

Compulsory Specification for

**The manufacture, production, processing and
treatment of canned meat products**

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GOVERNMENT NOTICE

DEPARTMENT OF TRADE AND INDUSTRY

No. R. 791

9 July 2004

STANDARDS ACT, 1993

VC 8019

**WITHDRAWAL AND REPLACEMENT OF THE COMPULSORY SPECIFICATION
FOR THE MANUFACTURE, PRODUCTION, PROCESSING AND TREATMENT
OF CANNED MEAT PRODUCTS**

I, Mandisi Mphahla, Minister of Trade and Industry, hereby under Section 22(1)(a)(i) of the Standards Act, 1993 (Act No. 29 of 1993), and on the recommendation of the Council of the South African Bureau of Standards, withdraw the compulsory specification for the Manufacture, Production, Processing and Treatment of Canned Meat Products derived therefrom and replace it with the compulsory specification as set out in the Schedule, with effect from the date 2 months after the date of publication of this notice .

M MPAHLWA
Minister of Trade and Industry

SCHEDULE

COMPULSORY SPECIFICATION FOR THE MANUFACTURE, PRODUCTION, PROCESSING AND TREATMENT OF CANNED MEAT PRODUCTS

1 Scope

This specification specifies requirements for the manufacture, production, processing and treatment of canned meat products intended for human consumption.

2 Definitions

For the purposes of this specification, unless the context indicates otherwise, the following definitions apply:

2.1

acceptable

acceptable to the authority administering this specification

2.2

actual lean meat content, per cent

result after the mass percentage of nitrogen, represented by the non-meat proteinaceous material present in the product, multiplied by a factor of 30, has been deducted from the lean meat content, per cent

2.3

actual total meat content, per cent

actual lean meat content, per cent (see 2.2) plus the total fat content, per cent

2.4

address

address in the Republic of South Africa, that includes the street or road number (if a number has been allotted), the name of the street or road and the name of the town, village or suburb or that, in the case of a farm or a smallholding, includes the name of the farm or smallholding and of the magisterial district in which it is situated

NOTE In the case of imported foodstuffs, "address" means the address of the manufacturer or supplier or importer.

2.5

adequate

sufficient to accomplish the intended purpose of this specification, and

a) **in regard to quality:** of quality such as to ensure performance of the projected activity or function

b) **in regard to quantity (or size):** of such magnitude as will comfortably accommodate the maximum number of persons or operations (or size of unit) envisaged as being involved

2.6

appropriate

acceptable to, or required by the authority administering this specification

2.7**batch-code**

sub-code

numbers(s), letter(s) or marking(s) or any combination of these in addition to the code representing a particular time on the date of canning and may also include identification of the production line or particular lot of raw material

2.8**bleeders**

small orifices on a retort through which steam and other gases are emitted from the retort throughout the entire thermal process

2.9**canned meat product**

article of food that is manufactured from meat or from edible offal or from both, including, when specifically permitted, bone, and with or without vegetables, including mushrooms, fruit or cereal or any combination of the three, or sauces or gravies and other appropriate ingredients, such as vegetable protein, edible fats, seasoning ingredients, spices, thickening agents, sweeteners and caramel, and packed and preserved or semi-preserved in hermetically sealed containers

NOTE This definition does not include packaged meat products (open pack meat products), or products containing vegetables, fruit or cereals or any combination of the three, with meat or edible offal or both, where the content of meat or edible offal or both in the end product, or the meat content of prepared units containing meat or edible offal or both in the end product is less than 10 % by mass

2.10**cereal**

wheat, maize, rice or other edible grain, or flour or starch made therefrom

2.11**"clean area worker"**

worker who operates in an area that is required to be maintained in a hygienic condition

2.12**cleaning**

removal of soil, food and fat residues, dirt, grease or other objectionable matter from surfaces

2.13**code**

number(s), letters or markings or any combination of these indelibly affixed to containers representing the factory identity, type of product and date of canning as required by 12.1.1(g)

2.14**commercially sterilized product**

product

- a) that is processed in such a manner as to reduce the number or activity (or both) of viable micro-organisms to such an extent that none are detectable by the methods given in clause 11, and
- b) in which no spoilage or toxicity of microbial origin is detectable under normal, non-refrigerated conditions of storage, distribution and handling

2.15**container**

bin

container that is made of suitable metal, glass, semi-rigid plastics (or any combination of these), a plastics retort pouch, a collapsible tube or other acceptable material or combinations of materials that excludes permeation of gas, and that is capable of being hermetically sealed

2.16**contamination**

occurrence of any undesirable matter in the product

2.17**count**

number of units of preformed meat present in the container

2.18**critical control point**

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

2.19**curing salts**

sodium or potassium nitrates and nitrites that are listed as preservatives under the Foodstuffs, Cosmetics and Disinfectants Act, 1972 (Act 54 of 1972), with or without the addition of common salt

2.20**declared net mass (d.n.m.)**

net mass of the contents that is declared on the container

2.21**"dirty area worker"**

worker who operates in an area that cannot be maintained in a completely hygienic condition

2.22**disinfection**

application of hygienically satisfactory chemical or physical agents and processes to clean surfaces with the intention of eliminating micro-organisms

2.23**distinct**

capable of being readily perceived by sight, smell, touch or taste, through a sharp, clear, unmistakable impression, not blurred, obscured or indefinite

2.24**drained mass**

mass of the contents without packing medium, of a container in which equilibrium has been reached and determined in accordance with 10.5

2.25**edible offal**

a) in the case of 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)], rind and skin, spleen, tail, thymus, tongue, cleaned tripe, trotters and udder (in the case of a heifer)

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

2.26**exhaust**

to remove air from a container and its contents

2.27**extraneous matter**

any objectionable matter or any material in the product which has not been derived from meat, edible

offal or other ingredients used

2.28

fat

edible vegetable fat or edible animal fat

2.29

food animal

any animal used as food

2.30

hazard

biological, chemical or physical agent in, or condition of, food with the potential to cause an adverse health effect

2.31

hazard analysis critical control point (HACCP)

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

2.32

inedible offal

a) in the case of food animals other than poultry: with the exception of bone, all parts of the animal not covered by the definitions of meat (see 2.34) and edible offal (see 2.25)

b) in the case of poultry: the head, trachea, lungs, crop, intestines, gall bladder, oviducts, oil glands, shanks, and feet

2.33

lean meat content, per cent

mass percentage of protein nitrogen, multiplied by a factor of 30

2.34

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, scraped skin (pigs), and defeathered skin (poultry) that are naturally associated with such musculature *in situ* in the dressed carcass and head

2.35

mechanically recovered meat

pulped material that consists predominantly of musculature tissue, collagen, marrow and fat, and that has been recovered by a process of mechanical separation from bone

2.36

MIG thermometer

mercury-in-glass thermometer

2.37

name of the product

product name

name and true description of the contents that appear on the main panel of the container or label on the container as required by 12.1.1(b)

2.38

non-meat proteinaceous materials

any nitrogen protein obtained from sources other than from meat

2.39

off-flavour

persistent and distinct objectionable flavour abnormal for the type of product

2.40**off-odour**

persistent and distinct objectionable odour abnormal for the type of product

2.41**packing medium**

any medium in which solid foods are packed in a container

2.42**pasteurized products**

products heat-treated in the container to a minimum centre temperature of 66 °C for a specified time

2.43**per cent**

percentage

per cent (percentage) by mass, unless otherwise indicated or inconsistent with the text

2.44**preserve**

to maintain in sound edible condition by the prevention of deterioration

2.45**process**

course of operations during production of the product

2.46**product**

particular canned meat product indicated by the context, either prepared or in the course of preparation

2.47**retort**

pressure vessel designed for thermal processing of product packed in hermetically sealed containers

2.48**retort process**

entire process which starts when the steam is admitted after the containers are loaded in the retort and the door(s) are closed, continuing through the coming-up time, sterilization time, and ends at the end of the cooling process when the retort door is opened

2.49**semi-preserved products**

products that, for purposes of continuous preservation during storage, have to be kept under refrigeration

2.50**suitable**

suitably

complying with the requirements of the intended purpose

2.51**suitably prepared**

prepared for the intended purpose

2.52**time-temperature process**

continuous heat treatment, expressed in terms of time and temperature, that is applied in the processing of heat-preserved products after the container has been sealed

2.53**total meat content, per cent**

lean meat content, per cent (determined in accordance with 11.3), plus the fat content, per cent (determined by analysis in accordance with 11.4)

2.54**tripe**

scraped and scalded rumen or the scraped and scalded reticulum of ruminant food animals

2.55**uniformity of size**

except where a filler piece is allowed, the mass, size, length or thickness of no individual unit shall deviate more than 20 % from the average mass of units in a container

2.56**vents**

relatively large, controlled ports in retorts used for purging or eliminating air from the retorts

3 Management system

Producers shall implement and maintain an acceptable quality management system such as the HACCP system (see 2.31).

4 Requirements for the factory and for employees**4.1 General**

Where a part of the preparation of a product for canning is done at a factory other than the canning factory, the other factory concerned and its employees shall comply with the requirements of 4.1 to 4.6 inclusive.

All the statutory requirements contained in the Occupational Health and Safety Act, 1993 (Act 85 of 1993), in the Health Act, 1977 (Act 63 of 1977), in the Perishable Products Export Control Act, 1983 (Act 9 of 1983), or in any other relevant act shall be complied with. (All Acts as amended from time to time.)

The factory, equipment and the water used in the preparation of the product shall comply with the requirements given in 4.2 to 4.5 inclusive.

4.2 Factory construction, layout and conditions**4.2.1 Location, size, hygienic design, conditions and maintenance**

4.2.1.1 The factory shall be situated in an environment suitable for the canning of the product.

The location of the premises and the designed construction of the factory buildings shall be such that it can be kept acceptably free from objectionable odours, smoke, dust and other contamination in order to comply with the relevant requirements for hygiene and sanitation.

4.2.1.2 The factory buildings and structures shall be of suitable size, construction design, and location to facilitate

- a) maintenance and operation for their intended purpose,
- b) large enough to prevent crowding of equipment and employees,
- c) sufficient space for orderly arrangement of equipment and storage of raw materials and utensils used in any of the operations,

- d) an orderly uninterrupted flow of production without any cross flows that could have an adverse effect on the quality of the product,
- e) adequate cleaning and the maintenance of hygiene,
- f) processing of raw materials without undue delay,
- g) product quality and safety, and
- h) functions such as quality management, quality control and process control.

4.2.1.3 The factory shall have the necessary fittings, equipment, utensils, technical supervision, skilled labour and workers to carry out the production in progress at any time for which it is designed (see 4.3.1).

4.2.1.4 The factory grounds shall be graded to ensure proper drainage, elimination of stagnant water and shall not be subject to flooding. There shall be no inadequately drained areas that might contribute to contamination of the product through seepage of food-borne filth and by providing breeding places for insects or micro-organisms.

4.2.1.5 The factory and grounds shall be of sound construction and well maintained in a clean and hygienic state and shall be effectively fenced to keep out large animals (see 4.5.9 and 4.5.11).

4.2.1.6 There shall be no accumulation of unused equipment, litter, waste, refuse, and uncut weeds or grass within the immediate vicinity of the product processing plant buildings or structures that might constitute an attraction, breeding place or harbourage for rodents, insects or other pests.

4.2.1.7 A system of control without risking contamination of the product shall be maintained to keep the factory free from birds, rodents, insects and other vermin (see 4.5.9).

4.2.1.8 Outdoor working areas and roads and pathways on the premises shall have a permanent surface of concrete, brick, bitumen or other durable material suitable for wheeled traffic. Areas outside buildings and not in actual use shall be covered by lawn or any other suitable surface that is not liable to produce dust or any toxic substances. Precautions shall be taken to ensure that contamination is not brought into the processing areas by foot or by vehicles such as fork trucks.

4.2.1.9 A schedule and routine inspection system of the condition and maintenance of the factory construction and facilities shall be implemented and maintained. Procedures for corrective actions in the event of non-compliance shall be instituted. Findings of such inspections and correction of non-conformance or the time limit to correct such non-conformance shall be documented and kept (see also 4.2.17).

4.2.2 Roofs and ceilings

4.2.2.1 The roofs, valleys and gutters shall be weatherproof and well maintained to prevent contamination of the product, ingredients and empty containers, and to keep the walls, floor and other structures from becoming damp. Roofs, valleys and gutters shall be kept clear of debris including insects, dead birds and rodents and their droppings.

4.2.2.2 The roofs and ceilings shall be at least 300 mm above any overhead equipment and in no case, less than 3 m from the floor. Ceilings, and roofs where no ceilings are fitted, shall be faced with a smooth material that is impermeable to water, light in colour and capable of being easily cleaned without damage, and so designed, constructed, installed and finished as to be dust-proof and minimize condensation, mould development, flaking paint and the lodgement and accumulation of dirt (see 4.5.2.4). Effective measures shall be taken to avoid contamination and to prevent loose or detachable material and drips from falling on the product from overhead structures in processing and storage rooms. They should be insulated where appropriate.

4.2.2.3 Areas where the sauce is prepared, cooked product is handled or ingredients are stored, must be provided with overhead ceilings. A ceiling is not required where a canopy covers the entire open product.

In areas where the open product is handled, all overhead structures and fittings shall be installed in such a manner as to avoid direct or indirect contamination of the product by condensation, drip or other falling matter and shall not hamper cleaning operations.

4.2.3 Walls and doors

4.2.3.1 Outer walls shall be weatherproof and impermeable to water. Interior wall surfaces shall be faced with a smooth surface, without crevices, (unplastered brick surface is unacceptable), hard, light-coloured, material that is impermeable to water, to a height of not less than 2 m above the floor. In addition, the walls in the preparation, processing and packing areas shall be faced with a suitable corrosion-resistant, light-coloured washable and impact-resistant non-toxic material that is impermeable to water, to a height of at least 2 m above the floor, except that when soiling of the walls might occur above this height this facing shall be continued to a higher level appropriate to the operation (see 4.5.2.6). All ledges occurring in wall construction shall be sloped at an angle of at least 45°. The walls shall be free from unnecessary projections and ledges.

4.2.3.2 Openings for conveyors, services, vents, etc. shall be smooth and shall be sealed.

4.2.3.3 Fixtures, signboards, switch boxes, etc. shall be avoided on internal wall surfaces in the processing areas and where necessarily present, shall be adequately sealed to prevent harbourage of pests and accumulation of dirt.

4.2.3.4 Windowsills shall be sloped to the inside at an angle of at least 45° and shall be at least 1 m above floor level. Windows and other openings shall be so constructed as to avoid accumulation of dirt. Windows shall be tight fitting into their frames (see 4.2.8). Joints on panelled walls and junctions of the panels and floor surface shall be adequately sealed. Where appropriate the walls shall be protected from damage by moving equipment and fork trucks such as galvanized guardrails.

4.2.3.5 Wall-to-wall and wall-to-floor junctions in production areas shall be closed and coved. The minimum radius of the coving shall be 25 mm and 40 mm respectively. Junctions between walls and ceilings shall be closed and coved. Wall surfaces shall be easy to clean and disinfect.

4.2.3.6 Doors, through which products are moved between processing areas shall be of adequate width. Doors and door-frames shall be made from corrosion-resistant material that has high impact resistance. Doors and door-frames shall have a smooth, seamless, light-coloured, readily cleanable surface that is impermeable to water. Doors that open direct from the outside into the preparation, processing and packaging areas shall be tight fitting unless provided with effective air-curtains, and shall, as far as is practicable, be of a self-closing type.

4.2.3.7 Direct entrance(s) from the outside that is (are) used by the employees shall be provided with an entrance hall. External doors shall be constructed as to prevent the entry of rainwater into the factory building. Plastic curtains, if not properly maintained and clean, can be a serious source of contamination. Where used, plastic curtains shall not be located after the use of hand washing facilities upon entering the processing area.

4.2.4 Floors and drainage in processing and food handling areas

4.2.4.1 Floors shall be constructed of concrete or other suitable material that is impermeable to water, non-toxic, resistant to wear and corrosion, easy to clean and maintain and laid to an even surface that is smooth but not slippery, free from cracks, crevices and open joints (see 4.5.2.5).

4.2.4.2 Floor surfaces shall be resistant to attack by product spillages, cleaning agents and cleaning solutions of normal dilution. In the case of floor tiles, the grouting between the tiles must be of a non-absorbent and durable material that is resistant to erosion and corrosion.

4.2.4.3 Floors and drainage channels shall be graded to have a fall of at least 1 in 60 and be drained to internal drainage channels connected to accessible gullies, sumps and external sewers. Outlets shall have a suitable drain trap immediately outside the factory.

4.2.4.4 Floors and drainage channels shall be in good condition and repair, and have strainers in place. Internal drainage channels shall be of the open type with, where necessary, removable covers.

4.2.4.5 Installations obstructing flow and cleaning shall not be present in drainage channels. The capacity of drainage channels shall be sufficient to cope with the maximum flow of liquid during peak demand without overflowing and causing flooding.

4.2.4.6 Where necessary, duckboards of easily cleaned material that is impermeable to water shall be provided for workers.

4.2.5 Lift cages and staircases

4.2.5.1 Lift cages shall have a smooth, corrosion-resistant inside surface that is impermeable to water, and lift shafts shall be properly drained and shall be accessible for cleaning.

4.2.5.2 Staircases in rooms where food is processed or handled shall have solid risers, and shall be provided with closed balustrades that have a height of at least 1,3 m as to prevent contamination of products underneath the stairs.

4.2.5.3 Stairs, lift cages and auxiliary structures such as platforms, ladders, chutes, catwalks shall be so situated and constructed as not to cause contamination of the products.

4.2.5.4 Walkways, catwalks, bridges and mezzanine floors over the open product, product contact surfaces, empty containers, conveyors for empty containers or the open product or handwash facilities shall be completely sealed underneath and shall have side walls.

4.2.5.5 Chutes shall be constructed where appropriate with inspection and cleaning hatches. Equipment or lifts for conveying the product shall be mechanically operated.

4.2.6 Cables and pipes

4.2.6.1 Cables and pipes shall be

- a) fixed above ceilings, or
- b) chased into walls, or
- 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 Overhead cable and pipework and girders and other structures shall be kept to a minimum to aid cleaning and if present shall be free from dust, rust, mould, flaking paint, cobwebs and other extraneous material.

4.2.6.3 Cladding around steam pipes shall be suitable for use in a food factory and shall not be ragged and shall be covered with a suitable metal sheet.

4.2.6.4 Pipes in which the product is conveyed, shall have no dead ends or sharp corners.

4.2.7 Illumination

4.2.7.1 General illumination shall be such as to permit efficient operations during manufacture of the product.

4.2.7.2 An illuminance of at least 220 lux for general operations in the manufacture, production, processing or treatment of the product, and at least 540 lux at points where close examination of the product is carried out shall be provided, situated in such a way to cause the minimum stress to the workers who carry out these examinations.

4.2.7.3 The area where container seam examination other than seam projections are performed shall have close-up illuminance of at least 540 lux with minimum reflections. In other areas the illuminance shall be at least 110 lux.

4.2.7.4 Artificial illumination, if used, shall be such that the colours of products are not significantly altered.

4.2.7.5 Luminaires suspended over the product at any stage of preparation, packaging and processing areas or where the open product ingredients or empty cans are handled, shall be of the safety type or otherwise protected to prevent contamination of the product in case of breakage of luminaire or lamp.

4.2.7.6 Suspended fixtures shall be so constructed and so situated to facilitate easy cleaning and maintenance.

4.2.8 Ventilation

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

4.2.8.2 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 or ventilation openings shall be insect screened and made out of corrosion-resistant material and kept in good repair (see 4.2.3). The screens shall be easily removable for cleaning and shall be regularly cleaned.

4.2.8.4 Fork truck or other vehicles emitting exhaust gasses shall not be operated in the preparation and processing areas. The air shall be free from noxious fumes, smoke, vapour, dust, chemicals and contaminating aerosols.

4.2.8.5 Air intake points for ventilation shall be fitted with dust filters and shall be located so as to avoid the intake of air contaminated by micro-organisms and other contaminants.

4.2.9 Hand washing facilities

4.2.9.1 The following shall be provided at the entrances to the preparation and processing areas of the factory that are used by the employees, and at other strategic and conveniently situated places in the preparation and processing areas or where their absence would present a food safety risk and within easy reach of the employees and at the toilets in such a position that the employee must pass them when returning to the processing area:

- a) an adequate number of wash-hand basins, with an abundant supply of hot and cold running potable water complying with 4.4.1 and from taps operated by means other than hands or elbows, or warm water in the temperature range of 40 °C to 50 °C under adequate pressure;
- b) abundant unscented liquid soap or suitable hand cleaning preparation, nail brushes and single-use disposable towels;
- c) receptacles shall be provided for used disposable towels at each hand-washing facility. These receptacles shall be regularly emptied; and

d) notices shall be conspicuously posted requiring employees or where applicable, visitors, to wash their hands with soap or detergent; (see 4.6.6)

- 1) after using the toilet,
- 2) when entering the preparation, processing areas or product handling areas,
- 3) when their hands become dirty or whenever necessary before handling the product.

4.2.9.2 Hand-washing facilities at the entrance to the processing and food handling areas shall be under protection against environmental contamination inside the building and shall be preferably located in a lobby or entrance hall. They shall be placed in such a position that employees are forced to pass them upon entering and if necessary to be guided by a rail.

4.2.9.3 The hand-washing facilities at the entrances to the processing areas and inside the processing area shall be located in a position where employee practices can be supervised (see 4.6.6).

4.2.9.4 Access to hand-washing facilities shall, at all times, be unobstructed by equipment and operating activities. Hand-washing basins shall be of a suitable corrosion-resistant impermeable material, they shall have a smooth finish, be easy to clean and shall drain direct into drainage channels.

4.2.9.5 Hand-washing facilities shall not be used for other purposes than the washing of hands.

4.2.9.6 Disinfectant hand dips, where provided shall be of such design that they can be adequately cleaned. Hand dips shall not be allowed to become a source of contamination. Disinfectant solutions shall be monitored and replaced regularly.

4.2.10 Foot-baths and boot-wash basins

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

4.2.10.2 There shall be adequate provision for the drainage and cleaning of footbaths.

4.2.10.3 Footbaths or boot-wash basins shall be positioned before the hand-washing facility upon entering the processing area and shall be located inside the factory, protected against environmental contamination.

4.2.10.4 Boot-wash basins shall be provided with suitable brushes consisting out of non-absorbent material of hygienic design, water sprays under suitable pressure and boot scrubbing powder and a disinfectant dip.

4.2.11 Production areas

Product handling areas shall not be used during production for any other purposes than that for which they have been designed. The production areas shall be designed, constructed, staffed and the equipment shall be arranged in a manner to permit

- a) control of access,
- b) proper supervision,
- c) adequate working space to allow free movement of workers for the satisfactory performance of all operations,

- d) functions such as quality and process control from arrival of raw materials, ingredients and packaging materials, the handling, processing to the finished product,
- e) easy and adequate cleaning and proper maintenance of hygiene and hygienic operations and facilitate free movement and cleaning of movable equipment,
- f) physical separation of the preparation and processing areas from any storage, designated cleaning, workshop, and comfort areas,
- g) rapid and efficient handling and processing without mechanical or other damage of the product,
- h) an orderly undelayed flow of production,
- i) prevention of crossflows of operations that might have an adverse effect or reduction in the quality of the product or separation between those operations that might cause cross contamination,
- j) where necessary, temperature control areas,
- k) effective separation of those operations or areas with potential adverse effects on the product such as the separation of areas where the uncleaned ingredients are handled from areas where cleaned ingredients are handled, or where raw materials are being handled from areas where cooked food is being handled, or separation of low temperature control areas from heat control areas, and
- l) minimization of product contamination risk.

4.2.12 Chill rooms, freezers and freezer storage rooms

4.2.12.1 Chill rooms, freezers and freezer storage facilities shall operate efficiently and shall be hygienically maintained.

4.2.12.2 Refrigeration and freezing units, such as compressors, shall not be installed in an area where the product is handled, with the exception of equipment that is an integral part of a production unit. Where freezers, chill rooms and freezer storage rooms are located in processing areas, their floors shall either be an integral part of the floor of the processing area or adequately sealed to that floor. Any storage units shall be installed high enough above the floor to permit easy and adequate cleaning of the area under them.

4.2.12.3 The walls and floors shall be in good condition. The surfaces of ceilings, walls and floors shall be of suitable corrosion-resistant material, be impermeable to water and shall be smooth, free from cracks, crevices and flaking of surface material. The floors shall be drainable, and the floors of chill rooms shall be sloped to effect complete draining.

4.2.12.4 Freezer storage rooms in factories other than factory ships shall be equipped with automatic temperature recorders that have enough suitably placed sensing elements to monitor the overall air temperature. The temperature in freezer storage rooms shall be automatically and continuously monitored and a record of the temperature shall be kept and shall be available for inspection. Temperature charts shall be so graduated that each division represents not more than 2 °C within the storage range, and shall be easily readable, to the nearest 1 °C, within the storage range. Batch freezers, other than plate freezers, shall be fitted with external gauges or other temperature indicators.

