Staircases in rooms where the product is handled, prepared, processed or packaged shall have solid risers, and shall be provided with closed balustrades of a height that will prevent contamination of products underneath the stairs.

4.2.6 Cables and pipes

4.2.6.1 Cables and pipes shall, where applicable, be
a) fixed above ceilings,
b) chased into walls,
c) carried under floors, or
d) fixed away from walls or ceilings and above the floor, and spaced in such a manner that the ceilings, walls, floor, cables and pipes can be easily cleaned and maintained in a hygienic condition.

4.2.6.2 Drainage and sewer pipes shall not be installed above ceilings in the preparation, processing or packaging areas, nor shall they be installed in such a way that accidental leakages could contaminate the product. The drainage and sewer pipes shall be properly vented to the outside.

4.2.7 Illumination

4.2.7.1 An illuminance of at least 220 lux is required for general operations, while at least 540 lux is required at points where close examination of the product is carried out.

4.2.7.2 Artificial illumination, if used, shall be such that the colour of the product is not altered.

4.2.7.3 Luminaires suspended over the production areas shall be of the safety type or otherwise so protected as to prevent contamination of the product in the event of breakage of a luminaire or lamp.

4.2.8 Ventilation

4.2.8.1 The ventilation shall keep the air fresh and remove excess water vapour, and shall prevent the build-up of excessive heat, the formation of condensate and the growth of mould. Natural ventilation shall be augmented, where necessary, by mechanical means.

4.2.8.2 The air shall be free from noxious fumes, vapours, dust and contaminating aerosols. The airflow shall be from the more hygienic to the less hygienic areas of the factory.

4.2.8.3 Windows that open for ventilation purposes shall be insect-screened. The screens shall be easily removable for cleaning, and shall be made of a suitable corrosion-resistant material and kept in good repair.

4.2.9 Hand-washing facilities

4.2.9.1 The following shall be provided at entrances to the preparation and processing areas of the factory used by the employees, at other conveniently situated places within easy reach of the employees, and at toilet exits:

a) an acceptable number of hand-wash basins with an abundant supply of warm potable running water, in the temperature range 35 °C to 45 °C, that complies with the requirements of 4.4.2.1;

b) a sufficient supply of unscented liquid soap or food grade hand cleaning detergent and where required, to dry hands, single-use disposable paper towels; and

c) taps operated by means other than the hands or elbows (for example, knee-operated or foot operated taps).

4.2.9.2 Hand-washing facilities shall, at all times, be unobstructed by equipment and operating activities. Hand-wash basins shall be of a suitable corrosion-resistant water-impermeable material, shall have a smooth finish, be easy to clean, and shall drain directly into sewer lines.

4.2.9.3 Disinfectant hand dips, where provided, shall be of such design that they can be adequately cleaned.

4.2.10 Footbaths

4.2.10.1 Unless their absence in particular circumstances is acceptable, or unless alternative acceptable facilities for cleaning and disinfection are provided, footbaths that contain a suitable disinfectant solution shall be provided at each entrance to the preparation, processing and packaging area that is used by employees, and shall be so located that employees cannot obtain access to those areas without disinfecting their footwear.

4.2.10.2 Footbaths shall be so constructed that they can be adequately drained and cleaned.

Note
The depth should be +/- 15cm deep.

4.2.11 Separation of processes and facilities

Separate rooms or well-defined areas of acceptable size shall be provided for:

a) the receipt and storage of raw materials,

b) preparatory operations of the product,

c) processing operations of the product,

d) food handling and processing operations,

e) packaging, and

f) the storage of the final product.

4.2.12 Preparation and processing areas

4.2.12.1 Preparation and processing areas shall not be used for any purposes other than that for which they have been be designed.

These areas shall be designed, constructed, and staffed and the equipment shall be arranged in such a manner as to permit ;
a) the control of access,

b) proper supervision,

c) the free movement of workers for the performance of all operations, easy and adequate cleaning and proper maintenance of hygiene and hygienic operations, as well as to facilitate the free movement and cleaning of movable equipment,

d) the physical separation of the preparation and processing areas from any storage and designated cleaning areas, i.e. workshops and comfort areas shall be completely separated from preparation, processing and storage areas; and

e) the minimization of the risk of contamination of the product.

4.2.12.2 The deboning of red meat or poultry carcasses and the cutting up and preparation of meat shall, except where the nature of the process makes it impossible, be performed in work areas with a temperature that does not exceed 12 °C.

4.2.12.3 Areas where raw food is being handled shall be separated from areas where cooked food is being handled.

4.2.13 Storage facilities

4.2.13.1 General
The production areas of the factory shall not be used for storage purposes.

4.2.13.2 Storage facilities for edible ingredients

4.2.13.2.1 Storage facilities for edible ingredients that are used in the preparation of the product shall be dry, free from dust and any other source of contamination, and shall be vermin proof.

4.2.13.2.2 Edible ingredients shall be stored in closed containers and away from the floor and the walls.
4.2.13.3 Storage facilities for packing and packaging materials clean, dustproof, vermin proof and dry storerooms shall be provided for the storage of packing and packaging materials.

4.2.13.4 Storage facilities for pesticides and other harmful substances Pesticides and other poisonous or harmful substances, and the equipment for their application, shall be stored in a room or cupboard in which no foodstuff, food-handling equipment, packaging materials or food containers are stored, and shall be kept locked.

These substances shall at all times be segregated from edible materials. All these substances shall be prominently and distinctly labelled with a warning about their toxicity and use, and shall at no time come into contact with food containers, packaging materials, raw materials or the product.

4.2.13.5 Storage facilities for substances used for cleaning and disinfection Substances used for cleaning and disinfection, and the equipment for their application, shall be stored in a room in which no foodstuff, food-handling equipment, packaging material or food containers are stored and shall at no time come into contact with food containers, packaging materials, raw materials or the product. All substances used for cleaning and disinfection shall be prominently and distinctly labelled.

4.2.13.6 Storage facilities for utensils and spare parts

4.2.13.6.1 Utensils and spare parts that come into contact with the product shall, when not in use, be kept in a disinfectant solution or be stored in a hygienic manner in a dry area that is free from dust and any other source of contamination, and is vermin proof.

4.2.13.6.2 Spare parts for machinery that are capable of contaminating the product shall be kept in a separate storage area away from the production areas.

