

**Notice Calling for suggestions, views, comments etc from stakeholders on the draft notification on Food Safety and Standards (Food Products Standards and Food Additive) Amendment Regulations, 2018 related to standards on Canned/ Retort Pouch Meat Products, Comminuted/Restructured Meat Products, Cured/Pickled Meat and/or Smoked Meat Products; Dried/Dehydrated Meat Products, cooked /semi-cooked meat products, fermented meat products, marinated meat products, fresh/chilled/frozen rabbit meat.**

**F. No. Stds/M&MPIP (3)/SP/FSSAI-2018. –**

In the Food safety and Standards (Food Products Standards and Food Additives) Regulations, 2011, in regulation 2.5, in sub-regulation 2.5.2 related to Meat and Meat Products,

(A) for clauses 1 to 6, the following clauses shall be substituted, namely:-

**“1. Canned/ Retort Pouch Meat Products:**

(1) The standards specified in this clause shall apply to thermally processed shelf stable products designated as "Canned/ Retort Pouch Meat Products”.

(2) **Canned or Retort Pouch Meat Products** means the meat products packed in hermetically sealed containers/pouches which have been thermally processed at specified temperature, pressure and time combination followed by rapid cooling to render the product shelf stable. It may also contain any other ingredient which are standardized under these regulations.

(3) It may be processed by any of the following process, namely:-

(a) **Canning/Retorting:** Meat/meat product is packed in air tight cans, retort pouches or any other containers suitable to the products and processed in thermal processing equipment to specified temperature, pressure and time combination to render the product commercially sterile. The sealed containers shall not show any changes on incubation at 35°C for 10 days or 55°C for 5 days.

(b) **Retort pouch/containers:** Retort pouches/containers are flexible laminates made of metal or plastic foils. They can withstand high temperature processing and are used as an alternative to cans for production of shelf stable-meat products.

(c) **Commercial sterility:** It is a condition achieved by application of heat which renders the product free of viable forms of microorganisms having public health significance as well as other microorganisms of non-health significance capable of reproducing in the food under normal non-refrigerated conditions of storage and distribution. F value required for achieving commercial sterility of different product will be different based on pH of the product, consistency and composition. F<sub>0</sub> value of the product to be canned/retort processed must be standardized prior to production and marketing of the products.

(4) for the purpose of this clause,-

**(a) F Value:** means the common parameter used for measuring lethality of the heat treatment.  $F_0$  value indicates minutes required destroying a stated number of microorganisms at a defined temperature; usually 121 °C.

## **2. Comminuted/Restructured Meat Products**

(1) The standards specified in this clause shall apply to "Raw and or/cooked Comminuted/Restructured Meat Products" which have been packed in any suitable packing material. This category describes several processing steps (e.g., sectioning, flaking, chunking, slicing, mincing, chopping), ingredients, machineries and cooking methods for processing of comminuted/restructured meat products including mechanically deboned/separated meat products. It is broadly classified into comminuted or emulsion and restructured meat products.

(2) Comminuted Meat products means boneless meat which has been subjected to particle size reduction by cutting/grinding/dicing/chopping/milling and/or marinated and with or without additives. This category also includes meat emulsions or batters which are finely comminuted meat products containing true solutions, gels, emulsified fat and air. An emulsion is defined as mixture of two immiscible liquids, one of which is dispersed in the form of small droplets or globules in the other liquid.

(3) Restructured Meat products means meat or meat products that have been ground, flaked, or chopped and formed into steak/chop or any other shape with a texture that is closer to that of an intact steak than that of ground meat.

(4) These products shall be prepared from meat, mechanically deboned or separated meat or edible byproducts from meat animals/poultry.

(5) Comminution is a process by which particle size is reduced for incorporation of meat raw materials into finished products. Comminuted/Emulsion meat products are made by chopping meat and water with the addition of common salt (NaCl) until a fine, protein-rich slurry is formed. This matrix is then capable of binding fat, water and other non-meat ingredients. After cooking, the salt soluble proteins are coagulated and this results in an immobilization of the fat, water and other constituents. The basic structure of a meat emulsion is a mixture of finely divided meat constituents dispersed as a fat-in-water emulsion, where the discontinuous phase is fat and the continuous phase is water containing solubilized protein components. Mechanically recovered meat (MRM) is also used in a number of comminuted meat products. The MRM usage is limited to 20% of the meat portion of the product.