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

4.2.13 Thawing areas

Thawing devices shall have sufficient capacity to avoid delay, shall be designed and constructed for ease of cleaning and disinfecting and shall allow adequate evacuation of water. The thawing of frozen meat shall be performed in a separated, well-drained and cool area where the air temperature can be maintained below 20 °C. The design of thawing shelves shall ensure adequate drainage. Dripping onto meat from shelves above shall be prevented.

4.2.14 Storage facilities for meat and red meat offal

4.2.14.1 Edible red meat offal for human consumption (cleaned where applicable), if not stored separately, shall be stored only in chill rooms or freezer storage rooms that are used for the storage of carcasses. No uncleaned edible offal shall be stored in any room that contains carcasses or cleaned edible offal.

4.2.14.2 Inedible offal, unless scalded and cleaned, and boxed and frozen, shall not be stored in any chill room or freezer storage room containing meat or edible offal.

4.2.14.3 In storage, unprotected meat shall be kept separate from boxed or protected meat. Raw materials other than meat and edible offal that require cold storage or freezer storage shall only be stored in the same room as meat and edible offal if held in a prepared and neatly packaged form in hygienic containers. No carcass or edible offal, whether wrapped or not, shall rest immediately on the floor or against the walls.

4.2.15 Storage facilities for edible ingredients other than meat or edible offal

4.2.15.1 Edible materials shall be stored in clean, tidy, dust free, insect, vermin and bird proof areas, away from the wall and floor surfaces and protected against any source of contamination and separated from the processing areas. Non-edible materials shall not be stored in the same rooms where edible or packing materials are stored.

4.2.15.2 Edible raw materials requiring storage under cool, chilled or frozen conditions shall be stored under such conditions.

4.2.15.3 Edible materials supplied by the manufacturer in containers or in packages shall be stored in closed containers or packages. Opened containers or packages with partly used ingredients shall be re-sealed or transferred to closed containers for further storage.

4.2.15.4 Edible dry ingredients and other ingredients in containers or packages such as tomato paste shall be stored under dry conditions.

4.2.16 Storage facilities for non-edible material

Stores capable of contaminating the product and spare parts for machinery (see 4.2.18, 4.2.19 and 4.2.20) shall be kept away from the processing area.

4.2.17 Storage facilities for packing and packaging materials

Containers, closures, cartons, and labels for the packing and packaging of the product shall be stored in clean, dustproof, vermin-proof, dry storerooms reserved for the purpose. Precautions shall be exercised that containers and closures are not exposed to environmental elements or excessive steam or moisture during storage. Packing and packaging materials shall be stored at a height of at least 250 mm above floor level and away from the walls.

4.2.18 Storage facilities for poisonous and harmful materials

4.2.18.1 Storage facilities for pesticides and other poisonous materials

Poisonous or other harmful materials, pesticides and equipment for their application, shall be stored in a well-ventilated room in which no foodstuff or food-handling equipment or packing material or containers are stored and shall be kept locked. These poisonous or harmful substances shall at all times be segregated from edible materials. All these materials shall be prominently and distinctly labelled with the warning about their toxicity and use, and shall be registered for the purpose of use. Their containers shall be kept closed during storage.

4.2.18.2 Storage facilities for cleaning and disinfecting materials

Cleaning and disinfecting materials and equipment for their application, shall be stored in a lockable room where no foodstuff or food-handling equipment or packaging materials or containers or lids are stored and shall, at no time, come into contact with containers, raw materials or the product. All materials shall be prominently and distinctly labelled.

4.2.19 Fuel storage area

Any storage area or tank, for the storing of fuels such as coal or hydrocarbons shall be located, designed, protected, controlled and maintained in such a manner as not to present a risk of the product being polluted during the storage and manipulation of these fuels.

4.2.20 Storage of lubricants

Lubricants shall be stored away from the production areas in such a manner that they shall not be a cause of contamination to the product.

4.2.21 Storage facilities for utensils and spare parts

Utensils and equipment parts that, when in use, come in contact with the product shall, when not in use, be kept in a disinfectant solution or be stored in a hygienic manner in an area that is dry, free from dust and any other source of contamination and is vermin proof. Suitable stands and/or shelves shall be provided for the storage of loose equipment and utensils. Spare parts for equipment and tools that can contaminate the product shall be kept in a separate storage area away from the processing areas and not stored with utensils and equipment parts that come in contact with the product when in use.

4.2.22 Storage facilities for end products

End products awaiting dispatch shall be stacked in well ventilated, acceptably dust-free, dry and clean rooms. The storage area for end products shall be physically separated from areas where steam is generated. The design and location of the storage area shall be such that the end product shall be protected against elements of the environment or any other condition that could adversely affect the product.

4.2.23 Smoke units

Smoke units shall be maintained in a hygienic condition and they shall not be fired from the inside of the processing area of the factory. In the case of prefabricated smoke kilns where the smoke generating equipment forms part of the kiln, the smoke generator shall not emit any smoke into the processing area, and the area adjacent to such a generator shall be partitioned off from the processing area to prevent contamination of the area with sawdust. Exposed sawdust shall not be transported through the processing areas. Sawdust shall be contained in bins with lids on. Doors of smoke rooms and kilns shall be tight fitting. The inner surfaces of smoke units shall be finished with a smooth lining such as stainless metal, to facilitate the cleaning of the walls with steam and water. Trolleys or trays used in smoke units shall be of hygienic design and shall be regularly cleaned.

4.2.24 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. There shall be no direct access from a by-product plant to the preparation and processing areas of the cannery. Equipment and utensils used in by-product plants shall be identified and shall not be used in areas where food for human consumption is processed.

4.2.25 Refuse

A separate room or other equal adequate and suitable refuse facility shall be provided on the premises and shall be cleaned daily. The design and construction shall be such as to prevent harbourage of pests and contamination of the product, the equipment or buildings used for the production of the product.

4.2.26 Effluent sewage and waste disposal

4.2.26.1 Establishments shall have an efficient effluent sewage 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 and shall be so constructed as to avoid contamination of potable water supplies or the environment and not constitute a source of contamination to the product, product contact surfaces, ingredients or create an unsanitary condition or nuisance. Drainage and sewer pipes shall not be installed direct over the preparation, processing or packaging areas, or the product or product contact surfaces or empty container storage areas or in any manner that accidental leakages could contaminate the product. Sewer pipes shall have an inside diameter of at least 100 mm and shall be properly vented to the outside atmosphere.

4.2.26.2 Effluent sewage and waste water lines shall be identified as such and the disposal shall be made into a public sewerage system or in the absence thereof, into an adequate private sewerage system in a manner which will not cause a health hazard.

4.2.26.3 Offal and rubbish shall be so conveyed, disposed, or stored as to minimize the development of bad odours, prevent waste from becoming an attractant and harbourage or breeding place for vermin and prevent contamination of the product or product contact surfaces, ground surfaces or water supplies.

4.2.26.4 Manholes shall be not present in preparation and processing areas.

4.2.26.5 Combustible waste, if incinerated, shall be burned in an incinerator of an approved design and located at an adequate distance from the factory to avoid contamination of air supplies. Effluent shall not be treated on the premises or close to the factory premises in such a position as to risk air contamination. Hazardous substances shall be disposed of in an environmentally acceptable manner.

4.2.27 Comfort facilities

4.2.27.1 An adequate number of suitable dining rooms, change-rooms, shower baths, hand-wash basins whose taps operate as described in 4.2.9, toilets (separate for each sex) and, where appropriate, urinals, shall be provided. The design, layout, construction and location of the comfort facilities shall be such as not to create a health hazard. Each shower shall have a fresh (potable) hot and cold water supply and soap shall be supplied. Comfort facilities shall be separated and not open direct into a preparation, processing, packaging or storage area but be connected with these areas by means of a vestibule or lobby. The location of the change-rooms shall be such as to enable workers to dress with the required protective clothes (see 4.6.3) before entering the preparation and processing areas.

4.2.27.2 Toilets shall be conveniently located and be provided at a suitable distance from the production areas and shall be completely separated from change-rooms. If toilets do not open in a vestibule or a lobby, they shall be fitted with close-fitting self-closing doors. Doors of toilets rooms shall not open direct into areas where the product could be exposed to airborne contamination. The comfort facilities shall be kept neat and clean and maintained in a sanitary condition and in good repair and free from bad odours.

4.2.27.3 The layout and equipment shall be such as to permit proper cleaning and maintenance and prevent harbourage and breeding of pests. The toilets shall be so designed as to ensure hygienic removal of waste matter. Exit from a vestibule or lobby to the processing, food handling or storage area shall be equipped with a footbath located inside the vestibule or lobby. Provision shall be made for proper drainage of the floor surfaces. Where comfort facilities by means of a vestibule or lobby are connected with the food handling or storage areas, the fall of the floor shall be such that no water from the floor surface of the comfort facilities can enter the food handling or storage areas. An adequate supply of toilet paper shall be provided at the toilets.

4.2.27.4 Lockers shall be provided or alternatively an effective controlled basket system for the storage of personal clothes shall be used. Personal effects of workers shall not be allowed to accumulate in the lockers or baskets. The lockers or baskets shall be not used for the storage of food or items attracting vermin and shall be emptied at the end of each working shift. The lockers or baskets shall be maintained in a clean and good condition and repaired or shall be replaced when necessary. Lockers or facilities to be used for the storage of any personal effects may preferably be provided, and if provided these shall not be located inside the complex accommodating the comfort facilities. The comfort facilities shall be adequately ventilated and illuminated. Toilets shall be separately ventilated to external air in such a way as not to contaminate the air in the processing areas. Change-rooms and dressing rooms shall not be used as living quarters or for the preparation of food or as dining rooms. Staff dining rooms shall be separate from the change-rooms or dressing rooms. Separate comfort facilities shall be provided for "clean area" and "dirty area" workers. The comfort facilities shall not be used as storage areas.

4.2.28 Living quarters

Living quarters shall not be located on the same premises that accommodate the areas where the product is prepared, processed, packaged or stored.

4.2.29 Facilities for washing and laundering of protective clothing

For the cleaning of waterproof protective clothing, plastic brushes on corrosion-resistant chains, disinfecting soap or powder such as hypochlorite, and a spray nozzle shall be provided at the wash-hand basins (see 4.2.9). If cloth types of protective clothing other than waterproof protective clothing are to be washed at the factory, laundering facilities shall be supplied in an area away from the product handling area or stores for ingredients (see 4.6.3).

4.2.30 Facilities for cleaning and disinfecting portable equipment

Facilities with proper drainage shall be provided for the washing and disinfecting of portable or movable equipment such as trolleys and bins and utensils or food contact parts capable of being separated from stationary equipment. Such facilities shall be located in a separate room or in a designated area which should, where necessary, be partitioned off in the preparation, processing and packaging areas where there will be no possibility of contaminating the product or product contact surfaces. Suitable drying stands or shelves shall be provided to keep equipment and utensils off the floor. An ample supply of cold potable water, and hot water if required, or saturated steam, or clean seawater, at adequate pressure, that complies with the requirements of 4.4.1 shall be provided. High pressure or high frequency oscillating water or detergent equipment shall be available where possible. The floor of the room or area shall be smooth-surfaced and graded, to facilitate proper disposal of waste liquids from the cleaning process. The drainage shall be in a direction away from the food handling areas.

4.3 Equipment

4.3.1 General

4.3.1.1 Layout

4.3.1.1.1 Processing areas shall be so designed, equipped and staffed as to allow free movement of employees to facilitate cleaning and maintenance of hygiene and product quality.

4.3.1.1.2 Equipment such as tables shall be installed or placed away from the walls. Aisles and working spaces between equipment and between equipment and walls shall be unobstructed and of sufficient width to permit employees to perform their duties without contamination of the product or food contact surfaces with clothing or personal contact.

The position of stationary equipment shall not impede drainage of water towards the drainage canals.

4.3.1.2 Installation

4.3.1.2.1 Equipment shall be so constructed and installed as to prevent hygienic hazards and to minimise the build-up of contamination with organic material and dirt, and to facilitate its cleaning and disinfecting, and adjacent areas and those areas beneath it.

4.3.1.2.2 All permanently mounted or readily movable equipment shall be installed away from the walls or ceiling and be either installed high enough above the floor at distances sufficient to provide access for cleaning and inspection, or completely sealed to the floor.

4.3.1.2.3 Equipment shall preferably not be sunk into the floor but, if this is unavoidable, the equipment shall be installed in an acceptable manner. Sunken areas shall be well drained.

4.3.1.3 Design

4.3.1.3.1 Equipment, implements and utensils shall be designed and of a workmanship that is suitable for their intended use and shall facilitate rapid and efficient handling of the product.

4.3.1.3.2 The design, construction, installation and use of equipment and where applicable, utensils, shall be such as to prevent hygienic hazards and shall preclude contamination of the product with lubricants, fuel, metal fragments, soiling, contaminated water or any other contaminants.

4.3.1.3.3 All equipment used in the production of the product shall be in a well-maintained and sound condition, durable and easy to maintain, inspect or monitor, movable or easy to dismantle or able to be disassembled or to be opened for cleaning. They shall be of hygienic design with no open joints or pits or crevices or dirt traps.

4.3.1.3.4 All parts that come into contact with the product shall be easily accessible for cleaning and disinfecting. Where necessary, as in the case of equipment that cannot be cleaned *in situ*, it shall be possible for easy dismantling to expose the food contact surfaces for effective cleaning and disinfection.

4.3.1.3.5 Surfaces with which the product comes into contact shall not be painted and shall be constructed to reduce projections, sharp corners or other features that could cause damage to the product. Bearings in equipment or revolving of equipment within reach of the product contact surfaces shall be of a sealed type and shall not cause any soiling of the product through seepages.

4.3.1.4 Construction

4.3.1.4.1 All plant, equipment, implements and utensils or surfaces that come into contact with the product shall be smooth and of a suitable corrosion-resistant, non-absorbent material which does not transmit toxic substances, odour, taste or staining or cause colour changes and soiling of the product and shall be inert to the product, detergents and disinfectants under normal operating conditions.

4.3.1.4.2 The equipment, implements and utensils may have an acceptable plastics-coated surface capable of withstanding repeated cleaning and disinfection or shall preferably be made of stainless steel suitable for use with food. Dissimilar metal material shall not be used where electrolytic corrosion can occur. Wooden equipment or utensils are unacceptable.

4.3.1.4.3 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 processing. The use of solder in equipment shall be minimized.

4.3.1.4.4 Equipment and utensils shall not be removed from the processing areas except for repairs.

4.3.1.4.5 Equipment and utensils used for inedible materials or waste shall be identified as such and shall not be used for edible products. Equipment and utensils used in areas outside the food for human consumption areas such as the toilets and ablution facilities shall not be used in food for human consumption handling areas. Such equipment and utensils shall be identified as such.

4.3.2 Equipment for the packing medium

4.3.2.1 Pipes, valves, joints, pumps, homogenizers, cyclones or any equipment coming into contact with the packing medium shall be of a hygienic design with no dead ends, sharp bends or uneven joints.

4.3.2.2 Pipelines shall be easily dismantled for cleaning.

4.3.2.3 Branches occurring in pipelines shall be fitted with suitable stopcocks in such position as to avoid dead ends and the development of a stagnant packing medium. Any bend occurring in the pipeline, shall permit dismantling at both sides of the bend.

4.3.2.4 Mixing equipment, stirrers mesh screens and storage tanks shall be of stainless steel. Storage tanks must be provided with suitable covers.

Water used in the mixing tanks shall only be supplied by means of a permanently fixed water pipe. Water hoses shall not be used to supply water as an ingredient in the product.

4.3.3 Tables

4.3.3.1 Wooden tables shall not be used in preparation, processing and packaging areas.

Tables shall be of a design and construction that will not allow the development of unhygienic conditions and microbial build-up.

4.3.3.2 Frames shall be made of suitable smooth, corrosion-resistant metal or steel with no openings in the construction.

4.3.3.3 The tops of preparation and packaging tables shall be of a suitable impermeable, smooth, seamless, corrosion-resistant metal (preferably stainless steel) or other material with similar surface characteristics. The tops shall either be removable for cleaning, or so secured to their frames as to allow cleaning and disinfection.

4.3.3.4 Tables shall, as far as possible, allow rapid and effective draining and shall be easy to clean and be free from cracks, crevices or openings in the framework.

4.3.3.5 Where metal tops are folded at the edges, the fold shall be effectively soldered, welded or sealed with an acceptable mastic sealant in such a way as to prevent organic matter and dirt from entering the folded section. All joints shall be watertight.

4.3.4 Cutting boards

If cutting boards are used they shall be easily removable cutting boards or blocks of hygienic construction, made of acceptable light-coloured solid and smooth material (other than wood or other absorbent or porous material) and suitable for use with food. The shape and size shall be such as to facilitate cleaning and disinfecting.

4.3.5 Utensils and implements

Knives, shovels, brooms and other utensils or implements shall not have handles of wood or other absorbent or porous material. Utensils used for the topping-up of cans shall be made of stainless metal or of rigid plastics and of hygienic design.

4.3.6 Heat processing equipment

4.3.6.1 Retorts shall have an adequate supply of energy, steam and where applicable, water or air. Their capacities shall be sufficient for production flow to avoid undue delays.

4.3.6.2 Steam, water and compressed air used in the operation of retorts shall not contain any substances that might be hazardous to health or that might contaminate the product. Steam shall be made from potable water. The steam quality for steam retorts shall be pure saturated and free from air. All heat-processing equipment, temperature control and measuring devices shall be maintained in good order. All temperature-indicating devices shall be installed in such a way and location and maintained to accurately measure the actual temperature within the retort. The installation shall be such to ensure a constant flow of the heating medium past the length of the probe or bulb of the temperature-indicating device.

4.3.6.3 Retorts shall comply with the following:

- a) An **automatic steam controller**, to maintain the processing temperature accurately (see 4.3.6.3(c)). Steam controllers may be combined with the temperature and time recording device (see 4.3.6.3(e)) to function as recording-controlling instruments.
- b) The **construction of the retort**, the steam supply and steam distribution in the retort shall be such so as to ensure a rapid and even rise of temperature, provide uniform heat distribution throughout the retort and ensure an adequate heat process. The steam supply shall be sufficiently provided for the greatest number of retorts that might be brought to sterilization temperature simultaneously.

The steam pressure and size of steam inlet shall be large enough and shall enter at points and be distributed to facilitate adequate flushing of air out of the retort and to provide steam for proper operation of the retort.

Steam shall be evenly distributed by means of steam spreaders and shall flow unobstructively throughout the retort load without any air pockets remaining in the retort.

Steam spreaders are perforated continuations of the steam inlet inside the retort. Horizontal retorts shall be equipped with steam spreaders extending the entire bottom length of the retort occupied by the retort trolleys. In retorts of at least 6 m in length, the steam shall enter the spreader near the centre of the retort. In retorts of length less than 6 m, the steam may enter either at the ends or at the centre. When the steam inlet enters the spreader at the end, the cross sectional area of the latter shall not be less than the inlet pipe, when the inlet enters at the centre, the cross sectional area of each arm of the spreader shall not be less than two-thirds of the inlet pipe. Retorts over 9 m length shall have two steam inlets connected to the spreader at approximately equal divisions of its length.

In vertical retorts, bottom spreaders when present, shall be in the form of a cross pipe.

Spreader shall be perforated over its entire length along the top 90° of this pipe, that is, within 45° on either side of the top centre. The ends of the spreader shall be closed. The number and size of perforations in the steam spreader shall be such that the total cross sectional area of the perforations is equal to 12 to 2 times the cross sectional area of the smallest restriction in the steam inlet pipe.

- c) If the **controller** is smaller than the steam inlet pipe, a steam by-pass around the controller is necessary for a rapid, even rise during the coming-up time.
- d) At least one indicating **mercury-in-glass (MIG) thermometer**, easily readable to 0,5 °C. The divisions shall not exceed 10 °C for each 20 mm of graduated scale. The temperature range shall adequately encompass scheduled retort temperatures to be used. Bulbs of MIG thermometers shall be installed within the retort shell or in external wells attached to the retort body. Thermometers with separable wells or sleeves for the bulb shall not be used. Thermometers shall not be installed in the lid or door of a retort. Thermometers with a divided mercury column shall be replaced immediately for repair.
- e) A **recording thermometer device (thermograph)** with time and temperature chart (thermogram) to provide a permanent record of thermal processing, installed in such a way that their proper operation is not affected by steam or vibration.

The correct time and temperature chart shall be used. The time and temperature charts shall have a temperature scale of not less than 1,0 mm/°C and a time scale of not less than 20 mm/h over a range of ± 5 °C of the processing temperature. The recording accuracy shall be equal to or better than $\pm 0,5$ °C at the sterilizing temperature. The temperature recorded shall never be higher than and not more than 0,5 °C lower than the MIG thermometer at sterilizing temperature. Means of preventing unauthorized changes in adjustment shall be provided.

The heat processes of not more than one retort shall be recorded on a particular time-temperature chart. Where multi-point plotting chart-type devices are used, temperature recordings shall be printed at intervals not exceeding 30 s. Records of the retort process shall be kept and shall be available for control reference for at least the expected shelf life of the products.

- f) A **pressure gauge**, with the diameter of the dial at least 100 mm, connected to the retort by means of a gauge siphon or gooseneck.

g) **Vents:**

- 1) **Location:** Vents shall be located in that portion of the retort opposite to the steam inlet. Vents shall be of a size and be designed, installed, arranged on the retort and operated in such a way that air is rapidly flushed out of the retort during the coming-up time before the start of the sterilization timing.

Vents on horizontal retorts shall not be located more than 750 mm from the ends of the retort. The spacing of vents on horizontal retorts depends on the size of each vent, such as one 25 mm vent for every 1,5 m of retort length or one 20 mm vent for every 1 m retort length.

- 2) **Size:** The total cross sectional area of the vents on horizontal retorts shall be at least one vent size larger than the cross sectional area of the steam inlet.

Where vents from a single horizontal still steam retort are connected with a manifold, the cross sectional area of the manifold shall be larger than the total cross sectional area of the connecting vents. Where a manifold header connecting vents or manifolds from several retorts, the cross sectional area of the header-manifold shall be at least equal to the total cross sectional area of all connecting manifold pipes or vents from the maximum number of retorts to be vented simultaneously. If the manifold header is of excessive length, it shall be at least one manifold pipe size larger.

Vents or where applicable the manifold, shall be controlled with a suitable gate or plug-type valve(s) with at least the same opening of the vent or manifold in which they are installed.

The manifold header connecting manifolds from several retorts shall not be equipped with a valve.

- 3) **Discharge:** Vents and manifolds shall be of a size and layout to allow unobstructive discharge of the retort without any condition which could retard the discharge or without the production of back pressure.

Vents, manifolds or manifold headers on horizontal retorts shall discharge direct into the atmosphere. They shall not be connected direct to a drainage system or discharged under water.

Vents on vertical retorts which also serve as overflows, shall have a break in the pipe before their connections to a drainage system.

- 4) Means of indicating the functioning of the vents shall be provided.

h) **Bleeders:**

Bleeders on retorts shall be installed in such a way and in such a position as to facilitate proper removal of air and a flow of steam throughout the retort load after the vents have been closed.

The following are required:

- 1) a bleeder of at least 3 mm at each thermometer pocket or external well accommodating bulbs or probes of temperature devices located to provide a full flow of steam past the entire length of these bulbs or probes especially of the MIG thermometer;
- 2) a 6 mm bleeder on a vertical retort located in that portion of the retort opposite the steam inlet;
- 3) 6 mm bleeders along the top of horizontal retorts spaced not more than 2,5 m apart and one approximately 300 mm of each end of the retort.

All bleeders shall discharge direct into the atmosphere and shall be arranged so that the retort operator can observe that they are functioning properly.

Where vents or bleeders are installed in positions other than those indicated above, the establishment shall provide evidence in form of heat distribution data or other scientific proof that the arrangement accomplishes the purpose set above.

i) Water retorts:

Whether still, agitating, or rotating retorts, the bulbs, or probes of temperature-indicating devices and controllers shall be located in such a position that they are beneath the surface of the water so that steam does not strike them direct or that there is no opportunity for steam impingement on the control bulb or probe. The temperature-indicating device bulb or probe shall extend direct into the water without a separate well or sleeve.

There shall be a means of determining the water level in the retort during operation.

In retorts for processing products packed in glass jars, the incoming cooling water shall not impinge direct on the jars in order to minimize glass breakage by thermal shock.