4.2.13.7 Storage facilities for lubricants
Lubricants shall be stored away from the production areas and in such a manner that they do not cause contamination of the product.

4.2.13.8 Storage facilities for the finished products
4.2.13.8.1 Finished products awaiting dispatch shall be stacked away from the floors and walls in well-ventilated, acceptably dust-free, dry and clean rooms. These rooms shall be physically separated from areas where steam is generated.

4.2.13.8.2 The finished product shall be protected against elements of the environment or any other condition that could adversely affect the product.

4.2.13.8.3 Finished products found not to comply with the requirements of this standard shall be stacked apart from finished products that do comply, and shall be clearly identified.

4.2.13.9 Freezers, chillers and freezer storage rooms
4.2.13.9.1 Freezers, chillers and freezer storage rooms shall operate efficiently and shall be hygienically maintained. Where freezers, chillers and freezer storage rooms are located in processing areas, their floor shall either be an integral part of the floor of the processing area or be adequately sealed to that floor. All storage units shall be installed high enough above the floor to permit easy and adequate cleaning of the area underneath them.

4.2.13.9.2 The walls and floors shall be in good condition. The surfaces of the ceilings, walls and floors shall be of suitable corrosion-resistant material, shall be impermeable to water and shall be smooth and free from cracks, crevices and flaking of surface material. The floors shall be drainable, and the floors of chillers shall be sloped to effect complete draining. Products shall not be stacked direct on the floors, against walls or against wall panels.

4.2.13.9.3 Freezer storage rooms shall be equipped with automatic manual measurable temperature recorders with enough suitably placed sensing elements or manual mechanism to monitor the overall air temperature. The temperature in freezer storage rooms shall be automatically or manually and continuously monitored and a record of the temperature shall be kept and be made available for inspection.

4.2.13.9.4 Unless an alarm system is installed to alert the operator of system failure, freezers and freezer storage room temperature shall be verified manually every 4 h to ensure correct operation of equipment and recorders.

4.2.13.9.5 The entrances to freezers, chillers and freezer storage rooms shall be protected from the inflow of warm air by the provision of an ante-room, a mechanical air curtain, strip curtains or self closing shutters.

4.2.14 Smoke rooms
Doors used during the firing of smoke rooms shall not open directly into production areas, unless the smoke generator is so designed as to obviate pollution of these areas. Separate facilities shall be provided for the storage of smoke-generating materials.

4.2.15 By-products
Any processing of by-products and non-meat products that are not intended for human consumption shall be conducted in buildings that are physically separated from the factory in such a way that there is no possibility of contamination of the product.

4.2.16 Waste facilities

A separate, suitable refuse facility shall be provided on the premises, at appropriate locations in and outside the factory or processing facility and shall be cleaned daily. These facilities shall be for the discharging and disposal of waste, and shall prevent the contamination of the environment and of the production areas. The design of these facilities shall be such as to prevent contamination of the product

4.2.17 Comfort facilities

4.2.17.1 An acceptable number of suitable change rooms, shower baths, hand-wash basins whose taps operate as described in 4.2.9.1(c), toilet facilities (separate for males and females) and, where appropriate, urinals, shall be provided within practical distance from the factory processing areas.

4.2.17.2 Showers shall connect directly to the change rooms. Comfort facilities shall be separated and shall not open directly into the preparation, processing, packaging or storage areas.

4.2.17.3 Toilets shall be completely separate from change rooms, the only permissible access being through a vestibule with close-fitting, self-closing doors. Toilet blocks shall have their own handwashing facilities, separated from those provided in change rooms.

4.2.17.4 An ample supply of toilet paper, hot and cold running water, unscented liquid soap or an acceptable hand cleaning detergent and disposable paper towels shall be provided for employees. Receptacles shall be provided for used paper towels. Refuse bins of hygienic construction shall be provided.

4.2.17.5 Notices requiring employees to wash their hands with liquid soap or hand cleaning detergent after they have used the toilet, shall be posted. Lockers or controlled clothes baskets shall be provided, and the layout and equipment shall be such as to permit proper cleaning and maintenance.

4.2.17.6 The comfort facilities shall be kept clean and tidy. The comfort facilities shall be adequately ventilated. Change rooms and dressing-rooms shall not be used as living quarters or for the preparation or consumption of meals.

4.2.17.7 Staff dining-rooms shall be separate from the change rooms or dressing-rooms.

4.2.18 Facilities for cleaning and disinfection

4.2.18.1 Facilities with proper drainage shall be provided for the cleaning and disinfection of the premise of the factory or processing plant and its portable equipment and utensils, and shall be made available at convenient and acceptable points.

4.2.18.2 Such facilities shall be located in a separate room or in a designated area in the preparation, processing and packaging areas where there is an ample supply of cold potable water (see 4.4.2) and hot water, where required, or saturated steam, under adequate pressure.

4.2.18.3 Facilities for disinfecting gloves and knives shall be available at convenient and acceptable points.

4.2.18.4 Materials used for cleaning and disinfection, hot and cold running water or saturated steam, hose pipes, spray nozzles, brushes, scrapers and other equipment needed for the cleaning of the factory, equipment and utensils shall be made available.

4.2.18.5 These materials and equipment shall not be stored in a room where food-handling equipment is stored and shall at no time come into contact with raw materials, the products or their containers or packages

4.2.18.6 The direction of drainage flow shall be away from the product handling areas.

4.3 Equipment for production

4.3.1 General

4.3.1.1 Production areas shall be so designed, equipped and staffed as to allow free movement of workers to facilitate cleaning and the maintenance of hygiene, product quality and safety.

4.3.1.2 All factory surfaces, equipment and utensils that come into contact with the product shall be smooth-surfaced, light-colored and of a suitable corrosion-resistant non-absorbent material (i.e. not wood or any other absorbent or porous material), which may have an acceptable plastics-coated surface suitable for use with food, but should preferably be made of stainless steel.

4.3.1.3 The equipment and utensils for production shall be of hygienic design with no open joints or crevices and shall be so constructed as to facilitate their cleaning and disinfection. Open ends and curled edges shall be adequately sealed to prevent the accumulation of organic material and dirt. Where necessary, as in the case of equipment that cannot be cleaned in situ, it shall be possible to dismantle the equipment for cleaning and disinfection.

