

FSMS Guidance Documents On Meat & Meat Products (Frozen Buffalo Meat)



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CHIFSS (CII-HUL Initiative on Food Safety Sciences)***

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4.

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List of Record Templates

Area	Records	
QUALITY	1	Food Safety & Quality Policy-Updated
	2	Food Safety & Quality Objectives-Updated
	3	Management Review Meeting
	4	Internal Audit Plan
	5	Internal Audit Schedule
	6	Internal Audit Observation & Non-Compliance report
	7	FSMS Team members- Updated
	8	Product Information & Intended Use
	9	Process Flow Diagram and Control steps
	10	Hazard Analysis
	11	HACCP Plan
	12	HACCP Verification record
	13	HACCP Validation record
	14	Control of System Documents
	15	Valid FSSAI License
	16	Recall & Withdrawal record
	17	Product Identification & Traceability
	18	Mock Recall record
	19	Trend Analysis
	20	MSDS of all chemicals & processing aids
	21	Correction & Corrective Action report
MARKETING	22	Customer/Consumer complaints records
	23	Determination of Customer Satisfaction
HUMAN RESOURCE	24	Training Need Identification
	25	Training Calendar
	26	Training Conducted record
	27	Training Effectiveness record
	28	Visitor record
	29	Pre-employment medical record
	30	Regular medical record
	31	Monitoring of personnel hygiene
PRODUCTION	32	Non-conforming product record
	33	Glass & Brittle Plastic Breakage record (Tubeights, windows, etc.)
	34	Knife/ other utensil control record
	35	Control of handling of unsafe food
	36	CCP Monitoring record
	37	Operation Log sheets
	38	Breakdown record
LABORATORY	39	Analytical record

	40	External Lab record
	41	Internal Calibration record-In house laboratory
HOUSEKEEPING	42	Housekeeping record
	43	Cleaning & Sanitation record
	44	Pest Management Plan
	45	Pest Management Map
	46	Monitoring record of pest & fly catchers
	47	Valid Contract from 3rd party
	48	Waste Disposal record
PURCHASE & STORE	49	Approved Supplier list
	50	Supplier self-assessment & approval form
	51	Supplier Evaluation
	52	Purchase Order
	53	Incoming Material Inspection record
	54	Incoming Vehicle inspection record
MAINTENANCE	55	External Calibration record
	56	Internal Calibration record- Processing
	57	Preventive Maintenance Schedule
	58	Preventive Maintenance record
	59	Pre-inspection record- Processing
	60	Fire extinguisher record
WAREHOUSE/ DISPATCH	61	Product Release record
	62	Outgoing Vehicle Inspection record

Records/ Documents should be available with the manufacturing facility.

I. Definitions

To provide guidance to users on the interpretation of the key terms

Must: “To be implemented immediately, compulsory, mandatory”

Should: “Strongly advised for current operations and may become mandatory in the future”

(a) Act: The Food Safety and Standards Act, 2006

(b) Adulterant: Any material which is or could be employed for making the food unsafe or sub-standard or mis-branded or containing extraneous matter

(c) Best before: the date which signifies the end of the period under any stated storage conditions during which the product shall remain fully marketable and shall retain any specific qualities for which tacit or express claims have been made. Beyond that date, the food may still be perfectly safe to consume, however, its quality may have diminished. However, the food shall not be sold if at any stage the product becomes unsafe.

(d) Consumer: persons and families purchasing and receiving food in order to meet their personal needs

(e) Date of Manufacture: the date on which the food becomes the product as described.

(f) Date of Packaging: the date on which the food is placed in the immediate container in which it will be ultimately sold

(g) Food: any substance, whether processed, partially processed or unprocessed, which is intended for human consumption and includes primary food, genetically modified or engineered food or food containing such ingredients, infant food, packaged drinking water, alcoholic drink, chewing gum, and any substance, including water used into the food during its manufacture, preparation or treatment but does not include any animal feed, live animals unless they are prepared or processed for placing on the market for human consumption, plants, prior to harvesting, drugs and medicinal products, cosmetics, narcotic or psychotropic substances

Provided that the Central Government may declare, by notification in the Official Gazette, any other article as food for the purposes of this Act having regards to its use, nature, substance or quality

(h) Food additive: any substance not normally consumed as a food by itself or used as a typical ingredient of the food, whether or not it has nutritive value, the intentional addition of which to food for a technological (including organoleptic) purpose in the manufacture, processing, preparation, treatment, packing, packaging, transport or holding of such food results, or may be reasonably expected to result (directly or indirectly), in it or its by-products becoming a component of or otherwise affecting the characteristics of such food but does not include “contaminants” or substances added to food for maintaining or improving nutritional qualities

(i) Food business: any undertaking, whether for profit or not and whether public or private, carrying out any of the activities related to any stage of manufacture, processing, packaging, storage, transportation, distribution of food, import and includes food services, catering services, sale of food or food ingredients

(j) Food business operator: a person by whom the business is carried on or owned and is responsible for ensuring the compliance of this Act, rules and regulations made there-under

(k) Food safety: assurance that food is acceptable for human consumption according to its intended use

(l) Food Safety Management System: the adoption Good Manufacturing Practices, Good Hygienic Practices, Hazard Analysis and Critical Control Point and such other practices as may be specified by regulation, for the food business;

(m) Hazard: a biological, chemical or physical agent in, or condition of, food with the potential to cause an adverse health effect;

(n) Ingredient: any substance, including a food additive used in the manufacture or preparation of food and present in the final product, possibly in a modified form; (z)

(o) Label: any tag, brand, mark, pictorial or other descriptive matter, written, printed, stencilled, marked, embossed, graphic, perforated, stamped or impressed on or attached to container, cover, lid or crown of any food package and includes a product insert;

(p) Lot number” or “code number” or “batch number” the number either in numerical or alphabets or in combination thereof, representing the lot number or code number or batch number, being preceded by the words “Lot No” or “Lot” or “code number” or “Code” or Batch No” or “Batch” or any other distinguishing prefix by which the food can be traced in manufacture and identified in distribution

(q) Manufacture: a process or adoption or any treatment for conversion of ingredients into an article of food, which includes any sub-process, incidental or ancillary to the manufacture of an article of food;

(r) Manufacturer- FSSA: a person engaged in the business of manufacturing any article of food for sale and includes any person who obtains such article from another person and packs and labels it for sale or only labels it for such purposes;

(s) Meat: means the flesh and other edible parts of a carcass

1. **“carcass”** means the dead body or any part thereof including the viscera of any animal which has been slaughtered
2. **“meat food products”** means any article of food or any article intended for, or capable of, being used as a food which is derived or prepared from meat by means of drying, curing, smoking, cooking, seasoning, flavouring, freezing or following a method of processing meat akin to any of the above methods, but shall not include the following products (i) Meat extracts, meat consommé and stock, meat sauces and similar products not containing fragments of meat; (ii) Whole, broken or crushed bones, meat peptones, animal gelatin, meat powder, pork-rind powder, blood plasma, dried blood, dried blood plasma, cellular proteins, bone extracts and similar products; (iii) Fats melted down from animal tissues; (iv) Stomachs, bladders and intestines, clean and bleached, salted or dried; (v) Products containing fragments of meat, but which contain a quantity of meat or meat product not exceeding ten percent of the total weight of the final product; (vi) Patties, puffs, rolls, samosas, cutlets, koftas, kababs, chops, tikkas and soups made from mutton, chicken, goat meat, buffalo meat, beef and grilled chicken which are prepared for immediate consumption, the ampoules of chicken essence, hot-dogs and hamburgers prepared for immediate consumption which can not be stored even under refrigerated conditions;
3. **Slaughter house:** means the building, premises or place which is licensed as a slaughter house by the local authority for the slaughter of animals intended for human consumption.

(t) Package: a pre-packed box, bottle, casket, tin, barrel, case, pouch, receptacle, sack, bag, wrapper or such other things in which an article of food is packed;

(u) Risk: in relation to any article of food, means the probability of an adverse effect on the health of consumers of such food and the severity of that effect, consequential to a food hazard;

(v) Unsafe: an article of food which is injurious to health:

- i) By the article itself, or its package thereof, or
- ii) Consists wholly or in part, any filthy, putrid, rotten, decomposed or diseased animal substance or vegetable substance; or
- iii) Is processed unhygienically or the article of food has harmful substance in it or is infected or infested with worms, weevils or insects; or
- iv) Has been substituted by inferior or cheaper substance whether wholly or in part; or
- v) uses a substance directly or as an ingredient or as additive which is not allowed under the law; or
- vi) By virtue of its being prepared, packed or kept under unsanitary conditions; or
- vii) By virtue of its being misbranded or sub-standard or food containing extraneous matter; or
- viii) By virtue of containing pesticides and other contaminants in excess of quantities specified by regulations.

II. Abbreviations

- i) GMP: Good Manufacturing Practices
- ii) GHP: Good Hygiene Practices
- iii) HACCP: Hazard Analysis Critical Control Point
- iv) ACP: Allergen Control Plan

III. Manufacturing/ Processing Parameters

1. [Manufacturing/ Processing Parameters](#)

FLOW DIAGRAM (*general*)

Frozen Buffalo Meat Processing Flow diagram:



Figure: Manufacturing flow diagram of Frozen Buffalo Meat

A. PROCUREMENT AND QUALITY INSPECTION OF RAW MATERIAL (LIVE ANIMALS)

All raw material (live animals) must be sourced from licensed vendors. Each animal must be first verified for their ante mortem report by a registered medical practitioner. Every animal received shall be healthy and free from any disease and have been approved from competent authority. Female expected animals should not be considered for slaughtering and further processing.



Figure: Ante-mortem of buffalo

B. SLAUGHTERING

Animal slaughter is the killing of nonhuman animals, usually referring to killing domestic livestock. In general, the animals would be killed for food.

The slaughter involves some initial cutting, opening the major body cavities to remove the entrails and offal but usually leaving the carcass in one piece. Later, the carcass is usually butchered into smaller cuts.

There are two methods of slaughtering process:

a) **Stunning**

i. **Electrical (stunning or slaughtering with electric current known as electronarcosis)**

This method is used for swine, sheep, calves, cattle, and goats. The current is applied either across the brain or the heart to render the animal unconscious before being killed. In industrial slaughterhouses, chickens are killed prior to scalding by being passed through an electrified water-bath while shackled.

Species	Minimum current levels for head-only stunning
Cattle	1.5 Amps
Calves (bovines of less than 6 month of age)	1.0 Amps
Pigs	1.25 Amps
Sheep and goats	1.0 Amps
Lambs	0.7 Amps
Broilers	100 milli Amps
Turkeys	150 milli Amps

Table: Quantity of electricity for different species

ii. **Gaseous (Carbon dioxide)**

This method can be used for sheep, calves and swine. The animal is asphyxiated by the use of CO₂ gas before being killed. In several countries, CO₂ stunning is mainly used on pigs. A number of animals enter a chamber which is then sealed and filled with 80% to 90% CO₂ in air.

iii. **Gaseous (Inert gas hypoxia)**

Various concentrations of argon and nitrogen have been used to induce unconsciousness, often in conjunction with CO₂. Domestic turkeys are averse to high concentrations of CO₂ (72% CO₂ in air) but not low concentrations (a mixture of 30% CO₂ and 60% argon in air with 3% residual oxygen).

iv. **Mechanical (Captive bolt pistol)**

This method can be used for sheep, swine, goats, calves, cattle, horses, mules, and other equines. A captive bolt pistol is applied to the head of the animal to quickly render them unconscious before being killed. There are three types of captive bolt pistols, penetrating, non-penetrating and free bolt. The use of penetrating captive bolts has, largely, been discontinued in commercial situations to minimize the risk of transmission of disease when parts of the brain enter the bloodstream.