When a water recirculation system is used for heat distribution, the water shall be drawn from the bottom of the retort through a suction manifold and discharged through a spreader that extends the length/circumference of the top of the retort. The holes in the water spreader shall be uniformly distributed. Suction outlets shall be protected with non-clogging screens to keep debris from entering the recirculation system. The pump shall be equipped with a signal device to warn the operator when it is not running, and with a bleeder to remove air when starting operations. Alternative methods for recirculation of water in the retort may be used, provided there is documentation proof of effectiveness in the form of heat distribution test data that shall be maintained on file at the factory.

j) Stacking equipment, divider plates and baffle plates:

Retort baskets, trolleys, crates or other devices for holding product containers and divider plates shall be fabricated to ensure that steam or water or whatever applicable, can freely circulate around the containers during the entire retort process, and in still steam retorts ensure adequate purging or eliminating of air and adequate distribution of steam and prevention of air pockets.

In the case of still steam retorts, the retort baskets, trolleys or crates and in particular their bottoms, shall not obstruct steam circulation. When perforated sheet metal is used, perforations shall be approximately 25 mm holes on 50 mm centres or their equivalent in percent open area.

Divider plates, if used, shall have at least the same perforations (25 mm holes on 50 mm centres) or their equivalent in percent open area as required for retort trolleys above. A divider plate shall not be placed on bottoms of trolleys, etc. before container loading. Not more than one divider plate shall be used to separate any two layers of product.

Baffle plates shall not be used in the bottom of vertical or horizontal still steam retorts due to their tendency to direct steam flow around container lots rather than through container lots.

k) Agitating or rotary retorts:

The rotational speed of the retort or reel is critical if specified in the sterilization schedule. A recording tachometer or other acceptable device shall be used to provide a continuous record of the speed.

l) Safety valve:

There shall be an effective safety valve.

m) Process timing devices:

A large, easily read fixed wall clock in at least one minute divisions or an accurate timing device shall be used for recording the retort process and to monitor the recording of the timing of the time and temperature controlling device. The wall clock shall, in the case of a power failure, be independent of the main electricity supply. The wall clock shall be located in such a position that it can be readily observed by the retort operator while controlling the retort process. A wristwatch or pocket watch shall not be used for retort timing. A clock not indicating seconds shall not be used unless the specified operating process including the venting and sterilization schedules have an added one-minute or greater safety factor over the schedule process.

The wall clock and the timing controlling devices used to measure the retort process shall ensure that the specified venting time and the sterilization schedule time have been achieved.

n) Compressed air:

Any supplies of compressed air and/or water shall be capable of being shut-off adequately to prevent any leakage into the retort in order to prevent adverse effects on the retort process.

o) Positioning of operating controls and instrumentation:

All manually controlled devices necessary for retort operating shall be easily accessible and in a position convenient for the operator. MIG thermometers and other temperature, pressure and timing devices with adequate available light shall be located where they can be easily and accurately read to enable the retort operator to operate the retort from virtually one spot.

p) Retort identification:

Each retort shall be conspicuously identified with a number.

q) Calibration pocket:

A calibration pocket shall be installed in a position where steam freely circulates alongside the bulb of the MIG thermometer (see 4.3.6.2(d)) and the probe of the recording thermometer or thermograph (see 4.3.6.2(e)) with a bleeder (see 4.3.6.2(h)(i)) next to them. This arrangement should be preferable in an extension well on the retort body. The calibration pocket shall be approximately 125 mm in length and 13 mm in diameter and be kept nearly filled with a high boiling point oil such as cylinder-head oil. The opening of this pocket shall be fitted with a screw-in plug for the purpose, to be kept closed when not used.

4.3.7 Measuring instrumentation, devices and equipment

4.3.7.1 The calibration of measuring instrumentation devices and equipment shall ultimately be traceable to national specifications. The following shall at least be annually calibrated by an accredited body or institution and the calibration certificates shall be available to the authority administering this specification:

- a) all thermometers and temperature controlling and recording devices on retorts and other processing equipment;

- b) pressure gauges on retorts;
- c) timing controlling devices on the thermal processing equipment and wall clock at retorts;
- d) in case of a rotary or agitating retorts, the retort or reel speed timing device;
- e) micrometers, callipers and other measuring devices used for container closure examination;
- f) massmeters and any masses used; and
- g) in general, all pieces of equipment that are used to confirm that the product is in compliance with specifications shall be calibrated.

4.3.7.2 The thermometers, temperature recording devices and pressure gauges shall, after calibration, be certified *in situ* on the retort, at sterilization temperature(s) used for processing(s). A calibrated specification MIG thermometer shall be inserted in the calibration pocket (see 4.3.6.2(q)) and then packed into the mouth of the pocket with thermal insulated material. After 10 min of sterilization the temperature readings of the MIG thermometer (see 4.3.6.3(d)) and recording thermometer (see 4.3.6.3(e)) shall be taken against the reading of the inserted thermometer in the calibration pocket. The reading of the pressure gauge shall be correlated against the above three readings of the thermometers. These certifications shall be available to the authority administering this specification.

4.3.7.3 All measuring equipment, devices or instruments shall carry a unique identification number throughout their working lives. An acceptable system of identifying if the instrument is still in calibration shall be employed. Action on equipment found to be out of calibration shall be prescribed.

4.3.7.4 A system of in-house monitoring and verification of accuracy against known accurate specifications of the measuring pieces, equipment and instruments shall be employed on a routine basis or at any time that their accuracy is questioned between calibrations. In case of temperature measuring devices the routine verification of accuracy shall only be done against a calibrated and certified MIG thermometer.

4.3.7.5 Records of each measuring instrument shall be kept covering the following details:

- a) the type of instrument and measurement scale;
- b) instrument identification;
- c) location of instrument usage;
- d) date of calibrations;
- e) accuracy and results of calibration;
- f) traceability of accuracy against calibrated specifications used;
- g) method of calibration;
- h) status of calibration; and
- i) maintenance and repairs.

4.3.8 Containers, bins and trays

All containers that contain foodstuffs, other than those containing the finished product and sealed cans in retort baskets, shall at all times be kept on shelves or dunnage stands of corrosion-resistant material at a minimum height of 250 mm above the floor level. Containers shall be of hygienic design and light-coloured or have a bright metal finish.

Containers used for inedible products and waste shall be leakproof and constructed of suitable water-impermeable material that is easy to clean and shall be identifiable. The same type of containers used for the product shall not be used for collecting offal and waste. Containers, bins or trays shall be identified so that containers that are used for the unprepared product shall not be used for the unpacked processed product.

4.3.9 Conveyors, elevators, runways and flumes

Conveyors, elevators, runways and flumes for transferring the product shall be so designed to allow for effective cleaning and, when necessary, disinfection and to prevent damage to the product such as by sharp corners, projections, long drops, crushing or contamination of the product. Electrical motors and transmissions driving the conveyors shall not be installed above the open product or in such a position that the product is exposed to soiling. Conveyor systems and runways to transport empty containers shall be designed and constructed to prevent contamination and damaging of the containers.

4.3.10 Compressed air and gases

Compressed air and gases used in direct or indirect contact with food or with food contact surfaces shall not contain substances that could be hazardous to health or that could contaminate the food with particles of oil. Pipes of compressed air used to clean empty containers/cans shall be fitted with effective oil traps or filters just before the point where cans are blown out. The compressed air supply at the point of cleaning on a conveyor line for empty containers shall be fitted with a mechanism to activate the outlet of compressed air into the container when passing that point.

The point where empty containers are blown out with compressed air shall not be located in such a position where the open product can be contaminated. Compressed air shall not be used for other cleaning purposes in the preparation and processing areas due to the risk of spreading contaminants.

4.3.11 Seamers or sealing equipment

Every seamer or sealing equipment shall be clearly and indelibly numbered where a processing plant is equipped with more than one seamer or sealing equipment.

Every seamer or sealing equipment shall be equipped with a coding device to indelibly mark, emboss or project symbols, letters or numbers on containers.

Seamers or sealing equipment shall be equipped with an effective, automatically operated device for counting the number of containers processed.

4.3.12 Maintenance and condition of production facilities, equipment and utensils

The equipment and utensils shall be maintained in an acceptable condition of maintenance.

A schedule and routine inspection system of the condition and maintenance of the production facilities, equipment and utensils shall be implemented and maintained. Procedures for corrective action in the event of non-compliance shall be instituted. Findings of such inspection and correction of non-conformance or the time limit to correct the non-conformance shall be documented and kept.

Procedures for the inspection, maintenance, repair, adjustment of apparatus and equipment, in particular the sealing machines and retorts shall be established. Procedures shall specify, for each piece of equipment, the methods to be used, the person in charge of the application, and the frequency. Lubrication of machines shall be such to avoid risks of soiling the product. Only lubricants that have been officially approved for use in food establishments shall be used. Sealed bearings shall be used where possible, in places where the risk of lubrication seepage to the product could occur. Regular inspection for leaking oil seals for replacement shall be conducted.

4.3.13 Facilities for storage, treatment and distribution of water supplies

Facilities for storage, treatment and distribution of potable water and container cooling water shall be adequately protected against contamination. Air vents on storage tanks and reservoirs shall be insect and rodent proof. Each supply and pipeline carrying potable water, treated retort cooling water, treated sea water and non-treated sea water shall be completely separate from each other and identified as such. There shall be no cross connection between each of them, above or with non-potable water or with waste water lines and without any back siphonage.

The pipe system and the installation of sea water supplies shall be capable of being adequately drained to prevent any stagnant sea water in the system when the plant is not in operation. The intake for sea water shall be located in such a position to avoid contamination.

4.3.14 Disinfecting and cleaning facilities

Disinfecting facilities for gloves and knives shall be available at convenient and acceptable points.

4.3.15 Ice-making equipment

All surfaces of ice-making equipment that come into contact with the ice shall be of suitable corrosion-resistant material. The ice-making equipment shall be of hygienic construction throughout. Whenever ice is transferred, stored or transported, it shall be effectively protected from contamination.

4.4 Water

4.4.1 Potable water

4.4.1.1 Every cannery shall have an adequate supply of clean potable water under adequate pressure and shall be capable of coping with peak demand. The water supply shall be free from suspended matter and from substances that could be deleterious to the product or harmful to health. In addition, the water shall have been so treated, by flocculation, filtration, chlorination or other acceptable process, as to ensure compliance with the following requirements:

- a) **total count:** when tested in accordance with 11.19, the total count of viable micro-organisms shall not exceed 100 per mL:
- b) **coliform organisms:** the count of coliform organisms shall not exceed five organisms per 100 mL of the water (see 11.20); and
- c) **faecal coliform bacteria:** faecal coliform bacteria shall not be detectable in 100 mL of the water (see 11.21).

4.4.1.2 For the purposes of the water examination, the coliform group shall include all Gram-negative, non-spore-forming rods that are capable of fermenting lactose with the production of acid and gas at 37 °C in less than 48 h. Faecal coliform bacteria shall be regarded as Gram-negative, non-spore-forming rods that are capable of fermenting lactose with the production of acid and gas at both 37 °C and 44 °C in less than 48 h, and of producing indole in tryptone water.

4.4.1.3 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 or other acceptable test that has equivalent sensitivity.

4.4.2 Chlorination of water for container cooling in the retorts

Water used for container cooling after the retort process shall comply with the microbiological requirements of potable water set out in section 4.4.1. Water that is used for container cooling but is not circulated for re-use shall be continuously chlorinated to contain a minimum of 2 mg/L of free available chlorine content measured at the retort inlet. Where water for container cooling is circulated for re-use it

shall, before recirculation, be treated to remove solids and chlorinated after the circulated water has been cooled, to ensure, after a contact period of at least 20 min, a minimum free available chlorine content of 2 mg/L at the retort inlet. In all cases the free residual chlorine concentration shall be determined by the N,N-diethyl-1,4-L-phenylene diamine test or other test of equivalent sensitivity.

The free available chlorine content shall also be measured immediately after the can cooling process. (The presence of free chlorine is an indication that the level of chlorine available during cooling was sufficient.) After being used for container cooling, the water shall not be drained onto the floor surface and then be circulated for re-use. All pipelines, reservoirs, tanks, cooling towers, treatment facilities and equipment employed in the handling of re-circulated water for container cooling shall be kept clean and so constructed and installed to facilitate cleaning and inspection. The pipelines, tanks and reservoirs shall be a closed system. Recirculated container cooling water shall be protected against contamination.

4.4.3 Steam

Steam used in direct contact with the open product or food contact surfaces such as, but not limited to hot exhaust boxes, or indirect contact with the product such as in retorts, shall be made from potable water and shall not contain substances that might be hazardous to health or that risk contamination of the product. Boilers shall be properly operated and maintained.

4.4.4 Ice

Ice shall be manufactured, handled and stored in a manner that protects it from contamination. The purity of ice shall be such that the water derived from it immediately after the ice has been manufactured (by melting the ice under aseptic conditions at a temperature not exceeding 10 °C) shall comply with the microbiological requirements of 4.4.1.

4.4.5 Water for processing

In addition to complying with the requirements of 4.4.1, water used in the manufacture of the product and water (other than container cooling water) used to wash equipment and plant, with which the product comes into contact during processing and manufacture shall, unless it already contains at least two parts per million of free available chlorine, be continuously chlorinated to contain a minimum of two parts per million of free available chlorine at the point of use.

Where water thus treated affects the product deleteriously in any way, the water shall be dechlorinated immediately before use. In the case of brine solutions held continuously prior to filling at a temperature not below 75 °C, the use of chlorinated water in the preparation of the brine is not essential.

4.4.6 Water for cleaning

Water used for the cleaning of plant and equipment shall comply with 4.4.1 or 4.4.2 as relevant and shall be continuously chlorinated to contain a minimum of two parts per million of free available chlorine or, alternatively, it shall contain such germicidal substances as will ensure sanitation of plant and equipment. Flexible hoses used to supply water for cleaning purposes shall be stored on a reel or an equivalent.

4.4.7 Non-potable water

Non-potable water shall be carried in completely separate lines with no cross-connection with, or back siphonage into, the system that carries potable water. Non-potable water lines shall be identified as such and the water shall be considered unsafe and shall not be used for drinking or for use in food handling areas or allowed to come into contact with food-contact surfaces or for hand washing purposes.

4.5 Hygienic operating requirements

4.5.1 General

4.5.1.1 An orderly, neat and hygienic image of the factory and its grounds shall be conveyed.

In relation to the handling, transportation, processing, packaging, and storage of the product, no operation shall be performed, or conditions exist, that are detrimental to the product.

4.5.1.2 Smoke from factory chimneys and smoke rooms shall not be allowed to enter the factory building in a quantity or manner that is offensive, injurious or dangerous to health, or causes contamination at any stage during the processing of the product. Vehicles that emit exhaust fumes shall not be used in any area where the unprotected product is exposed.

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

4.5.1.4 Care shall be taken that there is no contact between raw materials and finished products, uncleaned and unprepared vegetables shall not be prepared or stored in areas where unprotected meat is handled or stored. Raw food shall not be handled or stored in areas where the cooked product is handled or stored.

4.5.1.5 Effective measures shall be taken to inhibit mould growth and to prevent dust, dirt, flaking paint and other loose or extraneous material being present in the processing or in the product storage areas, cold storage and refrigeration rooms, change-rooms and toilets. Processing areas shall be kept free from surplus water.

4.5.2 Cleaning and disinfecting

4.5.2.1 Cleaning and disinfecting system

A permanent cleaning and disinfection system shall be established to ensure that the processing areas, equipment and material, including vessels used for transportation, are cleaned and disinfected appropriately and regularly. This program shall state precisely the methods for cleaning and disinfecting to be used, as well as methods for monitoring the cleaning schedule, the kind of detergents and disinfectants, instructions for cleaning and the results of cleaning (see 4.5.6).

The programme shall be regularly reviewed and regular examination of its effectiveness and cleaning methods should be done.

The cleaning schedule shall be designated to critical areas and equipment for special attention.

The cleaning and disinfecting of the preparation, processing and packaging areas of the factory and of all auxiliary equipment and utensils shall be organised on a regularly scheduled basis and carried out by trained employees. A permanent member of the factory shall be designated to be responsible for the cleanliness of the plant. He shall have an understanding of the significance of contamination and the hazards involved. He should preferably be independent of production. All persons responsible for handling of the product shall be trained and informed continuously on the hygiene rules to be respected. All employees shall be sensitised to their responsibilities for the quality and safety of the canned product produced.

4.5.2.2 Cleaning materials

Only cleaning agents, sanitizers and disinfectants that have been officially approved for use in food establishments shall be used. Detergents and disinfectants shall be suitable for the purpose intended, safe and effective under conditions of use. A combined detergent disinfectant may be used.

An adequate supply of cleaning materials, steam, hot and cold water, complying with 4.4.6, hose-piping, brushes and other requisites for proper cleaning shall be available. Brooms and brushes shall be made of impermeable material and shall have nylon bristles and shall be maintained in a clean and good condition. Bristles shall be conspicuously coloured to enable easy detection in case of detached bristles. When not in use, brooms and brushes shall be hung up with bristles facing downwards to aid drying. Brooms and brushes used on floors shall not be used on product contact surfaces. Wire wool or metal scouring wool shall not be used for cleaning surfaces that come in contact with the product. Steam used in direct contact with the product and product contact surfaces shall comply with 4.4.3. Cleaning equipment and utensils shall be identified. Cleaning equipment or utensils used in areas other than where food for human consumption are handled, such as the toilets and ablution facilities or by-product plants shall not be used in areas where food for human consumption is handled.

4.5.2.3 Physical facilities

The building, premises, plant, equipment, utensils and all other physical facilities of the factory shall be kept clean and in good repair and shall be maintained in an orderly, clean and hygienic condition. The plant shall be cleaned and/or disinfected and rinsed as frequently as necessary whenever circumstances demand. Where necessary, provision shall be made for cleaning-in-place (CIP) of pipes and tanks used for the product. Couplings and other fittings of pipelines used for transporting packing medium, shall, when dismantled, not be left on floor surfaces but be kept in a disinfectant solution or stored dry under hygienic conditions (see 4.3.1).

The entire plant, equipment and utensils shall be thoroughly cleaned with a detergent or other cleaning agent and disinfected at each change of operations. Immediately at the end of operations, the entire system shall be both cleaned and disinfected. Where equipment and utensils are used in a continuous production line basis, the product contact surfaces of such equipment or utensils shall be cleaned and disinfected on a predetermined schedule. Immediately before the commencement of operations, equipment shall be thoroughly rinsed with water (see 4.4.) to remove any dust and any disinfectant residues, and if necessary, a detergent and disinfectant shall be used.

Cleaning operations shall be conducted and adequate precautions shall be taken to prevent the product or product contact surfaces from being contaminated during cleaning or disinfection of the processing areas and equipment. Cleaning operations shall be carried out while waste and organic materials are still wet, before these become dry.

All utensils and product contact surfaces of equipment shall be maintained in a sanitary condition through cleaning as frequently as necessary to prevent contamination of the product. Non-product contact surfaces of equipment used in the processing plant shall be cleaned as frequently as necessary to be kept free of accumulated dust, dirt, food particles and other debris.

4.5.2.4 Ceilings (see 4.2.2)

Ceilings shall be regularly cleaned. Accumulation of dust above the ceiling shall not be allowed.

4.5.2.5 Floors, drainage channels and foot-baths (see 4.2.4 and 4.2.10)

During periods of operation, the floors and the drainage channels in the preparation, processing and packaging areas shall be kept clean and if necessary, by regular sweeping and flushing with water. The product shall be protected from being splashed with water. Refuse shall not be permitted to accumulate in drainage channels. Thorough cleaning of floors and drainage channels shall take place as often as is necessary and at the end of each day's operations in order to maintain hygienic conditions. Foot-baths shall be drained and cleaned regularly and the disinfectant kept in active condition.

4.5.2.6 Walls of preparation, packaging and processing areas (see 4.2.3)

The inside surfaces of walls of preparation, packaging and processing areas shall be thoroughly washed immediately after each day's operations and as often as necessary during the production periods. The rooms shall be kept as free from dust as possible.

4.5.2.7 Preparation, processing and packaging systems

The product shall be prepared, packed and processed under strictly hygienic conditions.

The filling and closing equipment shall be cleaned regularly to prevent soiling and contamination of the product.

The preparation, processing and packaging systems shall be rinsed during each break in production that lasts for more than 1 h, or whenever it is deemed necessary, and effectively cleaned at the end of each shift and at the end of each day's operations. They shall be clean at the time of further use. Knives, saws and other loose items of equipment shall, during breaks in production, immediately after use, or at any time when disinfecting is necessary, be thoroughly cleaned and then disinfected by the use of either saturated steam, chlorinated water or other acceptable disinfectant solution or procedure (see 4.3.8). Loose parts or pieces of equipment that come in contact with the product shall be cleaned and disinfected immediately at the end of operations and shall be stored in a hygienic manner when not in use. When the factory is in operation, equipment and utensils shall not be removed from the work area except for repair, cleaning or replacement.

Any discharge system and conveyance system of the factory, including elevators and holding tanks, shall be cleaned both before and after use.

4.5.2.8 Installations for the treatment of water (see 4.3.13 and 4.4.1)

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

4.5.3 Emergency repair

Maintenance or repairs shall be conducted without the risk of affecting the product adversely. Whenever maintenance or repairs have been carried out in production areas, tools and replaced equipment shall be immediately removed from these areas and the affected equipment thoroughly cleaned and disinfected.

Welding repairs or other repairs involving a high risk of contamination in the areas where (and when) the product is handled, prepared, processed or packaged, shall be performed as an emergency during breakdown only, and in such a way that the product is not exposed to welding fumes, splatter or slag particles.

4.5.4 Cleaning and disinfecting portable equipment (see 4.2.30)

If a separate room is not provided, the area to be used and the method of cleaning shall be of such a nature that there will be no possibility of contamination of the product.

4.5.5 Containers, bins and crates for handling the product (see 4.3.8)

Containers holding food materials shall not be stacked one upon the other in such a manner that the contents of one container can be contaminated by the bottom of another container. Containers shall not be stacked immediately on the floor or against the wall. Whenever containers are moved, they shall be effectively protected from contamination.

4.5.6 Efficacy of cleaning

Daily routine inspections and scheduled in depth inspections shall be conducted. Suitable records shall be kept of the findings. Corrective action procedures shall be stipulated.

The efficacy of the cleaning and disinfecting process specified in 4.5.2 shall be such that, in samples taken in accordance with 11.18, the percentage efficacy of cleaning and disinfecting in the sample, determined in accordance with 11.18, is acceptable when scored by the system set out in 11.18.

4.5.7 Spare parts (see 4.2.21 and 4.5.2.7)

Spare parts for machinery, and other items capable of contaminating the product, shall be stored away from the preparation, processing, packaging and product storage areas.

4.5.8 Removal of refuse (see 4.2.25 and 4.2.26)

A permanent and effective system of waste and refuse removal shall be established, implemented and maintained.

Litter, waste and overflow shall not be allowed to accumulate or to give rise to unhygienic conditions, and shall be disposed of promptly. Offal shall be removed from the processing area on a continuous basis or as often as necessary, in an efficient and sanitary manner. Containers with offal awaiting removal from the factory area shall be well separated from the processing areas. The refuse room or other acceptable refuse facility, equipment and utensils used for waste, offal and refuse removal, collecting or storage, shall be cleaned and disinfected daily. Refuse, offal or waste shall be handled and stored without a risk of contamination to the product, potable water, equipment, utensils or the environment. Hazardous substances shall be disposed of in an environmentally acceptable manner.

4.5.9 Vermin control

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, rodents, birds and other vermin. The factory and its premises shall be regularly inspected by trained personnel for the evidence of infestation by insects or rodents and for the presence of birds and wild or domestic animals (see 4.2.1 and 4.5.11). All rooms in which raw materials and ingredients are stored shall, in addition, be rodent proof. Potential breeding sites shall be eliminated.

An effective and continuous programme for pest control shall be established, implemented and maintained (see 4.5.10).

A site drawing and register of all bait stations shall be kept up to date and open baits shall not be present in processing areas or ingredient, product and empty container and lid stores.

4.5.10 The use of pesticides or poisonous or other harmful materials (see 4.2.18.1)

Only pesticides that have been officially approved for use in food establishments shall be used.

Pesticides shall not be used in work areas while preparation, processing and packaging are in progress. Adequate precautionary measures shall be taken to prevent contamination of the product, product contact surfaces, equipment and utensils during and after application of pest control treatments. Precautions shall be taken to ensure that equipment, product contact surfaces and other work surfaces are free from pesticide residues before being used again. Containers with pesticides, bait or open bait shall not be present in an area or room where the exposed product or ingredients are present or handled. Pesticides shall not, at any time, be allowed to come into contact with containers intended for packing the product or ingredients, or raw materials, or the product, or product contact surfaces. Pesticides or poisonous or other harmful materials shall only be dispensed, handled or applied by authorized and properly trained personnel or by persons under strict supervision of such authorized and trained persons.

Insect electrocuters shall be fitted with catch trays of adequate size and shall not be located over areas where the unprotected product is handled, or over product contact surfaces or in such a position where there is a risk of product contamination.