4.3.1.4 Surfaces with which the product comes into contact shall not be painted.

4.3.1.5 All parts of stationary equipment or equipment that is not readily movable shall be installed away from the walls and ceilings at distances sufficient to allow access for cleaning and inspection. All permanently mounted equipment shall be either installed high enough above the floor to allow access for cleaning and inspection, or shall be completely sealed to the floor.

4.3.1.6 Equipment shall preferably not be sunk into the floor but if this is unavoidable, the installation of the equipment shall be such as to be acceptable. Sunken areas shall be well drained.

4.3.1.7 Copper, lead and their alloys (other than solder), and other metals or materials detrimental to health, shall not be used in the construction of equipment that comes into contact with the raw materials or with the unprotected product at any stage of its production.

4.3.1.8 The use of solder in equipment shall be minimized.

4.3.1.9 Equipment and utensils used for inedible offal or for the management of waste shall be identified as such and shall not be used for edible materials.

4.3.1.10 Equipment used in areas outside the production areas, such as in the toilet or ablution facilities, shall not be used in the areas where food for human consumption is handled, prepared, processed, packaged or stored.

4.3.2 Tables

4.3.2.1 Wooden tables shall not be used in processing areas. Tables shall be of such design and construction that will prevent the development of unhygienic conditions and bacterial build-up. Frames shall be made of smooth corrosion-resistant metal or shall have been so coated as to protect them from corrosion.

Note: National guidelines for abattoirs and establishments can be used to align to 4.3.2.1

4.3.2.2 Table tops shall be of seamless stainless metal or other seamless, corrosion-resistant, smooth, water-impermeable material with similar surface characteristics. The tops shall be of hygienic construction and shall either be removable for cleaning or so secured to their frames so as to allow easy cleaning and disinfection.

4.3.2.3 Where metal tops are folded at the edges, the folds shall be effectively soldered, welded or sealed with an acceptable mastic sealant so as to prevent the accumulation of organic matter and dirt. All joints in tables shall be watertight.

4.3.2.4 Tables shall, as far as possible, allow rapid and effective drainage, shall be easy to clean and shall be free from cracks, crevices and openings.

4.3.3 Cutting boards

If cutting boards are used, they shall be of hygienic construction and shall be made of acceptable light-coloured material (other than wood or other absorbent or porous material) that is suitable for use with food products. Cutting boards shall be easily removable.

4.3.4 Utensils and implements

Knives, shovels, brooms and other utensils or implements used in the processing or packaging areas shall not have handles of wood or of absorbent material or porous material.

4.3.5 Efficacy of cleaning

The efficacy of the cleaning and disinfection process shall be tested in accordance with recognized standard. When scored by the system set out in the recognized standard such as SANS 5763 , the determined percentage efficacy of cleaning and disinfection in the sample shall be acceptable.

4.3.6 Containers for the handling of raw materials and the product

4.3.6.1 All food containers that contain materials, other than those that contain the finished product, shall at all times be kept on shelves or stands of corrosion-resistant water-impermeable material.

4.3.6.2 When filled or partly filled with raw materials or with the product, containers shall not be stacked one on top of the other in such a way that the contents of one food container can be contaminated by the bottom of another container stacked above it.

4.3.6.3 Food containers shall be of hygienic design and shall either be light-coloured or shall have a bright metal finish.

4.3.6.4 Food containers shall not be placed directly on the floor.

4.4 Hygienic operating requirements

4.4.1 General

4.4.1.1 In relation to the handling, preparation, processing, packaging, freezing, transportation and storage of the product, no operation shall be performed and no conditions shall exist that are detrimental to the product. Materials liable to contaminate the product shall be kept away from the production areas.

4.4.1.2 Non-edible substances shall not be stored in the same room as edible ingredients or in the preparations or packaging areas of the factory.

4.4.1.3 Uncooked meat or meat products shall not, in the course of handling, processing and storage, be unnecessarily exposed to conditions that affect them adversely.

4.4.1.4 Care shall be taken to ensure that there is no contact between raw materials and finished products. Raw food shall not be handled or stored in areas where cooked food is handled or stored.

4.4.1.5 There shall be no unhygienic conditions on the factory premises. Smoke from factory chimneys or from smoke rooms that causes contamination at any stage during processing of the product, is offensive, injurious or dangerous to health, shall not be allowed to enter the factory buildings.

4.4.2 Potable water

4.4.2.1 Water used as a food product ingredient, involving ice and steam, or in contact with food contact surfaces shall comply with the requirements of SZNS SANS 241-1.

4.4.2.2 Every production area in the factory or processing facility shall have an adequate supply of clean potable water that is free from suspended matter and the substances that could be deleterious to the product or harmful to health.

All water coming into contact with the product, product contact surfaces or that is used in the preparation areas of the factory shall have been so treated by flocculation, filtration, chlorination or any other acceptable process as to ensure compliance with the requirements for drinking water in terms of SZNS SANS 241-1.

4.4.2.3 Factory installations for the treatment of water shall be thoroughly cleaned at least once a week by an acceptable method.

4.4.2.4 The purity of ice shall be such that the water derived from it (by melting the ice under aseptic conditions at a temperature not higher than 10 °C), immediately after the ice has been manufactured, complies with the requirements of 4.4.2.1.

4.4.2.5 Water for cleaning the factory and equipment shall comply with the requirements of 4.4.2.1. Chlorinated water that could have any deleterious effect on the product shall be dechlorinated immediately before use. In all cases, the free residual chlorine concentration shall be determined by the N,N–diethyl-1,4-l-phenylene diamine test (DPD indicator test) or any other acceptable test that has equivalent sensitivity.

4.4.3 Compressed air, gases and steam
Compressed air, gases and steam used in direct or indirect contact with food or with food-contact surfaces shall contain no substances that could be hazardous to health or that could contaminate the food.

4.4.4 Removal and disposal of effluent and waste
4.4.4.1 Litter, waste and overflow shall not be allowed to accumulate or give rise to unhygienic conditions, and shall be disposed of promptly in an efficient and hygienic way.

4.4.4.2 Containers of waste that are awaiting removal from the factory premises shall be colour coded to separate them from the processing and production areas

Note : refer to waste regulation 2000 for waste colour code

4.4.4.3 A separate refuse room or any other acceptable refuse facility shall be provided on the premises, and shall be cleaned and disinfected daily.

4.4.4.4 The factory shall have an efficient effluent and waste disposal system that shall, at all times, be maintained in good order and repair. All effluent lines (including sewer systems) shall be large enough to carry peak loads, shall be so constructed as to avoid contamination of potable water supplies or the environment, shall not constitute a source of contamination to the product, product contact surfaces or ingredients, and shall not create an unsanitary condition or nuisance.