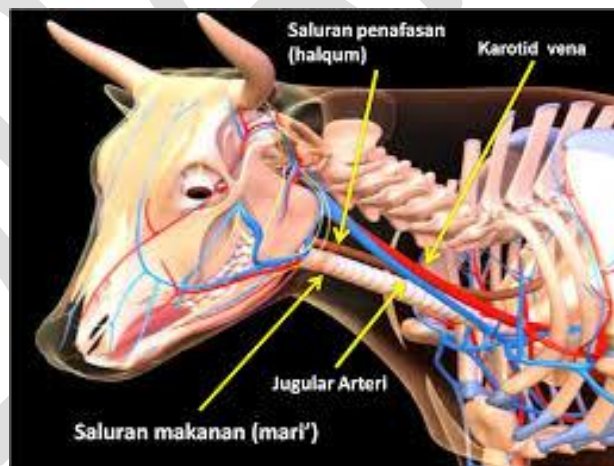
v. **Mechanical (gun shot/ free bullet)**

This method can be used for cattle, calves, sheep, swine, goats, horses, mules, and other equines. A conventional firearm is used to fire a bullet into the brain of the animal to render the animal quickly unconscious (and presumably dead). A second method may be used (e.g. drug administration) to ensure the animal is dead.

b) **Killing**

i. **Exsanguination (Halal Method)**

The animal either has its throat cut or has a chest stick inserted cutting close to the heart. In both these methods, main veins and/or arteries are cut and allowed to bleed.



The cut has to be straight and the slaughter act shall sever the trachea (halqum), oesophagus (mari') and both carotid arteries and jugular veins (wadajain), without cutting the vertebra of the neck; in order to hasten the bleeding and death of the animal.

Figure: Showing veins to be targeted for exsanguination

Bleeding Time for:

- **Poultry: 1 to 2 minutes**
- **Sheep, Goat: 2 to 4 minutes**
- **Buffalo and other big animals: 6 to 8 minutes**

Requirements of Slaughter area:

- i) The slaughtering area must be clean, hygienic and sanitized.
- ii) Animals to be slaughtered shall be well-fed and watered.
- iii) All tools or equipments used in slaughtering shall be clean and sharp.
- iv) A trained inspector shall be appointed and be responsible to check that the animals are properly slaughtered.
- v) Dressing of carcass should only commence after ascertaining that the animal is dead.
- vi) Post mortem reports shall be prepared.

C. RECEIVING OF CARCASS

All the carcass received directly from slaughter area must be verified for whether their post mortem reports are duly received or not. Visual checks are done and are recorded in Inspection reports. The carcass is weighed and is proceeded for washing.

D. WASHING OF CARCASS

- a) The washing is done before laboratory testing to remove all the unusual dirty material. The water should be potable water and should be internally tested for colour, odour, pH, & PPM. The washing potable water should also be tested for microbiological tests. All records shall be kept.

Best Practices: Analytical tests done twice a day internally and Microbiological tests done quarterly from external laboratory.

Water with Chlorine of 10 to 20 ppm is used for washing carcasses

- b) Stamping of Carcass should be done for identification and time of slaughter. The stamping shall be food grade. **Fuchsin** is used which is a deep red synthetic dye used as a biological stain and disinfectant.



Figure: Washed carcass hanged on hooks

E. STORAGE IN CHILLERS

These washed carcasses are stored in the chilling plant with an adequate capacity for daily intake of raw materials. Maintain a temperature of 2-4 degree Celsius for 24 hrs for buffalo and sheep before deboning and processing. Temperature of chillers are tested and monitored generally twice a day and records are maintained in respective log books.



Figure: Hanged carcass in chillers

The internal laboratory tests shall be conducted to verify carcasses are free from pathogenic microbes like: Salmonella, E.coli, Staphylococci, TPC, Y&M, etc.

F. DEBONING & PROCESSING

The above chilled carcasses are then transferred for deboning halls. Here undesirable portions are cleared. Edible and non-edible portions are separated by manual process through knives and other accessories. These knives and other accessories are properly sanitized before and after use (Refer industry specific Sanitizing/Sterilization methods). The separated non-edible portion is transferred to the waste room further to be transferred to the authorized rendering plant.

Temperature of deboning hall: 10- 12 deg C (to inhibit microorganisms and to extend shelf-life).



Figure: Processing hall for Deboning

G. PACKING

This processed material is weighed and packed in standard polythene bags (food grade quality). The food grade declaration/ certificate to be verified on COA during procurement of the packing material.

H. BLAST & PLATE FREEZING

These packed processed materials are transferred to blast freezers (minimum 12 hrs) and plate freezers (minimum 2.5 hrs).

Core temperature of the product should be – 18°C and below.

Temperature of Blast freezer: minus 40°C

Temperature of Plate freezer: minus 40°C

I. FINAL PACKAGING and LABELING

The polypack finished material is transferred to packaging division to be packed in clean cartons and then are passed through shrink machines. Product should carry label information as per FSSAI. Packing should be secure to prevent spoilage and contamination during transit and storage.

Each container shall be marked legibly or a label shall be attached to the container, with the following information:

- a) Name and/or product brand;
- b) Date of slaughter;
- c) Date of processing;
- d) Net content expressed in metric system (SI units);
- e) Name and address of the manufacturer, importer and/or distributor and trademark;
- f) List of ingredients;
- g) Certification for third party ingredients if used in manufacturing (For e.g. Halal Certification);
- h) Code number identifying date and/or batch number of manufacture and expiry date; and
- i) Country of origin

J. PASSING THROUGH METAL DETECTOR

All the final product is made to pass through working metal detectors. Regular checks are made to confirm all the metal detectors are in working condition and the sensitivity is as per required. The sensitivity of metal detectors usually is 2.0 mm for Ferrous, 2.5 mm for Non-ferrous and 3.0 mm for Stainless steel.

K. COLD STORAGE

The final product is then transferred to the finished material cold store for further dispatch.

The cold storage temperature is minus 18 degree Celsius and below for 12 months; as per shelf-life requirements.

L. **QUALITY EVALUATION**

Finished products are tested in laboratory as per the sampling plan identified by the processing plant, for both physio-chemical and microbiological parameters.

2. Loading/ Unloading, Warehousing, Transportation, Retail Precautions related to Food Safety & Quality

The product temperature shall be maintained at a suitable low level in any part of the cold chain, including storage, transport, distribution, and display in retail stores, or by faulty inventory control at all levels that would allow product to be retained for unduly long periods in the cold chain.

The general storage conditions would be:

Temperature	0 °F (-18 °C) or colder for some products or if product is to be stored for 6 months or longer.
Relative Humidity	Highest possible, consistent with available equipment and good operating procedures, to prevent "freezer burn" and drying out where packaging material for the food may not be sufficiently protective.

Refer Annexure: Frozen Food Handling & Storage

A. **LOADING AND DISPATCH OF FINISHED PRODUCTS**

Sufficient ventilation, with cross-ventilation of the loading room should be maintained. Loading should be done in shortest possible time.

B. **WAREHOUSING**

Meats packed in boxes and frozen meat on pallets are usually stacked. Stacking methods and height depend on several factors: resistance of the package, handling techniques and thermal state. Packaged and frozen meat is usually handled mechanically, combining forklift trucks with pallet.

C. **TRANSPORTATION**

All the transportation systems are expected to maintain the temperature of the food within close limits to ensure its optimum safety and high-quality shelf life. It is important that the food is at the correct temperature before loading since the refrigeration systems used in most transport containers are not designed to extract heat from the load but to maintain the temperature of the load. In large containers used for long distance transportation, food temperature can be kept within recommended frozen temperature (minus 18 degree Celsius).

Different modes of transportation:

- Air- freight: This is used for highly perishable frozen food products. Although this provides a rapid method of serving distant markets, the main challenge faced is the product is mainly unprotected by refrigeration for much of its journey; due to the intermittent holding time. Standard containers with insulated linings and /or dry ice are used.
- Road/ Rail: Refrigerated containers (for long distance) and Small insulated vans (for short distance) are used to supply food to local retail outlets or directly to the consumers.

D. RETAIL AND DISPLAY:

During display; the temperature, temperature fluctuations and visual monitoring (like color of product, packaging intact, etc.) are the main parameters that control the quality.



Figure: Retail shop display

- Ensure that products are stored in clean display cases which are covered at all times. See-through insulated lids are for consumer to look at the product at retail shops.
- Ensure products are stored at appropriate temperatures. Temperature differential or range should be kept minimum. Wide temperature differential causes successive evaporation and condensation (as frost) and results in exaggerated in-package dehydration.

Temperature specification is derived from a full engineering specification which includes:

- a) *Environmental controls within refrigerated enclosure*
 - b) *Air velocity and humidity*
 - c) *Movement of air within refrigerated enclosure*
 - d) *Size of equipment*
 - e) *Refrigeration load profile*
 - f) *Ambient design conditions*
 - g) *Defrost requirements*
- Adopt first-in-first-out approach in the display of products for sale.
 - Proper declaration on the products is needed to inform consumers on the “consume-by” or “Best Before” date.
 - All containers should be cleaned and disinfected daily.

Synopsis	
End product characteristics	Boneless frozen meat as per IS specifications 3100-1:1991
Method of preservation	<ul style="list-style-type: none"> ○ Chilling at 2 to 4 degree Celsius ○ Plate and blast freezers at -39 degree Celsius and below ○ Cold storage at -18 degree Celsius and below
Packaging (Primary)	Food grade primary packaging material
Storage Condition	-18 degree Celsius and below
Distribution method	Insulated vans, refrigerated containers to maintain -18 degree Celsius and below
Shelf Life	Refer to Table "Table: Practical Shelf Life (PSL) for several meat categories" under Food Processing and Preparation
Special labelling	Full trade description
Customer preparation	Thaw before use

Table: Finished product characteristics

IV. Pre- Requisite Programs for Food Safety

“No Objection Certificate” to be obtained from local Authority before grant of license.

3. Location and Surroundings



Figure: Entry to food establishment

Selection of Location:

3.1 Design and construction of building

Food establishment/Slaughter Houses shall be located away from:

- environmentally polluted areas and industrial activities which produce disagreeable obnoxious odour, fumes, excessive soot, dust, smoke;
- chemical or biological emissions and pollutants, and which pose a serious threat of contaminating food;
- areas subject to flooding;
- areas prone to infestations of pests;
- and areas where wastes, either solid or liquid, cannot be removed effectively.

3.2 Food establishment/Slaughter Houses should be **away from vegetable, fish or other food markets**.

3.3 The premise should NOT be used for **residential purpose**, and without any direct access to any residential area.

3.4 Food establishment/Slaughter Houses should have **adequate drainage system** and easy provision for cleaning.

3.5 **Access** should be controlled at the entry. Dogs, cats or other pet animals should be not allowed to enter meat processing unit.

Surrounding area:

3.6 The **land outside the factory** building shall be maintained free of debris and refuse, and free from any source of pollution.

3.7 The **roadways** shall be maintained properly to avoid contamination by dust or permit any stagnation of water.

- 3.8 The **premises, raw material receiving and finished product dispatch areas** shall be maintained so that they do not contribute to contamination of food by seepage/foot-born filth or provide a breeding place for pests outside the facility.
- 3.9 The **drainage system** shall be properly maintained to avoid any stagnation of water.
- 3.10 The **garden and the surrounding area** shall be maintained to prevent harbourage or provide breeding place for pests.

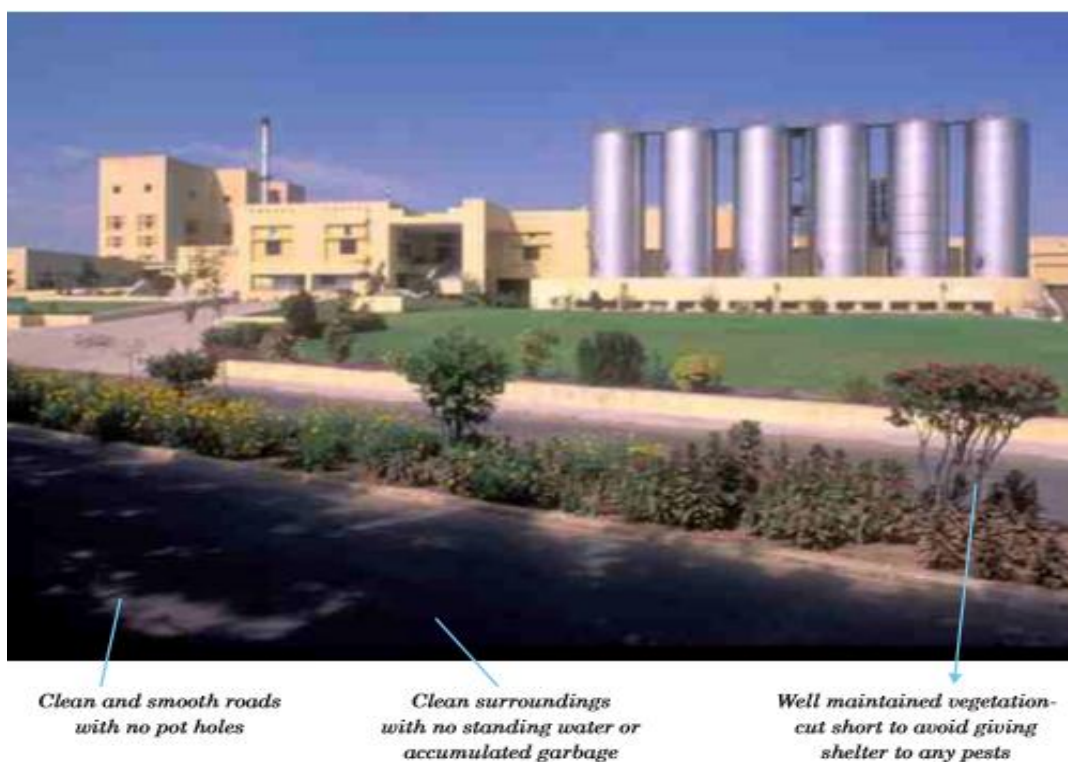


Figure: Outer area conditions

4. [Layout and Design of Food Establishment Premises](#)

- 4.1 **Adequate working space:** This is required for the satisfactory performance of all operations.

