

هيئة التقييس لدول مجلس التعاون لدول الخليج العربية
GCC STANDARDIZATION ORGANIZATION (GSO)



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لحوم البقر والجاموس والضأن والماعز المبردة والمجمدة

**BEEF, BUFFALO, MUTTON AND GOAT MEAT,
CHILLED AND FROZEN**

ICS: 67.120

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**BEEF, BUFFALO, MUTTON AND GOAT MEAT,
CHILLED AND FROZEN**

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Foreword

GCC Standardization Organization (GSO) is a regional Organization which consists of the National Standards Bodies of GCC member States. One of GSO main functions is to issue Gulf Standards /Technical regulations through specialized technical committees (TCs).

GSO through the technical program of committee TC No (5) "Technical committee for standards of food and agriculture products" has updated the GSO Technical regulation No. : GSO 997/1998 "Beef, buffalo, mutton and goat meat chilled and frozen" The Draft Technical regulation has been prepared by State of Qatar .

This Technical regulation has been approved by GSO Board of Directors in its meeting No.(23), held on 05/08/1437h(12/05/2016), The approved standard will replace and supersede the standard No. GSO 997/1998 .

Beef, buffalo, mutton and goat meat chilled and frozen**1- Scope:**

This Gulf Standard is concerned with beef, buffalo, mutton and goat meat chilled and frozen.

2- Complementary Standards:

- 2.1 GSO 9 "Labeling of Prepackaged Foods".
- 2.2 GSO 20 "Methods for the Determination of Contaminating Metallic Elements in Foodstuffs".
- 2.3 GSO 21 "Hygienic Regulation for Food Plants and their Personnel".
- 2.4 GSO 150-1" Expiration periods of food products part – 1: Mandatory expiry dates
- 2.5 GSO 323" General requirements for transportation and storage of chilled and frozen foods" .
- 2.6 GSO 382, 383" Maximum limits for pesticide residues in food products and their methods of determination.
- 2.7 GSO 592 "Methods of sampling meat and meat products".
- 2.8 GSO. 593 "Physical tests for meat and meat products" .
- 2.9 GSO 655 "Methods of Microbiological Examination for meat, fish, shell-fish and their products".
- 2.10 GSO 815 "Code of hygienic practice for preparation, transportation handling and storing of fresh meat".
- 2.11 GSO 839" Food packaging- Part 1: General requirements" .
- 2.12 GSO 996 "beef, buffalo, sheep and goat fresh meat".
- 2.13 GSO 988 "limits of radiation levels permitted in foodstuffs".
- 2.14 GSO 993 "Slaughtering requirements according to the Islamic Rules".
- 2.15 GSO 998" Methods of detection of limits of radiation levels permitted in foodstuffs".
- 2.16 GSO 1016 "Microbiological Criteria for Foodstuffs – Part 1".
- 2.17 GSO ISO 2917"Meat and Meat Products - Measurement of pH (Reference Method)" .
- 2.18 GSO/CAC 193" General Standard for contaminants and toxins in foods" .
- 2.19 GSO/CAC/MRL 2" Maximum permissible levels of veterinary drug residues in food products of animal origin" .
- 2.20 GSO 969 Stores of frozen and chilled foodstuffs- Part 2: General requirements".
- 2.21 Gulf Standards which the Organization shall be approved concerning with:
 - 2.21.1 Methods of detection and determination of hormones and antibiotics residues in meat and meat products.

2.21.2 Methods of detection of pork meat in food products

2.21.3 Methods of detection of pork and lard in food products

3- Definitions:

3.1 Chilled beef, buffalo, mutton and goat fresh meat:

Meat which has been chilled directly after slaughter to a temperature $(1\pm 0.5)^{\circ}\text{C}$ and subsequently maintained in a wholesome condition at that temperature.

3.2 Chiller:

Refrigerated facility capable of chilling carcass and/or meat cuts to a temperature of $(1 \pm 0.5)^{\circ}\text{C}$ within 36 hours as a maximum.