4.5.11 Animals (see 4.2.1 and 4.5.9)

Animals, including birds, shall not be allowed in any part of the factory. Security dogs shall not be allowed in, or come in contact with production or product handling areas or product contact surfaces.

4.5.12 Supervision

Responsibility for ensuring observance of the requirements of this section, by all personnel, shall be given specifically to competent staff members.

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

4.6.1 Operating requirement

The production planning shall be such that workers will not be subjected to such exhausting long working hours that could result in a lack of their concentration with the risk of adversely affecting the product quality and safety.

4.6.2 Health

4.6.2.1 Before being engaged, employees shall pass an appropriate medical examination to ensure that they are free from communicable diseases, and shall thereafter pass an annual medical examination.

4.6.2.2 No person who is suffering from any communicable disease, a carrier of pathogenic micro-organisms such as *Salmonella*, *Shigella* presumed pathogenic *Staphylococcae* and A-type haemolytic *Streptococcae*; or parasites such as any vegetative or cystic amoeba, tape-worm or any type of helminthiasis, or shows symptoms of or is suffering from gastro-enteritis or an enterobacterial infection or a disorder or condition causing discharge of fluid from any part of the skin or body, shall be allowed to come into contact with the product, containers or product contact surfaces. Any such person or worker in the factory in a capacity in which there is a possibility of the product or ingredients becoming contaminated or the disease being transmitted to other individuals, shall immediately report to the factory management.

4.6.2.3 The management shall ensure that no employee who is known or suspected to be affected with a disease capable of being transmitted through food shall be permitted to work in any part of the factory in a capacity in which there is a possibility of the employee's contaminating the product with pathogenic organisms.

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

4.6.2.5 An appropriate medical record of each employee shall be kept. Medical records and any medical certificate submitted by a factory employee shall be available for inspection by the authority administering this specification.

4.6.2.6 The management shall ensure that no employee who is suffering from any cut, injury, infected wounds, infected skin irritations, shall be allowed to come into contact with the product, ingredients, containers, product contact surfaces, unless the cut or injury has been so treated or dressed that the discharge of body fluid has been prevented, and the wound and its dressing have been so covered as to ensure that infection or contamination of the product is no longer possible. Such dressing and its covering shall be conspicuous in colour.

4.6.2.7 Employees performing close-up inspections shall undergo an eye-sight test at least annually.

4.6.3 Protective clothing

4.6.3.1 All employees engaged in the handling, preparation and processing of the product up to and including the cooling of cans after retorting, but excluding employees operating within freezer storage rooms, shall wear clean, light-coloured, protective clothing covering the entire body except for the face, forearms and hands, suitable waterproof boots, and clean, washable or disposable headgear that completely covers their hair including beards and if necessary, hair nets.

4.6.3.2 Employees handling the open product shall wear light-coloured waterproof aprons.

4.6.3.3 Gloves if used, shall be made of impermeable material and be washable. The wearing of gloves shall not exempt workers from washing their hands.

4.6.3.4 Woollen caps may be worn in freezer rooms only.

4.6.3.5 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 take protective clothing used in the processing area home for washing and shall not wear their protective clothing outside the factory premises.

4.6.3.6 Sleeves shall not extend below the elbows, except when covered by plastics sleevelets or when worn in freezer storage rooms.

4.6.3.7 Protective clothing, other than waterproof aprons, sleevelets and gloves, shall not be stored in work areas; when not in use it shall be kept in 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 purposes.

4.6.3.8 Waterproof protective clothing shall be of a plastics, rubber or other acceptable material. All protective clothing shall be of hygienic design, shall not have external pockets above the waistline, shall be in good repair and shall not constitute a source of contamination to the product.

4.6.3.9 Employees shall not visit the toilets and cloakrooms with their waterproof aprons, gloves and plastic sleevelets on. Hooks and pegs shall be provided at the exit before the hand-wash facilities upon leaving the processing areas, for hanging waterproof aprons and gloves. Pegs for gloves shall not be located above other protective clothing in such a way that contamination by means of dripping water can occur. Hooks for aprons shall be adequately spaced apart to prevent contact between aprons and a consequent build-up of contaminants.

4.6.3.10 Waterproof aprons, sleevelets and gloves shall be cleaned and disinfected immediately at the end of each shift and at the end of each days' operations, at each time of undress and as frequently as necessary, and shall be hung on hooks or pegs at exits from work areas during intervals between work and during visits to the lavatory. Waterproof protective clothing such as aprons shall not be washed on the floors. Waterproof aprons, sleevelets and gloves, as well as equipment used in the preparation, processing and packaging of the product, shall be not removed from the work areas except for repairs and for cleaning under hygienic conditions.

4.6.4 Personal hygiene

4.6.4.1 Workers shall at all times be clean of person and maintain a high degree of personal cleanliness and conform to hygienic practices while on duty. Workers 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.

4.6.4.2 Before commencing work, and after each absence from the factory preparation, processing or packaging area, after blowing their noses, after handling unwashed vegetables, at regular intervals during production, or at any time necessary such as after handling contaminated material, and after using the toilet, employees shall wash their hands with warm running water complying with 4.4.1, and an acceptable unscented liquid soap or detergent, after which they shall rinse their hands in clean, running,

potable water complying with 4.4.1. They may then immerse their hands in an acceptable disinfectant, after which they shall rinse their hands in clean running potable water, complying with 4.4.1 if so required by the usage directions of the hand dip.

4.6.4.3 Fingernails shall be kept short and clean and free from varnish or lacquer. Jewellery shall not be worn by employees who handle raw materials or the unprotected product.

4.6.4.4 The necessary precautions and control shall be exercised to prevent contamination through the workers of the product with micro-organisms and foreign substances including but not limited to, perspiration, hair, cosmetics, chemicals and medicants, or any behaviour that could result in the contamination of the product. Workers handling the unprotected product shall keep their hands away from their noses, eyes, ears, hair, mouths or licking their fingers when handling the unprotected product.

4.6.4.5 Workers shall not cough, sneeze or blow their noses over the unprotected product. Containers used in the preparation, processing or packaging of the product shall not be used for any other purpose. The use of chewing gum and tobacco in any form shall not be allowed within the areas where the product and its ingredients and packaging materials are handled or stored. Spitting shall not be allowed anywhere within the factory premises.

4.6.5 Personal effects

Neither workers' personal effects nor their food shall be present in the preparation, production, processing and packaging areas or where the product, its ingredients or packaging materials are handled or stored. Employees' personal effects including their personal clothes shall be kept in lockers or hangers provided for this purpose in cloakrooms. No food or drink, other than that forming part of the product produced, shall be prepared and no food or drink shall be consumed in these areas.

4.6.6 Notices and supervision

Notices prohibiting eating, spitting and the use of chewing gum and tobacco in any form, shall be posted in each production area and in each area for the storage of ingredients. Notices requesting employees to wash their hands on entering the production areas shall be posted at each entrance used by employees to gain access to those areas. Notices shall be posted at the toilets directing employees to wash their hands after using the toilet (see 4.2.9.1(d)).

Adequate supervision shall at all times be practised to ensure compliance with this section.

Responsibility for ensuring observance of all personal practices, operations and requirements of this section by all people and employees shall be given specifically to competent staff members.

4.6.7 Visitors

A strict control of visitors entering the factory shall be exercised.

Any person who visits or enters the preparation, processing or packaging areas during the hours of operation shall, when in those areas, observe and adhere to all relevant hygiene requirements and shall wear clean protective clothing that shall be provided by the factory.

5 Ingredient requirements

5.1 General

All ingredients and the quantities used, whether specified or not, shall comply with the relevant provisions of the Trade Metrology Act, 1973 (Act 77 of 1973), the Foodstuffs, Cosmetics and Disinfectants Act, 1972 (Act 54 of 1972) and any relevant regulations framed under that Act. (All Acts as amended from time to time.)

5.2 Condition of ingredients

All ingredients shall be clean and sound and in every way fit for human consumption. The temperature of prepared cold meat and cold product emulsions or mixtures that are awaiting processing shall not be more than 7 °C. The transportation of ingredients shall take place under hygienic conditions. The transportation of meat shall be executed in accordance with the requirements of the Abattoir Hygiene Act, 1992 (Act 121 of 1992) (as amended from time to time).

5.3 Meat and offal

Meat and edible offal shall have been inspected and passed as fit for human consumption in accordance with the statutory provisions governing animal slaughtering, meat hygiene and meat inspection. The use of frozen meat and edible offal is allowed, provided that they have been frozen and stored under acceptable conditions and show no evidence of rancidity or discolouration and have been defrosted in a way that does not adversely affect quality. Only chilled carcasses in which rigor mortis has occurred fully or carcasses that have been frozen and thawed may be deboned for processing, unless hot deboning is used.

Meat and edible offal shall be free from off-odours, off-flavours, and taint. Meat and edible offal that are bruised, meat that is from parts of the head other than the masseter muscles, and, in the case of pork, the teat line, shall not be used. Inedible offal shall not be used. Cartilage, glands, blood clots, major sinews, major tendons and major blood vessels shall be removed, except that sinews and tendons may be used in natural binder.

Except where other statutory regulations apply, the deboning of red meat carcasses and the cutting up and preparation of meat for canning shall, except where the nature of the process makes it impossible, be performed in work areas where the temperature does not exceed 15 °C. The temperature of meat being deboned shall at no time exceed 7 °C, except when hot deboning is performed. These areas shall be physically separated from the heat processing areas of the factory.

5.4 Fat

Fat shall be pure, edible and free from obvious rancidity. Anti-oxidants may be used in accordance with the provisions of the said Foodstuffs, Cosmetics and Disinfectants Act.

5.5 Salt

Salt shall be of good edible quality and shall be free from bitterness.

5.6 Seasoning ingredients

Seasoning ingredients shall be pure natural spices or herbs or their preparations, essential oils and essences, and shall be free from foreign matter and of a microbiological quality that conforms with the requirements of the current Foodstuffs, Cosmetics and Disinfectants Act.

5.7 Sodium glutamate

Sodium glutamate used in the product shall be specially prepared for use in foods.

5.8 Tomato purée and tomato paste

Tomato purée and tomato paste shall comply with the requirements for specification grade canned tomato purée and canned tomato paste prescribed by the regulations under the current Agricultural Products Specifications Act, 1990 (Act 119 of 1990) (as amended from time to time).

5.9 Fruit and vegetables

Fruit and vegetables, whether fresh, frozen, canned or dehydrated, shall be suitably prepared from fresh fruit and vegetables that are free from insect infestation and contamination and that comply with the requirements for pesticidal residues under the current Foodstuffs, Cosmetics and Disinfectants Act. Canned fruit and canned vegetables shall comply with the relevant requirements for specification grade prescribed by the regulations under the said Agricultural Product Specifications Act.

5.10 Mushrooms

Fresh, frozen, canned, or dehydrated mushrooms, free from insect infestation and contamination and that comply with the requirements for pesticidal residues under the current Foodstuffs, Cosmetics and Disinfectants Act may be used. They shall be suitably prepared. Canned mushrooms shall comply with the relevant requirements for specification grade prescribed by the regulations under the said Agricultural Product Specifications Act.

5.11 Caramel

Caramel used shall be suitably prepared for use in foodstuffs.

5.12 Sweetening ingredients

All sweetening ingredients used shall comply with the requirements prescribed by the regulations under the current Foodstuffs, Cosmetics and Disinfectants Act.

5.13 Gravy thickeners

Only edible vegetable flours, gelatine, edible gums, modified starches, and agar-agar, the last three in concentrations in the gravy of not more than 1 % by mass, may be used as thickeners in the preparation of gravy.

5.14 Curing salts

Curing salts shall be of a quality intended for use in foods.

5.15 Phosphates

Phosphates shall be suitable for use in meat products.

5.16 Citric, lactic, and ascorbic acids

Citric, lactic, and ascorbic acids shall be of British Pharmacopoeia quality. Sodium ascorbate shall be of a grade intended for use in foods.

5.17 Starchy (farinaceous) materials

Subject to the requirements of the current Foodstuffs, Cosmetics and Disinfectants Act, fillers used shall be cereal, rusk, biscuit meal, potato flour, or other edible starchy (farinaceous) material, including edible gums and modified starches.

5.18 Soya and other non-meat proteinaceous materials

Subject to the requirements of the regulations under the said Foodstuffs, Cosmetics and Disinfectants Act, and subject to the conditions in 6.12, soya and other non-meat materials may be used.

5.19 Milk powder

Milk powder shall be pure, fresh and sweet and when tested in accordance with 11.19, no sample shall have a total bacterial colony count in excess of 50 000 organisms per gram. When tested in accordance with 11.20, no sample shall contain *E. coli* in 1 g.

5.20 Eggs

Eggs (fresh, dried, or liquid) shall be sound and when tested in accordance with 11.22, shall not contain *Salmonella* organisms.

5.21 Colourants

Any colourant used (see 6.6) shall be one of those permitted by the regulations under the said Foodstuffs, Cosmetics and Disinfectants Act.

5.22 Garnish

Garnish, if used, shall consist of pimento, cured olives or other suitably prepared, sound, edible vegetable material.

5.23 Natural binder (see 6.13, 12.1.1.5 and 12.1.1.6)

Natural binder shall be finely comminuted gelatinous material derived from one of the following:

- a) in the case of beef or mutton, gelatinous materials such as sinews, connective tissues and other suitable parts of the carcass including skin acceptably processed into collagen and lips and snouts acceptably cleaned and processed;
- b) in the case of pork, gelatinous materials such as the skin, sinews and face pieces; or
- c) in the case of poultry, the skin and connective tissues.

5.24 Stabilizers

Stabilizers shall comply with the said Foodstuffs, Cosmetics and Disinfectants Act.

5.25 Lard

Lard shall comply with the requirements of 7.10 for canned edible lard.

6 Product requirements

6.1 General

In the event of doubt regarding the compliance of the product with any requirement of this specification that relies wholly or partially for its interpretation on the experience or judgement of the person carrying out the assessment, the decision of the authority administering this specification shall be final.

6.2 Flavour, odour, colour, and appearance

The canned product shall have a flavour, an odour, a colour and an appearance that are characteristic of its type. Foreign flavours and foreign odours, and off-flavours and off-odours shall not be present.

6.3 Texture

The product shall have a texture characteristic of its type. Vegetables or fruit, if present as garnish, shall be tender but not mushy, abnormally fibrous or stringy. Cereals, if present, shall not have an abnormally mushy or soggy texture.

6.4 Freedom from defects

Bone and skin, except where one or both are specifically permitted, blood clots, and cartilage, shall not be present. Permitted bone shall not be dangerously sharp. The proportion of soft connective tissue present in the product shall be the same as that present in the carcass or meat cuts used. The product shall be free from dirt, grit, hair, loose pieces of solder and other extraneous matter.

6.5 Fill of container

Except where otherwise specified, the product shall occupy at least 90 % of the total volume capacity of the container (see 10.4).

6.6 Colourants

Except where specifically permitted, artificial colourants shall not be present (see 5.21).

6.7 Curing salts

Where the presence of curing salts is permitted the limits specified by the current Foodstuffs, Cosmetics and Disinfectants Act shall be complied with.

6.8 Phosphates

The presence of phosphates, where permitted, shall be in accordance with the requirements prescribed by the regulations under the current Foodstuffs, Cosmetics and Disinfectants Act.

6.9 Smoke preparations

Smoke preparations suitable for human consumption may be used (see 12.1.1.2.3).

6.10 Anti-oxidants

All anti-oxidants used shall be as prescribed by the current Foodstuffs, Cosmetics and Disinfectants Act.

6.11 Preservation

With the exception of products of which the label states that the product is to be kept under refrigeration (see 12.1(e)) and semi-preserved products (see below), all canned meat products shall have been commercially sterilized by heat treatment.

Canned meat products covered by this specification and packed as semi-preserved meats shall have been preserved by salting, brining, pickling or smoking, or any combination of these, and may in addition have been pasteurized (partially heat processed). The presence of preservatives shall be subject to the regulations under the current Foodstuffs, Cosmetics and Disinfectants Act. The products shall not contain inorganic acids.

6.12 Soya and other non-meat proteinaceous materials

The product may contain soya and/or other non-meat proteinaceous materials subject to the following:

6.12.1 If required to do so by the authority administering this specification or the authority administering

the regulations under the current Foodstuffs, Cosmetics and Disinfectants Act, the manufacturer of the canned meat product shall disclose to the authority the composition of the non-meat proteinaceous preparation that has been used and the concentration at which it is present in the meat product.

6.12.2 Where soya and/or other non-meat proteinaceous material is present in products that contain the meat content called for by this specification, the presence of non-meat proteinaceous material shall be declared in the ingredients panel of the label. The meat content of the product may be declared immediately below the title in type of at least half the size of that used for the words in the title and of minimum size 2 mm.

6.12.3 Where any part of the meat content of a product laid down by this specification has been replaced by soya and/or other non-meat proteinaceous material, the presence of this substituted material shall be declared conspicuously and prominently in the title of the product, in the main panel of the label, in the same colour as the rest of the title and in type of at least half the size of that of the words appearing in the rest of the title. The meat content shall be declared immediately below the title in type of at least half the size of the larger type used for the words in the title and of minimum size 2 mm.

6.12.4 Subject to the provisions of 6.12.3, up to 25 % of the lean meat content of emulsified or comminuted canned meat products may have been replaced by soya and/or other non-meat proteinaceous material. In the form of textured vegetable protein, substitution to the same extent may have taken place in canned stewed meat products.

6.12.5 Soya or other non-meat proteinaceous material or both, may be present in the following products:

- a) corned meat;
- b) meatballs;
- c) meat pastes, potted meat, minced meat and gravy;
- d) meat patties;
- e) meat rolls;
- f) sausages other than boerewors; and
- g) stewed or braised meat products.

6.12.6 In the case of new products, specific approval from the authority administering this specification shall be obtained for the use of soya or other non-meat proteinaceous material.

6.12.7 Soya or other non-meat proteinaceous material shall not be present in the following products:

- a) boerewors;
- b) brawn;
- c) corned beef and corned beef with cereal;
- d) ham, cured shoulder and solid pressed beef;
- e) infant's food; or
- f) tongue.

6.13 Natural binder (see 5.23)

The natural binder used shall be derived only from the same type of animal(s) from which the meat used in the product is derived unless labelled in accordance with 12.1.1.5 or 12.1.1.6.

6.14 Microbiological requirements

6.14.1 Commercially sterilized products

6.14.1.1 Microbiological spoilage

A product in its container, after incubation in accordance with 11.16 or after it has been kept at ambient temperature, shall be considered to have undergone microbiological spoilage if the container:

- a) shows a positive pressure;
- b) leaks; or
- c) whether having a positive pressure or not, shows evidence of bacterial proliferation indicated, when compared with unincubated sound samples, by a significant change in pH value, or by disintegration or decomposition, or by significant discolouration of the product.

Evidence of bacterial proliferation shall be confirmed by cultural examination (see 11.17).

6.14.1.2 Requirement

Products in containers examined or tested or both, shall show no evidence of microbiological spoilage (see 11.17).

6.14.2 Pasteurized, semi-preserved, and salt-preserved products

6.14.2.1 Microbiological spoilage

A product in its container shall be considered to have undergone microbiological spoilage if the container:

- a) shows a positive pressure;
- b) leaks; or
- c) whether having a positive pressure or not, shows evidence of bacterial proliferation indicated, when compared with sound samples, by a significant change in pH value, or by disintegration or decomposition, or by significant discolouration of the product.

Evidence of bacterial proliferation shall be confirmed microscopically or by cultural examination (see 11.17).

6.14.2.2 Requirement

Products in containers examined or tested or both, shall show no evidence of microbiological spoilage or of the presence of viable pathogenic organisms, or of organisms that are liable to cause spoilage of the product during storage at the temperature recommended by the canner, and, in the case of pasteurized products only, of viable non-spore-forming organisms (see 11.17).

7 Specific requirements for particular products

7.1 Stewed or braised meat, stewed oxtail, stewed tripe, stewed or braised kidneys, stewed or braised heart, stewed or braised liver, meatballs, stewed meat and kidney pudding, and similar stewed products, with or without gravy, sauces, or dressing

7.1.1 Preparation of meat and edible offal

Musculature meat for use in stewed or braised meat products shall be trimmed until it is free from perceptible fat, free surface-showing connective tissue and fascia, and where applicable it shall be cut into pieces of approximately the same size and shape that are not more than 50 mm long.

If the meat is minced and then formed into units, the units shall be approximately regular in size and shape. When determined in accordance with 11.3 and 11.4, the actual total meat content of ingoing units shall be not less than 50 % by mass. The ingoing units may contain starchy (farinaceous) material to the extent of not more than 6 % determined in accordance with 11.5 and calculated as crude starch. The units in the product described as meatballs, shall be formed into a characteristic shape and shall be readily separable. Meat patties shall be formed with substantially the same diameter as that of the container.

Kidneys shall be acceptably trimmed and free from adhering fat, connective tissue, renal ducts, urine flavour, and black or blue discolouration. Kidneys for use in kidney pudding shall be cut to acceptable size. Kidneys, liver, tongue, heart and tripe for use in stewed or braised products and puddings, shall be suitably prepared and cut into pieces that appear regular in size and shape, the smallest dimension of pieces of kidney being at least 10 mm. The product shall be free from any odour or flavour of urine.

Only oxtail, mutton and game meat from the ribs and neck may be packed on the bone. No free bone or sharp bones shall be present.

7.1.2 Texture of meat and edible offal in prepared product

In the prepared product, meat and edible offal shall not be fibrous, tough or mushy. Individual pieces of meat in stewed steak shall substantially retain their shape; pieces of meat shall be easily separable. The product shall be practically free from sinews and/or connective tissue.

7.1.3 Sauce, gravy or broth

Although vegetables and/or fruit shall not be present as chunks or as large pieces or whole units, they may be used in the preparation of sauce or gravy. The sauce or gravy may contain starchy (farinaceous) material that shall be not more than 6 % by mass determined in accordance with 11.5 and calculated as crude starch. The sauce or gravy may be suitably spiced.

Where the product is claimed to have been packed in natural broth, or in thick or rich sauce or gravy, the character of the packing medium shall, after equilibrium has been reached, be in accordance with the claim made. A canned meat product that has been packed in natural broth shall not be labelled as having been packed in gravy or in sauce.

7.1.4 Curing salts

The product shall not contain curing salts unless its name indicates the presence of cured meat.

7.1.5 Composition

The composition of the product shall comply with the relevant requirements given in table 1, the specified meat content and edible offal content percentages being applicable to the drained mass determined in accordance with 10.5. In addition, coagulated exuded fat shall not constitute more than 12 % of the required meat content or edible offal content and shall not be considered to be part of the drained mass requirement of the product.

Table 1 — Composition of particular products

1	2
Product category	Requirements
Stewed or braised meat with or without kidney or other edible offal ingredient in exuded juice or thin, watery broth or thin watery packing medium.	When determined in accordance with 10.5, the drained mass of meat with or without edible offal shall be at least 50 % of the d.n.m. of the container. Where the name of an edible offal ingredient appears in the name of the product, the drained mass of that edible offal ingredient, when determined in accordance with 10.5, shall be at least 12,5 % of the d.n.m.
Stewed or braised meat of a specific sort with or without a minor meat ingredient and with or without kidney or other edible offal ingredient, and with gravy, sauce or dressing.	When determined in accordance with 10.5, the drained mass of meat with or without edible offal shall be at least 50 % of the d.n.m. Where the name of any minor meat or edible offal ingredient present appears in the name of the product, the mass of that ingredient shall be at least 10 % of the d.n.m. Where the meat is mutton-on-the-bone or game-on-the-bone or a similar pack, the meat-on-the-bone content shall be at least 60 % of the d.n.m. and the bone content shall not exceed 12,5 % of the d.n.m. Free bone, especially chips, splinters or sharp pieces of bone, shall not be present. In a product labelled as goulash and packed in a thick sauce or a thick rich gravy, at least 50 % of the d.n.m. shall be meat.
Hearts stewed or braised; kidneys, stewed, braised, or in brine; liver, stewed or braised, and similar packs, with or without gravy, sauce or dressing.	When determined in accordance with 10.5, the drained mass of edible offal shall be at least 60 % of the d.n.m. except where the product is packed in thick rich gravy, sauce or other dressing in which case at least 55 % of the d.n.m. shall be edible offal.
Meat patties, with or without gravy, sauce or dressing.	Where the product is packed in gravy, sauce or dressing, at least 55 % of the d.n.m. shall be preformed units of meat, as determined in accordance with 10.5. Where the product is packed dry, at least 70 % of the d.n.m. shall be preformed units of meat.
Meatballs, with or without gravy or sauce; sausages in gravy or sauce; and similar packs.	Where the product is packed in gravy or sauce, at least 50 % of the d.n.m. shall be preformed units of meat, as determined in accordance with 10.5. Where meatballs are packed dry, at least 70 % of the d.n.m. shall be preformed units of meat.
Tripe, stewed with or without sauce or dressing, or in brine.	When determined in accordance with 10.5, the drained mass of tripe in stewed tripe or tripe in brine shall be at least 65 % of the d.n.m. Where the product is packed with sauce or dressing, at least 55 % of the d.n.m. shall be tripe.
Oxtail, with or without gravy, sauce or dressing.	In the case of a dry pack at least 60 % of the d.n.m. shall be oxtail on bone, as determined in accordance with 10.5. Where the product is packed in gravy, sauce or dressing, at least 45 % of the d.n.m. shall be oxtail on bone.
Pork, with or without gravy, sauce or dressing or fat.	In the case of a dry pack at least 65 % of the d.n.m. shall be pork, as determined in accordance with 10.5. Where the product is packed in gravy, sauce or dressing or fat, at least 50 % of the d.n.m. shall be pork.