The slaughter house shall have

- a reception area/animal holding yard/resting yard/ lairage (as slaughter of an animal should not be done in front of other animals),
- slaughter hall
- separate halls for hide collection,
- paunch collection,
- offals collection and separation,
- collection of blood and wastes
- holding area for suspected carcass,
- separate room for condemned carcass
- refrigeration room/cold room etc.

- 4.2 **Separate slaughter spaces for Different species & Different Methods:**

- a) Every such establishment / Slaughter House shall make separate provision in the slaughter hall for the slaughter of different species (like large animal viz; Cattle and Buffalo, Pigs and small animals like Sheep & Goat) and for different methods of slaughter (like Halal, Jewish and Jhatka).
- b) After every type of operation, the slaughter house shall be cleaned, washed wiped/dried and sanitized thoroughly.

4.3 **Continuous forward movement:** There shall be no possibility of reversal, intersection or overlapping between the live animal meat, and between meat and bye products or waste. The slaughter house shall have separation between clean and dirty sections and shall be organized.

4.4 **Resting area facilities** for incoming live animals:

- Watering facility
- Physical examining of animals before slaughter

4.5 **In meat handling areas:**

- **Floors** should be of waterproof, non-absorbent, washable, non-slippery and made of nontoxic materials, without crevices and should be easy to clean and sufficient slope for liquids to drain easily to netted drains;
- **Walls** should be of waterproof, non-absorbent, washable and nontoxic materials and should be light coloured, smooth and without crevices, and should be easy to clean. The space between walls and ceilings should be sealed and covered to facilitate cleaning;
- **Ceilings** should be so designed, constructed and finished as to prevent any accumulation of dirt and minimize condensation, mould development and flaking and should be easy to clean;
- **Windows** and other openings should be so constructed as to avoid accumulation of dirt and those which open should be fitted with insect screen. Screens should be easily movable for cleaning and kept in good repair.
- **Doors** should have smooth, non-absorbent surfaces and where appropriate, be self-closing and close fitting;



Figure: Doors and windows covered with wire mesh to prevent entry of dirt, dust, pests, animals and birds

- **Stairs, lift cages and auxiliary structures** such as platforms, ladders, chutes, should be so situated and constructed as not to cause contamination of meat.
- **Carcass hanging:** Suitable hoists will be provided to hang the carcass before it is eviscerated like on hooks.

- **Separate space for inedible & edible parts of animals:** Both edible and inedible parts of animal should be in separate and distinct rooms/ spaces.
- **Wood usage:** should not be used unless it is not a source of direct contact with food/meat, prone to contamination. (Wood cannot be adequately cleaned and disinfected).

5. Equipment

- 5.1 **Equipments and utensils** in contact with exposed meat and meat products should:
- have smooth impervious surface,
 - be resistant to corrosion,
 - made of material which is non-toxic,
 - does not transmit odour or taste,
 - is free from pits and crevices,
 - is non-absorbent,
 - capable of withstanding repeated exposure to normal cleaning and disinfection,
 - be easily cleaned and disinfected
- 5.2 **Sanitary equipments:** Placing and location of all sanitary equipments should permit easy access and thorough cleaning.
- 5.3 **Containers for inedible material and waste** should be leak proof, constructed of non-corrosive metal or other suitable impervious materials which should be easy to clean or disposable and where appropriate, able to be closed securely; and
- 5.4 **Refrigerated spaces** should be equipped with temperature measurement or recording devices.
- 5.5 **Equipment Identification:** Equipment and utensils used for inedible material or waste should be so identified and should not be used for edible products.
- 5.6 **Electrical Fittings:** shall be of such material and of such construction as to enable them to be kept clean. The implements shall be of metal or other cleanable and durable material resistant to corrosion.
- 5.7 **Metallic contamination:** No vessel, container or other equipment, the use of which is likely to cause metallic contamination injurious to health shall be employed in the preparation, packing or storage of meat food products. (Copper or brass vessels shall always be heavily lined. No iron or galvanised iron shall come in contact with meat food products).
- 5.8 **Hooks, knives, other tools and equipments** shall be clean and sanitized prior to use. They shall also be pre-inspected by inspectors before using.



Figure: Inspection of hooks

6. Facilities: Water Supply, Cleaning Utensils and equipment, Washing of Raw Materials, Ice and Steam, Drainage and Waste Disposal, Personnel Facilities and Toilets, Air Quality and Ventilation, Lighting

6.1 Water Supply

- a) A constant and sufficient supply of **clean potable water** (cold and hot) should be made available in the slaughter and processing halls during working hours.
- b) **Adequate supply and/or storage facilities** shall be provided. Storage for distribution should be protected against contamination.

6.2 Cleaning utensils and equipment, Washing of Live Animals / Carcass

Cleaning purposes and destruction of microorganisms (especially those pathogenic to man) is done with cold and hot potable water.

- For cleaning purposes the temperature of the water should be **65 degree Celsius**
- For disinfection purposes the temperature of the water should be at **82 degree Celsius**

DISINFECTION PROCESS: Blades of knives, etc. should be dispensed in such a way (e.g. in specially designed boxes near the working area) that can be submerged in the water for a contact time (no less than two minutes). Often this water supply is separate from other hot water supplies used for cleaning, hand washing etc. But if there is only one hot water supply the term "adequate" should mean that even at times where large amounts of hot water is used (e.g. during cleaning operations) the water supply from any tap in the establishment should not be decreased.

6.3 Ice and Steam

- a) Ice should be made from potable water and should be manufactured, handled and stored so as to protect it from contamination;
- b) Steam used in contact directly with meat should be produced from potable water and contain no substances which may be hazardous to health or may contaminate the food.

6.4 Drainage and Waste Disposal

6.4.1 Drainage system

- a) There shall be efficient drainage and plumbing systems.
- b) All drains and gutters shall be properly and permanently installed.
- c) The drainage system for blood shall either be underground for easy cleaning or a portable receptacle with lid.
- d) All drainages will have traps and screens so as to prevent entry of scavengers like rats, mice, vermin etc.



Figure: Keep no open drain holes or drains inside the plant

Figure: Install covered drainage system inside the premises

6.4.2 Waste disposal system

- a) An efficient effluent and waste disposal system shall be present.
- b) All effluent lines (including sewer systems) should be large enough to carry peak loads.
- c) Should be constructed in such a manner as to avoid contamination of food, potable water supplies, equipment and building.
- d) Biological oxygen demand level shall be less than 1500, and for that an effluent treatment plant, if necessary may be installed.
- e) Precautions should be taken to prevent access or ingress of pests into wastes.
- f) Waste should be removed from the meat handling and other working areas at intervals and at least daily.
- g) All receptacles after emptying should be cleaned and disinfected immediately after waste disposal.
- h) Waste storage area should also be cleaned and disinfected daily.
- i) Disposing methods-

The refuse and waste materials will be

 - i. dumped in pits that are suitably covered so as to prevent its access to scavengers, or
 - ii. should be composted which can be used for manure purpose (In case of small slaughter houses), or
 - iii. should be rendered (cooked) in a rendering plant to produce animal by-product such as- bone meal and inedible fats (in case of large slaughter houses).
- j) Different color codes used for different types of wastes; for example wet, dry, organic, metal, etc.



Figure: Color coded waste bins



Figure: Color coded cleaning brushes for different purposes



Figure: Display showing waste bins for different purposes

6.4.3 Personnel Facilities and Toilets

- a) **Changing rooms/lockers:** Suitable and sufficient facilities for persons working in the slaughter and meat processing halls shall be provided for changing their clothes, keeping their personal belongings and cleaning their footwear.
- b) **Provision of toilets:**
 - Sufficient number of latrines, urinals, washbasins and bathrooms for each gender shall be provided.
 - Toilets should be so designed as to ensure hygienic removal of waste matter.
 - Toilets should be well lit and ventilated and should not open directly on to food handling areas.



Figure: Gender specific toilets; clean and disinfectant toilet facility

c) Hand washing facilities

- Facility with warm or hot and cold water with suitable hygienic means of drying hands should be provided adjacent to toilets and in such a position that the employee must pass them when returning to the processing area.
- Where hot and cold water are available, mixing taps should be provided.
- Where paper towels are used, a sufficient number of dispensers and receptacles should be provided near to each washing facility.
- Taps of non-hand operable type are preferable.
- Dustbins to throw used paper towels should be foot-operated.
- Notices should be posted directing personnel how to wash their hands effectively and also after using the toilets.

6.4.4 Air Quality and Ventilation

- a) Ventilation should be provided to prevent excessive heat, steam condensation, dust and to remove contaminated air.
- b) The direction of the air flow should never be from a dirty area to clean area.
- c) Ventilation openings should be provided with an insect screen or other protective enclosure of non-corrodible material.
- d) Screens should be easily removable for cleaning.

6.4.5 Lighting

- a) Adequate natural or artificial lighting should be provided throughout the abattoir/ meat processing unit.
- b) All lightings should be well distributed.
- c) Where appropriate, the lighting should not alter colours.

Processing Areas	Recommended Light Intensity (Lux/foot candles)
All Inspection areas	540 Lux/ 50 foot candles
Work rooms	220 Lux/ 20 foot candles
Other areas	110 Lux/ 10 foot candles

- d) Light bulbs and fixtures suspended over meat in any stage of production should be protected to prevent contamination of meat in case of breakage.



Figure: Protected Tubelight

6.4.6 Electrical Plant

In new plants, all socket circuits for hand-held machines must be equipped with additional protection in the form of an FI safety switch with a tripping current of 30 mA. The electrical panels should have rubber mats below to prevent from any electric shock to any employee working at the station.

7. Food Operations and Control: Procurement of Raw Materials and food, Precautions on Food Ingredients, Storage of Raw Materials and Food, Food Processing, Preparation Packaging Distribution and Service: Time and Temp Control

7.1 Procurement of Raw Materials

- a) All live animals are marked with unique identification no.
- b) All animals are inspected for any disease by a registered Veterinarian.
- c) Animals suspected of contagious or infectious diseases shall be segregated and kept in separate isolation pens which shall also be provided with arrangements for watering and feeding. After confirmation for any notifiable disease, the designated Veterinary Authority shall notify the disease as per the existing procedures.

7.2 Storage of Raw and Packaging materials

- a) A separate storage/ holding area for live animals should be provided with watering and resting facility.
- b) All packaging materials used to pack the processed meat at final stage should be located away from raw material receiving area.

7.3 Food Processing and Preparation

Time and temperature control

- a) **Temperature:** All microorganisms have a defined temperature range in which they grow, with a minimum, maximum, and optimum. An understanding of the interplay between time, temperature, and other intrinsic and extrinsic factors is crucial to selecting the proper storage conditions for a food product.

- b) **Time:** When considering growth rates of microbial pathogens, in addition to temperature, time is a critical consideration. Food producers or manufacturers address the concept of time as it relates to microbial growth when a product's shelf life is determined.