4.4.4.5 Hazardous substances shall be disposed of in an environmentally acceptable way.

4.4.5 Vermin control
4.4.5.1 All buildings in which raw materials, ingredients and the product are stored, or in which the product is handled, prepared, processed or packaged, shall be kept free from insects, birds, rodents and other vermin and shall be insect-proof and rodent-proof.

4.4.5.2 An effective and continuous programme for pest control shall be established, implemented and maintained.

4.4.5.3 Pesticides shall not be used in work areas while preparation, processing and packaging are in progress, and precautionary measures shall be taken to ensure that equipment and work surfaces are free from pesticide residues.

4.4.5.4 Pesticides shall at no time come into contact with wrapping materials, containers, raw materials or the product.

4.4.5.5 Only registered pesticides shall be used in accordance with manufacturer's instructions and shall only be handled by authorized and suitably trained personnel or by persons under strict supervision of trained personnel.

4.4.5.6 The room in which pesticides are stored shall be kept locked and the materials contained in it shall only be handled by employees suitably trained in their use.

4.4.6 Animals

Animals, including birds, shall not be allowed in any part of the factory.

4.5 Requirements for employees engaged in the handling, preparation, processing, packaging and storage of the product

4.5.1 Health

4.5.1.1 All the health requirements of the relevant national legislation shall be complied with.

4.5.1.2 Before being employed, all employees shall pass an appropriate medical examination to ensure that they are free from communicable diseases, and shall thereafter pass a biannual medical examination.

4.5.1.3 No employee who is a carrier of, or is suffering from, any communicable disease, especially a carrier of Salmonella or Shigella, or one who shows symptoms of, or is suffering from, gastroenteritis or an enterobacterial infection, or a disorder or condition that causes discharge of fluid from any part of the skin or body shall be allowed to come into contact with a high-risk product such as heat-treated products, or high-risk product contact surfaces. Any such employee shall immediately report to the factory management.

NOTE The relevant national department shall have the information regarding communicable diseases such as TB, Hepatitis B, slamonella ,syphilis

4.5.1.4 The management shall ensure that no meat handler, who is known or suspected to be infected with a disease capable of being transmitted through food shall be permitted to work in any part of the production chain in a capacity in which there is a likelihood of the employee contaminating the product with pathogenic organisms. Such persons shall be withdrawn from their tasks as meat handlers and shall be transferred to a position which will avoid the contamination of the product.

4.5.1.5 In the case of any absence of more than one day owing to illness, the employee shall, before resuming duty, report the nature of the illness that necessitated the absence to the factory hygiene officer or supervisor, who shall, should he or she deem it necessary, take the appropriate steps to obtain a medical opinion on the employee's fitness for work.

4.5.1.6 An appropriate medical record of each employee shall be kept. Medical records and medical certificates submitted by an employee of a factory shall be made available for inspection by an acceptable authority.

4.5.1.7 The management shall ensure that no employee who is suffering from any cut, an injury, an infected wound or an infected skin irritation shall be allowed to come into contact with the product or product contact surfaces, unless the cut or injury has been so treated or dressed by suitable waterproof dressings in a colour different from the product being handled and is so controlled that the discharge of body fluid is prevented, and the wound and its dressing are so covered as to ensure that infection or contamination of the product is no longer possible.

4.5.2 Protective clothing

4.5.2.1 All employees engaged in the handling, preparation and processing of the product up to and including the packaging stage, but excluding employees operating within freezer storage rooms, chill rooms and maintenance/engineering, shall wear clean, light-coloured, protective clothing, waterproof aprons, waterproof slipovers or boots, and clean, washable or disposable headgear that completely covers their hair. Note: Employees working in different areas with different risks should have different colored protective clothing.

4.5.2.2 Overalls shall completely cover the personal clothing of the employees. At the end of each working day, soiled overalls and headgear shall be handed in for laundering. Employees shall not remove protective clothing from the factory.

4.5.2.3 Gloves, if used, shall be made from impermeable material and shall be of the disposable type. Non-disposable gloves shall be thoroughly cleaned and then disinfected using chlorinated water or any other acceptable solution or procedure.

4.5.2.4 Protective clothing, other than waterproof aprons, sleevelets and gloves, shall not be stored in work areas. When not in use, protective clothing shall be kept in the change rooms and shall not be removed from the premises except for laundering under hygienic conditions. The homes of employees shall not be regarded as acceptable for laundry purpose. The washing or laundering shall be performed by the packing facility or a firm contracted by the packing facility.

4.5.2.5 Waterproof protective clothing shall be made of plastics, rubber or other similar acceptable material. All protective clothing shall be of hygienic design, shall have no external pockets, shall be in good repair and shall not constitute a source of contamination to the product.

4.5.2.6 Waterproof aprons, sleevelets and gloves shall be cleaned and disinfected at each time of removal and as frequently as is necessary, and shall be hung on hooks or pegs at exits from the production areas during intervals between work and during visits to the toilet.
Waterproof aprons, sleevelets and gloves, as well as all equipment used in the preparation, processing and packaging of the product shall not be removed from the work areas except for repairs and for cleaning under hygienic conditions.

4.5.2.7 Protective clothing used in production areas shall not be used for any other purpose, and shall be removed when leaving the production areas

4.5.2.8 There shall be a documented and communicated hand washing policy.

4.5.3 Personal hygiene and personal effects

4.5.3.1 Workers shall, at all times, maintain a high degree of personal hygiene and cleanliness and conform to hygiene practices while on duty. They shall be trained and educated in personal cleanliness and hygienic practices. Adequate control shall be exercised to ensure that employees are in compliance with the hygienic requirements (such as supervision at the hand-washing facilities) before commencing work at the beginning of a work shift and after breaks.

4.5.3.2 Before starting work, after each absence from the factory production area, at regular intervals during production, or at any time when necessary, employees shall wash their hands with warm water and an acceptable unscented liquid soap or detergent and rinse them in clean, running water.

They may then sanitize them with an acceptable disinfectant solution, after which they shall rinse their hands in clean running water, if so required by the usage directions of the sanitizer.

4.5.3.3 Neither employees' personal effects nor their food shall be present in any area where the product and its ingredients and packaging materials are handled and stored.
Employees' personal effects, including their personal clothes, shall be kept in lockers or hangers provided for this purpose in the change rooms (see 4.2.18.5).