7.2 Stewed meat products containing meat or edible offal or both with vegetables (or fruit) or cereal or both

7.2.1 Preparation of meat and edible offal

The requirements of 7.1.1 for the preparation of meat and edible offal for use in stewed or braised meat products and the requirements of 7.1.2 for the texture of meat and edible offal in the prepared product shall apply.

7.2.2 Vegetables (or fruit) and cereals

Vegetables and/or fruit may be used as such or as preparations. Root vegetables shall be in the form of clean-cut dice, slices or pieces, except that, if of acceptable size, these vegetables may be packed whole. Dice shall be approximate cubes. The thickness of slices shall not exceed 15 mm. Pieces shall appear regular in size and shape and shall be practically free from scrap pieces. The texture shall be soft but not broken up or disintegrated. Onions, fresh or pickled, shall be sliced, diced, shredded or chopped, or, if of acceptable size, they may be used whole. Dehydrated onion may also be used. Grains of rice shall separate easily. Beans and peas shall be mostly intact and not split or broken, and shall be free from loose shells. Cereals such as spaghetti and noodles shall not be disintegrated or abnormally broken up, and the texture shall not be abnormally mushy or soggy.

7.2.3 Sauce, gravy or broth

The sauce or gravy shall not contain more than 6 % by mass of starchy (farinaceous) material and it may be spiced.

Where the product is claimed to have been packed in exuded broth or in thick or rich sauce or gravy, the character of the packing medium shall, after equilibrium has been reached, be in accordance with the claim made.

A product packed in exuded or thin broth shall not be labelled as having been packed in gravy or sauce. A product that claims to have been packed in tomato sauce, shall have a characteristic tomato colour and the sauce shall not be thin and watery.

The ingredients of the sauce, gravy or broth shall not tend to separate from one another when the product is turned out of the container.

7.2.4 Curing salts

The product shall not contain curing salts unless its product name indicates the presence of cured meat.

7.2.5 Drained mass and washed mass

When determined in accordance with 10.5, the drained mass of products other than pudding packs shall be at least 60 % of the d.n.m. Where the product is required to be washed (see 10.5), the drained mass shall be not less than 50 % of the d.n.m.

7.2.6 Composition

The composition of the product shall comply with the relevant requirements given in table 2, the specified meat content and edible offal content percentages being applicable to the drained mass, determined in accordance with 10.5, except in the case of products where chemical analysis is specified. In addition, coagulated exuded fat shall not constitute more than 5 % by mass of the required meat contents of the container, and shall not be considered as part of the drained mass requirement of the product.

Table 2 — Product category and requirements

1	2
Product category	Requirements
Products that contain beef and vegetables (or fruit) or cereal or both with or without packing medium.	When determined in accordance with 10.5, the drained mass of meat shall be at least 25 % of the d.n.m., except in the case of spaghetti bolognaise where the actual total meat content determined in accordance with 11.3 and 11.4, shall not be less than 25 %.
Products that contain mutton, including mutton-on-the-bone, or game-on-the-bone or similar packs, and vegetables (or fruit) or cereal or both, with or without packing medium.	In the case of mutton products other than mutton-on-the-bone, at least 25 % of the d.n.m. shall be mutton (without bone), as determined in accordance with 10.5. Where the meat is mutton-on-the-bone or game-on-the-bone at least 30 % of the d.n.m. shall be meat-on-the-bone. The bone-to-meat ratio, determined by weighing, shall not exceed 1:4. Free bone, especially chips, splinters or sharp pieces of bone, shall not be present.
Products that contain pork and vegetables or cereal or both, with or without packing medium.	When the drained mass is determined in accordance with 10.5, at least 25 % of the d.n.m. shall be pork with lean meat to fat proportions (see 10.6) of at least 3:1.
Products that contain meatballs, and vegetables (or fruit) or cereal or both, sausages and vegetables or cereal or both, and similar packs, with or without packing medium.	When determined in accordance with 10.5, the drained mass of the units of meat shall be at least 25 % of the d.n.m.
Products that contain steak or edible offal (other than tripe) or both and onion, with or without packing medium, or formed patties or meat balls and onion, with or without packing medium.	When the drained mass of ingredients is determined in accordance with 10.5, at least 50 % of the d.n.m. shall be steak or edible offal (other than tripe) or both, as relevant, or patties or meat balls, and at least 10 % of the d.n.m. shall be onion.
Products that contain liver or, other edible offal (other than tripe) or both, and vegetable(s) (or fruit) (other than onion alone) or cereal or both with or without packing medium.	When the drained mass of the ingredients is determined in accordance with 10.5, at least 25 % of the d.n.m. shall be liver or other edible offal (other than tripe) or both, as relevant.
Products that contain oxtail and vegetables (or fruit) or cereal or both, with or without packing medium.	When determined in accordance with 10.5, the drained mass of oxtail with bone shall be at least 25 % of the d.n.m.
Steak and kidney pie, chicken and ham pudding, steak and ham pudding, and similar packs.	When the drained mass of ingredients is determined in accordance with 10.5, at least 25 % of the d.n.m. shall be meat or meat plus edible offal. Where the name of an edible offal or minor meat ingredient appears in the name of the product, that edible offal or minor meat ingredient shall be at least 7 % of the d.n.m.
Puddings that contain meat of a specific sort, and vegetables (or fruit) or cereal, or both, with or without a minor meat or edible offal ingredient, or puddings that contain edible offal and vegetables (or fruit) or cereal or both, and similar packs.	When the drained mass of ingredients is determined in accordance with 10.5, at least 25 % of the d.n.m. shall be meat or edible offal or both, as relevant, and, where the name of a minor edible offal or minor meat ingredient appears in the name of the product, that minor edible offal or minor meat ingredient shall be at least 5 % of the d.n.m. The vegetable (or fruit) content or the cereal content or the vegetable (or fruit) and cereal content, as relevant, of the part of the product within the pie crust shall be at least 15 % of the d.n.m.
Products that contain meat (cured or uncured) and potato or other vegetable(s) (or fruit) or cereal or both as a solid pack.	When determined in accordance with 11.3, the actual lean meat content shall be at least 35 %. The appearance of the product shall clearly and prominently reflect the presence of the meat ingredient in accordance with this requirement.

7.3 Sliced bacon and sliced cured shoulder of pork

7.3.1 Preparation

Sliced bacon shall be cured and prepared from the bacon strip of a pig. Sliced cured shoulder of pork shall be cured and prepared from the shoulder of a pig.

7.3.2 Meat

Meat used in the preparation of bacon shall be derived from the carcasses of gilts or barrows that are suitable for the manufacture of bacon. Meat from boars of an age not exceeding 6 months may be used.

7.3.3 Curing

The product shall be adequately cured and may be smoked or unsmoked.

7.3.4 Packing

The product shall be packed in containers and in the form of rashers of uniform size, thickness and shape, that may be interleaved with clean parchment paper, cellulose film or other suitable material. The rashers shall be readily separable one from the other.

7.3.5 Appearance

The product shall be of attractive appearance and colour, and shall, when determined in accordance with 10.6, have a meat-to-fat ratio of at least 3:1 for bacon and 7:1 for shoulder of pork, and shall be free from seed, bruises, rust, discolouration, unsightly pieces of skin and excessive cartilage.

7.3.6 Fill of container

The container shall be filled as full as is practicable.

7.4 Corned mutton

7.4.1 Preparation

Corned mutton shall be adequately cured, and shall be prepared as a solid pack of mutton.

7.4.2 Meat

The meat used shall be obtained only from the skeletal musculature of sheep, and shall not include meat from the head, the masseter muscles excepted, or any offal other than skirt (diaphragm). Mechanically recovered meat shall not be used. The meat shall be well trimmed until free from perceptible sinews, tendons and other tough connective tissue. Thin flank and skirt shall, if used, be well trimmed and such that the connective tissue content of the end product does not detract from its appearance. The actual lean meat content, determined in accordance with 11.3, shall be at least 108 %.

7.4.3 Fat origin

The product shall not contain any intestinal or kidney fat, and only fat of ovine origin shall be permitted (see 12.1.2.5).

7.4.4 Fat content

The fat content, determined in accordance with 11.4, shall not exceed 25 % by mass.

7.4.5 Natural binder

If used, not more than 5 % by mass of natural binder shall be added to the product (see 5.23 and 12.1.2.5). Only natural binder of ovine origin is permitted.

7.4.6 Salt

In the preparation of the product, salt may be added to give a concentration of total chlorides, determined in accordance with 11.6 and expressed as sodium chloride, of not more than 3 % by mass.

7.4.7 Gelatine, agar-agar and carboxymethyl cellulose

The product may contain added gelatine, agar-agar or carboxymethyl cellulose and, in the case of the last two, not more than 1,0 % by mass and 0,5 % by mass, respectively, may be added to the product.

7.4.8 Phosphates

No phosphates shall have been added to the product.

7.4.9 Appearance, colour and texture

The product shall be of attractive appearance and shall have an acceptably uniform colour and a uniform firm coarse meat texture, both characteristic of this type of product. The original muscle structure shall be predominantly retained.

There shall be no excessive exudation of gelatinous matter or moisture. When determined in accordance with 10.7, exuded fat, if any, shall not exceed 7 % of the d.n.m. The exuded fat shall be distributed in a reasonably even layer around the entire product surface and it shall not be hard at ambient temperature. Internal fat shall be evenly distributed in the product; no lumps of fat shall be present. The product shall be sliceable at a product temperature of between 10 °C and 15 °C. The product shall not stick to the sides of the container and it shall be free from large surface cavities and discolouration.

7.5 Corned beef

7.5.1 Preparation

Corned beef shall be adequately cured and prepared as a solid pack of beef.

7.5.2 Meat

The meat used shall be obtained only from the skeletal musculature of bovines, but not more than 5 % may be heart meat, or the masseter muscles of head meat, or skirt meat (diaphragm), or any combination thereof. Mechanically recovered meat shall not be used. The meat shall have been trimmed until free from perceptible sinews, tendons and other tough connective tissue. The actual lean meat content determined in accordance with 11.3, shall be at least 108 %.

7.5.3 Fat origin

The product shall not contain intestinal fat, and only fat of bovine origin shall be permitted (see 12.1.2.5).

7.5.4 Fat content

Corned beef shall have been packed only as:

- a) "Corned beef" without further qualification, in which case the fat content determined in accordance with 11.4, shall not exceed 20 % by mass, or

- b) "Lean corned beef" in which case the fat content determined in accordance with 11.4, shall not exceed 15 % by mass, or
- c) "Special lean corned beef", "Special lean-cut corned beef", or "Extra lean-cut corned beef", in which case the fat content determined in accordance with 11.4, shall not exceed 12 % by mass.

Words qualifying the title shall be in accordance with the regulations framed under the current Foodstuffs, Cosmetics and Disinfectants Act.

7.5.5 Natural binder

If used, not more than 5 % by mass of natural binder (see 5.23 and 12.1.2.5) of bovine origin shall be added to the product. Its presence shall be declared in the ingredients panel of the label in plain type of not less than 1,5 mm face measurement.

7.5.6 Salt

In the preparation of the product, salt may be added to give a concentration of total chlorides, determined in accordance with 11.6, and expressed as sodium chloride, of not more than 3 % by mass.

7.5.7 Gelatine, agar-agar and carboxymethyl cellulose

In the preparation of the product, gelatine, agar-agar or carboxymethyl cellulose may be added, and in the case of the last two, not more than 1,0 % by mass and 0,5 % by mass respectively may be added to the product.

7.5.8 Phosphates

When tested in accordance with 11.15, no phosphates shall have been added to the product.

7.5.9 Appearance, colour and texture

The product shall be of attractive appearance and shall have an acceptably uniform colour and a uniform firm coarse meat texture, both characteristic of this type of product. The original muscle structure shall be predominantly retained. The product shall be free from a dispersion of denatured proteinaceous matter.

There shall be no excessive exudation of gelatinous matter or moisture. When determined in accordance with 10.7, exuded fat, if any, shall not exceed 10 % of the d.n.m. The exuded fat shall be distributed in a reasonably even layer around the entire product surface and it shall not be hard at ambient temperature. Internal fat shall be evenly distributed in the product; no lumps of fat shall be present. The product shall be sliceable at a product temperature of between 10 °C and 15 °C. The product shall not stick to the sides of the container and it shall be free from large surface cavities and discolouration.

7.6 Corned beef with cereal

7.6.1 Preparation

Corned beef with cereal shall be adequately cured, and shall be prepared as a solid pack of beef containing not more than 6 % of crude starch.

7.6.2 Meat

7.6.2.1 Actual lean meat content

The requirements given in 7.5.2 shall apply, but the actual lean meat content determined in accordance with 11.3, shall be at least 80 %.

7.6.2.2 Fat origin

The product shall not contain intestinal fat, and only fat of bovine origin shall be permitted (see 12.1.2.5).

7.6.2.3 Fat content

The fat content determined in accordance with 11.4, shall not exceed 20 % by mass.

7.6.2.4 Natural binder

If used, not more than 5 % by mass of natural binder shall be added to the product (see 5.23 and 12.1.2.5). Its presence shall be declared in the ingredients panel of the label in plain type of not less than 1,5 mm face measurement.

7.6.2.5 Salt

In the preparation of the product, salt may be added to give a concentration of total chlorides, determined in accordance with 11.6 and expressed as sodium chloride, of not more than 3 % by mass.

7.6.2.6 Agar-agar and gelatine

The product shall not contain added agar-agar. Not more than 1 % by mass of gelatine may be added to the product.

7.6.2.7 Phosphates

No phosphates shall be added to the product.

7.6.2.8 Appearance, colour and texture

The product shall be of attractive characteristic appearance and shall have an acceptably uniform colour and a characteristic fairly coarse texture, free from springiness. There shall be no significant amount of finely chopped or finely minced meat or emulsified material present. The product shall be sliceable at a product temperature of between 10 °C and 15 °C. Exuded fat, when determined in accordance with 10.7, shall not be more than 10 % of the d.n.m., and there shall be no excessive exudation of gelatinous matter, cereal or moisture. No lumps of fat or cereal shall be present. The product shall not stick to the sides of the container and shall be free from large surface cavities and discolouration.

7.6.3 Labelling

The product shall be labelled without further qualification of the title, either as:

- a) "Corned beef with cereal", in which case all the words shall appear in type of the same size and prominence and in a colour that affords a distinct contrast to the background colour of the label, or as
- b) "Corned beef containing 6 % cereal" or "Corned beef – contains 6 % cereal", in which case the words qualifying "corned beef" shall appear immediately below "Corned beef" in plain type of not less than half the size of that used for "corned beef" with a minimum size of 2,5 mm face measurement, and in a colour that affords a distinct contrast to the background colour of the label.

7.7 Corned meat

7.7.1 Preparation

Corned meat shall be adequately cured and shall be prepared as a solid pack of meat, with or without permitted edible offal. Mechanically deboned meat not exceeding 25 % by mass of the total ingoing mix may be added.

Not more than 6 % by mass of cereal may be added.

7.7.2 Meat

The meat used shall be obtained from the skeletal musculature of food animals. The meat shall be well trimmed until free from perceptible sinews, tendons and other tough connective tissue. The actual lean meat content determined in accordance with 11.3, shall be at least 60 %.

7.7.3 Permitted edible offal (see 12.1.2.5 and 12.1.2.6)

- a) One of the following constituent limitations shall apply, and the nature of the offal shall be declared on the ingredients panel:
- 1) Any one of heart, tongue, kidney or liver may be used to the extent of 10 % of the product.
 - 2) Any one other edible offal may be used to the extent of not more than 5 % of the product.
 - 3) Two or more edible offal may be used together to the extent of not more than 10 % of the product.
- b) If more than 10 % (or more than 5 % in the case of lungs and spleen) but not more than 35 % of the product consists of one or more edible offal, the nature of the offal(s) shall be declared in the title of the product by name in print of the same colour and prominence as the rest of the title and in at least half the size of the print used for the rest of the title.
- c) Where offal is the major meat ingredient as in a product described as "Corned offal and meat", the skeletal muscular meat content shall not be less than 20 % of the product.

7.7.4 Fat content (see 12.1.2.5 and 12.1.2.6)

When determined in accordance with 11.4, the fat content shall not exceed 25 % by mass.

7.7.5 Natural binder

Not more than 10 % by mass or, where edible offal is used, not more than 8 % by mass of natural binder shall be added to the product (see 5.23 and 6.13).

Its presence shall be declared in the ingredients panel of the label in plain type of not less than 1,5 mm face measurement.

7.7.6 Salt

In the preparation of the product, salt may be added to give a concentration of total chlorides, determined in accordance with 11.6 and expressed as sodium chloride, of not more than 3 % by mass.

7.7.7 Gelatine or agar-agar

The product may contain added gelatine or agar-agar and, in the case of the latter, not more than 1 % by mass shall be added to the product.

7.7.8 Phosphates

The product may contain added phosphates.

7.7.9 Appearance, colour and texture

The product shall be of attractive appearance and shall have an acceptably uniform colour and texture, both being characteristic of this type of product. It may be fine in texture, but shall not have a close, springy texture and shall not be soggy or doughy when cooled to between 10 °C and 15 °C. Emulsified matter shall not be predominant. When determined in accordance with 10.7, exuded fat, if any, shall not exceed 14 % of the d.n.m. The exuded fat shall be distributed in a reasonably even layer around the product surface and shall not be hard at ambient temperature. In addition, other exuded material, determined in accordance with 10.7, shall not exceed 5 % of the d.n.m. Internal fat shall be evenly distributed in the product. No lumps of fat or lumps of cereal or other material shall be present. The product shall not stick to the sides of the container and it shall be free from large surface cavities and discolouration.

7.7.10 Labelling

7.7.10.1 Where meat other than beef, pork, mutton or goats' meat is used, the kinds of meat present shall be disclosed in the product name, and, in all cases, the kinds of meat used shall be declared in the ingredients panel of the label if they do not appear in the title. Where fat of other origin than the kind(s) of animal(s) declared on the label is used, the kind(s) of fat origin shall also be declared.

7.7.10.2 Subject to 7.7.10.1 above, corned meat shall be labelled as "corned meat" without further qualification.

7.8 Ham, cured shoulder of pork, and cured solid pressed beef

7.8.1 Ham

Ham shall be prepared from the ham (gammon) of a pig and shall be adequately cured and canned, and either pasteurized or commercially sterilized by heat treatment. This product shall have a meat-to-fat ratio, determined in accordance with 10.6, of at least 9:1. The fat on the outside of the ham shall be fairly evenly distributed. In the case of hams labelled as defatted ham, all surface fat shall, as far as practicable, be trimmed off. The actual lean meat content, determined in accordance with 11.3, shall be at least 80 % by mass.

7.8.2 Cured shoulder of pork

Cured shoulder of pork shall be prepared from the shoulder of a pig and shall be adequately cured and canned, and either pasteurized or commercially sterilized by heat treatment. This product shall have a meat-to-fat ratio, determined in accordance with 10.6, of at least 7:1. The fat on the outside of the product shall be fairly evenly distributed. The description of this product shall not include the word "Ham", and in the description all the words used in the title shall appear in plain type of the same size and prominence. The actual lean meat content, determined in accordance with 11.3, shall be at least 80 %.

7.8.3 Cured solid pressed beef

Cured solid pressed beef shall be prepared from skeletal musculature beef and shall be adequately cured and canned, and either pasteurized or commercially sterilized by heat treatment. It shall be free from excessive exuded fat and moisture. After all gelatinous material or other jelled materials have been removed from the surface of the contents, the product shall have an actual lean meat content of at least 80 % by mass, determined in accordance with 11.3.

7.8.4 Meat

Meat used in the preparation of ham and cured shoulder of pork shall be derived from the carcasses of gilts or barrows up to baconer stage. The carcasses of sows and boars exceeding the age of six months shall not be used. Meat that is bruised, soft or oily shall not be used. Frozen meat shall have been stored at a temperature of -18 °C or lower. Soya and other non-meat proteinaceous materials shall not be used.

7.8.5 Gelatin or agar-agar

Gelatin or agar-agar may be added to the product. In the case of the latter, not more than 2 % by mass may be added.

7.8.6 Phosphates

Phosphates may be added to the product.

7.8.7 Curing

The product shall be adequately cured and, where necessary, shall be adequately cleaned after curing and before packing.

7.8.8 Smoking

The product may be either smoked or unsmoked (see 12.1.2.2.3).

7.8.9 Salt

In the preparation of the product, salt may be added to give a concentration of total chlorides, determined in accordance with 11.6 and expressed as sodium chloride, of not more than 3 % by mass.

7.8.10 Trimming and packing

The product shall be adequately trimmed and shall be free from bone. Whether the product is manufactured from one or more pieces, it shall be compact and permit slicing without breaking into pieces. Where the product is in the form of compressed pieces, and its appearance and sliceability suffer in consequence, this fact shall be conspicuously declared in the main panel of the label in compliance with the regulations under the current Foodstuffs, Cosmetics and Disinfectants Act.

Gammon may be packed with rind but only if the rind is intact and sliceable. Shoulder shall not be packed with rind. Gelatine or agar-agar may be used to solidify the juices provided that in the case of agar-agar, the content does not exceed 2 %. The juices in the container shall be a gel at a product temperature of 20 °C or lower. Shoulders shall be neatly tied.

7.8.11 Appearance and texture

Upon removal from the container, the product shall have essentially the same shape as that of the container and shall be as free as is practicable from surface cavities that significantly affect its appearance. The product shall be free from bruises, blood spots, discolouration, surface contamination and other forms of blemish. The original muscular structure shall be retained. Ham and cured shoulder of pork products shall not have a "chopped meat" texture. The texture of the product shall not have an emulsified appearance. Layers of fat shall be evenly distributed in the product. The manufacturing process shall be such as to ensure that the product has a cured colour and a texture that are characteristic. The product shall be sliceable at a product temperature of 20 °C or lower.

7.8.12 Freedom from defects

The product shall be free from hair follicles, loose fat, loose rind, gristle, cartilage, superficial glands and tough sinews. Poisonous and deleterious substances including solder and flux shall not be present. The product shall be free from scorched or burnt portions and the container shall be free from visible internal corrosion that might affect the product adversely.

7.8.13 Sliceable mass

The mass of the product, freed from adhering jelled materials and loose fat, and other unattached material from the surface of the contents shall be at least 80 % of the d.n.m. in the case of pasteurized ham, 75 % in the case of pasteurized cured shoulder of pork, and 65 % in the case of ham and cured shoulder of pork that have been commercially sterilized. In the case of cured solid pressed beef, the mass of the product, freed from adhering jelly, shall be not less than 80 % of the d.n.m.

7.8.14 Fill of container

The container shall be filled as full as is practicable.

7.8.15 Pasteurized products

Pasteurized products shall be stored under refrigeration at a temperature not exceeding 4 °C or at such lower temperature as might be desirable (see 12.1(e) for labelling).

7.9 Edible lard

7.9.1 Preparation

Edible lard shall be prepared by heat-rendering the fresh tissue fat of pigs that are in good health at the time of slaughter. Reprocessed lard or pressings from crackling shall not be included and the lard shall be free from flesh, fibrous tissue and crackling.

7.9.2 Rancidity

Freedom of the product from any odour or taste of rancidity shall be ensured by the method of processing.

7.9.3 Foreign fat

The rendered fat of any animal other than pig and any other foreign fat or oil shall not be present in the product.

7.9.4 Fill of container

Subject to the requirements of the regulations under the current Trade Metrology Act, the container shall be filled as full as is practicable.

7.9.5 Salt (sodium chloride)

Sodium chloride shall not be added to the product.

7.9.6 Physical and chemical requirements of the product

7.9.6.1 Iodine value

The Wijs iodine value, determined in accordance with 11.9, shall be within the range 52 to 77.

7.9.6.2 Refractive index

When determined at a temperature of 60 °C, in accordance with 11.13, the refractive index shall be within the range 1,4510 to 1,4535.

7.9.6.3 Melting point

The melting point, determined in accordance with 11.12, shall be within the range 25 °C to 46 °C.