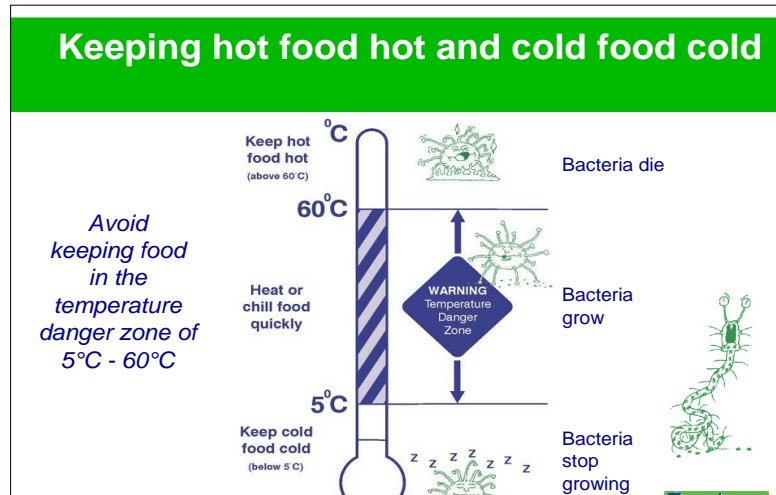


Figure: Temperature zones for different bacterial activity

- c) The Food Business shall develop and maintain the systems to ensure that time and temperature is controlled effectively where it is critical to the safety and suitability of food. Such control shall include time and temperature of receiving, processing, cooking, cooling, storage, packaging, distribution and food service up to the consumer, as applicable.
- d) Whenever frozen food / raw materials are being used / handled / transported, proper care should be taken so that defrosted / thawed material shall not be stored at the back section.
- e) Such systems shall also specify tolerance limits for time and temperature variations and the records thereof shall be maintained in a register for inspection.

Frozen Food Handling & Storage

Approximate storage periods for general classes of frozen foods at 0 °F (-18 °C) without any commercially significant quality loss	
Packaged Chicken Heat Treated Citrus Concentrates Sugared Fruits Pies, including Fruit Pies	Over 12 months
Most Fruits & Vegetables Fruit Juices Bakery Products Confections Beef Veal Lamb Turkey Meat Pies	10-12 months
Lean fish Shellfish Some Fatty Fish	8-10 months
Fried foods Pork Most Dairy Products Fatty Fish	6 months or less

Storage temperatures warmer than 0 °F (-18 °C) accelerate quality losses, and research data on this acceleration vary greatly depending on the product and how it is packaged.

Table: Storage periods of meat products at -18 Degree Celsius

This storage period is commonly called as Practical Storage Life (PSL), or shelf life which is about equivalent to the duration of consumer acceptability. Examples are listed below for several categories of food products:

TABLE 2. Practical storage life of meat and meat products

Products	Practical storage life in months		
	-18 °C	-25 °C	-30 °C
Beef carcass	12	18	24
Roasts, steaks, packaged	12	18	24
Ground meat, packaged, (unsalted)	10	>12	>12
Veal carcass	9	12	24
Roasts, chops	9	10-12	12
Lamb carcass	9	12	24
Roasts, chops	10	12	24
Pork carcass	6	12	15
Roasts, chops	6	12	15
Ground sausage	6	10	
Bacon (green, unsmoked)	2-4	6	12
Lard	9	12	12
Poultry, chicken and turkeys, eviscerated, well packaged	12	24	24
Fried chicken	6	9	12
Offal, edible	4		

From: Recommendations for the processing and handling of frozen foods, International Institute of Refrigeration, Paris, 1972.

Table: Practical Shelf Life (PSL) for several meat categories

7.4 Food Packaging

- Protection to meat:** should prevent contamination, damage to the finished product.
- Labelling requirements:** The package shall accommodate required labelling as laid down under the FSS Act & the Regulations there under.
- Nature of Packaging materials:**
 - Only **Food grade** packaging materials to be used. For packaging materials like aluminium plastic and tin, the standards to be followed are as mentioned under the FSS Regulations and rules framed there under.
 - Shall be non-toxic and shall not pose a threat to the safety and suitability of food under the specified conditions of storage and use.

7.5 Distribution and Service

- Minimize food spoilage:** Processed / packaged and / or ready-to-eat food shall be adequately protected during transportation and / or service.
- Containers/ Conveyance:** The conveyances and /or containers carrying final packed product to market/ retail shall be designed, constructed and maintained so as to effectively
 - maintain the required temperature,
 - humidity,
 - atmosphere and other conditions necessary to protect food.
 - shall be non-toxic, kept clean and maintained in good condition in order to protect foodstuffs from any contamination.
 - shall not be used for transporting any other product to avoid food contamination. (Where the same conveyance or container is used for transportation of different foods, or high risk foods such as fish, meat, poultry, eggs etc., effective cleaning and disinfections shall be carried out between loads to avoid the risk of cross-contamination).
 - For bulk transport of food, containers and conveyances shall be designated and marked for food use only and be used only for that purpose.

8 Management and Supervision

- 8.1 **Documented procedure:** A detailed Standard Operating Procedure (SOP) to be developed and implemented for all the necessary actions to be taken on food hazard; so, that the course of damage control would be faster.
- 8.2 **Food safety trainings & skills:** All technical managers and supervisors should have appropriate qualifications, adequate knowledge, induction and refresher food safety trainings and skills on food hygiene principles and practices. This will enable them to:
- ensure food safety and quality of its products,
 - judge food hazards,
 - take appropriate preventive and corrective action, and
 - to ensure effective monitoring and supervision.

9 Food Testing Facilities

- 9.1 **In-house laboratory requirements:** shall be provided for further examination by the authorised veterinary officer, which
- shall be in consistent with the size of the factory and volume and variety of meat food products manufactured
 - shall be adequately equipped and staffed with qualified (chemist/analyst and Veterinary Microbiologist), trained personnel and required equipments.
 - The licensing authority shall accord approval of the laboratory after inspection.
- 9.2 **Qualification requirements:** The Chemist/analyst shall have passed graduation with Chemistry as one subject and the Veterinary Microbiologist shall be a qualified veterinarian with two years of experience in Meat analysis or having degree of Master in Veterinary Public Health with specialization in Meat Hygiene.

Refer to Approved external laboratory list by FSSAI Regulation-

<http://www.fssai.gov.in/Lab.aspx>

10 Validation Procedures

- 10.1 Laboratory, whenever using non-standard methods or a standard method beyond the stated limits of operation, is required to validate such test methods.
(The guidance document on Validation of Test Methods, NABL 212 may be referred).
- 10.2 These procedures should be clearly stated in the documented method so that the user can assess the suitability of the method for their particular needs.

11 Audit, Documentation and Records

- 11.1 A periodic audit of the whole system according to the SOP be done to find out any fault / gap in the GMP / GHP system
- 11.2 Appropriate records of food processing / preparation, production / cooking, storage, distribution, service, food quality, laboratory test results, cleaning and sanitation, pest control and product recall shall be kept and retained for a period of one year or the shelf-life of the product, whichever is more.

12 Sanitation and Maintenance of Establishment Premises: Cleaning and Maintenance, Pest Control Systems, Allergen Protocols applicable

12.1 Cleaning and Maintenance

- a) **Floors & Walls:** Every part of floor and wall of slaughter houses shall be washed thoroughly, wiped/dried and disinfected within three hours after the completion of slaughter.
(For specific cleaning, other than daily, for example: some slaughter houses wash with hot lime wash within the first 10 days of March, June, September and December).
- b) **Rooms and compartments:** shall be kept sufficiently free from steam, vapours and moisture and obnoxious odours so as to ensure clean and hygienic operations. This will also apply to overhead structures in those rooms and compartments.
- c) **Other areas:** All yards, outhouses, stores and all approaches to processing/ slaughter houses, all parts of processing/slaughter houses; shall always be kept clean, regularly disinfected, adequately lighted and ventilated and in a sanitary condition.
- d) **Building maintenance & Premises:**
 - The premises shall be cleaned thoroughly with disinfectants, one day in advance of production of meat food products and the equipments shall be sterilized/sanitized before use.
 - The rooms and compartments in which any meat food product is prepared or handled shall be free from dust and from odours emanating from dressing rooms, toilet rooms, catch basins, hide cellars, casing rooms and livestock pens.
 - Lime washing, colour washing or painting as the case may be, shall be done at least once in every twelve months.
 - No dogs, cats or birds should have access to the slaughter hall.
 - Open areas in the factory shall have covered wire rope netting to prevent carrion birds from access to the slaughter hall or the factory.
- e) **Waste bins:** shall be provided for collection and removal of all garbage, filth and refuse from the slaughter house at a convenient time to a place away from the factory for disposal.
 - suitable and sufficient dustbins with closely fitted covers shall be provided.
 - shall be thoroughly cleaned and disinfected immediately after use
 - and shall be kept thoroughly clean when not in actual use.
- f) **Handling of carcass:**
 - The inner side of the skin shall not be rubbed or caused to be rubbed upon the ground within any portion of the slaughter hall.
 - Hides and skins shall not be dragged within the slaughter hall.
- g) **Water:**
 - Water used in the processing/slaughter Houses shall be potable.
 - Suitable arrangements shall be made for ensuring potability of water if bore well water is used.
 - If required by the licensing authority, the water shall be got examined chemically and bacteriologically by a recognised laboratory. The water quality shall comply the standards prescribed by the licensing Authority.
- h) **'Warm meat'** meant for immediate sale need not be stored in cool conditions. It can be transported in a hygienic and sanitary condition in clean insulated containers with covers (lids) to the meat shops/selling units with precautions to ensure that no contamination/cross contamination or deterioration takes place.

- i) **Cold chambers** intended for meat chilling and chilled storage must be maintained under strict hygienic condition. The following operations are essential:
 - immediately eliminate all waste in a cold room;
 - each time a room is emptied, or after rewarming rooms at low temperature, wash floors and walls with detergent and hot water, rinse them with clean water, and spray with a solution containing active chlorine (0.3 percent);
 - clean pallets and storage containers every four months;
 - disinfect chilled storage rooms for 48 hours at least twice a year and frozen product rooms when they are emptied;
 - before storing animal products in rooms that contained strong odorous fruits and vegetables, deodorize by washing, prolonged ventilation and finally spraying with a solution containing ammonium salts.
 - The buildings, rooms, equipment and all other physical facilities of the meat processing unit, including drains, should be maintained in good repair and in orderly condition.
 - All areas except where meat processing or cleaning operations are performed, should be free from steam, vapour and surplus water.
- j) **Employee Amenities:**
 - provided for the use of employee including changing facilities, toilets and the inspection office space should be kept clean at all times.
 - should not be deposited in meat handling areas.
- k) **Multi-use rooms:** If rooms, are used for any other food preparation purposes, then cleaning and disinfection are necessary immediately before and after use of every different product.
- l) **Equipments & Tools:** To prevent contamination of meat, all equipments, tables, utensils including knives, cleaves, knife pouches, saws, mechanical instruments and containers should be cleaned
 - at frequent intervals during the day;
 - immediately cleaned and disinfected whenever they come into contact with diseased material, affective material or otherwise become contaminated;
 - shall also be cleaned and disinfected at the conclusion of each working day;
 - Cleaning and maintenance tools and products should not be stored in meat handling areas.
- m) **Drains:** Floor drains should be kept in good condition and repair with strainers in place.
- n) **Cleaning & Maintenance Programme:**
 - Designate an individual responsible for monitoring the cleanliness of the meat processing unit.
 - All cleaning and maintenance staff should be well trained in the use of special cleaning tools, methods of dismantling the equipment for cleaning and in the significance of contamination and the hazards involved.
 - A permanent cleaning and disinfection schedule should be prepared to ensure that all parts of the meat processing unit are cleaned appropriately.
 - and that critical areas, equipment and material should be cleaned and/or disinfected daily or more frequently if required.

12.2 Pest Control

- a) Every practicable precaution shall be taken to exclude flies, rats, mice and vermin from the establishments / slaughter houses.
- b) Bait stations should be installed outside and Glue traps inside the processing and slaughtering halls.