4.5.3.4 Containers used in the preparation, processing or packaging of the product shall not be used for any other purpose.

4.5.3.5 The use of chewing gum and of tobacco (in any form) shall not be permitted within areas where the product and its ingredients and packaging materials are handled or stored. Spitting shall not be allowed anywhere within the factory premises.

4.5.3.6 Neither varnish nor lacquer shall be used on fingernails, and fingernails shall be kept short and clean. Jewellery shall not be worn by employees who handle raw materials or the unprotected product (or both).

4.5.4 Notice boards and supervision
4.5.4.1 Notices shall be strategically displayed in the preparation, processing, packaging and storage areas, in the change rooms and in the toilet facilities.

4.5.4.2 Notices that prohibit eating, spitting and the use of chewing gum and tobacco in any form shall be posted in each production area and in each area designated for the storage of ingredients.

Notices that request employees or, where applicable, visitors to wash their hands on entering the production areas shall be posted at each entrance used by employees or visitors to gain access to those areas. Notices that direct employees to wash their hands after using the toilet shall be posted at the toilet facilities (see 4.2.18.5).

4.5.4.3 Adequate supervision shall at all times be practised to ensure compliance with 4.5.4.2.

4.5.4.4 The responsibility of ensuring observance of all personal practices, operations and requirements of this clause by all persons shall be given to competent staff members.

4.5.5 Visitors
Any person, including employees, who visits or enters the production areas during the hours of operation, shall, when in those areas, comply with all the relevant hygiene requirements and shall wear clean protective clothing that shall be provided by the factory.

5 Requirements for ingredients and the product

5.1 General

5.1.1 All ingredients and additives used, whether specified or not, shall comply with the relevant national legislation and codex standard(s), and only permitted ingredients shall be used. All ingredients used in the preparation of the product shall be in every way fit for human consumption.

5.2 Meat

5.2.1 Meat shall have been obtained from a registered abattoir and the meat shall be inspected and passed as fit for human consumption in accordance with the applicable national legislation

5.2.2 The use of frozen meat is allowed, provided that it has been frozen and stored under acceptable conditions and, where relevant, at the specified temperature, shows no significant evidence of rancidity or discoloration, and has been defrosted in a manner that does not adversely affect the food safety of the product.

5.2.3 Casings – shall be inspected and passed fit for human consumption in accordance with codex standard and relevant national legislation.

5.2.4 Spices- shall be passed fit for human consumption in accordance with codex standard for food additives and relevant national legislation.

5.3 Compositional requirements

5.3.1 Table 1 provides guidelines on how to classify processed meat products, in accordance with the processing action the product has undergone.

5.3.2 Table 1 gives compositional requirements in accordance with the minimum formulation requirements of various processed meat products per class.

5.3.3 The total meat protein equivalent (TME) can be calculated by using the example in annex A.

NOTE 1 An example on how to use tables 1, 2 and 3 is given in annex B.
NOTE 2 For quality verification of processed meat products see annex C. 5.3.4 Table 3 gives examples of processed meat products per class.

Table 1-Product range classification guideline

1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
Chilled, Frozen and certain ambient processed meat products										
class	Section A — Process of reducing size of meat			Section B — Additional processing steps					Section C — Coated	
	Whole muscle Bone in Boneless Rind-on Rindless With show pieces Without show pieces Smoked Unsmoked Edible offal	Comminuted With show pieces Without show pieces Formed Preformed Unformed Smoked Unsmoked	Reformed With show pieces Without show pieces Smoked Unsmoked	Cured	Uncured	Heat treated	No or partial heat treatment	Dried	Fermented	Coated products shall have a maximum of 50 % coating and the minimum core of 50 % shall be classified in accordance with classes 1 to 13

1	2	3	4	5	6	7	8	9	10	11
Chilled, Frozen and certain ambient processed meat products										
class	Section A — Process of reducing size of meat			Section B — Additional processing steps					Section C — Coated	
1	**x**			**x**		**x**				
2	**x**				**x**	**x**	**x**			
3	**x**				**x**		**x**	**x**		
4	**x**			**x**			**x**			
5	**x**			**x**			**x**	**x**		
6		**x**		**x**		**x**				
7		**x**			**x**		**x**	**x**		
8		**x**		**x**				**x**	**x**	
9		**x**			**x**	**x**				
10			**x**		**x**		**x**			
11			**x**	**x**		**x**				
12			**x**	**x**						
13										
14										**x**
15										**x**

Table 2 Compositional requirements (Minimum formulation requirements per class)

1	2	3	4	5	6	7	8	9
Subclass	Description	Total meat protein equivalent minimum percentage (calculated)	Actual total meat content minimum percentage (analyzed)	Actual lean meat minimum percentage (analyzed)	Fat maximum percentage (analyzed)	Added rinds maximum percentage	Added gelatin maximum percentage	Added defeathered chicken skin maximum percentage
Class 1 — Whole muscle, cured, heat treated products								
1.1	Whole muscle, cured, heat treated	90	70	50	30[a]	0[b]	0	0[c]
1.2	Whole muscle, dry cured, heat treated	95	90	60	30[a]	0[b]	0	0[d]
Class 2 — Whole muscle, uncured, heat treated or partial heat treated products								
2.1	Whole muscle, uncured, heat treated or partial heat treated	90	80	60	30[a]	0[b]	0	0[c]
Class 3 — Whole muscle, uncured, no or partial heat treated and dried products								
3.1	Whole muscle uncured, no or partial heat treated and air dried products	N/A	100	50	50[a]	0[b]	0	0[c]
3.2	Whole muscle uncured, no or partial heat treated and air dried products undergoing a lengthy maturation	N/A	100	70	30[a]	0[b]	0	0[c]