3.3 Frozen meat

Meat that complies with GSO Standard mentioned in Item (2.12) which has been primarily chilled for up to 18 hours, then quickly frozen at $(- 40)^{\circ}\text{C}$ until the temperature of the thermal center of meat reaches $(- 18)^{\circ}\text{C}$ and subsequently maintained in a wholesome condition at that temperature.

3.4 Freezer

Refrigerated facility capable of quick freezing carcass and meat cuts at $(- 40)^{\circ}\text{C}$ until the temperature of the thermal center of meat reaches $(- 18)^{\circ}\text{C}$.

3.5 Thermal center

The point within the product, which has highest temperature at the end of freezing.

3.6 Quick freezing

A freezing process carried out in such a way that zone of maximum crystallization [from $(-1)^{\circ}\text{C}$ to $(-5)^{\circ}\text{C}$] passed through quickly. The freezing is complete only when the temperature reaches $(- 18)^{\circ}\text{C}$ in the thermal center.

3.7 Drip percentage

The percentage by mass of fluid that comes out from the frozen meat during thawing.

4. Meat classes:

Meat classes shall comply with Gulf Standard mentioned in Item (2.12) .

5. Meat cuts:

Meat cuts shall comply with Gulf Standard mentioned in Item (2.12) .

6. Meat grades:

Meat grades shall comply with Gulf Standard mentioned in Item (2.12) .

7- Requirements:

The following requirements shall be met in chilled and frozen beef, buffalo, mutton and goat meat " ;

- 7.1 It should be confirmed by veterinary examination before and after slaughtering that it's free from infection and epidemic diseases, their stages and its toxic secretions.
- 7.2 It shall be produced from animals slaughtered according to Islamic Rules and completely bleeding in compliance with Gulf Standard mentioned in Item (2.14) .
- 7.3 It shall be produced from animals slaughtered in an authorized abattoir complying with Gulf Standards mentioned in Items (2.3), (2.10) .
- 7.4 It should be from places free from infection and epidemic diseases .
- 7.5 The carcass shall be eviscerated, and free from head, feet and kidneys fat. A part of the tail may be left to identify the animal type.
- 7.6 Meat preparation process should be carried out directly after slaughtering, and washing process shall be carried out with drinking water .
- 7.7 It shall be free from pig products and their derivatives.
- 7.8 It shall be free from any signs of spoilage such as colored spots and any signs of spoilage such as off odors.
- 7.9 It shall have all characteristics properties of the type, grade and class .
- 7.10 It shall have natural appearance and with distinguish color for fresh meat and free from any foreign odors .
- 7.11 Addition of preservatives, tenderizing agents, coloring materials, except the stamping ink, is not permitted.
- 7.12 Drip inside chilled meat package is not permitted .
- 7.13 Residues of hormones and antibiotics shall not exceed the maximum permissible levels according to the Gulf Standard mentioned in Item (2.19) .
- 7.14 Metallic elements contaminating shall not exceed the maximum permissible levels according to the Gulf Standard mentioned in Item (2.18) .
- 7.15 The total volatile nitrogen percent in the meat shall not be more than 20 mg/100 g calculated as nitrogen.
- 7.16 The proportion of fatty acids in the fat shall not be more than 1.2% by weight (as oleic acid).
- 7.17 PH value shall not exceed 6.2 .
- 7.18 Tiobarbitiuric acid content shall not exceed 0.09 mg/kg of the product .
- 7.19 Residues of pesticides in the product shall not exceed the maximum permissible levels according to the Gulf Standard mentioned in Item (2.6) .
- 7.20 Microbiological criteria shall not exceed the maximum permissible levels according to the Gulf Standard mentioned in Item (2.16) .
- 7.21 Radiation levels shall comply with Gulf Standard mentioned in Item (2.13) .