- c) Only approved baits should be used.
- d) A valid and legal contract with the third party/ pest control service providers should be available in the premises.
- e) Meat processing unit and surrounding areas should be regularly examined for evidence of infestation.
- f) There should be an effective and continuous programme for the control of insects, birds, rodents or other vermin. Records shall be maintained for the same.
- g) In case any pest gain entrance to the meat processing unit or surrounding areas, control measures (involving treatment with physical or chemical or biological agents) should only be undertaken by or under direct supervision of a trained personnel.



Figure: Insectocutors should be switched on



Do not allow water to accumulate for pest breeding

Figure 17: Unsuitable water accumulation

- h) **Pesticides:**
 - should only be employed if other precautionary methods cannot be used effectively.
 - Only pesticides approved for use in the meat processing unit by competent authority should be used
 - greatest care should be exercised to prevent any contamination of the meat equipment or utensils.
 - Before pesticides are applied all meat should be removed from the room and all equipment and utensils should be thoroughly washed prior to being used again.
 - as pesticides represent a hazard should be labelled with a warning about their toxicity and use.

12.3 Allergen Management

Any Allergen Control Plan should address the below minimum requirements:

- a) Listing of all allergen ingredients:

Paste all the allergens at the relevant places in the processing areas for awareness among all the employees. The allergens may include:

- All that are used intentionally
- That enter your site unintentionally (staff food, via contractors, transport, neighbours (air borne, etc.)
- b) Supplier monitoring
 - COAs should be obtained for all allergens from the approved suppliers.
 - When reviewing specifications, the responsible person should look for formulations of the listed ingredients of the raw material.
- c) Plant traffic flow
 - Maintain all ingredient flow during the manufacturing from non-allergen using areas to allergen using areas. This will help prevent cross-contamination.
- d) Raw material storage
 - All raw materials that are allergens should be labelled with a tag that states “allergen.” The label can be made Bold and with Bright color for quick identification.
 - Store all allergic foods or ingredients to a designated and separate area. For partially used allergic packets, the production staff should ensure the partially used packet should be stored separately and completely sealed and identified with label.
 - Color-coding charts can also be placed throughout the production area, especially above all wall-mounted equipment and near storage areas for easy identification by plant personnel.
- e) Color coding system for allergen specific utensils
 - Dedicated scoops, utensils shall be used for specific allergens.
 - Bright colors and words can be used for easy identification of different allergens.
- f) Production scheduling and Cleaning
 - Thorough cleaning should be there between allergic containing product manufacture and non-allergic containing product manufacture. Process should be there to ensure any allergen residue on the production line.
 - Preferably products containing non-allergen ingredients should run before the product containing allergic ingredients.
 - When production scheduling and cleaning operations are not performed between allergen containing production runs, allergen testing must be performed. For. E.g. ELIZA test kits are used to verify.

13 Personal Hygiene: Health Status, Personal Cleanliness, Personal behaviour, Visitors

13.3 Health Status

- a) No person suffering from infectious or contagious diseases shall be allowed to work in the factory.
- b) Any person so affected, shall immediately report illness or symptoms of illness to the management
- c) Annual medical examination of all employees shall be done from a licensing authority; to ensure that they are
 - free from infectious, contagious,
 - infected wounds, skin infections,
 - sores or with diarrhoea, and other diseases.

A record of these examinations signed by a registered medical practitioner shall be maintained for inspection.

- d) In case of an epidemic, all workers should be vaccinated irrespective of the yearly vaccination.
- e) First aid facilities should be provided for this purpose.

f) ***In case of any injury/cut during preparation:***

- Any person who is cut or injured should discontinue working with meat immediately (preparation, handling, packing or transportation);
- Should be suitably bandaged;
- No exposed bandage should be worn. All bandages should be completely protected by a water proof covering, different in colour, and clearly visible and is of such a nature that it cannot become accidentally detached.
- Only bandage with above mentioned type is allowed to wear inside the processing areas.

13.2 Personal Cleanliness

- a) Food handlers shall maintain a high degree of personal cleanliness with adequate and suitable clean protective:
- clothing,
 - head covering,
 - face mask,
 - gloves and
 - footwear
- b) The personal protective equipment shall be worn in such an order to avoid any cross-contamination of dust/dirt, etc.; i.e. starting from head to foot. Head caps/headgears to worn first and foot wears to be worn at the last.
- c) Before entering the shop floor all persons should wash their hands in a dedicated sequence:
- Wet hands with potable water
 - Apply liquid soap and make a lather for at least 30 seconds
 - Apply to every part of hands including nails, between fingers, potable water followed cover full hands, and on both the sides of the hands.
 - Wash with potable water
 - disinfect and
 - dry their hands



Figure: Notices requiring hand-washing should be displayed

- d) Elbow operated taps (to avoid direct touch), paper towel (for drying hands), foot operated dustbins (for throwing paper towels), sanitizer dispensers shall be used.
- e) Hand washing should be done:
- at the beginning of food handling activities;
 - immediately after using the toilet;

- after handling raw food or any contaminated material, tools, equipment or work surface,
 - on coughing/sneezing, smoking; to avoid contamination of other food items.
- f) Separate lockers/place should be provided to workers/supervisors who regularly work in food processing areas to keep their personal belongings, tiffins, etc.

13.3 Personal behavior

- a) Persons working directly with and handling raw materials or food products shall maintain high standards of personal cleanliness at all times. They shall:
- not smoke, spit, eat or drink, chew gum/ tobacco in areas or rooms where raw materials and food products are handled or stored;
 - wash their hands at least each time work is resumed and whenever contamination of their hands has occurred; e.g. after coughing / sneezing, visiting toilet, using telephone, smoking etc.
 - avoid certain hand habits - e.g. scratching nose, running finger through hair, rubbing eyes, ears and mouth, scratching beard, scratching parts of bodies etc.- that are potentially hazardous when associated with handling food products, and might lead to food contamination through the transfer of bacteria from the employee to product during its preparation.
 - When unavoidable, hands should be effectively washed before resuming work after such actions.
- b) Care should be taken not to wear the protective clothing, head covers, face masks, gloves and footwear outside the processing areas; and appropriate measures should be taken for the same.

Personal Hygiene: USFDA Key requirements

Personnel hygiene is a very vast term which includes following:



13.4 Visitors

- a) Proper care has to be taken to ensure that food safety and hygiene are not getting compromised due to visitors in the floor area.

- b) The facility shall ensure that visitors to its food manufacturing, cooking, preparation, storage or handling areas must wherever appropriate, wear protective clothing, footwear and adhere to all personal hygiene provisions as mentioned by the company to maintain food safety.

14. Product Information and Consumer Awareness

All packaged food products shall carry a label and requisite information shall be there as per provisions of Food Safety & Standards Act, 2006 and Regulations & Regulations made there under so as to ensure that adequate and accessible information is available to the next person in the food chain to enable them to handle, store, process, prepare and display the food products safely and correctly and that the lot or batch can be easily traced and recalled if necessary.

15. Training

- a) All personnel who come in contact with the food need to be trained on food hygiene and safety.
- b) Trainings should be mandatory for personnel who are responsible for monitoring, corrections and corrective actions of the food safety management system, supervisors whose activities have an impact on food safety and internal auditors.
- c) Training need identification is done for all employees before training.
- d) Pre and Post- evaluation of training is identified which indicates the effectiveness of training done.
- e) Induction trainings (for new employees) & Refresher trainings (for existing employees) shall be conducted
- f) Yearly training calendar and schedule with all training topics should be prepared and communicated to all.
- g) All records shall be maintained for the same.

16. Non-Conformance Management

10.1 **Non-conformance**

- a) A non-conformance could be identified through customer complaints, internal audits, external audits and incoming material inspection or simply during normal testing and inspection activities.
- b) All non- conformance incidents should be recorded and assessed.
- c) There should be a defined storage area and handling procedure for non-confirming raw material, packing material and finished goods.

10.2 **Rework management**

- a) Rework shall be stored, handled and used in such a way that product safety, quality, traceability and regulatory compliance is maintained.
- b) Rework shall be clearly identified and/or labeled to allow traceability. Traceability records for rework shall be maintained.
- c) Rework is incorporated into a product as an 'in process step', the acceptable quality, type and conditions of rework use shall be specified.

17. Customer Complaints Handling

An effective complaint handling system should comprise the following:

- a) Policy and complaints handling procedure
- b) Clear identification of all possible complaint sources
- c) Complaint capturing and categorizing based on the health and safety risk
- d) Investigation and root cause analysis (RCA)
- e) Corrective action
- f) Complaint trending and analysis
- g) Continual improvement

18. Traceability & Recall Management

- a) A traceability system should be established and be capable of both forward and backward movement.
 - Forward traceability- movement from raw material to stages in supply chain.
 - Backward traceability- movement from end of the supply chain to the source of raw materials.
- b) It also involves origin of food ingredients, processing history, definition of the batch, links between manufacturing batches, methods of production, methods of analysis, storage, personnel involved, the entire supply & distribution chain system, etc.
- c) A firm, either of its own through any other sources viz. wholesaler, distributor, retailer, exporter, importer, consumer, media etc., coming to know that any of its products is unsafe or deficient violating provisions of the act and rules, & regulations made there under, may initiate a recall.
- d) In such situations, the firm is required to submit a recall alert notification to local authority immediately but not later than 24 hours. To ensure speedy communication, such alert can be sent by Fax, e-mail, On-line and / or by post.
- e) The Local authority will inform of such recall alerts to Food Authority within 24 hours of receipt.
- f) The traceability procedures should be tested at least annually (Mock Recall) to verify the effectiveness of recall process (rapidly identifying and removing product from the market).

19. Food Defense, Biovigilance, And Bioterrorism

- a) Each establishment shall assess the hazard to products posed by potential acts of sabotage, vandalism or terrorism and shall put in place proportional protective measures.
Access control
- b) **P**otentially sensitive areas within the establishment shall be identified, mapped and subjected to access control.
- c) Where feasible, access should be physically restricted by use of locks/restricted entries, electronic card key or alternative systems.
 - i. Water tanks shall be locked
 - ii. All dead ends are to be capped
 - iii. Entry should be restricted. Only authorised person should enter in manufacturing areas

V. Important Control Measures to Counter possible Stepwise Hazards

a. Hazard Analysis for Buffalo Meat Processing:

S. No.	List of Manufacturing/ Process Steps / (sequential)	Possible Hazard Type: <i>P: Physical; C: Chemical; B: Biological</i>	Possible Hazards	Source	Hazard Adverse Impact	Control Measures
1.	Procurement and Quality inspection of Raw Material (Live Animals)	P	NA	NA	-	-
		C	NA	NA	-	-
		B	Pathogens	Diseased animals	Adverse Health impacts	Ante-mortem inspection at receiving
2.	Slaughtering	P	Extraneous matter	Cutting knives, tools, hooks	Health problem	Stringent GMP followed. Inspection of knives, hooks and tools to be done at prescribed frequency.
		C				
		B				
3.	Receiving of Carcass	P	NA	NA	NA	Visual inspection
		C	Pesticides, residues	Residual counts due to environmental inputs	Health problem	Annually tests from outside laboratory or declaration from suppliers that the material is free from such residual
			Antibiotics	Due to application of drugs for disease control	Health problem	Annually tests from outside laboratory or declaration from suppliers that the material is free from such residual
		B	Microbial contamination	Slaughter house	Health problem	Temperature of van
4.	Washing of Carcass	P	Foreign material – dust, etc.	Loading/Unloading	Health problem	Following Incoming inspection
		C	NA			
		B	Microbial	Storage tanks	Growth of microbes in carcass	Following Incoming inspection
5.	Storage in Chillers	P	NA			
		C	Cleaners, sanitizers	From chillers	Contamination of carcass	Adhering to GHP and GMP
		B	pH, e-coli, TVC, salmonella	Carcass	Health problem	Adhering to GHP and GMP; and Inspection
			Growth of microbes	Carcass	Unsafe food	Controlled Temperature and records maintained
6.	Deboning	P	Extraneous material	Trays, knives and other food contact accessories	Health problem	Adhering to GHP and GMP
		C	Pest control	Insects, birds, etc.	Health problem	Maintaining GMP through effective Pest Control measures
		B	pH, e-coli, TVC, salmonella	Carcass	Health problem	Adhering to GHP and GMP; and Inspection
7.	Processing (16 to 18 degree Celsius for 20 mins)	P	Extraneous material	Trays, knives and other food contact	Health problem	Adhering to GHP and GMP