	period (min. 21 d)							
Class 4 — Whole muscle, cured, no or partial heat treated products								
4.1	Whole muscle dry cured no or partial heat treated	95	90	60	30[a]	0[b]	0	0[c]
4.2	Whole muscle, cured, no or partial heat treated	90	80	30	50[a]	0[b]	0	0[c]
Class 5 — Whole muscle, cured, no or partial heat treated and dried products								
5.1	Whole muscle, cured, no or partial heat treated and air dried products	N/A	100	50	50[a]	0[b]	0	0[c]
5.2	Whole muscle, dry cured, no or partial heat treated and dried products	N/A	100	50	50[a]	0[b]	0	0[c]
Class 6 — Comminuted, cured, heat treated products								
6.1	Comminuted, cured, heat Treated (e.g Vienna,	60	25	15	30[a]	15[b]	0	40[c]
6.2[d]	Liver spreads, páté and terrines	60	20	15	40[a]	20[b]	5	40[c]
6.3	Products in aspic: Brawn	60	25	15	15[a]	20[b]	10	40[c]
6.4	Products in aspic: Suelze, other products containing cured meat pieces in aspic	N/A	15	N/A	50[a]	20[b]	15	40[c]
6.5	Products made from blood	N/A	60	10	50[a]	50[b]	5	0[c]
Class 7 — Comminuted, uncured, no or partial heat treated and dried products								
7.1	Comminuted, uncured, no or partial heat treated and dried products	N/A	80	55	50[a]	0[b]	0	0[c]
Class 8 — Comminuted, cured, no or partial heat treated, dried and fermented products								
8.1	Comminuted, cured, no or partial heat treated, dried and fermented	90	80	30	40[a]	10[b]	0	10[c]

	products							
Class 9 — Comminuted, uncured and heat treated products								
9.1	Comminuted, uncured and heat treated products	60	25	15	30[a]	15[b]	0	40[c]
Class 10 — Reformed, uncured, no or partial heat treated product								
10.1	Reformed, uncured, no or partial heat treated products	60	50	25	30[a]	15[b]	0	40[c]
Class 11 — Reformed, cured, heat treated								
11.1	Reformed cured, heat treated from single species	60	33	20	20[a]	10[b]	0	10[c]
11.2	Reformed, cured, heat treated from mixed species products	60	33	20	20[a]	10[b]	0	10[c]
Class 12 — Reformed, cured, no or partial heat treated products								
12.1	Reformed, cured, no or partial heat treated products	60	20	10	30[a]	5[b]	0	15[c]
Class 13 — Unspecified class								
13.1	Unspecified class	70	25	15	30[a]	5[b]	0	5[c]
Class 14 — Coated products								
14.1	Coated products – Maximum coating of 50 % allowed, meat component in accordance with class 1 to 13							
NOTE 1 The above percentages apply to all ingredients that form part of the meat component of the final packaged product. Any sauces, marinades, vegetables, or other similar added ingredients which form part of the final packaged product will be excluded from the exercise to verify compliance with the compositional table. If such additions form part of the final packaged product, the principle of QUID (quantitative ingredient declaration) will apply to the ingredient declaration on the labelling of the final packaged product. NOTE 2 For class 1, pickled tongue (edible offal), although not part of the meat definition, is included in class 1.1 and class 1.2. NOTE 3 For class 6.2, gelatin is only for the topping of terrines and not added to the mix. The minimum level of liver to be present in the recipe is 10 %. NOTE 4 For class 6.4 there is no minimum TME. NOTE 5 For class 6.5 there is no minimum TME. NOTE 6 For class 9.1, brawn produced from uncured meat will be included								
a The total fat on nutritional analysis shall not exceed this value. b The added rinds shall not exceed this value. c The added rinds and chicken skin when used in combination shall not exceed this value, or if only rinds are added the requirement in footnote shall apply. d For Class 6.2, the product naming shall be linked to the source of the edible offal. e For Class 6.5, the product naming shall be linked to the source of the edible offal.								

Table 3 Product class examples

1	2
Class	Examples per class
1	Gammons, pastrami, cooked silverside, roast beef (cured), country ham, edible whole muscle offal i.e pickled tongue
2	Roast pork, roast beef (uncured), carpaccio
3	Dry salted hams
4	Kasseler, bacon, gammon (partially heat treated), pickled tongue

	(partially heat treated
5	Smoked beef, koppa, pancetta
6	Emulsion products (viennas, polonies)
7	Dried meat discs
8	Salami, cervelat, cabanossi, mettwurst, teewurst
9	Blanched pork sausages, uncured chicken viennas, polonies, fully cooked burgers
10	Reformed nuggets
11	Reformed hams, chicken, turkey rolls
12	Reformed bacon, reformed kasseler chops
13	Unspecified
14	Coated products – Maximum coating of 50 % allowed, meat component in accordance with class 1 to 13 for example coated chicken schnitzel
15	Sausages/burgers (beef/chicken)

5.4 Microbiological requirements

When tested in accordance with the appropriate methods given in 6.1 to 6.6, the product shall comply with the requirements given in table 4

Table 3 — Microbiological requirements for five (n) random samples of product

1	2	3	4	5	6	7	8
Category	Limits	Requirements for certain specified products when tested in accordance with specified test methods cfu/g					
		Process hygiene criteria				Food hygiene criteria	
		3-class sampling plan				2-class sampling plan	
		Escherichia coli ISO 16649-1 or ISO 16649-2	**Staphylococcus aureus** (enterotoxin threat) ISO 6888-1 or ISO 6888-2	**Clostridium perfringens** ISO 7937 or ISO 5761	**Total viable count** (Hygiene indicator) ISO 4833-1 or ISO 4833-2	**Listeria monocytogenes** ISO 11290-1 or ISO 11290-2	**Salmonella** ISO 6579
1	C	2	1	NR	2	NR	d
	m	500	100	NR	100 000		
	M	5000	300	NR	<1 000000		
2	c	2	1	1	2[c]	a.b	d
	m	20	10	100	100000[c]		
	M	100	100	1000	200000[c]		

For a 3-class sampling plan
c is the maximum allowable number of marginally acceptable samples tested.
m a microbiological limit that separates conforming sample from marginally acceptable tested samples.
M a microbiological limit that denotes non-conforming tested samples.
NR no requirement

For a 2-class sampling plan
c maximum allowable number of sample units yielding a positive result or exceeding the microbiological limit m. c = 0.
m is a microbiological limit. A sample is defined to be positive, if the sample's microbiological content exceeds this limit. NR no requirement

NOTE 1 For a 2-class sampling plan c = 0 and M does not apply.
NOTE 2 Products in category 1 include products that are not heat treated at all or partially heat treated during the manufacturing process. These products are intended to be heated before consumption.
NOTE 3 Products in category 1 include products from classes 3, 4, 5, 7, 10,12, 13 and 14.