7.9.6.4 Free fatty acids

The free fatty acid content, determined in accordance with 11.10 and calculated as oleic acid, shall not exceed 0,6 % by mass.

7.9.6.5 Saponification value

The saponification value determined in accordance with 11.11 shall be within the range 192 mg to 202 mg KOH/g.

7.9.6.6 Moisture

The moisture content of the lard, determined in accordance with 11.7, shall not exceed 0,25 % by mass.

7.10 Edible beef dripping

7.10.1 Preparation

Edible beef dripping shall be prepared by heat-rendering the fresh fat, exclusive of intestinal fat, of beef from animals in good health at the time of slaughter. Flesh and fibrous tissue shall be removed.

7.10.2 Rancidity

Freedom of the product from any odour or taste of rancidity shall be ensured by the method of processing.

7.10.3 Foreign fat

The rendered fat of any animal other than the bovine and any other foreign fat or oil shall not be present in the product.

7.10.4 Fill of container

Subject to the requirements of the regulations under the current Trade Metrology Act, the container shall be filled as full as is practicable.

7.10.5 Salt (sodium chloride)

Sodium chloride shall not be added to the product.

7.10.6 Physical and chemical requirements of the product

7.10.6.1 Iodine value

The Wijs iodine value, determined in accordance with 11.9, shall be within the range 35 to 48.

7.10.6.2 Refractive index

When determined at a temperature of 60 °C, in accordance with 11.13, the refractive index shall be within the range 1,4566 to 1,4587.

7.10.6.3 Melting point

The melting point, determined in accordance with 11.12, shall be within the range 40 °C to 46 °C.

7.10.6.4 Free fatty acids

The free fatty acid content, determined in accordance with 11.10 and calculated as oleic acid, shall not exceed 0,75 % by mass.

7.10.6.5 Saponification value

The saponification value, determined in accordance with 11.11, shall be within the range 193 mg to 205 mg KOH/g.

7.10.6.6 Moisture

The moisture content of the dripping, determined in accordance with 11.7, shall not exceed 0,25 % by mass.

7.11 Meat rolls (meat loaves)

7.11.1 Preparation

Meat rolls (meat loaves) shall be prepared from chopped or comminuted meat of bovines or pork. Any other meat used shall be declared on the main panel of the label. Permitted edible offal, seasoning and flavouring substances, water, fat, starchy (farinaceous) materials (see 5.17), phosphates, milk powder, eggs and other acceptable ingredients may be added.

7.11.2 Natural binder

Not more than 5 % by mass of natural binder may be added to the product. The nature of the natural binder shall be in accordance with the nature of the product: binder derived from pork shall not be used in a pure beef product nor shall binder derived from beef be used in a pure pork product (see 5.23 and 12.1.2.5).

7.11.3 Permitted edible offal (see 12.1.2.5)

The product shall contain only the following edible offal: heart, liver, kidney and tongue (see 7.12.4). The use of blood shall be limited to the preparation of blood sausage or blood roll.

7.11.4 Composition requirements

7.11.4.1 Meat rolls (loaves) other than liver rolls

Meat rolls (loaves) other than liver rolls shall comply with the following requirements:

- a) the actual total meat content of the product, determined in accordance with 11.3 and 11.4, shall be at least 75 %, except that corned beef roll (loaf) shall have a actual total meat content of at least 80 %;
- b) the fat content of the roll (loaf), determined in accordance with 11.4, shall not exceed 35 % of the actual total meat content, except that in corned beef roll (loaf) the fat content of the roll shall not exceed 30 % of the actual total meat contents;

- c) the starchy (farinaceous) material determined in accordance with 11.5 and calculated as crude starch shall not exceed 6 % by mass;
- d) corned beef roll (loaf) shall not contain heart, liver, kidney or tongue; and
- e) in products other than corned beef roll (loaf), not more than 8 % by mass may consist of heart, liver, kidney, tongue or any mixture of these (see 12.1.2.5 and 12.1.2.6), provided that the presence of such edible offal is declared in the ingredients panel of the label in plain type of not less than 1,5 mm face measurement.

7.11.4.2 Liver roll (loaf)

Liver rolls (loaves) shall comply with the following requirements:

- a) the actual total meat content determined in accordance with 11.3 and 11.4, shall be at least 70 %;
- b) the liver content shall be at least 25 % by mass;
- c) the fat content (see 12.1.2.5 and 12.1.2.6) of the product determined in accordance with 11.4, shall not exceed 40 % of the actual total meat content;
- d) the starch content determined in accordance with 11.5 and calculated as crude starch shall not exceed 6 % by mass; and
- e) not more than 10 % by mass shall be heart, kidney, or tongue or any mixture of these (see 12.1.2.5 and 12.1.2.6), provided that the presence of such edible offal is declared in the ingredients panel of the label in plain type of not less than 1,5 mm face measurement.

7.11.4.3 Meat rolls (loaves) with garnish

Where a product contains garnish, the specified meat content requirements shall be applicable to the meat constituent.

7.11.5 Curing salts

Corned beef roll (loaf) shall be adequately cured. Other products may contain curing salts (see 7.7).

7.11.6 Phosphates

Phosphates may be added to the product.

7.11.7 Agar-agar

The agar-agar content shall not exceed 0,2 % by mass.

7.11.8 Blood plasma

Except in the case of blood sausage or blood roll, blood plasma shall not be added to the product.

7.11.9 Appearance and texture

Discolouration that detracts from the appearance of the product shall not be present. The product shall not stick to the inside surfaces of the container. The exterior surface of the product, after the product has been removed from the container, shall be free from unevenness that detracts from its appearance. Exuded material, when determined in accordance with 10.7, shall not exceed 3 % of the d.n.m. The product shall be readily sliceable at a product temperature of 20 °C or lower. Except in the case of liver rolls, the product shall not have a doughy, soggy or pasty texture. The product shall be free from grittiness, cavities, perceptible sinews, tendons or other tough connective tissue.

7.11.10 Flavour

The product shall have a characteristic meaty flavour and not a predominantly spicy or non-meaty flavour, and shall not be excessively salty.

7.12 Poultry

7.12.1 Preparation

7.12.1.1 Poultry shall be prepared from chicken, duck, goose, turkey or game birds and, subject to 7.13.3, shall be packed as one of the following:

- a) flesh only;
- b) pressed meat;
- c) dissected poultry; or
- d) whole poultry.

7.12.1.2 Poultry packed as flesh only shall be free from bones.

7.12.1.3 Poultry packed as pressed meat, shall have a flavour characteristic of poultry, shall not have a soggy texture, and shall be sliceable at a product temperature of 20 °C or lower. After removal from the container, the product shall have essentially the same shape as that of the container. No surface cavities or discolouration shall be present. Colour variation shall not be present in the product.

7.12.1.4 All packs shall be free from arteries and tough tendon tissues, except that, in the case of whole poultry, the two main arteries that lead to the shoulders may be present and also those tendon tissues that, because of the nature of the pack, cannot be removed. Only birds that are free from deformities shall be packed as whole poultry. Edible offal may be included, provided that the product is so labelled as to disclose its true nature.

7.12.2 Trimming

The product shall be cleanly trimmed and shall be free from bruised and discoloured portions of flesh.

7.12.3 Packing

The product shall be packed in one of the following media:

- a) a jellied medium that may, to assist in the formation of a firm jelly, contain added gelatine or agar-agar, the latter not exceeding 1 % by mass; the jellied medium shall be a gel at a product temperature of 20 °C or lower;
- b) a suitable sauce or meat juice medium;
- c) poultry fat;
- d) lard, that shall only be used for whole poultry; or
- e) with sauces or dressings, and with or without vegetables (or fruit) or cereal or both.

7.12.4 Drained mass and percentage of flesh

7.12.4.1 Packs without cereal and vegetables (or fruit)

Unless the product is packed in a prepared sauce medium or in exuded chicken broth, the drained mass, determined in accordance with 10.5 and expressed as a percentage of the d.n.m. shall be as follows:

- a) flesh only packs: at least 70 %;
- b) dissected poultry: at least 65 %;
- c) whole poultry packs: at least 55 %; and
- d) canned liver and canned heart packs: at least 70 %.

Where the product is packed in a prepared sauce medium or in chicken broth, the drained mass shall be at least 50 % of the d.n.m.

7.12.4.2 Packs with vegetables (or fruit) or cereal or both

The drained mass, determined in accordance with 10.5, shall be at least 55 % of the d.n.m. The mass of flesh in a pack that is bone-free shall be at least 25 % of the d.n.m. In a pack that contains dissected poultry the mass of flesh plus bone shall be at least 30 % of the d.n.m. and the ratio of bone to flesh shall not exceed 1:4. No free bone shall be present.

Different types of product may be labelled "Chicken Suprême" conditional on the descriptive title for each product accompanying the title. The product may consist of chicken meat in a rich prepared sauce, in which case it shall comply with the relevant requirement of table 2, or it may consist of chicken meat in a rich sauce with vegetables (or fruit), in which case the washed mass of the meat ingredient shall constitute at least 45 %, and the total drained mass at least 60 % of the d.n.m.

7.12.4.3 Pressed meat packs

In a pressed meat pack, the actual lean meat content determined in accordance with 11.3, shall be at least 80 %.

7.12.4.4 Dissected poultry packs

In a dissected pack the constituent parts present in the pack shall be in the same proportions as in whole poultry. Constituent parts may be packed separately, provided that the product is so labelled as to disclose its true nature. The ratio of bone to flesh shall not exceed 1:4. No free bone shall be present. The drained mass shall comply with the requirements for a dissected pack given in table 2, as relevant.

7.12.5 Freedom from defects

Feathers, including pinfeathers, shall not be present in the product. In the case of poultry packed on the bone, splinters or grit of bone or sharp bones shall not be present.

7.12.6 Texture

The meat or edible offal and, where present, the vegetables and/or fruit shall have a firm but tender texture. Chicken pie filling shall contain an acceptable proportion of visible muscle meat without bone, and shall have an acceptably viscous consistency.

7.13 Sausages

7.13.1 Preparation

Sausages shall be prepared from minced meat, with or without permitted edible offal. Seasoning and flavouring substances, water, fat, starchy (farinaceous) material, phosphates (see 6.8), milk powder (see 5.19), eggs and other acceptable ingredients may be added. Sausages shall be filled into casings with or without subsequent treatment or shall be otherwise formed into shape.

7.13.2 Natural binder

Natural binder (see 5.23, 12.1.2.5 and 12.1.2.6) shall not be more than 8 % by mass of the total sample contents. The nature of the natural binder used shall be in accordance with the nature of the product: binder derived from pork shall not be used in a pure beef product nor shall binder derived from beef be used in a pure pork product.

7.13.3 Permitted edible offal

The product may contain only the following edible offal: heart, liver, kidney and tongue.

7.13.4 Composition requirements

7.13.4.1 Sausages in brine, agar-agar or other aqueous medium, whether gelled or not

Sausages shall comply with the following requirements:

- a) the composition, determined by chemical analysis, of the canned sausages after they have been drained on a sieve of nominal aperture size 2 mm and after any adhering packing medium has been removed, shall, subject to (b) below, comply with the appropriate requirements given in table 3; and
- b) if the actual total meat content of the sausage, determined by chemical analysis, is less than the specified minimum of 65 % but the product of the actual total meat content percentage and the drained mass as a percentage of the d.n.m. (see 7.13.5.1) divided by 100 gives a value of at least 49, the product shall be regarded as acceptable in relation to meat content.

Table 3 — Limits for sausage contents

1	2	3	4
Type of sausage	Minimum actual total meat content ^a %	Maximum fat content as a percentage of actual total meat content ^b %	Maximum crude starch content ^c %
Pork sausage	65	38	5
Beef sausage	65	30	5
Mixed meat sausage	65	35	5
Vienna sausage	65	25	5
Frankfurter sausage	65	25	5

^a Determined in accordance with 11.3.
^b Determined in accordance with 11.4.
^c Determined in accordance with 11.5.

7.13.4.2 Sausages in fat and sausages without packing medium

The composition of the canned sausages (determined by chemical analysis) after any fat used as packing medium has been removed by gentle scraping, shall comply with the appropriate requirements as given in table 4.

7.13.4.3 Boerewors

At the point of packing into the container, boerewors shall have an actual total meat content of not less than 90 % by mass and an actual lean meat content of not less than 60 % by mass as determined by chemical analysis.

7.13.4.4 Content of permitted edible offal

In the case of sausages other than boerewors, not more than 5 % of the d.n.m. shall be heart, liver, kidney, or tongue used either singly or in combination, which might have been included in the product, provided that the presence of such permitted edible offal is declared in the ingredients panel on the label in plain type of not less than 1,5 mm face measurement. Boerewors shall not contain liver, kidney, heart or tongue.

Table 4 — Limits for sausage contents

1	2	3	4
Type of sausage	Minimum actual total meat content ^a %	Maximum fat content as a percentage of actual total meat content ^b %	Maximum crude starch content ^c %
Pork sausage	75	43	5
Beef sausage	75	36	5
Mixed meat sausage	75	40	5
^a Determined in accordance with 11.3. ^b Determined in accordance with 11.4. ^c Determined in accordance with 11.5.			

7.13.5 Mass of sausage in pack¹⁾

7.13.5.1 Except as allowed in terms of 7.13.5.2, the mass of sausage in a container when determined in accordance with 10.5, shall be at least 75 % of the d.n.m., except that in the case of frankfurters, viennas and cocktail viennas packed in natural casings, and provided that the container was packed to practical capacity with sausages, the drained mass shall be at least 60 % of the d.n.m. In the latter case, where the normal drained mass of 75 % cannot be achieved, the actual mass of sausages in the container shall be declared on the label, in addition to the net mass of the contents, in plain type of the same size and prominence as that used for the net mass.

In the case of boerewors packed in rich gravy, the mass of sausage packed shall be at least 70 % of the d.n.m.

7.13.5.2 If the actual drained mass of sausages packed as in 7.13.5.1, is less than the specified minimum of 75 % and the product of the actual drained mass as a percentage of the d.n.m. and the percentage of actual total meat content (determined in accordance with 11.3 and 11.4), divided by 100 gives a value of at least 49, the product shall be regarded as acceptable in relation to drained mass, provided that the product complies with 7.13.13.

¹⁾ The requirements of this clause are subject to compliance with the Regulations under the Trade Metrology Act, 1973.

7.13.6 Curing salts

The product may contain curing salts (see 6.7).

7.13.7 Blood plasma

Except in the case of blood sausages, no blood plasma may be added to the product.

7.13.8 Packing medium

Sausages other than viennas and frankfurters may be packed in fat characteristic of the meat used, in brine, or in a medium of agar-agar content not exceeding 2 % by mass. Viennas may be packed in brine of salt content 2 % to 6 %, or in a medium of gelatine content not exceeding 5 % by mass, or agar-agar content not exceeding 2 % by mass. Frankfurters shall be packed only in brine of salt content 2 % to 6 %. In the case of viennas and similar products, the packing medium shall not be uncharacteristically dark. When sausages are packed in a brine or clear packing medium, the packing medium shall not be turbid or cloudy, and shall be free of sediment.

7.13.9 Casings

Hog, sheep and synthetic casings that are of acceptable quality, sound and in a hygienic condition shall be used. Non-edible synthetic casings shall be removed from the sausage, without significant marking of the sausage, before it is canned.

7.13.10 Appearance and uniformity of size, shape and colour

The units in any one container shall be acceptably uniform in colour, size and shape and the shape of the units shall not be distorted or twisted. Any splitting and end-bursting shall not be such as to detract from the appearance of the product. Skinless units shall be completely separate one from the other. Cross-filling of units shall not be present. Cross-cut units shall be cleanly cut at right angles to the longitudinal axis. The units shall be free from impression marks, e.g. marks caused by the expansion rings of the side walls of a container.

7.13.11 Texture

Frankfurters, viennas and cocktail viennas shall have an evenly fine smooth and firm filled texture. The units shall be free from grittiness, coarse particles of natural binder, gristle and sinews, cavities or air pockets. The product shall not be soggy.

Sausages other than frankfurters, viennas and cocktail viennas, such as beef sausages, pork sausages and mixed meat sausages shall have a firm filled texture. It may be coarse, with pieces of meat characteristic of the product. The product shall be free from grittiness and internal and surface cavities. The product shall not be soggy.

7.13.12 Fill of container

The container shall be filled as full as is practicable with sausages.

7.13.13 Freedom from defects

The sausage units shall be free from staining, discolouration, serious rupturing of casings that detract from the normal appearance of the product, ragged ends, burst, damaged and broken units, and pieces of non-edible casings. The product shall be free from exuded fat or other material that detracts from its appearance. The sausage units shall not adhere to each other or to the inside surfaces of the container. The sausage units shall not be excessively salty.

The product shall be free from sour flavours and off-flavours.

7.14 Vienna pieces and vienna offcuts

7.14.1 Preparation

Vienna pieces and vienna offcuts shall be prepared from portions of vienna sausages that comply with the applicable requirements of 7.14.5. If held overnight or longer before packing, pieces and offcuts shall be kept under refrigeration.

7.14.2 Vienna pieces

The units shall be portions of vienna sausages that have been cleanly cut at right angles to their longitudinal axes, and their length shall be not less than 20 mm and not more than 25 mm. They shall not be stained, discoloured, ragged or broken, and in any one container the units shall, as far as is practicable, be of uniform length. The product shall be labelled "Vienna pieces" and both words shall appear in print of the same size and prominence.

7.14.3 Vienna pieces, irregular in size

The units shall be portions of vienna sausages that have been cleanly cut at right angles to their longitudinal axes. They shall not be stained, discoloured, ragged or broken, and in any one container the units may vary in length from 20 mm to 40 mm. There shall be not more than one flattened or malformed end per A1 or No. 1M can. In the cases of larger sizes of container, the count of such ends shall be proportionate to the volume capacity of the container relative to the A1 can. The product shall be labelled "Vienna pieces, irregular in size" and all the words shall appear in print of the same size and prominence.

7.14.4 Vienna offcuts, irregular in size and shape

The units shall be offcut portions of vienna sausages and may have flattened or malformed end portions, but shall not be stained or discoloured, and ragged ends shall not be present. The units may vary in length from 10 mm to 40 mm and may vary in shape.

The product shall be labelled "Vienna offcuts, irregular in size and shape" and all the words shall appear in print of the same size and prominence.

7.14.5 General

All other requirements given in 7.13 that are applicable and relevant to vienna sausages shall apply to the packs described in 7.14.2, 7.14.3 and 7.14.4.

7.15 Tongue

7.15.1 Preparation

Tongue shall be prepared from adequately cured tongues of food animals.

Tongue shall be neatly trimmed at the root end and shall be free from bone, epiglottis, external fat, glands, main arteries or veins and, in the case of ox tongue, skin. Tongue may be either precooked or cooked in the container or both. Ox tongue may be longitudinally cut and may be reduced (by cutting) only at the root end, if necessary for it to fit the container. Only one small additional loose portion of tongue may be added per container to make up mass.

7.15.2 Packing medium

Tongue may be packed in brine or in a medium prepared from bone stock, with or without the addition of gelatine or agar-agar or both, or in a medium prepared from gelatine or agar-agar or both, or in any other acceptable medium. The agar-agar content of the packing medium shall not exceed 2 % by mass. The packing medium shall be characteristic in appearance.

7.15.3 Mass of tongue in pack

When determined in accordance with 10.5, the drained mass of the tongue in a container shall, for ox tongue, be at least 80 % of the d.n.m. and for sheep tongue, at least 75 % of the d.n.m.

7.15.4 Appearance and texture

The product shall be uniformly cured and discolouration that detracts from the appearance of the product shall not be present. The product shall not be tough, soggy or damaged.

7.15.5 Flavour and odour

The product shall have a characteristic, pleasant fresh flavour and odour, and shall have no foreign flavours, foreign odours, off-flavours or off-odours.

7.15.6 Salt

In the preparation of the product, salt may be added to give a concentration of total chlorides, determined in accordance with 11.6, expressed as sodium chloride, of not more than 3 % by mass.

7.15.7 Labelling

The product shall be so labelled as to indicate the true nature and origin of the tongue.

7.16 Tongue slices

7.16.1 Preparation

7.16.1.1 Tongue slices shall consist of slices of the adequately cured tongue of food animals and the product shall be so labelled as to indicate the true nature and origin of the tongue.

7.16.1.2 The slices shall be obtained from tongue prepared in accordance with 7.16.1.1. The slices in any production lot shall be acceptably uniform in thickness and have a maximum thickness of 10 mm. Slices shall not be ragged or damaged.

7.16.2 Packing medium

The product may be packed in accordance with 17.6.1.1 or with sauce, gravy or dressing. If packed in brine, slices shall be fairly uniform in size.

7.16.3 Appearance and texture

The product shall be uniformly cured and discolouration that detracts from the appearance of the product shall not be present. The product shall not be tough or soggy.

7.16.4 Flavour and odour

The product shall have a characteristic, pleasant fresh flavour and odour and shall have no foreign flavours, foreign odours, off-flavours or off-odours.

7.16.5 Mass of tongue in pack

When determined in accordance with 10.5, the drained mass of the tongue in a container shall, in the case of tongue slices packed in accordance with 7.16.2, be at least 70 % of the d.n.m, and in the case of tongue slices packed in sauce, gravy or dressing, at least 50 % of the d.n.m.

7.16.6 Salt

In the preparation of the product, salt may be added to give a concentration of total chlorides, determined in accordance with 11.6, expressed as sodium chloride, of not more than 3 % by mass.

7.17 Meat paste, potted meat and chopped meat

7.17.1 Preparation

7.17.1.1 Meat paste and potted meat

Meat paste and potted meat shall be prepared from meat, with or without edible offal (see 7.17.2), that has been so comminuted as to form a spreadable paste, with or without the addition of tomato, starchy (farinaceous) material, and other acceptable ingredients. Bone shall not be used in any form in the product other than in chicken paste and similar pastes derived from dressed whole poultry, in which milled bone may be present, provided that it does not detract from the quality in any way and that bone content in the end product is not in excess of the bone-to-flesh ratio that naturally exists in dressed whole poultry.

7.17.1.2 Chopped meat

Chopped meat shall be cured and prepared as a solid pack of chopped meat which may contain a maximum of 5 % starchy (farinaceous) material, calculated as starch. Soya and other non-meat proteinaceous material shall not be added to the product.

7.17.2 Edible offal (see 12.1.2.5 and 12.1.2.6)

Where edible offal is used in the manufacture of the product, its nature and species origin shall be declared in the title of the product.

7.17.3 Natural binder (see 5.23, 12.1.2.5 and 12.1.2.6)

In potted meat and in pastes other than liver paste, added natural binder shall constitute not more than 5 % by mass. Natural binder shall not be added to liver paste or to chopped meat.

7.17.4 Composition requirements

7.17.4.1 Meat pastes

Where the product is described in the title as containing tomato, the actual total meat content determined in accordance with 11.3 and 11.4, shall be at least 65 % and the fat content shall not exceed 40 % of the actual total meat content. In other cases the actual total meat content determined in accordance with 11.3 and 11.4, shall be at least 70 % and, except in liver paste, not more than 40 % of the actual total meat content shall be fat. Liver paste shall contain at least 25 % of liver and not more than 45 % of the actual total meat and edible offal content, determined in accordance with 11.4, shall be fat.

Subject to the regulations under the current Foodstuffs, Cosmetics and Disinfectants Act, and the conditions governing the use of soya and other foreign protein (see 6.12), the product may contain these and milk powder and eggs. The starchy (farinaceous) material determined in accordance with 11.5 and calculated as crude starch, shall be not more than 6 % by mass. Approved colourants may be used.

7.17.4.2 Potted meat

When determined in accordance with 11.3 and 11.4, the actual total meat content of the product shall be at least 90 % and when determined in accordance with 11.4, the fat content shall not exceed 37 % of the actual total meat content. The starchy (farinaceous) material, determined in accordance with 11.5 and calculated as crude starch, shall not exceed 5 %.

7.17.4.3 Chopped meat

In case of chopped ham, the word "chopped" must be in letters of the same prominence and colour (and printed next to and on the same line) as the word "ham".

When determined in accordance with 11.3 and 11.4, the actual total meat content of the product shall be at least 90 % and, except in the case of a pork product, when the fat content is determined in accordance with 11.4, it shall not exceed 37 % of the actual total meat content. In a pork product the fat content shall not exceed 42 % of the actual total meat content when determined in accordance with 11.4. Colourants shall not be used.

7.17.5 Curing salts

The product may contain curing salts (see 6.7).

7.17.6 Phosphates

The product may contain added phosphates (see 6.8).

7.17.7 Texture and appearance

7.17.7.1 Pastes and potted meats

The texture of pastes and potted meat shall be such that they can be readily spread, and they shall be practically free from pieces of sinew, gristle, bone, sandiness and grittiness. The contents of any one container shall be acceptably uniform throughout and acceptably free from internal and surface cavities. The product shall be acceptably free from separated fat, starch or aqueous material. Discolouration, other than light surface discolouration due to oxidation, shall not be present.