		C	Pest control	accessories Insects, birds, etc.	Health problem	Maintaining GMP through effective Pest Control measures
		B	pH, e-coli, TVC, salmonella	Carcass	Health problem	Adhering to GHP and GMP; and Inspection
8.	Packing	P	NA			
		B	NA			
9.	Blast freezers & Plate freezers	P	NA			
		C	Cleaners, sanitizers	Walls, trays	Carcass contamination	Adhering to GHP & GMP
		B	Growth of microbes	From trays, storage area	Unsafe food	Controlled Temperature and records maintained
10.	Shrinkage and Final Packing	P	Extraneous material	From hands		Adhering to GHP & GMP
		C	NA			
		B	NA			
11.	Passing through Metal Detector	P	Bones, Metals	From processing	Health problem	Adhering to GHP & GMP
		C	NA			
		B	NA			
12.	Cold storage	P	NA			
		C	Cleaners, sanitizers	Walls, trays	Carcass contamination	Adhering to GHP & GMP
		B	Growth of microbes	From trays, storage area	Unsafe food	Controlled Temperature and records maintained

HACCP Plan for Buffalo Meat Processing:

Processing Step	Hazard	Control Measures/C CP	Critical Limit	Monitoring			Corrective action	Verification Responsibility	Records
				Procedure	Frequency	Responsibility			
Storage in Chillers	Microbiological contents- Microbes	Temp. of chillers	0 to 3 degree Celsius; for max. 24 hrs	Digital temperature meters	Hourly	Supervisor	Increasing Hold Time of cooling	As per HACCP Verification Plan	Temp. Log Book
Blast freezers & Plate freezers	Microbiological contents- Microbes	Temp.	At 40 degree Celsius	Digital temperature meters	Hourly	Supervisor	Increasing Hold Time of cooling	As per HACCP Verification Plan	Temp. Log Book
Passing through Metal Detector	Physical contents- Bones, Metals	Metal detectors	100% check through working metal detector	Scanning through metal detectors	Continuous	Supervisor	Repass the whole suspicious product through metal detectors. If failed, Reject. Precaution- Increase hold time of product to release from detector	As per HACCP Verification Plan	Daily calibration of Metal detector Record
Cold Storage	Microbiological contents- Microbes	Temperature of cold storage	-21 to -24 degree Celsius	Digital temperature meters	Hourly	Supervisor	Increasing Hold Time of cooling	As per HACCP Verification Plan	Temp. Log Book

VI. References:

- 1) Manual on Meat cold store operation and management (<http://www.fao.org/docrep/004/T0098E/T0098E02.htm>)
- 2) Frozen Foods Handling and Storage (<http://www.cold.org.gr/library/downloads/Docs/FrozenFoodsHandling.pdf>)
- 3) Food Safety Management: A Practical Guide for the Food Industry (*Section- Chilled Retail Display, Frozen Retail Display; Page 488-500*) – ‘retail display temperature of frozen meat products
- 4) General requirements on hygiene and sanitation; Schedule 4; Part II; Food Safety and Standards (Licensing and Registration of Food Business), Regulations 2011
- 5) Codex code of practice: General Principles of Food Hygiene (CAC/RCP 1-1969)
- 6) CAC RCP 58-2005_Code of Hygiene Practice for MEAT Other processed frozen export industry documents
- 7) <https://law.resource.org/pub/in/bis/S03/is.1172.1993.html>
- 8) <http://www.engineerlive.com/content/22140>

Suggested Readings:

- 1) Food Safety and Standards (Food Product Standards and Food Additives) Regulation, 2011
http://www.fssai.gov.in/Portals/0/Pdf/Food_safety_and_standards_Food_product_standards_and_Food_Additives_regulation_2011_English.pdf
- 2) Food Safety and standards (Packaging and Labelling) regulation, 2011

b

V. Annexures

Annexure 1

Specific Regulatory Requirements

For Frozen Mutton, Chicken, Goat and Buffalo Meat:

The fresh meat meant for freezing shall be clean, free from any foreign matter, objectionable odour/flavour and evidence of deterioration. Meat shall be prepared by quickly freezing in an appropriate equipment in such a way that the range of temperature of maximum crystallization is passed quickly and the product attains a temperature of - 180C or colder at the thermal centre after thermal stabilization. The product shall be kept deep frozen so as to maintain its quality during transportation, storage and sale.

The product shall conform to the following requirements, namely:

S.No.	Characteristics	Requirements
(1)	Total Plate Count	100000/ gram maximum
(2)	E.Coli.	100/gram maximum
(3)	Staphylococcus aureus	100/gram maximum
(4)	Clostridium perfringens and Clostridium Botulinum	30/gram maximum
(5)	Yeast and mould count	1000/gram maximum
(6)	Salmonella	Absent in 25 gram
(7)	Listeria monocytogenes	Absent in 25 gram

Annexure 2

Packaging and Regulatory Requirements

- 1) Packaging requirements for Canned Meat Products
 - i) New sanitary top cans made from suitable kind of tin plate shall be used. The cans shall be lacquered internally; they shall be sealed hermetically after filling. The lacquer used shall be sulphur resistant and shall not be soluble in fat or brine.
 - ii) Cans used for filling pork luncheon meat shall be coated internally with edible gelatin, lard or lined with vegetable parchment paper before being filled.
 - iii) Meat products packed in hermetically sealed containers shall be processed to withstand spoilage under commercial conditions of storage and transport.

- 2) In case of package containing meat, the declaration be made as follows:—

“BEST BEFOREDATE/MONTH/YEAR”

OR “BEST BEFORE.....DAYS FROM PACKAGING”

OR “BEST BEFORE DAYS FROM MANUFACTURE”

Note: (a) blanks be filled up (b) Month and year may be used in numerals (c) Year may be given in two digits

Annexure 3

Sanitary & Hygienic Requirements for the Retail Meat Shops

(as stated in Regulation)

For ensuring the hygiene and safety of meat being sold at retail meat shops, the following requirements should be followed under the supervision of the qualified Veterinary staff.

1. Location of Meat Shop:

- a) The meat shop / sale outlet should preferably be a unit of meat market located away from Vegetable, fish or other food markets and shall be free from undesirable odour, smoke, dust or other contaminants. Wherever a meat market is not available, individual meat shop can be set up considering the above factors, which have a direct bearing on the hygiene conditions of the premises and health of consumers. (a) The minimum distance between the licensed meat shop and any place of worship should not be less than 50 meters; (b) The condition of 100 meters distance will apply in case the premises situated directly opposite to the entry gate of religious place of any community.
- b) All the meat shops located in the vicinity of religious places shall be fitted with black glass doors, which must be kept closed all times except in case of entry or exit. It must be the responsibility of the meat shop owners to maintain a high standard of hygiene not only inside the shops, but also in the way leading to the shops road pavements or other adjoining place, particularly for insanitary materials originating from the meat business for example, blood, part of offal, meat scraps etc.

2. Size of Meat Shops

- a) Considering the constraints of commercial space in residential areas in concerned Panchayats / Municipalities the size of meat shops may vary according to the size of business and activities being carried out there in the meat shops.
- b) The height of shop in all above categories of meat shops should be not less than 3 meters, while in case of airconditioned meat shops, it should not be less than 2.5 meters.

3. Premises

- c) The premises shall be structurally sound. The walls up to the height of minimum 5 feet from the floor level shall be made of impervious concrete material (e.g. glazed tiles or hygienic panels, etc.) for easy washing and cleaning purposes.
- d) The floor should be made of impervious and non-slippery materials with a slope for easy cleaning and removal of filth, waste and dirty water. The slope of the floor shall not be less than 5 cm. for a floor of 3 meters.
- e) All the fittings in the stall should be of non-corroding and non-rusting type.
- f) All processing tables, racks, shelves, boards, etc. shall have zinc/aluminium/stainless steel/marble-granite top to facilitate proper cleaning.
- g) A sign board indicating the type of meat sold shall be displayed prominently. Nothing else but meat should be sold at the premises.
- h) The premises should have provision of sewer connection for drainage of wastewater.
- i) There should be provision of continuous supply of potable water inside the premises. In case the water supply is from bore well the arrangement for softening of water for making the same potable shall be made in the premises and intermittent store arrangement should be made.
- j) The door of the shop should be of self-closing type. The door of the shop should be of dark glass top and be kept closed. No carcasses should be kept in a manner so as to be seen by the public from outside.

4. Ventilation

- a) The meat shop should be ventilated with facility of cross ventilation and may be provided with at-least one electric fan and one exhaust fan.

- b) The rails and hanging hooks, if provided for hanging carcasses, should be of non-corrosive metal. The noncorrosive hanging hooks for carcasses shall be 30 cm. apart and the distance between rails shall be 60 to 70 cm. depending upon the size of animals slaughtered and carcasses hanged.

5. Equipment and Accessories

- a) The meat shop should have suitable arrangement for fly proofing in the form of air-curtains, flytraps, etc.
- b) It should have display cabinet type refrigerator of size for maintaining a temperature of 4 to 8 degrees C. or freezing cabinet if the meat is to be stored for more than 48 hours.
- c) The weighing scales used shall be of a type which obviates unnecessary handling and contamination and the plate sketch of the scale shall be made of stainless steel or nickel coated
- d) The knives, tools and hooks used shall be made of stainless steel. Sufficient cupboards or racks should be for storing knives, hooks, clothes and other equipments.
- e) There should be a provision of geysers in all the meat shops to have hot water at a temperature not less than 82 degree C to clean the premises and equipment used in meat shop.
- f) Washbasin made of stainless steel / porcelain shall be provided with liquid soap dispenser or other soap and nail brush for thorough cleaning of hands.
- g) The chopping block should be of food-grade synthetic material, which does not contaminate the meat. If the block is of wooden it should be of hardwood trunk, which is solid enough and should not contaminate the meat.
- h) A waste bin with a pedal operated cover shall be provided in the premises for collection of waste material.

6. Transportation

- a) The transportation of carcasses from the slaughter house to the premises shall be done under hygienic conditions in boxes of adequate size linked with zinc/aluminium/stainless steel or wire gauze meat safes, which must be washed daily.
- b) The transportation of carcasses from the slaughter house to the meat shops should be done in insulated refrigerated vans. Under no circumstances, carcasses will be transported in vehicles used for commuting of human beings, or in an exposed condition.

7. Pest Control

- a) The meat shop should have an effective and continuous programme for control of insects, rodents or other vermin within the premises. The surrounding area of the shop should also be free from insects, birds, rodents and other vermin.
- b) The pest control measures adopted by the owner of shop should be kept as a record in the premises to be shown to any officer of the concerned Panchayats / Municipalities responsible for local administration/Corporation at the time of inspection.
- c) Chlorinated hydrocarbons, organo-phosphorus compounds and synthetic perithroids, rodenticides etc should neither be used as pesticide nor shall be stored at the meat shop.
- d) No live animals or birds should be allowed inside or adjacent to the meat shops.

8. Personnel Hygiene

- a) Every person employed for meat handling at the meat shop shall be medically examined annually by a authorized registered medical practitioner and examination shall include examination of sputum and x-ray of the chest for tuberculosis. The medical examination shall also include examination of stool for protozoal and helminthic infestations for those parasites, which are transmitted by ingestion, and also for the presence of enteropathogenic Escherichia coli, Salmonella, Shigella species and Vibrio cholera.
- b) A certificate / records of medical fitness of all workers handling meat should be kept as a record in the premises to be shown to any officer of the concerned Panchayats / Municipalities responsible for local administration / Corporation at the time of inspection.
- c) No worker suspected to be suffering from fever, vomiting, diarrhoea, typhoid, dysentery or boils, cuts and sores and ulcers (however small) shall be permitted to work in the meat shops.

- d) All the workers of the meat shop shall keep their finger nails short and clean and wash their hands with soap or detergent and hot water before commencement of work and after each absence, especially after using sanitary conveniences.
- e) Eating, spitting, nose cleaning or the use of tobacco in any form or chewing betel leaves shall be prohibited within the premises of meat shop processing, packing and storage area of the unit. "No smoking "and "No Spitting "boards shall be prominently displayed in the shop.