8- Chilled imported meat:

In addition the requirements mentioned in Item (7) the following characteristics shall be met:

- 8.1 It is forbidden to import meat from any country where there are epidemic diseases as defined in the quarantine rules of the Gulf country.
- 8.2 Import shall be restricted to mutton meat from animals having an age more than 3 years at slaughtering.
- 8.3 The imported meat shall be accompanied with a certificate (s) approved by the controlling authority of the country of origin and attested by the GSO country consulate or other approved authority certifying that slaughtering has been carried out in an authorized abattoir and according to Islamic Rules, the animals should not feeding with feed contains animal protein and that the animal has been inspected, within 12 hours before and immediately after slaughtering by an official veterinary inspector and it has been found sound, free from infectious diseases and fit for human consumption.
- The certificate shall indicate the following:
- Animal type, weight and age average.
 - Slaughtering date.
 - Description of the product, type of packaging and quality grade.
 - Country of origin.
- 8.4 There shall be no sign of vacuum decreasing in case of meat packed under vacuum or in the pressure of the gases in the case of packed in inert gas atmosphere.

9- Frozen imported meat:

In addition to what are mentioned in the item 7 frozenmeats shall meet the following:

- 9.1 Drip percentage in packaged chilled meat shall not exceed 4% by mass.
- 9.2 The pH of meat intended for under vacuum or in modified atmosphere packaging, shall be between 5.4 and 5.8.
- 9.3 There shall be no sign of vacuum decreasing in case of meat packed under vacuum or in the pressure of the gases in the case of packed in inert gas atmosphere.

9.4 Properties of frozen meat

In addition to what are mentioned in the item 7 frozenmeats shall meet the following:

- 9.4.1 Freezing shall be carried out within not more than 48 hours from slaughtering date.
- 9.4.2 The product shall have no sign of thawing, refreezing, contamination or mishandling.
- 9.4.3 The product shall be free from freezing burns

10. Sampling:

Samples shall be taken according to Gulf Standard mentioned in Item (2.7) .

11. Methods of examination and test:

The following tests shall be carried out on the representative sample taken according to Item (10) to ensure from complying the product with the Items of this Standard:

- 11.1 Determination of contaminating metallic elements shall be carried out according the Gulf Standard mentioned in Item (2.2) .
- 11.2 Physical tests shall be carried out according to Gulf Standard mentioned in Item (2.8) .
- 11.3 Microbiological tests shall be carried out according to Gulf Standard mentioned in Item (2.9) .
- 11.4 Determination of radiation levels shall be carried out according to Gulf Standard mentioned in Item (2.15) .
- 11.5 Determination of PH shall be carried out according to Gulf Standard mentioned in Item (2.17) .
- 11.6 Detection and determination of hormones and antibiotics residues shall be carried out according to Gulf Standards mentioned in Item (2.21.1) .
- 11.7 Detection of pork shall be carried out according to Gulf Standard mentioned in Item (2.21.2) .
- 11.8 Detection of lard shall be carried out according to Gulf Standard mentioned in Item (2.21.3) .

12. Packaging, transportation and storage:**12.1 Packaging:**

Without prejudice to what mentioned in Gulf Standard mentioned in Item (2.11), the following shall be considered:

- 12.1.1 Packaging and wrapping materials shall be strong, sound, and hygienic and shall not cause any alteration in meat properties. It shall not transfer any substances harmful to health or contaminate it with any undesirable material.
- 12.1.2 Wrapping and/or packaging shall be sufficient for full protection of carcass and meat cuts during transportation, storage and handling.
- 12.1.3 Carcasses and meat cuts shall be wrapped in suitable wrapping materials. The wraps shall be securely fastened.
- 12.1.4 Packages of meat packed under vacuum or under inert gas shall be air-tight and moisture tight.
- 12.1.5 Packages or, wraps shall not re-use in packaging or wrapping meat.
- 12.1.6 Packaging shall be carried out under cooling condition at temperature ranging from $(1\pm 0.5)^{\circ}\text{C}$.
- 12.1.7 Packages of meat packed under vacuum or air condition inert gas .
- 12.1.8 Packed meat cuts shall be from one kind of meat, and not allow packing different kinds of meat from different carcasses.