7.17.7.2 Chopped meat

Chopped meat shall have a coarse to medium-coarse, firm, compact and chopped texture. The muscular structure shall be visible in the chopped pieces of meat. The product shall not have a predominantly emulsified texture. Fat present shall be evenly distributed throughout the product. The product shall be free from visible exuded material. Chopped meat shall have a characteristic meaty flavour and shall be free from surface and internal cavities. It shall be free from pieces of bone, cartilage and gristle and shall be free from discolouration. The contents shall not adhere to the insides of the container. A chopped ham product shall not be presented or packed in such a way as to mislead the consumer into believing that it is a ham or pork shoulder product as specified in 7.8.

7.17.8 Percentage fill of container

When determined in accordance with 10.4.3, the percentage fill of the container with product shall be at least:

- a) 90 % in the case of cans; and
- b) 85 % in the case of glass jars.

7.18 Brawn

7.18.1 Preparation

Brawn shall be prepared from meat that has been cured or cooked or both and shall be suitably dispersed in a gelling medium of gelatinous material derived from bovine, sheep or pig carcasses. It may be spiced.

7.18.2 Offal

Edible offal, other than trotters, shall not be used.

7.18.3 Meat content

When determined in accordance with 11.3 and 11.4, the actual total meat content shall be at least 65 %.

7.18.4 Curing salts

The product may contain curing salts (see 6.7).

7.18.5 Phosphates

Phosphates shall not be added to the product.

7.18.6 Cereal

The product shall not contain cereal or cereal products.

7.18.7 Colourants

The product may contain colourants (see 5.21).

7.18.8 Agar-agar

The product shall not contain agar-agar.

7.18.9 Appearance

The product shall be attractive in appearance, and the meat particles shall be evenly dispersed throughout the product.

7.18.10 Set

The product shall have a firm set at 4,5 °C, and shall be sliceable.

7.19 Infant foods prepared with meat

7.19.1 Preparation

Food intended for use in the diet of infants and that includes meat shall be prepared from meat, with or without a vegetable or a mixture of vegetables and other acceptable ingredients.

7.19.2 Offal

The product may contain brain, heart, pancreas, thymus, kidney and tripe provided that the type and species origin of edible offal is declared in the title of the product.

7.19.3 Natural binder

Natural binder shall not be added to the product.

7.19.4 Nitrate and nitrite

Nitrate and nitrite shall not be added to the product other than when bacon or ham is a constituent of the product, in which case it may be present to an extent not exceeding a mass fraction of 0,002 %.

7.19.5 Freedom from harmful ingredients

Ingredients of the product shall be known to be non-injurious to infants (see 5.1).

7.19.6 Stabilizers

The product may contain natural edible vegetable gums and agar-agar in a total concentration not exceeding 1 %. Artificial thickeners, phosphatic additives, chemical emulsifiers and thickeners, and anti-oxidants other than ascorbic acid shall not be used.

7.19.7 Composition

When determined in accordance with 11.3 and 11.4, the actual total meat content shall be at least 10 % by mass of which the fat content shall not exceed 25 % of the actual total content, except that, in the case of products that contain bacon, the fat content shall not exceed 30 % of the actual total meat content.

7.19.8 Salt content

The total chloride content, determined in accordance with 11.6 and expressed as sodium chloride, shall not exceed 1,0 % by mass.

7.19.9 Fibre content

The fibre content, determined in accordance with 11.8, shall not exceed 1,5 % by mass.

7.20 Minced meat and minced meat in gravy

7.20.1 Preparation

Minced meat and minced meat in gravy shall be prepared by canning minced meat in its own juice or in a prepared gravy. Spices and other seasoning may be present.

The meat used shall be obtained from the skeletal musculature of food animals. The product shall not contain edible offal or added natural binder.

7.20.2 Composition

When determined in accordance with 11.3, the actual lean meat content (see 2.2) of minced meat canned in its own juice, shall be at least 70 %. The actual lean meat content of canned minced meat in gravy and canned minced meat in gravy containing invisible onions and peppers shall be at least 60 %. When determined in accordance with 11.5, the starchy (farinaceous) material, calculated as crude starch, shall not exceed 5 % by mass.

7.20.3 Appearance

The product shall have a characteristic processed minced meat appearance. The texture shall be uniformly minced without containing excessively large coarse pieces but shall also not be finely ground or be emulsified or be smooth or pasty. The fibre of the meat shall be visible and be free from excessive pieces of sinew and connective tissue. Coagulated exuded fat shall not be present at ambient temperature. Excessive exuded material shall not be present.

7.21 Minced meat with vegetables (or fruit) or cereal or a combination of these in gravy

7.21.1 Preparation

Minced meat with vegetables (and/or fruit) or cereal or both in gravy shall be prepared by canning minced meat together with one or more vegetables or fruit or a cereal or both in gravy. The meat used shall be obtained from skeletal musculature of food animals. The product shall not contain edible offal or added natural binder.

7.21.2 Composition

In the case of minced meat with onions or peppers that contains a visible quantity of onions or peppers, the actual lean meat content, determined in accordance with 11.3, shall be at least 55 %.

In the case of minced meat with vegetables (or fruit) or cereal or both, the actual lean meat content (see 2.2), determined in accordance with 11.3, shall be at least 40 %. The drained mass, determined in accordance with 10.5, of the cereal or the vegetables (or fruit) or both, shall be at least 35 % of the d.n.m.

7.21.3 Appearance

The appearance of minced meat shall be as given in 7.20.3. The vegetables (or fruit) or cereals or both shall be as given in 7.2.2.

7.22 Unspecified meat products

7.22.1 General

Any meat product for which requirements are not specifically prescribed in 7.2 to 7.22 inclusive but which falls within the scope of this specification, shall comply with the relevant requirements given in sections 4, 5, 6, 8, 9 and 12 of this specification.

7.22.2 Drained mass

In the case of packs other than solid packs, the drained mass shall be at least 70 % of the d.n.m, except that in the case of products packed in sauce or gravy the washed or drained mass, when determined in accordance with 10.5, shall be at least 50 % of the d.n.m.

7.22.3 Curing salts

Packs other than those that contain cured meat shall not contain curing salts.

7.22.4 Freedom from defects

The product shall be free from sand, grit, pieces of shell, dirt and other extraneous contaminants.

7.23 Snails

7.23.1 Packing

The product may be packed in clear brine, water, or sauce. It may be spiced. The product shall be neatly packed. The container shall be filled to practical capacity, over-filling being avoided.

7.23.2 Drained mass

The drained mass, determined in accordance with 10.5, shall be at least 60 % of the d.n.m.

7.23.3 Appearance, texture and colour

The product shall be attractive in appearance and characteristic in colour. The units shall not have a greyish or brownish off-colour. The units in any one container shall be reasonably uniform in colour and size. The units shall not have a ragged appearance. The product shall have a characteristic firm but soft texture, and shall not be soggy or mushy or excessively tough or dry.

7.23.4 Flavour and odour

The flavour and odour of the product shall be fresh and characteristic. Off-flavours and off-odours shall not be present.

7.23.5 Freedom from defects

The product shall be free from sand, grit, and pieces of shell, dirt and other extraneous contaminants. Snail eggs shall be absent. When snails are packed in brine or in water, the packing medium shall not be turbid or cloudy and shall be free of sediment.

8 Containers

8.1 Types of container

Containers including lids or caps shall meet the following requirements:

- a) be capable of maintaining the preservation of their contents in a sound, wholesome condition;
- b) be made of a suitable material and constructed so that they can be easily closed and sealed;
- c) be sufficiently durable to withstand mechanical and thermal stresses during the canning processes and to resist physical damage and maintain their normal appearance during normal distribution and storage;
- d) protect the contents from contamination by micro-organisms or any other substance;
- e) be suitable for the type of product and the conditions of storage and transportation;
- f) their inner surfaces shall be adequately coated with a suitable material and shall not react with the contents in any way that would adversely affect the product or the containers;
- g) the internal surface coating such as lacquer shall be uniformly applied and shall not become loose or peel off the surface of the can or lid during processing and normal storage conditions;
- h) the outer surfaces shall be resistant to corrosion under normal storage and retail conditions;
- i) the compound sealing material on lids or caps shall be suitable for the purpose and for the type of product used;

- j) lids shall be tamper-proof, and a tamper detector shall be provided in cases where lids or caps can be removed by hand, such as with screw-on caps on jars; and
- k) the containers shall be such that the contents can be easily emptied out.

8.2 Condition of containers

Containers or lids with signs of poor or doubtful container integrity shall not be used. The inner surfaces of all containers and closures shall, at the time of use, be clean and in the case of cans, free from corrosion, pinholes, evidence of detinning, delacquering, damages, serious solder splashing or excess application of solder. When lacquered cans or lids or both are used, the lacquer shall be free from drops or splashes of lacquer, significant scratches and other imperfections and it shall have no detrimental effect on the product such as off-flavours, off-odours and discolouration. The seam/s and seals, where applicable, shall be normal in appearance with a strong leakproof structure and quality. The sealing compound on closures shall be evenly applied around the entire contour with a normal appearance and adhesion.

Can bodies and lids with scoring lines for easy opening purposes of the final product by the consumer, shall be subjected to appropriate examinations for integrity. There shall be no signs of corrosion in the scoring lines.

8.3 Transport and storage of empty containers

Containers and lids or closures shall be delivered from the manufacturer wrapped or in covers and shall be transported and stored under protection against risk of contamination, damaging and the weather. The storage area shall be kept clean and shall be insect, bird and rodent proof. Containers and lids or closures shall be stored in a dry store, protected against wind, rain or vapour from the sea and away from steam, humidity, condensation or sudden temperature variations. The storage area shall be used solely for the storage of empty containers and lids.

The stacking of pallets with empty cans shall be such that the cans shall not be damaged. Empty cans or pallets with empty cans shall not be stepped on.

8.4 Cleaning of empty containers

Containers shall be cleaned immediately before use. Containers shall be in an inverted position when the cleaning is by means of blowing out with compressed air. After having been cleaned, the containers shall be protected against risk of contamination.

8.5 Distribution and handling of containers

Containers shall not be exposed to contamination or damaging to their bodies, seams or flanges while distributed, on runways or feeding lines. Containers shall be removed from the runways or feeding lines at the end of production unless the containers are adequately covered and protected against risks of contamination and damage.

8.6 Integrity of containers

In the end product, the containers and closures shall be free of integrity defects that could compromise the hermetic condition of the containers and closures or affect the product quality and appearance adversely.

9 Packing and processing requirements

9.1 Filling under hygienic conditions

The product shall be filled and processed under strictly hygienic conditions into containers that have been acceptably cleaned.

9.2 Processing

9.2.1 Where thermal processing of the product is required, it shall be carried out without delay after the sealing of the lids on the container.

9.2.2 Filled containers of product other than pasteurized products and semi-preserved products (see 6.11), shall be exhausted where appropriate, hermetically sealed or processed in such a way as to reduce the number or activity or both of viable micro-organisms to such an extent that none are detectable in the treated food by the methods given in clause 11. Containers of pasteurized products shall be exhausted, hermetically sealed, and pasteurized.

9.2.3 The filling, exhausting, sealing, and heat-processing of containers shall be performed in such a way that the ends of the cans or the caps of the jars

- a) are not convex, or
- b) do not become convex under normal transport and storage conditions.

There shall be no undue delay between filling, sealing of lids and the start of heat processing that could affect the product adversely. The thermal process shall be continuous (see 9.2.7).

9.2.4 When tested in accordance with 10.2, all container closures shall be strongly made. Cans of diameter 99 mm or less, shall not leak on vacuum leak testing under a maximum negative gauge pressure of 65 kPa, and cans of diameter greater than 99 mm shall not leak under a maximum negative gauge pressure of 50 kPa (see 10.2). Written records of seam examination shall be kept and shall be available for scrutiny for 2 years after the date of production.

9.2.5 The heat distribution in each retort used shall be determined and the heat penetration of each product in each can size at the coldest spot in the retort under the most unfavourable conditions likely to occur during processing, shall be determined to establish the time-and-temperature process necessary to obtain biological stability of the product. These tests shall be carried out by a competent body or person.

9.2.6 The time-temperature process in the case of heat-preserved products shall be conducted by adequately trained operators.

9.2.7 The time-temperature process (see 9.2.3) shall ensure

- a) the destruction of pathogenic organisms, and
- b) freedom from microbiological spoilage (see section 11).

9.2.8 Immediately after heat-processing, the filled containers shall be cooled as rapidly as possible to a container centre temperature not exceeding 50 °C.

9.3 Handling of sealed containers after heat processing

9.3.1 Any container whose process status before and after the retort process is unknown shall be immediately destroyed.

9.3.2 After having been removed from the retort in their baskets or trolleys the containers shall not be subjected to after-sterilization contamination. Hot or wet containers or containers having a positive internal pressure after the retort process shall not be removed out of their trolleys or baskets or be handled individually or be touched by hand. Containers shall not be handled or bulk-stacked before being thoroughly dried and cooled.

9.3.3 A clean separated area for the sole purpose of cooling containers after retorting shall be provided. Such an area shall be:

- a) enclosed with unauthorized entrance being restricted;
- b) physically separated from areas in which steam is emitted; and
- c) situated away from other normal factory traffic, other than the handling of trolleys or baskets with containers after retorting, there shall be no crossflow of other factory traffic along the route of the baskets or trolleys between the retorts and the cooling area.

9.3.4 After the containers have been cooled and dried, and only on instruction from a designated person, the baskets or trolleys may be moved out of the cooling area to a pick-up area. The process of removing the containers out of the trolleys or baskets and the stacking shall be done in such a way as to avoid rough handling or damaging of the containers or causing unnecessary stress to their seams or seals.

9.3.5 Containers, and in particular their seams, shall not be exposed to contamination. The equipment and conveyors used for the pick-up and stacking of containers shall be regularly sanitized. Hard metal surfaces against which the containers come into contact during the pick-up process in particular sharp points, projections or corners, shall where possible, be avoided or otherwise be covered with shock absorbing material to prevent damaging of the containers. Such pick-up equipment and conveyor lines shall be subjected to a regular routine inspection.

9.3.6 In the case of continuous cookers or retorts, the container runways on which the containers are transported from the cookers or retorts shall be maintained in a hygienic state and cans shall not roll on their double seams on the container runways.

9.4 Exterior of the end product container

The containers shall be clean with a normal appearance and metal cans shall be free from corrosion and shall not be deformed or have an abnormal appearance or be damaged. Containers shall be free from any defective seams, seals or closures, or signs of leaking or other defects.

Containers shall be free from abnormal stains.

9.5 Storage of the end product (see 4.2.22)

9.5.1 General

The end product storage areas shall be used solely for the intended purpose. The end product shall be stacked away from the floors and walls.

All containers of the same production code or batch code shall be stored together and not be mixed with containers of other production-day's codes. Each stack or pallet with containers shall be identified with the code appearing on the containers and with their inspection status. Any production lots in which defects or a deviation were detected, shall be identified as such and shall be stored separately from other production lots. Any non-conforming production lots shall be identified as such and stored in an area physically separated from the rest of the end product stock.

9.5.2 Products not requiring refrigeration

Canned products not requiring refrigeration shall, both before and after labelling and packaging for commercial distribution, be stored in an orderly manner, in dry conditions, protected against steam, condensate, moisture, dust and the weather. Canned products shall not be stored under conditions that are conducive to corrosion of the containers or be exposed to temperature extremes.

The final product shall be stacked in such a way that container damage shall not occur due to pressure from the excessive mass of pallets with containers stacked above. Workers shall not be allowed to step on containers or on pallets with containers. Precautions shall be exercised to avoid container damaging in particular, with fork-lift truck handling.

9.5.3 Products requiring refrigeration

Where products are required to be stored under refrigeration, the storage temperature shall not exceed 4 °C (see 12.2.1(e)). Refrigeration rooms shall be clean and shall be hygienically maintained. The product shall be protected against risks of corrosion.

10 Methods of physical examination

10.1 External and internal examination of containers

10.1.1 Code: Determine whether the code digits are legible and indelible and if embossed, examine for any abnormalities such as damaging the tinplate or lacquer.

10.1.2 Examine the seams, seals or closures and outer and inner surfaces of containers for any abnormalities or integrity defects.

10.2 External and internal examination of seams

10.2.1 Integrity of the hermetic sealing

Conduct external and internal examinations of container seams, seals or closures in accordance with the method provided by the container manufacturer to determine whether the container seam, seal or closure is in compliance with the prescribed specifications, parameters and attributes by the container manufacturer to ensure the integrity of the hermetic sealing.

10.2.2 Leak test by applying vacuum inside the can

10.2.2.1 Preparation of cans

a) Empty unused cans:

Immerse empty unused cans for 5 min in boiling water. Remove the cans from the boiling water and cool to 30 °C or below before testing.

b) End product:

In the case of 3-piece cans, open the end product by cutting out one of the lids of the can without damaging the circumference of the seam. In the case of 2-piece cans, remove the bottom of the can (opposite the seam) without damaging the expansion ring on the bottom end. After removal of the contents, immerse the can for 60 min in boiling water. Remove the cans from the boiling water and dry for 6 h at approximately 55 °C before testing.

10.2.2.2 Testing

Add sufficient water to submerge the entire seam. Place a rubber seal on the open end to cover the entire top of the circumference of the seam or expansion ring. Place a perspex plate hermetically connected to a vacuum tube on top of the rubber seal. Observe the entire seal covered with water at the opposite end of the can during the removal of air from the can. Appearance of a succession of air bubbles from the seam into the water indicates leakage through the seam at that particular point.

10.3 Determination of net mass of the contents of the container

10.3.1 Weigh unopened container.

10.3.2 Open container and remove the contents.

10.3.3 Wash, dry and weigh the container complete with lid.

10.3.4 Subtract the mass of the empty container from the mass of the unopened container. The resultant figure is the net mass.

10.4 Determination of the vacuum inside a container, the net headspace and the fill of the container

10.4.1 Vacuum

Tap the unopened container slightly on the surface of the inspection table to move the contents away from the inside surface of the lid. Impress the point of a vacuum gauge through the lid to measure the vacuum inside the container.

10.4.2 Net headspace

10.4.2.1 In case of:

a) a container with a lid attached by a double seam, partially cut out lid without removing or altering the height of the double seam; or in case of

b) another type of container, remove the lid.

10.4.2.2 Determine the average vertical distance, in mm, from the inside surface of the lid of the container to the upper level of the contents by taking measurements over the surface of the contents. The result is the net headspace.

10.4.3 Fill of container

10.4.3.1 In case of containers with lids attached by double seams, fill the container with water at room temperature to a vertical distance of 5 mm below the top level of the container. Weigh the container thus filled and determine the mass of the water by subtracting the mass of the container.

10.4.3.2 Draw off water from the filled container to the level of the contents as determined in 10.4.2, weigh the container with the remaining water and determine the mass of the remaining water by subtracting the mass of the container.

10.4.3.3 Divide the mass of the remaining water (see 10.4.3.2) by the mass of the water (see 10.4.3.1) and multiply by 100. The result is the percentage of the total volume capacity of the container occupied by the content expressed as the fill of the container.

10.4.3.4 In case of a container with a lid attached otherwise than by a double seam, remove the lid and proceed in accordance with 10.4.3.1 to 10.4.3.3, but fill the container to the top or to the level of the inside surface of the lid instead of to 5 mm below the top (see 10.4.3.1).

10.5 Determination of drained mass

10.5.1 Preparation of the product

10.5.1.1 Packs other than pudding packs

10.5.1.1.1 Maintain the container at room temperature approximately between 20 °C and 30 °C for a minimum of 12 h prior to examination.

10.5.1.1.2 Open and tilt the container to distribute the entire contents from the container on a pre-weighed sieve having a wire mesh with square openings of 2,8 mm × 2,8 mm.

10.5.1.1.3 Incline the sieve at an angle of approximately 17° to 20° and allow the contents to drain for 2 min, measured from the time the product is poured onto the sieve.

10.5.1.1.4 Immediately weigh the sieve containing the contents.

10.5.1.1.5 In case of a product with a sauce adhering to the contents or onto the sieve, wash the sauce off with a gentle spray of warm tap water (approximately 40 °C) using a wash bottle (e.g. plastic). Incline the sieve at an angle of approximately 17° to 20° and allow the contents to drain for 2 min, measured from the time the washing has finished.

10.5.1.1.6 Immediately remove adhering water from the bottom of the sieve by use of a paper towel and weigh the sieve containing the washed contents.

10.5.1.1.7 In case of products packed in a jelled medium that does not liquefy at a room temperature between 20 °C and 30 °C within 12 h, remove the jelled medium by hand and weigh the solid contents.

10.5.1.1.8 The drained or washed mass is obtained by subtracting the mass of the sieve from the mass of the sieve with the drained/or washed product.

10.5.1.1.9 In case of products containing optional ingredients such as vegetables, fruits, cereals or garnish, determine the total drained or washed mass as described above, then separate the optional ingredients and re-weigh. The mass of the material remaining on the sieve is the drained or washed mass of the meat content.

10.5.1.1.10 In the case of mutton-on-bone and similar packs, separate and weigh the bone after the total drained or washed mass has been determined.

10.5.1.1.11 If any edible offal or minor meat ingredient is mentioned in the name of the pack, separate and weigh it after the total drained or washed mass has been determined.

10.5.1.1.12 If a minimum content is specified for a vegetable or a cereal, or a combination of these, separate these ingredients and weigh the meat and/or edible offal ingredient after the total drained or washed mass has been determined.

10.5.1.2 Pudding packs

Proceed as in 10.5.1 after removal of the pastry from the product.

10.5.2 Expression of results

The percentage drained or washed mass (% D_m) is expressed as:

$$\% D_m = \frac{D_m}{d.n.m.} \times 100$$

where

D_m is the drained or washed mass;

d.n.m. is the declared net mass.

The percentage total drained or washed mass (% D_{tm}) (see 10.5.1.1.9) is expressed as:

$$\% D_{tm} = \frac{D_{tm}}{d.n.m.} \times 100$$

where

D_{tm} is the total drained or washed mass;

d.n.m. is the declared net mass.

The percentage drained or washed mass of the meat content (% D_{mmc}) is expressed as:

$$\% D_{mmc} = \frac{D_{mmc}}{d.n.m.} \times 100$$

where

D_{mmc} is the drained or washed mass of the meat content;

d.n.m. is the declared net mass.

Record the results as percentages of the *d.n.m.*

10.6 Meat-to-fat ratio

10.6.1 Remove the contents from the container.

10.6.2 Remove any packing material(s), fat or exuded material.

10.6.3 At ambient temperature, physically separate the fat from the meat. Determine the masses of the separated fat and the meat. Calculate the meat-to-fat ratio by dividing the mass of the meat by the mass of the separated fat.

10.7 Exuded fats and exuded material

10.7.1 Remove the contents from the container.

10.7.2 At ambient temperature, physically remove the exuded fat and determine the mass of the exuded fat. Calculate the percentage of exuded fat by dividing the mass of the exuded fat by the *d.n.m.* of product and multiplying by 100.

10.7.3 At ambient temperature, physically remove any other exuded material and determine the mass of the exuded material. Calculate the percentage of exuded material by dividing the mass of the exuded fat by the d.n.m. of product and multiplying by 100.

11 Methods of chemical analysis

11.1 General

During the analysis, use only reagents of recognized analytical grade and use only distilled water or water of equivalent purity.

11.2 Preparation of sample for chemical analysis

11.2.1 Corned beef, corned meat, meat rolls, chopped meat and similar solid packs, minced meat products, meat pastes and potted meats

11.2.1.1 Where a product such as ham or cured shoulder of pork is packed in a jelled packing medium, separate and remove the packing medium, scraping it off where it adheres.

11.2.1.2 In the case of ham or cured shoulder without the packing medium and other applicable products, pass the **entire** contents of the container twice through a meat grinder.

11.2.1.3 Mix the ground sample thoroughly, using a pestle and mortar. Store the prepared sample in a well-closed container, in a refrigerator until it is required for use.

11.2.2 Sausages, meat balls and similar products

After draining the product or, in the case of sausages packed in fat or agar-agar or other jellied packing medium, after scraping off the adhering packing medium, pass the product twice through a meat grinder and then proceed as in 11.2.1.3.

11.2.3 Packing medium

Where the packing medium is required for analysis, strain it through a sieve of nominal aperture size 2 mm, or scrape it off where jellied packing medium adheres to the interior sides of the container or to the units, mix thoroughly, and transfer it to a container and store it as in 11.2.1.3.

11.2.4 Fats for melting point determination

Melt 10 g to 20 g of the fat in a small beaker and allow it to cool, stirring occasionally, until a faint turbidity appears. Stir the sample until it is homogeneous and set it aside for 24 h at 10 °C before determining the melting point.

11.3 Determination of protein nitrogen, protein and actual lean meat contents

Use SANS 6317, *Methods of chemical analysis of meat and fish products*, to determine the protein nitrogen content and then 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.