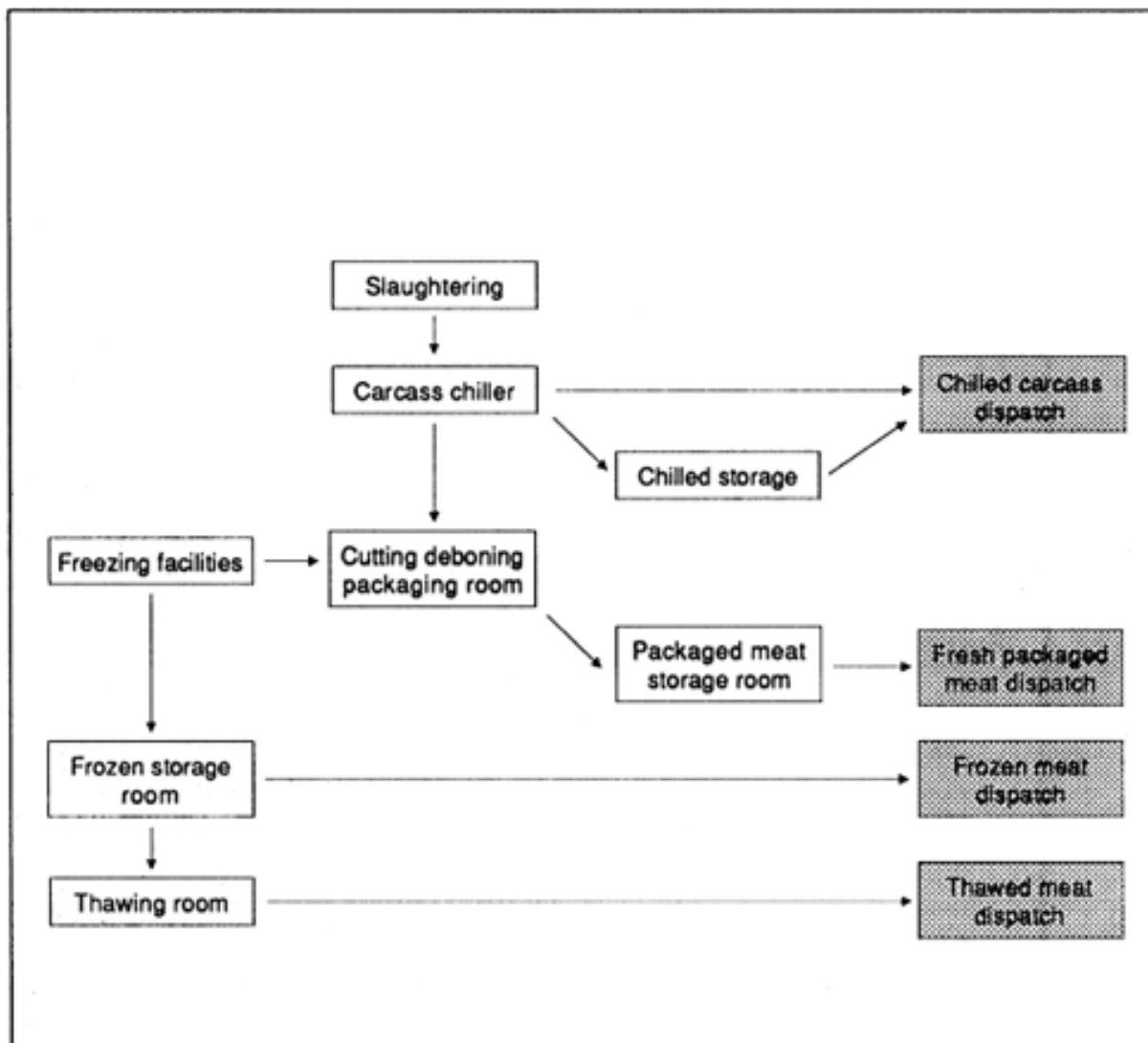
9. Sanitary Practices

- a) The chopping block should be sanitized daily by covering its top with sea-salt, after cleaning it with hot water at close of business activity.
- b) The floor should be washed with appropriate disinfectant / detergent / sanitizer at the start and close of the business each working day.
- c) There should be high standard of cleanliness and tidiness in the working area of shop with no organic or other material lying on the floor.
- d) The refrigerated / freezing cabinet should be regularly cleaned and well maintained.
- e) Slaughtering of animal / birds inside the shop premises should be strictly prohibited.
- f) The carcasses shall not be allowed to be covered with wet-clothes.
- g) Wholesome meat obtained from the authorized slaughter house shall only be sold at the meat shops and a record thereof shall be kept in the premises to be shown to any officer of the concerned Panchayats / Municipalities responsible for local administration Corporation at the time of inspection.
- h) Waste bins should be emptied, transported for disposal as per the arrangements made by the concerned Panchayats / Municipalities and waste bin / dhalau (burial pits) shall be treated daily with a disinfectant.
- i) The premises shall not be used for residential purposes nor it shall communicate with any residential quarter. No personal belonging like clothing, bedding, shoes etc. shall be kept in the premises. Only dressed carcasses of clean meat shall be stored at the premises.
- j) Hides, skins, hoofs, heads and unclean gut will not be allowed to be stored in the premises at any time.
- k) The chopping instruments should be cleaned with hot water at a temperature of 82 degree C.
- l) The preparation of food of any type inside the meat sale outlet should be strictly prohibited.
- m) The meat obtained from unauthorized sources or unstamped meat is liable to be confiscated and destroyed.
- n) Waste of the meat shop to be disposed of packed in heavy polythene bags in dhalaos (burial pits).

10. Other Requirements

- a) The prepared meat shall be packed in waxed paper and then placed in polyethylene bags or packed directly in bags made of food grade plastics.
- b) Failure to comply with any of these instructions may entail legal action against the defaulters, and even result in cancellation of license by the appropriate authority of the concerned Panchayats/Municipalities/Corporation.
- c) No Objection Certificate from law and order point of view to be obtained from police department or the concerned Panchayats/Municipalities/Corporation before grant of license for buffalo meat and pork shop.
- d) The concerned Panchayats/Municipalities responsible for local administration in the country shall appoint qualified Veterinary staff for the meat inspection (Ante mortem and Post mortem inspection) or if regular staff cannot be made available or deployed for the purpose shall make contractual arrangements for availing the services of qualified Veterinary staff for meat inspection available with the Animal Husbandry Depts. of the concerned state/UT in the country.
- e) Retail meat shop license shall be granted subject to fulfillment of all the above technical and administrative instructions in relation to the trade.

Annexure 4

Meat processing flow diagram for a plant processing- Multiple finished products (Chilled carcass, Fresh meat, Frozen meat, Thawed meat)

Annexure 5

FSMS Related Document & Record Templates

Food Safety & Quality Policy (Template)

Top management has defined a food safety policy (as mentioned below) which:

- Is appropriate to the role of the organization in the food chain,
 - Conforms with statutory and regulatory requirements and with mutually agreed food safety requirements of the customers,
 - Addresses communication,
 - Is supported by measurable objectives (as mentioned below),
 - Has been communicated, implemented and explained to the all employees of the organization.
- Food safety policy posters printed in English and Hindi are displayed at all important locations in the organization. FSTL conducts survey periodically to assess the level of understanding of the policy amongst employees, and
- Shall be reviewed for continuing suitability once in a year.

As an illustrative example below:

(Company name) is committed to exceed expectation and need of its esteemed guests and ensure to provide them with safe and quality food and beverage as well as prompt and efficient service.

The organization shall achieve above commitments through:

- *Providing vibrant work environment that result in excellence.*
- *Establishing and reviewing food safety objectives for continual improvement in skills of the employees, processes and systems.*
- *Meeting requirements of customers as well as applicable statutory and regulatory requirements.*
- *Applying ISO 22000 principles in food safety management system that results in production of quality and safe food and beverage from receiving to serving the guest.*

Food Safety & Quality Objective (Template)

Every Objective should be SMART:

S- SPECIFIC; M-MEASURABLE; A-ATTAINABLE/ ACTION ORIENTED; R-REALISTIC;

T-TIME BASED

As an illustrative example below:

S.No.	Objective	Target
1	To ensure that all employees are trained in food hygiene during the year.	Improvement by 2%
2	Increase in customer satisfaction index	Improvement by min. 1%
3	Reduction in numbers of unsatisfactory & rejected grades - C & D grades of food items from receiving to serving through validation & verification of all process CCPs & OPRPs by conducting microbiological testing.	Improvement by 2%

Management Review Meeting (Template)

Name of Manufacturing plant: _____

Date: _____

Attendees:

Name	Designation/Area of Operation	Signature

S.No.	Review Topics	Discussion / Comments	Further Actions	Responsibility	Target date
1	Follow up actions from previous MRM (incl. Corrective & Preventive actions)				
2	Analysis of results of verification activities				
3	Changing circumstances that can affect food safety				
4	Emergency situations, accidents, recall or withdrawals				
5	Reviewing result of system updating activities				
6	Review on communication activities, incl. customer feedback				
8	Results of Internal Quality Audits (incl. HACCP), external audits and inspection				
9	Supplier performances				
10	Reports on process & service non-conformance				
11	Assurance of food safety				
12	Performance objective of Processes & products for improving FS effectiveness				
13	New opportunities for improvement/ Resource requirements				
14	Review of Food Safety & Quality Objective and Policy				
15	Others				

Internal Audit Plan (Template)

S.No.	Process Area	Month/Year: _____											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Store areas- Raw material, ingredients, chemicals, finished product												
2	Process Area												
3	Housekeeping, Cleaning & Personal Hygiene												
4	Preventive Maintenance												
5	Internal Laboratory												
6	Management functions												
7	Packaging & Dispatch area												
8	Documentation												
9	Human Resource & Training												
10	Others												

Internal Audit Schedule (Template)

Date of Audit:

Standard of Audit:

S.No.	Process Area	Auditee(s) & Functional Department	Auditor(s) & Functional Department	Date	Time
1	Store areas- Raw material, ingredients, chemicals, finished product				
2	Production/Manufacturing Area				
3	Housekeeping, Cleaning & Personal Hygiene				
4	Preventive Maintenance				
5	Internal Laboratory				
6	Management functions				
7	Packaging & Dispatch area				
8	Documentation				
9	Human Resource & Training				

10	Others				
----	--------	--	--	--	--

Internal Audit Observation & Non- conformance report (Template)

Name of Manufacturing plant:

Date of Internal Audit:

Process Area Audited:

Auditor(s):

Auditee(s):

Areas Covered:

S.No.	Observation area	Compliance checkpoint	Status (Yes/No)	Non-Compliance details (if any in this area)	Corrective action planned	Responsibility	Traget date of completion	Actual completed on

FSMS Team (Template)

S.No.	Name	Designation	Funtional Area	Qualification	Experience/Skills	FSMS Training done on	Responsibility

Product Information (Template)

S.No.	Description	Specifications
1	Product Category/Name	
2	Composition (Raw materials, Ingredients, etc.)	
3	General & Specific product specification	
4	Legislative requirements, Customer requirements	
5	Storage	
6	Labeling	
7	Transportation	
8	Product Shelf-life	
9	Packaging material	
10	Hazardous for any group of customers	
11	Food Category	
12	INTENDED USE	

Control of System Documents (Template)

S.No.	Document No.	Document Title	Issue/ Revision no.	Issue/Revised Date of document	Reason for Revision	Request Done by	Request Approved by	Functional Area responsible/ Location

Product Recall record (Template)

S.No.	Date of Complaint	Nature of Complaint	Results of Investigation	Product / Batches & quantity recalled	Mode of Disposal

Product Identification & Traceability (Template)

Traceability Detail Format

Product Description

Plant Name:

Manufacturing Date:

Product Name:

Manufacturing Time:

Pack Size:

Batch/Lot no.:

Traceability Details

Investigation Date:

InvestigationTime End:

InvestigationTime Start:

Total Time Taken:

A. CIP Details

Equipment Name	CIP Details			Remarks
	Date	Time	Person responsible	

B. Ingredient Details

Material Description		Remarks
Name	Batch/Lot No.	

C. Water Treatment Details

Chemical/Material Description		Remarks
Name	Batch/Lot No.	

D. Primary Packaging

Material Description		Remarks
Name	Batch/Lot No.	