12.2 Transportation:

Without prejudice to what mentioned in Gulf Standards mentioned in Items (2.5, 2.10), the following shall be considered:

- 12.2.1 Transportation of chilled and frozen meat shall be carried out using transportation means equipped for this purpose. They shall be cleaned before loading and if necessary sanitized. They shall not be previously used for conveying live animals or any substances that affect meat properties.
- 12.2.2 The transportation means shall be equipped with a built-in device for measuring temperature, so as to give a reading representative of all the loading space. The device monitor shall be mounted in a place where it can be easily read without the need to open the door of the loading space, and it shall be provided with a recording thermometer.
- 12.2.3 Loading space shall be precooled time enough before loading. Loading and unloading operations shall be carried out as fast as possible. The cooling unit shall not be stopped during loading and unloading operations.
- 12.2.4 Transportation means shall be equipped for hanging chilled carcasses, sides and quarters or to place meat on suitable trays.
- 12.2.5 All surfaces which come into contact with meat during transportation shall be corrosion resistant, smooth and easy to clean and disinfect.
- 12.2.6 Transportation means for chilled meat shall be chilled during transportation at temperature ranging from $(1 \text{ and } 4)^{\circ}\text{C}$, it shall be cooled before loading and continuous of cooling during loading and discharge.
- 12.2.7 Transportation means shall protect meat from dust, insects and other sources of contamination.
- 12.2.8 Temperature of the frozen meat during transportation shall not exceed $(-18)^{\circ}\text{C}$.

12.3 Storage:

Without prejudice to what mentioned in Gulf Standard stated in Item (2.20) the following shall be considered:

- 12.3.1 Chilled meat temperature during storage shall be stored at internal temperature ranging from $(1 \pm 0.5)^{\circ}\text{C}$, either for cuts or carcasses, and left spaces to allow with good ventilation between chilled meats.
- 12.3.2 Frozen meat temperature during storage shall not exceed $(-18)^{\circ}\text{C}$.
- 12.3.3 The fluctuation in the temperature of the refrigerator or freezer shall not be more than $(\pm 2)^{\circ}\text{C}$.
- 12.3.4 Unpacked carcasses and cuts shall be hung or placed on suitable corrosion-resistant trays in a manner permitting adequate circulation of air around the meat and precludes drip from one piece falling on to any other piece. Meat shall not touch walls, ceilings or floors.
- 12.3.5 Amount of chilled and frozen meat in the refrigerator shall not exceed its designed capacity. The refrigerator shall be provided with thermometers for measuring and recording the storing temperature.

12.3.6 Control of chilling and freezing conditions:

- To ensure an adequate rate of temperature reduction in the meat, doors should not be left open for extended periods and they should be closed immediately after use. No refrigerated storage facility loaded beyond its designed capacity.
- If refrigerating and freezing equipment's are not manned, an automatic temperature recorder should be installed, or alternatively temperatures should be read at regular intervals and readings entered in a log book.
Condensation should be prevented.-
- Rooms should be kept clean and tidy.
- Refrigeration coils should be defrosted regularly to prevent excessive build-up of ice and loss of efficiency. Defrosting should be able to be carried out without affecting the product.
- Temperature, relative humidity and airflow should be maintained at a level suitable for the preservation of meat.

13- Labeling:

Without prejudice to what has been mentioned in Gulf Standards stated in Items (2.1, 2.4) the following shall be declared on the label of the product:

- 13.1 Meat which has been passed by the official veterinarian inspector as free from contagious diseases and fit for human consumption, shall be branded with a stamp containing the essential labeling according to the regulation in each GSO country such as meat type, date of slaughtering, code or municipality and quality grade (if the meat is quality graded).
- 13.2 The carcasses shall be stamped on each half-carcass, in the following places, at least: external surface of the thighs, loins, back, breast and shoulder.
- 13.3 Cuts obtained in the cutting plants from officially marked carcasses must be stamped, unless they are wrapped or packaged.
- 13.4 Packaged meat: the following shall be declared on the package:
- 13.4.1 Meat type, Name of the meat cut and fat content.
- 13.4.2 Quality grade (in case of grading meat according to quality).
- 13.4.3 Slaughtering date and expiry date (day- month- year).
- 13.4.4 Net weight when packed.

References:

Egyptian Standard
ES 3602: 2008
Chilled meat