(6) Restructured meat products are prepared by flaking, grinding or chopping meat so that it is formed into steak/chop like products with texture closer to intact meat. Chunked, ground, or flaked meat pieces are used in restructured products wherein the meat pieces bind each other with proteins extracted through mechanical action using tumbling/massaging.

Alternatively it can be restructured using a small amount of meat emulsion or non-meat binders along with salt, phosphates and other ingredients.

(7) It may also contain any of the following ingredients, namely:-

- (a) Trimmings, fat, skin, edible by-products, mechanically deboned meat (MDM)/ mechanically recovered meat (MRM)
- (b) Water, herbs, sugar, spices, preservatives, condiments, stabilizers, hydrolysed vegetable protein
- (c) Carbohydrate and protein binders such as:
  - (i) milk powders, caseinate, whey powder, egg protein, vegetable protein products;
  - (ii) meal, flour, fibres or starch prepared from cereal, grain, potato or sweet potato;
  - (iii) rusk, bread, biscuit or bakery products;
  - (iv) sucrose (sugar & brown cane sugar), dextrose (glucose), lactose, maltose, glucose syrup (including corn syrup);
  - (v) Other Dairy products and analogues
- (d) Fats, oils and fat emulsions
- (e) Fruits, vegetables, Fruit & vegetable juices, Fruit and vegetable nectars and protein products derived from vegetable sources such as soya beans
- (f) Cereal and cereal products
- (g) Egg and Egg products
- (h) Sweetening agents including honey (Excluding artificial Sweetners)
- (i) Salt and salt substitutes, Black Salt, Herbs, Spices, Masalas, seasonings and condiments, Vinegar, Mustards, sauces & like products; Yeast & like products, Soybean based seasonings and condiments
- (j) Water soluble, aromatic hydrolysed protein.
- (k) Carrageenan, Gellan gum, Guar gum, Gum Arabic (Acacia gum), Karaya Gum, Konjac Flour, Cellulose gel, Processed Eucheuma Seaweed, Sodium Carboxymethyl Cellulose, Xanthan gum

(8) The final product shall comply with the following requirements, namely:-

- (a) Comminuted meat products shall have minimum of 50% meat (including lean meat, fat and edible offals). Lean meat portion shall not be less than 25% of the total formulation.
- (b) Comminuted meat products shall have a maximum fat content of 30% for pork, 25% for rest of the mammals and 15% for birds and rabbits, with a maximum

connective tissue content of 25% for rest of the mammals and 10% for birds and rabbits.

- (c) Extenders or binders are allowed up to a level of 3.5% in the finished comminuted meat products. Meat products containing more than 3.5% binders/extenders or more than 2.0% isolated soy proteins must be labeled as “Imitation”.
- (d) Moisture content of the finished comminuted meat products shall not exceed four times the protein content plus 10 percent ( $4P + 10$ ), i.e., 10 percent added water.
- (e) Low fat products shall not contain more than 10% fat, while extra lean products shall be less than 5% fat.

### **3. Cured/Pickled and Cooked and/ or Smoked Meat Products**

(1) The standards specified in this clause shall apply to "Cured/Pickled and Cooked and/or Smoked Meat Products" which have been packed in any suitable packing material. This category describes several processing steps (e.g., curing/pickling, salting, cooking, smoking) that preserve and extend the shelf life of the meat and poultry products.

(2) Cured meat means the product prepared after curing meat with common salt, nitrate/nitrite and adjuncts for the purpose of preservation and obtaining desirable colour, flavour and shelf life.

(3) Meat Pickle is traditional, shelf-stable ready-to-eat products which are prepared using common salt, vinegar and edible vegetable oil, seasoned with spices and condiments.