E. Manufacturing Details

Date	Shift	Cases Manufactured	CCP Compliance	Remarks

F. Analytical Details

Date	Shift	Analytical compliance%	Product blocked,if any	Remarks

G. Dispatch Details

Invoice No.	Date of Dispatch	Quantity Dispatched= Total produced- (Rejected+ Control samples+ Warehouse retained)	Dispatch Destination	Remarks

Product Recall- Mock Drill report (Template)

Date of Drill:

Starting Time of Drill:

Closing Time of Drill:

Overall Time taken:

Product name:

Area Covered:

Mode of communication used (Telephone/ Fax / e-mail):

Persons/Parties contacted:

S.No.	Service Point	Location	Name of person contacted	Telephone/ Fax / e-mail	Quantity of product lying in stock

Result of Physical Verification:

Remarks:

Correction & Corrective Action report

Processing Area:

Date:

Inspected/Audited By:

Processing area incharge:

Non-conformance Observed	
Root cause analysis	
Correction Proposed	Corrective Action Proposed
Target Date:	Target Date:
Correction Review	Corrective Action Review
Date: Dept. Incharge	Date: Dept. Incharge

Customer/ Consumer Complaint Log (Template)

Complaint Number: _____			
Date: _____	Time recorded: _____ <input type="checkbox"/> am <input type="checkbox"/> pm		
Quality related: <input type="checkbox"/>	Food safety related: <input type="checkbox"/>		
<u>Customer Details</u>			
Customer Name: _____			
Phone: _____			
Address: _____		City: _____	
State/Province: _____		Zip code: _____	
Email: _____			
<u>Product Consumed</u>			
Product name: _____			
Batch Code/Lot no.: _____			
Package size: _____			
Location purchased: _____			
Date of purchase: _____		Date consumed: _____	
How was the product stored? _____			
<u>Nature of Complaint</u>			
Foreign object <input type="checkbox"/>	Off/ Unsatisfactory Flavor <input type="checkbox"/>	Allergic <input type="checkbox"/>	
Packaging <input type="checkbox"/>	Illness <input type="checkbox"/>	Others <input type="checkbox"/>	
How many people consumed? _____		Ages? _____	
Symptoms/Additional Problem Information: _____			
Has the Customer			
Seen a Doctor? _____		Gone to Hospital? _____	
Spoken to a public health? _____		Contacted Regulatory Agency? _____	
Comments & follow up action			
Feedback from client- Status or date finalized			

Determination of Customer Satisfaction (Template)

We would like to know how well we are succeeding in meeting your needs. Following is the questionnaire about what you wanted from us. Answers will be treated with complete confidentiality. Please answer these questions using the scale (Please TICK that you choose).

('1' being the worst score; '5' being the best score)

S.No.	QUESTIONS	SCORE				
1	How well do we communicate with you?	1	2	3	4	5
2	Do we give you the information you need?	1	2	3	4	5
3	Do we answer your queries promptly?	1	2	3	4	5
4	Do we respond positively to your problems & suggestions?	1	2	3	4	5
5	Do you feel we have a concern for quality & food safety?	1	2	3	4	5
6	Do we deliver quality & safe products consistently and on time?	1	2	3	4	5
7	Do we anticipate your needs?	1	2	3	4	5
8	Have we increased your understanding of quality & food safety?	1	2	3	4	5
9	Do we work with you as a team?	1	2	3	4	5

Any other comments?

Name and Address

Training Calendar (Template)

S.No.	Topic of training	Month/Year: _____											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													

Training Need Identification (Template)

Name of employee:

Date of Joining:

Qualification:

Designation:

Department:

Key Responsibilities:

Training(s) Required

1	Managerial	
2	Technical	
3	On the Job	
4	General/Others	

Suggested Training institutions (applicable for external trainings):

Any other suggestions:

Signature of Dept. Head:

Below topics of training to be determined, but not limited to:

- 1 Food safety policy
- 2 Food safety objective and targets
- 3 Actual or potential significant environmental impacts and unacceptable risks of the work activities
- 4 Food Safety and hygiene related issues
- 5 Compliance to legal requirements
- 6 Roles and responsibilities of employees to ensure effective implementation of food safety
- 7 Operational Control procedures
- 8 Emergency Preparedness and response requirements
- 9 Potential effects of deviation from documented procedures

Training Record (Template)

Date of Training:

Conducted By:

Subject of Training:

Brief summary of the subject:

Duration of Training:

S.No.	Name of person trained	Functional area	Remarks	Signature
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Training Effectiveness record (Template)

Date of Training:

Subject of Training:

Brief summary of the subject:

S.No.	Name of person trained	Functional area	Pre-evaluation result	Post-evaluation result	Effectiveness status (Yes/No)	Comment on effectiveness	Signature of trainee
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							

Effectiveness can be based on: Improvement in quality of work, Improvement in work output, Behavioural change, Overall usefulness of training, etc.

Visitor Record (Template)

Date of visit:	
Time of entry:	
Time of exit:	
Name of visitor:	
From (location):	
Whom to meet:	
Purpose of visit:	
Type of visitor:	<i>Please Tick:</i> <i>Type I (Critical areas: Internal processing areas)</i> <i>Type II (Outside processing areas)</i> <i>Type III (Office areas)</i>
Any Allergy/ Infectious disease declaration:	
Belongings description:	
Signature of visitor:	
Signature of Security in-charge:	
Signature of person visited:	

NB: Pls adhere to all the food safety and quality ; and company policies and rules during your visit

Pre-employment medical record (Template)

Name of Candidate:

Father's name:

Address:

Date of Birth:

Designation applied For:

Age:

Name of hospital/laboratory tested:

Medical Examination

Heart :	Blood Group :
Chest :	Blood Sugar :
Abdomen :	Haemoglobin :
Blood Pressure :	T.L.C. :
Eye Sight :	D.L.C.: P
C.N.S. :	L
	M
	E
X.Ray Chest:	Urine Examination:
E.C.G.:	Stool:

Final Medical Report:

Signature of Candidate

Signature of Medical Examiner:

Reg. No. of the Medical Examiner:

Regular medical record (Template)

Name of employee:	
Date of medical test conducted:	
Next Medical test due on:	
Name of hospital/laboratory tested:	
Tests done for:	
Status of acceptance (Yes/No):	

Monitoring of personnel hygiene (Template)

Date:

S.No.	Employee Code	Employee name	Area of work	Hand wash, sanitize (and Gloves where necessary)	Clean & trimmed Nails	No open Wounds	No Jewellery	Covered Hair	Clean outer garments / protective clothing	Clean Shoes/ shoe covers	Infectious Disease / Skin infection / Allergy, if any	No Tobacco/ Smoking / Chewing	Overall Hygiene Status upon examination (Yes/No)	Action needed on non-compliance	Re-examination status (Yes/No)
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															

Jewellery, wrist watches, cufflinks, ear rings, glass bangles, stick bindis

Non-conforming Material/Product (Template)

HOLD: ☐

REJECT: ☐

Material Type:

Finished Product ☐

Raw Material ☐

In-Process Product ☐

Packaging Material ☐

Material Name:

Date of Manufacturing/Receipt:

Quantity of Manufacturing/Receipt:

Lot/Batch No.

Quantity used:

Lot/Batch No.

Quantity Hold:

Lot/Batch No.

Quantity Rejected:

Lot/Batch No.

Reason for Hold:

Reason for Rejection:

Corrective Action:

Preventive Action:

Remarks:

Signature:

QC Executive

Quality Manager

Mfg. Manager

Glass & Brittle Plastic Monitoring record (Template)

S.No.	Item number	Item placed at	Condition (OK/Not OK)	Correction done	Remarks

Knife/ Other Utensil Monitoring record (Template)

S.No.	Item number	Item placed at	Condition (OK/Not OK)	Correction done	Remarks

Operation Log Sheet (Template for Temperature Control)

S.No.	Date	Time	Temp. Gauge Number	Specification / Range allowed	Actual Result	Remarks	Sign

Equipment Breakdown Maintenance report (Template)

Date:

Period of Report:

S.No.	Name / Code No. of the Machine / Equipment	Location	Nature of Breakdown	Details of repairs carried out	Breakdown Period	Work Done by	Remarks

List of Monitoring & Measuring Devices and Records of Calibration (Template)

S.No.	Name of Equipment	ID.No.	Location	Range	Least Count	Frequency of Calibration	In house calibration Done On	In house calibration Due On	Remarks	Sign

Pest Management Plan (Template)

Type of Pest	Mode of Control	Station (locations) monitored	Number designated	Frequency of Monitoring	Remarks

Pest Monitoring record (Template)

Date	Type of Pest	Mode of Control	Station (locations) monitored	Number designated	Frequency of Monitoring	Clean (ok/Not ok)	Remarks	Sign

Waste Disposal Record (Template)

S.No.	Amount of waste						Daily disposal (Yes/No)
	Chemical/Hazardous waste	Food material waste	Package material waste	Other waste (Dry)	Other waste (Wet)	% of total waste	

Approved Supplier List -Latest (Template)

S.No.	Item/Material Name	Location of Use	Primary Approved Supplier (Name & complete address)					Secondary Approved Supplier (Name & complete address)				
			Complete Address	Contact Person	Contact No.	Email id	Fax	Complete Address	Contact Person	Contact No.	Email id	Fax

Incoming Material Inspection

Includes all type: Raw materials, Ingredients, Food additives, Processing aids, Packaging materials, Cleaning and sanitation chemicals, etc.

Material Name:	
Supplier Name:	
Identification/Location of Supplier:	
Quantity received:	
Pack size received:	
Material Receipt Date:	
Transport Mode:	
Rejected (Yes/No):	
Reason for Rejection:	

PARAMETER EVALUATED	STATUS/RESULTS	Signature
Temperature (Degree Celsius)		
Visual Inspection Condition (OK/Not OK)		
Packaging & Labelling Condition (OK/Not OK)		
Production Date/Shelf Life Date/Expiry Date		
Vehicle Inspection Condition (OK/Not OK)		
Quality Lab Results (If applicable)		
Certificate Of Analysis (COA) received (Yes/No)		
Remarks		
Clearance Date		
Authorized Signatore		

Incoming Vehicle Inspection Record (Template)

Date of Incoming Vehicle:

Vehicle Type:

Material in Vehicle received:

Number of Persons accompanying Driver:

PARAMETER EVALUATED	REMARKS
Security lock	
Type of carrier (full covered/ Open Roof)	
Mode of covering products (in case of Open Roof)	
Overall Hygiene in the interior	
Overall Hygiene on the exterior	
Any sharp edges / points in the interior of vehicle	
Any pests detected	
Any grease /oil detected	

Authorized Singature

List of Monitoring & Measuring Devices And Records of Calibration (Template)

S.No.	Name of Equipment	ID.No.	Location	Range	Least Count	Frequency of Calibration	In house calibration Done On	In house calibration Due On	Remarks	Sign

Preventive Maintenance Schedule (Template)

LIST OF MACHINERY AND EQUIPMENT FOR MAINTENANCE

S.No.	Name of Machine/ Equipment	Code/ Identification No.	Specification /Supplier	Location of place of the Machine/ Equipment	Frequency of check					Remarks
					Daily	Weekly	Monthly	Half Yearly	Yearly	

Preventive Maintenance Record (Template)

Machine/Equipment Name.:

Machine/Equipment No.:

Location:

S.No.	Maintenance Check Point	Frequency of check					Signature	Remarks
		Daily	Weekly	Monthly	Half Yearly	Yearly		

Fire extinguishers inspection record (Template)

Inspection date	Extinguisher No.	Type/Specification	Due date of re-filling	Actual date of re-filling	General condition	Signature

Product Release Record (Template)

Name of Product:	
Date of Manufacturing:	
Time of Manufacturing:	
Batch/Lot No.:	
Best Before/ Expiry Date:	
Quality Acceptance	
Analytical	
Microbiological	
Sensory	
Others, if any	
Quality Lab signature	

Outgoing Vehicle Inspection Record (Template)

Date of Outgoing Vehicle:
Vehicle Type:
Material in Vehicle to be dispatched:
Date of Manufacturing:
Time of Manufacturing:
Batch/Lot No.:
Number of Persons accompanying Driver:

PARAMETER EVALUATED	REMARKS
Security lock	
Type of carrier (full covered/ Open Roof)	
Mode of covering products (in case of Open Roof)	
Overall Hygiene in the interior	
Overall Hygiene on the exterior	
Any sharp edges / points in the interior of vehicle	
Any pests detected	
Any grease /oil detected	

Authorized Signature

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