NOTE 4 Products in category 2 include products that are heat treated during the manufacturing process or ready-to-eat (RTE) for the consumer, or both. NOTE 5 Products in category 2 include products from classes 1, 2, 6, 8, 9, 11, 13 and 14.
a Listeria Monocytogenes shall be absent in 25 g for ready-to-eat meat products that supports the growth of Listeria Monocytogenes tested at the end of manufacture or port of entry and point of sale, or both, during their shelf life, tested in accordance with ISO 11290-1. b Listeria Monocytogenes shall be absent for ready-to-eat meat products that do not support growth in 25 g at the end of manufacture and <100 cfu/g in 25 g at the port of entry and at the point of sale, or both, during their shelf life, when tested in accordance with ISO 11290-1 and ISO 11290-2 respectively. c Not to be done on fermented or dried ready-to-eat (RTE) meat products. d Salmonella shall be absent from 25 g of product tested.

6 Methods of microbiological examination

6.1 Total viable count

6.1.1 Use ISO 4833-1 or ISO 4833-2 or any other accredited method validated against the reference method and giving results that are better, or at least equal, to the accuracy of the reference method.
6.1.2 Check for compliance with 5.4.

6.2 Escherichia coli

6.2.1 Use ISO 16649-1 or ISO 16649-2 or any other accredited method validated against the reference method and giving results that are better, or at least equal, to the accuracy of the reference method.

6.2.2 Check for compliance with 5.4.

6.3 Salmonella organisms

6.3.1 Use ISO 6579 or any other accredited method validated against the reference method and giving results that are better, or at least equal, to the accuracy of the reference method.

6.3.2 Check for compliance with 5.4.

6.4 Clostridium perfringens

6.4.1 Use ISO 5761 or ISO 7937 or any other accredited method validated against the reference method and giving results that are better, or at least equal, to the accuracy of the reference method.
6.4.2 Check for compliance with 5.4.

6.5 Staphylococcus aureus

6.5.1 Use ISO 6888-1 or ISO 6888-2 or any other accredited method validated against the reference method and giving results that are better, or at least equal, to the accuracy of the reference method.

6.5.2 Check for compliance with 5.4.

6.6 Listeria monocytogenes

6.6.1 Use ISO 11290-1 or ISO 11290-2 or any other accredited method validated against the reference method and giving results that are better, or at least equal, to the accuracy of the reference method.

6.6.2 Check for compliance with 5.4.

6.7 Test for efficacy of cleaning and disinfecting of plant, equipment and utensils

6.7.1 Use ISO 5763 or any other accredited method validated against the reference method and giving results that are better, or at least equal, to the accuracy of the reference method.

6.7.2 Check for compliance with 4.3.5.

6.8 Microbiological examination of water

6.8.1 Use SZNS SANS 241-1.

6.8.2 Check for compliance with 4.4.2.1.

7 Methods of chemical examination

7.1 Determination of protein nitrogen, protein and actual lean meat content

7.1.1 Use SANS 6317 or any other internationally recognized method that delivers equivalent results, to determine the protein nitrogen content.

7.1.2 Calculate the protein content by multiplying the nitrogen content by 6,25 and calculate the actual lean meat by multiplying the nitrogen content by 30.

7.1.3 Check for compliance with 5.3.2.

7.2 Determination of fat content
7.2.1 Use the relevant methods in AOAC 960.39 or any other accredited method validated against the reference method and giving results that are better, or at least equal, to the accuracy of the reference method.

7.2.2 Check for compliance with 5.3.2.

8 Packing, marking and labelling

8.1 Packaging

8.1.1 Packaging and wrappings materials

8.1.1.1 Subject to the relevant national legislation and codex standard (s) or recognized international standards, packaging and wrapping materials for the product shall be new (unused), clean, non-toxic and inert, and shall not contain substances deleterious to the product or harmful to health.

8.1.1.2 No packaging or wrapping materials shall impart a flavour to the product, or in any way cause discolouration, or enhance coloration of the product, or be discoloured itself by coming into contact with the product.

8.1.1.3 Packaging shall
a) not be such as to impair the organoleptic characteristics of the product,
b) not cause migration of substances injurious to the product or harmful to human health, and
c) be strong enough to protect the product adequately.

8.1.2 Outer container

Fibreboards, plastic, and reusable crates or any other acceptable outer containers shall be used for packing wrapped products.

8.1.3 Outer containers for distribution purposes, for example, lugs, crates and fibreboard, shall be to prevent damage and contamination of the contents by dust or foreign matter, and shall be strong enough to protect the product adequately.

8.1.4 Wooden outer containers shall not be made of green wood and shall not contain any substance that is injurious to the product or harmful to health.

8.2 Marking on packages

The markings shall be in type of such size and presentation as is prescribed under the relevant national legislation.

The information shall appear in legible and indelible marking on each package or on the overwrap covering the package, or on a label attached to the package, or in the case of a transparent package, on a label enclosed in the package.

8.3 Labelling

8.3.1 No person shall
a) manufacture, import, sell, donate or offer for sale any pre-packed food, unless the food container, or bulk stock from which it is sold or taken, labelled in accordance with the relevant national legislation, codex standard(s) and
b) neglect to fully and accurately inform, omit or withhold information pertaining to a food's character, origin, composition, quality, nutritive value, nature or other properties from the customer or manufacturer, which may result in misinformation to consumers at any point between farm and fork.

8.3.2 In addition to the requirements of the relevant national legislation or codex standard, the following information shall appear in legible and indelible marking on each package or container or on a label securely attached to each package or container:

a) If the product has been smoked or smoke flavoured, this information shall appear on the label in close proximity to the name of the product. The qualifying word(s) shall appear on the label in immediate conjunction to the product name in a font size of at least 1,2 mm vertical height.

Note : Codex standard such as Codex Labelling of Prepackaged Foods (SZNS CXS 1-1985)

Annex A
(informative)
Examples of calculations for the total meat protein equivalent (TME)

A.1 The following example shows the calculation for the TME:
a) 100 g of pure protein contains 16 g of nitrogen, therefore 16 g of nitrogen = 100 g of protein Every gram of nitrogen is equal to 100 g/16 g of protein = 6,25 g of protein, therefore % protein = % nitrogen × 6,25.
b) 100 g of lean meat contains 21 g of protein, therefore 21 g of protein = 100 g of lean meat Every gram of protein is equal to 100 g/21 g of lean meat = 4,8 g of lean meat, therefore % lean meat = % protein × 4,8.
c) % lean meat = % protein × 4,8 % lean meat = % nitrogen × 6,25 × 4,8 therefore % lean meat = % nitrogen × 30.