(4) Smoked meat means the product prepared by exposing the cured/cooked meat to smoke produced by hard wood for flavor and preservation. Alternatively, liquid smoke (oil-based, water soluble or dry powder) shall be applied to meat through dipping or drenching, atomizing (spraying) or directly mixing with meat formulation.

(5) In curing, smaller meat pieces or bigger cuts either deboned or bone-in shall be dipped in or injected with curing solution. There are two types of curing methods; wet and dry. In wet curing, the meat cuts are either dipped in curing solution or injected with curing solution using multi-needle injector or hand stitching or arterial injection followed by dipping or tumbling. In dry curing, all the curing ingredients are rubbed over the meat surface and stored for a long time under temperature and humidity control.

(6) Cured meat may be steamed or pressure cooked or smoked. Alternatively cured meat may be subjected to maturation and drying or smoking. Smoking is done through the addition of either traditional vapors or liquid smoke to meat. There are two types of smoking; natural wood smoke and liquid smoke. Natural wood smoke is generally produced from non-resinous hardwood sawdust, woodchips, or logs. The smoke may be produced from an electronically controlled smoke generator or from a variety of much simpler versions, ranging from log burning to human power controlled smoke generators.

(7) For the purpose of pickling, boneless or bone-in meat cubes or chunks shall be subjected to cooking, followed by light frying, added with vinegar, seasoned with pre-processed spice mix, condiments and covered with heated and cooled oil.

(8) It shall contain meat, curing ingredients consisting of food-grade salt (NaCl/Potassium chloride), Nitrate (max 500 ppm) or Nitrite (max 200 ppm) and phosphate (0.5%) and for pickled meat product it shall contain vinegar also.

(9) It may also contain carbohydrate and protein binders such as milk powders, caseinate, whey powder, hydrolysed vegetable protein, soya or caseinate, Sugar, sucrose (Sugar & Brown cane sugar), dextrose (glucose), lactose, maltose, glucose syrup (including corn syrup), honey, treacle/molasses, Herbs, Spices, seasonings and condiments, Saffron, Vinegars, Mustards, sauces & like products; Yeast & like products, Soybean based seasonings, Juniper berries and Smoke or smoke essences.

#### **4. Dried/ Dehydrated Meat Products**

(1) The standards specified in this clause shall apply to "Dried/ Dehydrated Meat Products" which have been packed in any suitable packing material. This category describes several treatment methods (e.g., curing, salting, pickling and drying) that preserve and extend the shelf life of the meat and meat products.

**(2) Dried or Dehydrated Meat Products** means the meat or meat products in which part of free water has been removed by evaporation or sublimation. Meat products preserved by dehydration are conveniently divided into two groups based on water activity ( $a_w$ ) levels; "low-moisture" and "intermediate-moisture" meat products. It may be of following types, namely:-

**(a) Low-moisture meat products:** Meat products having an  $a_w$  of less than 0.60 and containing less than 25% moisture.

**(b) Intermediate-moisture foods:** Meat products having an  $a_w$  between 0.60 and 0.85 and containing less than 50% moisture.

(3) Dehydration method of preserving meat lowers the moisture content of the product to a point at which the activity of food-spoilage and food poisoning microorganisms is inhibited. Moisture removal may be accomplished by low-temperature drying (<48.88 ~ 49.0 °C) or high temperature drying (>93.33 °C). Drying of meat shall be done through salting/solar/mechanical/vacuum/freeze drying to achieve the desired moisture and water activity level.

(4) It may also contain any of the following ingredients, namely:-

(a) Food-grade salt (NaCl/Potassium chloride), Nitrate (max 500 ppm)/Nitrite (max 200 ppm) and phosphate (0.5%)