11.4 Determination of fat content

Use SANS 6317, *Methods of chemical analysis of meat and fish products*, to determine the fat content.

11.5 Determination of crude starch content

Use SANS 6317 *Methods of chemical analysis of meat and fish products*, to determine the starch content.

11.6 Determination of chloride content (as sodium chloride)

11.6.1 Reagents

11.6.1.1 Nitrobenzene.

11.6.1.2 Nitric acid, diluted 1:2.

11.6.1.3 Sodium carbonate solution, a saturated solution.

11.6.1.4 Specification potassium thiocyanate solution, $c(\text{KCNS}) = 0,1 \text{ mol/L}$.

11.6.1.5 Specification silver nitrate solution, $c(\text{AgNO}_3) = 0,1 \text{ mol/L}$, accurately specificationized.

11.6.1.6 Ferric alum indicator

A cold saturated solution of ferric ammonium sulfate ($\text{NH}_4\text{Fe}(\text{SO}_4)_2 \cdot 12\text{H}_2\text{O}$) to which a few drops of the diluted nitric acid (11.6.1.2) have been added.

11.6.2 Procedure

11.6.2.1 Weigh accurately a suitable quantity of the prepared sample into an evaporating basin or crucible, moisten with the sodium carbonate solution, and dry on a water bath.

11.6.2.2 Char the dried sample and ash it at a temperature not exceeding 500 EC.

11.6.2.3 Extract the residue with the dilute nitric acid and filter into a 100 mL volumetric flask. Repeat the extraction and filtration once, wash the filter thoroughly with the dilute nitric acid, dilute the solution in the flask to the mark with the dilute nitric acid, and mix.

11.6.2.4 To a suitable aliquot in a 250 mL Erlenmeyer flask add 25 mL of the specification silver nitrate solution, 5 mL of the nitrobenzene, 1 mL of the ferric alum indicator, and shake well.

11.6.2.5 Titrate with the specification potassium thiocyanate solution.

11.6.2.6 Carry out a blank determination omitting the sample.

11.6.2.7 The difference between the blank titre and the test titre is the volume of silver nitrate used in the determination.

11.6.2.8 Calculate the chloride content (as sodium chloride), expressed as a percentage (% NaCl) of the product, using the formula:

$$\% \text{ NaCl} = \frac{V \times 5,845 \times c}{m}$$

where

V is the volume, in millilitres, of specification silver nitrate solution used in the determination;

c is the concentration of specification silver nitrate solution, in moles per litre;

m is the mass, in grams, of original sample represented by the aliquot used in the titration.

11.7 Determination of moisture content

Use SANS 6317, *Methods of chemical analysis of meat and fish products*, to determine the moisture content.

11.8 Determination of fibre content

11.8.1 Reagents

11.8.1.1 Sulfuric acid solution (0,255 ∇ 0,005) N. 1,25 g H₂SO₄/100mL. Concentration must be checked by titration.

11.8.1.2 Sodium hydroxide solution (0,313 ∇ 0,005) N. 1,25 g NaOH/100 mL, free or nearly so from Na₂CO₃. Concentration must be checked by titration.

11.8.1.3 Prepared ceramic or asbestos fibre

Place 60 g ceramic or asbestos fibre in a blender, add 800 mL H₂O, and blend for 1 min at low speed.

11.8.1.4 Alcohol 95 % or reagent alcohol, methanol or isopropanol.

11.8.1.5 Antifoam

Polydimethylsiloxane compound diluted 1 + 4 with mineral spirits or petroleum ether, or polydimethylsiloxane emulsion diluted 1 + 4 with H₂O.

11.8.1.6 Bumping chips or granules

Aluminium 90 grit granules.

11.8.2 Apparatus

11.8.2.1 Digestion apparatus with a condenser to fit a 600 mL beaker, and a hotplate adjustable to a temperature that will bring 200 mL H₂O at 25 EC to a rolling boil in (15 ∇ 2) min.

11.8.2.2 Sinter quartz crucibles

11.8.2.3 Desiccator with efficient desiccant such as 4-8 mesh silica gel. CaCl₂ is not satisfactory.

11.8.3 Procedure

11.8.3.1 Extract 2 g of ground sample with ether or petroleum ether (If fat is < 1%, extraction may be omitted).

11.8.3.2 Prepare a blank by treating ∇ 2 g (dry mass) ceramic or asbestos fibre with acid and alkali as in the procedure below.

11.8.3.3 Transfer the sample to the 600 mL beaker, avoiding fibre contamination from paper or brush. Add ∇ 1,5 g to 2,0 g dry mass of prepared ceramic or asbestos fibre (see 11.8.1.3), 200 mL boiling 1,25 % H₂SO₄ and 1 drop diluted antifoam (see 11.8.1.5). Bumping granules (see 11.8.1.6) may also be added.

11.8.3.4 Place the beaker on the digestion apparatus with the pre-adjusted hotplate (see 11.8.1.1) and boil for exactly 30 min, rotating the beaker periodically to keep solids from adhering to the sides.

11.8.3.5 Remove the beaker and filter through a sinter quartz crucible.

11.8.3.6 Return the material and residue on the crucible to the beaker by washing with 200 mL boiling 1.25 % NaOH, and boil for exactly 30 min.

11.8.3.7 Remove the beaker and filter as in 11.8.3.5.

11.8.3.8 Wash the filter 3 times with boiling water. Drain free of excess water and wash with 25 mL alcohol.

11.8.3.9 Dry the crucible for 2 h at 130 EC \forall 2 EC. Cool in a desiccator and weigh.

11.8.3.10 Ignite for 30 min at 600 EC \forall 15 EC. Cool in a desiccator and reweigh.

11.8.4 Calculation

The percentage crude fibre in the ground sample is C

$$\text{where } C = \frac{(\text{Loss in mass on ignition} - \text{loss in mass of ceramic fibre blank}) \times 100}{\text{mass of sample}}$$

11.9 Determination of iodine value (according to Wijs)

11.9.1 Reagents

11.9.1.1 Carbon tetrachloride, re-distilled.

11.9.1.2 Glacial acetic acid

11.9.1.3 Iodine trichloride solution, one ampoule.

11.9.1.4 Iodine

11.9.1.5 Iodine monochloride solution

Dissolve 8 g of iodine trichloride (ampoule) in \forall 200 mL of glacial acetic acid. Dissolve 9 g of iodine in 300 mL of carbon tetrachloride. Mix the two solutions and dilute with glacial acetic acid to 1L.

NOTE Iodine monochloride solution should be kept in a stoppered bottle, protected from light and stored at a temperature not exceeding 15 EC.

11.9.1.6 Specification sodium thiosulfate solution, $c(\text{Na}_2\text{S}_2\text{O}_3) = 0,1 \text{ mol/L}$, accurately specificationized.

11.9.1.7 Starch indicator solution

Mix approximately 0,5 g of soluble starch to a paste with a little cold water and run it, with constant stirring, into 25 mL of boiling water. Boil for 2 min and allow to cool. Use 0,5 mL of this solution for each determination.

11.9.2 Procedure

11.9.2.1 Accurately weigh out 0,1 g of the fat (lard or dripping) into a clean glass-stoppered iodine flask of capacity 250 mL.

11.9.2.2 Dissolve the fat in 10 mL of the carbon tetrachloride and add exactly 25 mL of the iodine monochloride solution.

11.9.2.3 Allow to react in the dark for exactly 60 min, add 100 mL of water and 20 mL of the potassium

iodide solution.

11.9.2.4 Titrate the excess iodine with the specification thiosulfate solution using the starch solution as indicator.

11.9.2.5 Carry out a blank determination omitting the fat.

11.9.3 Calculation

Calculate the iodine value (Wijs) using the formula:

$$\text{Iodine value} = \frac{(V_1 - V_2) \times 12,69 \times c}{m}$$

where

V_1 is the volume, in millilitres, of specification sodium thiosulfate solution required for the blank;

V_2 is the volume, in millilitres, of specification sodium thiosulfate solution required for the fat;

c is the concentration of the specification sodium thiosulfate solution, in moles per litre;

m is the mass, in grams, of fat taken for the determination.

11.10 Determination of free fatty acids as oleic acid

11.10.1 Reagents

11.10.1.1 Diethyl ether.

11.10.1.2 Ethanol, 96 %.

11.10.1.3 Specification potassium hydroxide solution, $c(\text{KOH}) = 0,1 \text{ mol/L}$, accurately specificationized.

11.10.1.4 Phenolphthalein indicator solution

A solution of 10 g/L in ethanol.

11.10.2 Procedure

11.10.2.1 Dissolve approximately 10 g of the fat, accurately weighed, in a mixture of equal volumes of the ether and the ethanol that has been neutralized with the specification potassium hydroxide solution to a faint pink shade using the phenolphthalein solution as indicator.

11.10.2.2 Titrate with the specification potassium hydroxide solution to a faint pink shade that persists for 15 s.

11.10.2.3 Calculate the free fatty acids (as oleic acid), expressed as a percentage by mass of the product, using the formula:

$$\% \text{ free fatty acids} = \frac{V \times c \times 28,25}{m}$$

where

V is the volume, in millilitres, of specification potassium hydroxide used;

c is the concentration of the specification potassium hydroxide solution, in moles per litre;

m is the mass, in grams, of sample taken.

11.11 Determination of saponification value

11.11.1 Reagents

11.11.1.1 Alcoholic potassium hydroxide solution

Dissolve 1,5 g of silver nitrate in 3 mL of water and add the solution to 1 L of ethanol (96 %).

11.11.1.2 Specification hydrochloric acid solution, $c(\text{HCl}) = 0,5 \text{ mol/L}$, accurately standardized.

11.11.1.3 Phenolphthalein indicator solution

Prepare as in 11.10.1.4.

11.11.2 Procedure

11.11.2.1 Accurately weigh approximately 2 g of fat into a 250 mL flask, add exactly 25 mL of the alcoholic potassium hydroxide, and heat under reflux for 1 h.

11.11.2.2 Cool, add 0,5 mL of the phenolphthalein indicator, and titrate with the 0,5 N hydrochloric acid.

11.11.2.3 Carry out a blank determination in the same way, omitting the fat.

11.11.2.4 Calculate the saponification value, expressed as milligrams KOH per gram of the product, using the formula:

$$\text{Saponification value} = \frac{(V_1 - V_2) \times 56,1 \times c}{m}$$

where

V_1 is the volume, in millilitres, of specification hydrochloric acid solution required for the blank;

V_2 is the volume, in millilitres, of specification hydrochloric acid solution required for the fat;

c is the concentration of the specification hydrochloric acid solution, in moles per litre;

m is the mass, in grams, of sample taken.

11.12 Determination of melting point

11.12.1 Apparatus

An acceptable Ubbelohde apparatus for flow and drop points.

11.12.2 Procedure

11.12.2.1 Fill the cup that fits on to the thermometer with the prepared fat sample (see 11.2.4), and so compress the sample that all air bubbles are excluded.

11.12.2.2 Attach the cup to the thermometer and use a cork to so fit the thermometer into a boiling tube that the cup is approximately 20 mm to 30 mm from the bottom of the tube.

11.12.2.3 Immerse the tube in a beaker of water equipped with a stirring device, and heat the water at a rate of 1 °C/min.

11.12.2.4 Regard the temperature at which the first drop of liquid falls from the cup as the melting point of the sample.

11.13 Determination of the refractive index

Determine the refractive index at the stated temperature in a Abbé type refractometer.

11.14 Determination of nitrite and nitrate contents

Use SANS 6317, *Methods of chemical analysis of meat and fish products*, to determine the nitrite and nitrate content.

11.15 Determination of phosphorus

Use SANS 6317, *Methods of chemical analysis of meat and fish products*, to determine phosphorus content.

11.16 Incubation and inspection of containers

11.16.1 Commercially sterilized cured products

11.16.1.1 Incubation at 37 EC

Incubate the containers at 37 EC for 14 d and then examine a representative sample(s), in accordance with 12.2 for evidence of spoilage.

11.16.1.2 Incubation at 55 EC

Incubate the containers at 55 EC for 10 d and then examine a representative sample(s), in accordance with 12.2, for evidence of spoilage.

11.16.2 All other products except rendered fats and semi-preserved products

11.16.2.1 Incubation at 37 EC

Incubate the containers at 37 EC for 14 d and then examine a representative sample(s), in accordance with 11.17, for evidence of spoilage.

11.16.2.2 Incubation at 55 EC

Incubate the containers at 55 EC for 10 d and then examine a representative sample(s), in accordance with 11.17, for evidence of spoilage.

11.16.3 Fats

Incubate the containers at 37 EC for 14 d and then examine a representative sample(s), in accordance with 11.17, for evidence of spoilage.

11.17 Examination for general spoilage organisms

Use SANS 6257 (SABS SM 1257), *Microbiological examination of canned meat and fish products*. Evaluate for compliance with 6.14.2.1.

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

Use SANS 5763 (SABS SM 763), *Efficacy of cleaning plant, equipment and utensils: swab technique*. Evaluate for compliance with 4.5.6.

11.19 Determination of the total count of viable organisms

Use SANS 4833/ISO 4833 (SABS ISO 4833), *Microbiology – General guidance for enumeration of micro-organisms: colony count technique at 30 EC*. Evaluate for compliance with 4.4.1.

11.20 Determination of the presence of E. coli

Use SANS 7251/ISO 7251 (SABS ISO 7251), *Microbiology – General guidance for the enumeration of presumptive Escherichia coli; Most probable number technique*. Evaluate for compliance with 5.19.

11.21 Microbiological examination of water

Use SANS 5221 (SABS SM 221), *Microbiological analysis of water – General test methods*. Evaluate for compliance with 4.4.1.

11.22 Determination of viable Salmonella organisms

Use SANS 6579/ISO 6579 (SABS ISO 6579), *Microbiology – General guidance on methods for the detection of Salmonella*. Evaluate for compliance with 5.20.

12 Labelling and marking of containers

12.1 Details required on each container, label or packing material

12.1.1 Details

Subject to 12.6 and in addition to the markings required in terms of the regulations promulgated under the Trade Metrology Act, as well as the Foodstuffs, Cosmetics and Disinfectants Act, the following information shall appear in legible and indelible marking on each container or on a label securely attached to each container:

- a) The full name and physical address of the manufacturer, producer, proprietor, or controlling company or, in the case of containers packed for any other person or organization, the full name and physical address of that person or organization;
- b) the name and true description, taking into cognizance the provisions of the Merchandise Marks Act 1941 (Act 17 of 1941) (as amended from time to time), of the contents (see also 12.1.2) including, where applicable, the nature of the medium in which the product is packed and the presence of bone that is, as such, a constituent of a product;

- c) where applicable, a statement of ingredients, including the presence, as relevant, of non-meat proteinaceous material by name, and vegetable fat or oil, in descending order of quantities present on the ingoing basis and/or in the final product;
- d) where applicable, the presence of artificial colourants in plain type of at least 1,5 mm face measurement;
- e) where the product is required to be stored under refrigeration the words "Perishable - keep under refrigeration at a temperature not exceeding 4 °C", in a prominent position in plain type of at least half the size of that used for the name of the product with a minimum of 3 mm face measurement, except that the word "Perishable" shall be in bold type of at least 4,5 mm face measurement;
- f) the declared net mass of the contents;
- g) the product code, the date of canning, sub-code or the batch number (if used), and the factory identification embossed or otherwise indelibly marked on the container or, in the case of jars, on the cap or label; any mark or code used for the foregoing shall be disclosed for record purposes to the authority administering this specification;
- h) information required in terms of the relevant clause dealing with the specific product; and
- i) words indicating the country of origin where the product is produced.

12.1.2 True description of contents

12.1.2.1 Minimum meat content for meat product designation

A product presented or described as a meat product, or a product on which a statement or claim appears implying that the product is a meat product, or a product with wording in the product name or wording on the main panel implying that the product contains meat, shall contain at least 10 % by mass of actual total meat determined in accordance with the total result of 11.3 plus 11.4 or the drained mass of the meat content shall be at least 10 % of the d.n.m. determined in accordance with 10.5.

12.1.2.2 Designation of product

12.1.2.2.1 Unless the meat or edible offal or both (as appropriate) of a product consisting of meat or edible offal or both, and of vegetables, cereal, or other analogous ingredient, constitutes the largest single ingredient on the ingoing basis and, in the end product, constitutes at least 25 % of the d.n.m., the meat or edible offal or both (as appropriate) shall not appear first in the designation of the product.

12.1.2.2.2 In a product that consists of vegetables, cereal, and other similar ingredients with meat or edible offal or both (as such or in prepared form) and falls within the scope of this specification but does not comply with the particular requirements specified for meat or edible offal content, provided that the content of meat or edible offal or both is at least 15 % (10 % in the case of foods for infants), the presence of meat or edible offal shall be declared in the title of the product by means of descriptions such as "Y with X" or "Y containing X" where Y is the basic name of the product (e.g. baked beans in tomato sauce) and X is the meat or edible offal ingredient (e.g. meat balls, sausage).

12.1.2.2.3 Products which undergo a smoking process by exposure to generated smoke, shall be labelled "smoked X" on the main panel of the label or packing material. Any addition of a smoke-flavour that is not obtained by exposure to generated smoke, shall be declared on the main panel of the label. Smoke-flavoured products that have not undergone a process by exposure to generated smoke, shall be labelled as "smoke-flavoured" on the main panel of the label or packaging material. The qualifying word(s) e.g. "smoked" shall appear in immediate conjunction with the product name "X", in a letter size of at least half the size in which the name "X" is featured and of equal prominence and boldness.

12.1.2.3 Meat pastes

In a product, other than liver paste (see 7.17.4.1), in the name of which reference is made to one kind of meat only, at least 80 % of the total meat content shall consist of the named meat.

Where in the name of the product two kinds of meat are referred to, the named meats shall constitute at least 80 % of the total meat content. In addition, the kind of meat named first shall constitute at least 50 % of the total meat content, and that named second at least 20 %, except that if kidney or liver is named second, the minimum requirement shall be 10 % of the total meat and edible offal content.

If three kinds of meat are named in the description of the product, the named meats shall constitute at least 80 % of the total meat content. The meat named first shall constitute at least 40 % of the total meat content, and each of the other named meats at least 15 % (except that if kidney or liver is named second or third the minimum requirement for each shall be 10 % of the total meat and edible offal content). The three kinds of meat shall be named in descending order of contents.

For the purposes of true description of contents, cured pork may be regarded as ham.

12.1.2.4 Potted meat

In a product in the name of which reference is made to one kind of meat only, at least 85 % of the total meat content shall consist of the named meat.

In a product in the name of which two kinds of meat are referred to, the named meats shall constitute at least 85 % of the total meat content. In addition, the kind of meat named first shall constitute at least 50 % of the total meat content, and that named second at least 25 %. If three kinds of meat are named in the description of the product, the named meats shall constitute at least 85 % of the total meat content. The meat named first shall constitute at least 40 % of the total meat content, and each of the other named meats at least 15 %. The three kinds of meat shall be named in descending order of contents.

12.1.2.5 Use of generic names

When a generic name (or names) of animal meat(s) such as beef or pork appears in the name of the product, that product shall not contain any other meat, edible offal, fat, natural binder, etc., which did not originate from the type of animal meat that appear in the name of the product.

12.1.2.6 Description of contents

The type of edible offal, fats or natural binder or any preparation from types of animal other than those from which the meat used in the product is derived shall be declared on the label.

12.2 Labelling and marking

12.2.1 Labelling operations

12.2.1.1 Labelling area

Before the start of the labelling operation, the area shall be cleared of any stray cans. The labelling area shall be maintained in a clean, tidy and orderly condition.

12.2.1.2 Condition and handling of containers during labelling

Containers shall be in a condition complying with 9.4.

The handling of containers during the labelling process shall be done in a manner so as to avoid container abuse or damaging or that their seams are subjected to undue stress or mechanical shock.

12.2.1.3 Labels

Labels, outer wrappers, outer cartons, lithographic markings and printing on containers, pictorial presentation and colouring shall be in accordance with the labelling requirements of section 12.1.

The size of the label, outer wrapper, outer carton shall be suitable to the container size without being oversized. Printing shall be correct, proper and neat.

It is recommended that the authority administering this specification be consulted with regard to the printed lettering size, statements, pictorial presentation and colouring on newly designed labels, outer wrappers, outer cartons or lithographed cans before they are taken into use.

12.2.1.4 Attachment of labels

Labels, outer wrappers or outer cartons shall not be attached or applied to containers by any person other than the manufacturer or by his authorized agent.

Labels, outer wrappers or outer cartons on containers, shall be clean, neat, unspoiled, undamaged and labels or outer wrappers shall be securely attached at the time of despatch from the factory (or at the time of arrival when imported).

Misaligned labels, excess glue or lack of glue, or loose or pleated labels or outer wrappers shall not be present (see 12.2.1.9 and 12.2.1.10). Labels or outer wrappers shall not be superimposed over other labels or over outer wrappers that have been affixed on to containers or onto lithographic printed containers.

Materials such as adhesives or glues used for attaching or applying labels, outer wrappers or outer cartons or closing of packages shall not be hygroscopic, or liable to deteriorate during storage after being applied or conducive to corrosion of the can or lid.

12.2.1.5 Packages – outer containers

Packages in which containers are packed shall be clean, neat and undamaged. Outer containers such as boxes or cases shall be suitable for the purpose of use, be of correct size to avoid damaging of containers by squeezing or loose movement of the containers inside the outer container. Containers shall not be packed in outer containers in positions prone to cause damaging such as packing containers on their sides.

Outer containers shall be strong enough to protect the finished product.

12.2.1.6 Marking of packages

The following regarding the containers in the package shall be printed or stencilled on the outside of every package. The number and size or net mass of the containers and the information required by 12.1.1(a), (b), (f), (g), and (i) where applicable, (e), except that the business address of the manufacturer need not be the full address but shall be sufficient for identification purposes.

In addition to the date code required by 13.1 (g), any batch number or sub-coding indicating a time period of the production date, and/or any line or seamer number, which appeared on the containers shall also be printed or stencilled on every package. When a code system other than the conventional lettering and digital form such as a bar or edge coding system is used, sufficient information shall appear on the packages to identify the production date and any sub-coding.

12.2.1.7 Containers for export

Provided that the requirements of the importing country are met and subject to there being no attempt to misrepresent the product, products may be exported either unlabelled, or labelled differently from the requirements of this specification. The requirements of 12.2.1.6 shall, however, apply, except that a code mark may be used in lieu of the name of the manufacturer.

12.2.1.8 Control for correct labelling

Only production lots complying with this specification shall be labelled provided that containers of production lots which do not comply with or have not been manufactured in accordance with this specification shall not be labelled unless a sales permit has been issued by the authority administrating this specification and the label and consumer packages of the containers are in compliance with the conditions of that permit.

A system of control and precautionary measures shall be practised to prevent incorrect labelling or labelling of production lots or containers not qualified for a specific label. The system shall ensure that the correct label be identified and used.

Only production lots qualified and selected for that specific label used shall be labelled or be present in the labelling area during the time of labelling. Any containers of production lots not complying with the specific label used, shall not be within the immediate labelling area. Only containers of the same production lot code shall be labelled at a time. Lots existing out of a mixture of various production lot codes shall not be labelled.

Control checks shall be conducted on production lots immediately before labelling and after labelling. (See 12.2.1.9 and 12.2.1.10). Necessary screening of production lots such as for defected seams or defected, abnormal, rusted or damaged containers shall be completed before the production lots are taken into the labelling area.

Sighting stations for inspections shall be provided on the conveyor lines before and after labelling.

12.2.1.9 Control checks

Control checks shall be conducted and recorded on a regular basis during labelling (see 12.2.1.8 and 12.2.1.10). Such checks shall be done on the condition of containers and for the presence of abnormal containers (see 9.4 and 12.2.1.2), the condition of labels and incorrect labelling (see 12.2.1.3) defected attachment of labels (12.2.1.4), condition of packages (12.2.1.5), marking of packages (12.2.1.6 and 12.2.1.7) and for control for correct labelling (12.2.1.8) and condition of the labelling area (12.2.1.1).

12.2.1.10 Labelling records

12.2.1.10.1 A daily record shall be kept of the following:

- a) product labelled;
- b) code, including any sub-code or line code and container size;
- c) label used;
- d) where applicable, the serial number of the compliance certificate(s) of production lot(s) labelled;
- e) number of containers labelled; and
- f) destination of consignment with adequate information in case of a recall of the consignment.

12.2.1.10.2 Records shall be kept of control checks (see 12.2.1.8 and 12.2.1.9) done during labelling and consequent findings. Number of containers rejected due to obvious seam defects, damages and cans with an abnormal appearance shall be recorded.

12.2.1.11 Traceability and recall procedures

The record keeping system based on labelling records shall be established so that individual lots of the product in a consignment can be traced from the factory to the point of retail distribution. The recall procedures, when necessary, shall be established in consequence.