A.2 The following example shows the calculation for the TME for a meat protein source that is carried out in addition to the calculation given in A.1:

Chemical analysis results for a smoked vienna from the laboratory:
Nitrogen 2 g/100 g
Protein 12,5 g/100 g
Total fat 9,2 g/100 g
LME = % protein nitrogen × 30, therefore
2 % × 30 = 60 % % protein = % nitrogen × 6,25, therefore
2 % × 6,25 = 12,5 %
Lean meat equivalent percentage (LME %) = % protein × 4,8, therefore
12,50 % × 4,8 = 60 %.
LME % + total fat = TME = 9,2% + 61,8 % = 60 %.

To calculate actual lean meat equivalent percentage from the recipe subtract the soya isolate contribution (LME %), which leaves the actual lean meat percentage.

A.3 The following example shows the calculation for the TME for a non-meat protein source that is carried out in addition to the calculation given in A.1:

Soya protein isolate (90 % protein)
% nitrogen × 6,25 = % protein
% nitrogen × 6,25 = 90 % protein
90 %/6,25 = % nitrogen = 14,4 %
% nitrogen × 30 = meat equivalent
14,4 % × 30 = 432 %
Meat equivalent = 432 %/100 = 4,32
therefore 1 kg of soya isolate = 4,32 kg of meat

Annex B
(informative)
How to use tables 1,2,3

Example of how to use tables 1, 2, and 3 B.1 Tables B.1 to B.3 provide an example on how to use tables 1, 2 and 3 given in 5.3.

B.2 Obtain the processing steps of a particular product in detail from the raw material selection to dispatch. The product example is a smoked vienna.

Table B.1 — Smoked vienna process flow

1	2	3
Processing parameters	Process flow	
	Raw material receiving	
	Storage of raw materials	
	Mincing of meat raw materials	Mince 5 mm
	Weighing of ingredients	
	Emulsification	
	Mixing/blending	
	Filling	
	Cooking/smoking	Cook to a core temperature of 72 °C
	Packing	
	Dispatch	

B.3 Using table B.2, divide the processing steps into the following sections:
a) Section A, which refer to the reduction of the meat pieces.
b) Section B, which defines the processes, followed by the following criteria: cured, uncured, heat treated, no or partial heat treated, dried and fermented. If a product is coated, the core of the product and with coating removed needs to be classified in accordance with section A and B.

B.4 As in the product example, smoked vienna will be comminuted, cured and heat treated.

NOTE See table 1.

B.5 Using table B.3, classify the product into 1 of the 15 product classes. The example of a smoked vienna will fall into class 6.1. Table B.3 indicates the actual percentage levels of meat, fat, added rinds, added gelatine and added defeathered skins required per processed meat product.

NOTE 1 See tables 2 and 3.

NOTE 2 For the purpose of demonstrating this example, only subclass 6 is shown in table B.3.

Table B.2 — Product range classification guideline

1	2	3	4	5	6	7	8	9	10	11
Chilled, Frozen and certain ambient processed meat products										
class	Section A — Process of reducing size of meat			Section B — Additional processing steps					Section C — Coated	
1	Whole muscle Bone in Boneless Rind-on Rindless With show pieces Without show pieces Smoked Unsmoked Edible offal	Comminuted With show pieces Without show pieces Formed Unformed Smoked Unsmoked	Reformed With show pieces Without show pieces Smoked Unsmoked	Cured	Uncured	Heat treated	No or partial heat treatment	Dried	Fermented	Coated products must have a maximum of 50 % coating and the minimum core of 50 % shall be classified in accordance with classes 1 to 13
Smoked vienna		X Minced 5 mm		X Nitrite added	X Reached core of 72 °C					

Table B.3 — Compositional requirements (Minimum formulation requirements per class)

1	2	3	4	5	6	7	8	9
Subclass	Description	Total meat protein equivalent minimum percentage (calculated)	Actual total meat content minimum percentage (analyzed)	Actual lean meat minimum percentage (analyzed)	Fat maximum percentage (analyzed)	Added rinds maximum percentage	Added gelatin maximum percentage	Added defeathered chicken skin maximum percentage
Class 6 — Comminuted, cured, heat treated products								
6.1	Comminuted, cured, heat treated	60	25	15	30a	15b	0	40c
6.2[d]	Liver spreads, páté and terrines	60	20	15	40a	20b	5	40c
6.3	Products in aspic: Brawn	60	25	15	15a	20b	10	40c
6.4	Products in aspic: Suelze, other products containing cured meat pieces in aspic	N/A	15	N/A	50a	20b	15	40c
6.5[e]	Products made from blood	N/A	60	10	50a	50b	5	0c
NOTE 1 The above percentages apply to all ingredients that form part of the meat component of the final packaged product. Any sauces, marinades, vegetables, or other similar added ingredients which form part of the final packaged product will be								

excluded from the exercise to verify compliance to the compositional table. If such additions form part of the final packaged product, the principle of QUID (quantitative ingredient declaration) will apply to the ingredient declaration on the labelling of the final packaged product. NOTE 2 For class 1, pickled tongue (edible offal), although not part of the meat definition, is included in class 1.1 and class 1.2. NOTE 3 For class 6.2, gelatin is only for the topping of terrines and not added to the mix. The minimum level of liver to be present in the recipe is 10 %. NOTE 4 For class 6.4 there is no minimum TME. NOTE 5 For class 6.5 there is no minimum TME. NOTE 6 For class 9.1, brawn produced from uncured meat will be included
a The total fat on nutritional analysis shall not exceed this value. b The added rinds shall not exceed this value. c The added rinds and chicken skin when used in combination shall not exceed this value, or if only rinds are added the requirement in footnote b shall apply. d For class 6.2, the product naming shall be linked to the source of the edible offal. e For class 6.5, the product naming shall be linked to the source of the edible offal.

Annex C
(informative)
Quality verification of processed meat products

When a purchaser requires ongoing verification of the quality of processed meat products, it is suggested that, instead of concentrating solely on evaluation of the final product, he also direct his attention to the processor's quality system. In this connection it should be noted that SZNS ISO 9001, SANS 10049, SZNS SANS 10330 and SZNS ISO 22000 cover the provisions of an integrated quality system.

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