- (b) Trimmings, fat, skin, edible by-products, mechanically deboned meat (MDM)/ mechanically recovered meat (MRM)
- (c) Carbohydrate and protein binders such as:
  - (i) milk powders, caseinate, whey powder, egg protein, vegetable protein products
  - (ii) hydrolysed vegetable protein, soya or caseinate
  - (iii) meal, flour, fibres or starch prepared from cereal, grain, potato or sweet potato;
  - (iv) rusk, bread, biscuit or bakery products;
  - (v) sucrose (sugar & brown cane sugar), dextrose (glucose), lactose, maltose, glucose syrup (including corn syrup), honey, treacle/molasses
  - (vi) Other Dairy products and analogues
- (d) Black Salt Herbs, sugars, spices, Masalas, seasonings and condiments, Saffron, preservatives, stabilizers, Vinegars, Mustards, sauces & like products; Yeast & like products, Soybean based seasonings & condiments, Juniper berries
- (e) Fats, oils and fat emulsions
- (f) Fruits, vegetables, Fruit & vegetable juices, Fruit and vegetable nectars and protein products derived from vegetable sources such as soya beans
- (g) Cereal and cereal products
- (h) Egg and Egg product
- (i) Sweetening agents including honey (Excluding artificial Sweetners)
- (j) Water soluble, aromatic hydrolysed protein
- (k) Carrageenan, Gellan gum, Guar gum, Gum Arabic (Acacia gum), Karaya Gum, Konjac Flour, Cellulose gel, Processed Eucheuma Seaweed, Sodium Carboxymethyl Cellulose, Xanthan gum
- (l) Smoke or smoke essences

## 5. Cooked/ Semi-Cooked Meat Products

(1) The standards specified in this clause shall apply to "Cooked/ Semi-Cooked Meat Products" which includes cooked (including cured and cooked) and heat treated meat products.

(2) **Cooked meat** means the meat or meat product subjected to heat treatment, wherein minimum thermal core temperature of 72 °C is achieved.

(3) **Semi cooked meat** means partially heat treated meat/meat product that will require additional cooking before consumption.

(4) Process of preparation of cooked meat involves mixing of meat chunks or meat mince with different ingredients like brine, spices, binders, fat, additives etc and heating to particular temperature time combination. Cooking improves sensory qualities and extends shelf life by

destruction of spoilage organisms and enzymes. Cooking can be achieved by dry heating (roasting, broiling, frying), moist heating (braising, broiling) or using electromagnetic energy (microwave cooking). Core temperature and end point temperature are the important indicators of doneness which needs to be standardized for different types of products.

(5) It may also contain any of the following ingredients, namely:-

- (a) Common Salt (Sodium chloride or potassium chloride), or salt substitutes
- (b) Sodium Nitrate (max 500 ppm) or Sodium Nitrite (max 200 ppm)
- (c) Carbohydrate and protein binders such as:
  - (i) milk powders, , caseinate, whey powder, egg protein, vegetable protein products;
  - (ii) meal, flour, fibres or starch prepared from grain, or potato or sweet potato;
  - (iii) bread, biscuit or bakery products;
- (d) Sucrose (sugar & brown cane sugar), dextrose (glucose), lactose, maltose, glucose syrup (including corn syrup);
- (e) Fats
- (f) Vegetables
- (g) Cereal and cereal products
- (h) Herbs, Spices, seasonings and condiments
- (i) Water soluble, aromatic hydrolyzed protein.

## **6. Fresh or Chilled or Frozen Rabbit meat**

(1) The standards specified in this clause shall apply to "Fresh or Chilled or Frozen Rabbit meat" which includes raw rabbit whole carcasses, pieces, cuts or edible offals that have been packed in any suitable packaging material.

(2) **Rabbit meat** means the edible portion of domestic rabbits (*Oryctolagus cuniculus*).

(3) **Fresh rabbit meat** means rabbit meat that has not been treated in any way to ensure its preservation.

(4) **Chilled rabbit meat** means fresh rabbit meat subjected to chilling in such a way that the product is maintained at temperature of 0 - 7 °C.

(5) **Frozen rabbit meat** means chilled rabbit meat subjected to freezing in such a way that the product is maintained at temperature of -18° C or below.

(6) **Rabbit meat edible offal** means edible byproducts derived from slaughtered rabbit which includes brain, liver, gut, paunches and lungs.

(7) Rabbit meat may be categorised in to following five types:

- (a) Fresh/Chilled/Frozen carcasses

(b) Fresh/Chilled/Frozen cuts, which may be of the following sub-types, namely:-

- (i) Fore legs
- (ii) Ribs
- (iii) Loin
- (iv) Hind legs

(c) Fresh/Chilled/Frozen Edible Offals

(7) Final product shall have moisture content between 72.5 % to 75.0 %, protein content between 20.0 % to 23.0 % and fat content between 1.0 % to 6.0 %.

(8) Rabbit meat shall be stored at  $4\pm 1^{\circ}$  C for short term storage and  $-18\pm 1^{\circ}$  C for long term storage. The chilled material shall be consumed within 2 to 4 days under normal refrigeration conditions of storage. Frozen meat shall be consumed within 10 months.

(B) after clause 11, the following clauses shall be inserted, namely;

#### **(12) Marinated Meat Products**

(1) The standards specified in this clause shall apply to "Marinated Meat Products" which have been packed in any suitable packing material. This category describes several processing steps (e.g., curing/salting, injection, massaging/tumbling, cooking, smoking) that preserve and extend the shelf life of the meat and poultry products in addition to improving the colour, tenderness, yield and functionality of the product.

(2) Marinade means a mixture of non-meat ingredients such as salt, phosphates, acids, tenderisers, sugar, seasoning and flavouring agents, in the form of liquid solution or powder that is applied to uncooked meat for marination.

(3) Marinated Meat means the meat mixed with the marinade for 1-24 h in order to improve colour, flavor, yield, tenderness and other functional properties of meat.

(4) Marination means the process of applying an aqueous solution/powder composed of ingredients such as salt, phosphates, acids, tenderisers, sugar, seasoning and flavourings to meat products.

(5) Marination shall be done by applying marinade, aqueous solution or powder to bone-in cuts or boneless meat by soaking, blending, tumbling/massaging or mechanical injection for 1–24 h.

(6) It may also contain any of the following ingredients, namely:-

- (a) Phosphates (0.5%), Nitrate/Nitrite (200 ppm)
- (b) Organic acids (acetic, lactic and citric acid), Wine, beer, fruits/fruit juice, curd, buttermilk, salsa and soy sauce
- (c) Binders: hydrocolloids, gelatin, soy and milk proteins and modified food starches

- (d) Sugar, sucrose (Sugar & Brown cane sugar), dextrose (glucose), lactose, maltose, syrup (including corn syrup), honey, treacle/molasses
- (e) Herbs, Spices, seasonings and condiments
- (f) Ascorbate/erythorbate (500 ppm), Monosodium glutamate(GMP)

### **(13) Fermented Meat Products**

(1) The standards specified in this clause shall apply to “Fermented meat products” which have been packed in any suitable packing material. Fermentation is a preservation method caused by microorganisms which lowers pH and water activity resulting in unique and distinctive properties.

**(2) Fermented meat product means the** meat product produced by action of selected fermenting microorganisms such as lactic acid bacteria and/or yeast in the presence of salt by the process of fermentation, ripening and drying. It may contain non-meat ingredients such as sugar, spices, seasonings and condiments.

**(3) Starter culture means the** culture of microorganisms which are used for initiating fermentation in meat product.

(4) Fermented meat products are produced by application of pretested microbial starter culture, with or without use of optional ingredients. Meat can also be fermented using back slopping without using starter cultures. Mixed meat is allowed to ripen or ferment in ripening chamber. Fermentation reduces pH to a level of 4.5 to 5.5 due to acidulation produced by microbial activity and reduces water activity due to presence of salt and drying.

(4) It may also contain any of the following ingredients, namely:

(a) Curing ingredients consisting of sodium chloride, Sodium nitrate/nitrite (80 ppm) and Sodium tripolyphosphates (2200 ppm)

(b) Carbohydrate and protein binders such as:

- (i) milk powders, caseinate, whey powder, egg protein, vegetable protein products
- (ii) meal, flour, fibres or starch prepared from grain, or potato or sweet potato
- (iii) bread, biscuit or bakery products
- (iv) cereal products

(c) Herbs, spices, seasonings and condiments; vinegar

(d) Water soluble aromatic hydrolysed protein