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GCC STANDARIZATION ORGANIZATION (GSO)

Final Draft of Standard FDS

Prepared by GSO Technical Committee No. TC05

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Green Coffee Beans

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INTRODUCTION

The Standardization Organization of the Cooperation Council for the Arab States of the Gulf (GCC) is a regional body that includes in its membership the national standardization bodies in the member states. One of the tasks of the organization is to prepare Gulf standard specifications and technical regulations by specialized technical committees.

(Technical Council for the Board of Directors) The Standardization Organization for the Cooperation Council for the Arab States of the Gulf (GCC) has decided in its meeting No. held on / / , corresponding to / / , the adoption of the Gulf Technical Regulation No. (GSO .../.....) in (Arabic) which was studied and updated within the program of work of the Gulf Technical Committee No. TC05 “Gulf Technical Committee for Food and Agricultural Standards” included in the plan (Kingdom of Saudi Arabia).

Green Coffee Beans

1. SCOPE

This Gulf standard is concerned with green coffee beans destined for use as a raw material for human consumption.

2. COMPLEMENTARY REFERENCES

- 2.1 GSO 9 “Labelling of Prepackaged Foodstuff”
- 2.2 GSO 21 “Health Regulations of Food Factories and their Personnel”
- 2.3 GSO 382 “Maximum Limits of Pesticide Residues in Agricultural and Food Products”
- 2.4 GSO 193 “Contaminants and Toxins in Food”
- 2.5 GSO ISO 4072 “Green Coffee in Bags – Sampling”
- 2.6 GSO ISO 6666 “Coffee Triprs”
- 2.7 The Standard Specification to be approved by the Authority related to “Foodstuffs – Determination of Water Activity”.
- 2.8 GSO 839 “Food Packages – Part One: General Requirements”

3. DEFINITIONS

3.1 Green Coffee Bean:

Dry grains of the varieties resulting from the genus of the coffee plant (*Coffea*) after processing and peeling for use as raw materials, and includes the following varieties:

3.1.1 Coffea Arabica:

Coffee beans from the Arabica coffee plant variety (*Coffea arabica L.*).

3.1.2 Robusta Coffee:

Coffee beans produced from the cultivar of the coffee plant (*Coffea canephora Pierre ex A. Froehner*) with some other cultivars of this species.

3.1.3 Coffea Liberica:

Coffee beans produced from the cultivar of the coffee plant (*Coffea liberica Hiern*).

3.1.4 Excelsa Coffee:

Coffee beans produced from the cultivar of the coffee plant (*Coffea dewevrei De Wild and Durand var. excelsa chevalier*).

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3.1.5 *Arabusta Coffee:*

Coffee beans produced from various types of plants (*Coffea arabica* × *Coffea canephora* *Capot* and *Ake Assi*).

3.2 *Black Coffee Bean:*

A coffee bean with a black outer and inner surface and an area equal to half the bean or less.

3.3 *Sour Bean:*

Coffee beans, more than half of their surface, are dark brown or chestnut brown.

3.4 *Cherry/Pod Bean:*

Coffee beans covering the dried pulp part or all of the fruit cover (parchment) with the possibility of the presence of white spots or powdery residues, which indicates mold.

3.5 *Fungus Damaged Bean:*

Coffee beans which are caused by the growth of fungi at any point from harvesting to storage, which is affected by temperature and humidity.

3.6 *Insect Damaged Bean:*

Coffee beans damaged internally or externally by insects or infected with one or more live insects in any of their development stages, or dead insects or their parts.

3.7 *Parchment:*

Coffee beans partially or completely coated with a white or brown thick papery peel.

3.8 *Hull/Husk:*

Parts of the dry outer parchment of coffee fruits in a dark red color.

3.9 *Broken/Chipped Coffee Bean:*

Part of the coffee bean is equal to or more than half of the bean.

3.10 *Immature Bean (Quakers):*

Coffee beans which are green or gray in color, often with a wrinkled surface, as well as in the form of white spongy beans.

3.11 Withered Bean:

Coffee beans which are small in size and wrinkled like raisins.

3.12 Shell Bean:

Coffee beans which are in the shape of a seashell and consist of an inner or outer part, separately or together, and the inner part can be conical or cylindrical.

3.13 Floater Bean:

Coffee beans which are white and dull in color and are of low density and float on water.

3.14 Foreign Matter:

Any foreign substance in the product associated with undesirable conditions or practices in production, storage or distribution. It includes unwanted materials produced by insects, rodents, birds, decomposing materials and miscellaneous materials (such as stones, sticks, sand, soil, glass, rust, fabric (threads), packing bags, etc.). It also includes plant parts that are useless to raw plant materials (such as stems) or other foreign materials.

3.15 Contamination:

The presence of foreign substances in the product (such as impurities, hair, secretions, non-attacking insects, dust and machinery).

3.16 Defects:

Any beans that are different from green coffee beans.

3.17 Primary Defects:

Defects that contain completely black coffee beans, full acidity, pods/cherries, foreign matter, fungal damage, and severe insect damage shown in the attached Appendix (1).

3.18 Secondary Defects:

Defects that contain parchment, hull/husk, broken/chipped coffee beans, light insect damage, partly black, partly acidic, floater, shell, immature and withered as shown in Appendix (2).

4. DEGREE OF CLASSIFICATIONS

4.1 Grade 1:

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The number of complete defects in 350 grams of coffee beans shall not exceed 5 defects, primary defects are not allowed, immature coffee beans are not allowed as well, and the water activity shall not exceed 0.70 aw.

4.2 *Grade 2:*

The number of complete defects in 350 grams of coffee beans shall not exceed 8 defects, primary defects are allowed, and it is permissible to contain 3 unripe coffee beans.

4.3 *Grade 3:*

The number of complete defects in 350 grams of coffee beans is between 9 - 23, and a maximum number of 5 unripe coffee beans is allowed.

4.4 *Grade 4:*

The number of defects in 350 grams of coffee beans ranges between 24 - 86.

4.5 The number of recurrences that represent one complete defect as primary defects or secondary defects of different grades as shown in the following tables:

Table (1) – Primary Defects

Primary Defects	The number of recurrences that represent one complete defect
Completely Black	1
Full Acidity	1
Cherry/Pod	1
Foreign Matter	1
Fungus Damaged	1
Severe Insect Damage	5

Table (2) – Secondary Defects

Secondary Defects	The number of recurrences that represent one complete defect
Parchment	5
Hull/Husk	5
Broken/Chipped	5

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Light Insect Damage	10
Partly Black	3
Partly Acidic	3
Floater	5
Shell	5
Immature	5
Withered	5

5. REQUIREMENTS

Green coffee beans must meet the following requirements:

- 5.1 It shall retain its natural properties, free from rancidity or any foreign odors.
- 5.2 To be homogeneous in size and color.
- 5.3 It is not allowed to use natural or artificial colors for the purpose of changing the true color or hiding a defect.
- 5.4 Moisture content should not exceed 13% by weight.
- 5.5 To be produced in accordance with the Gulf Standard mentioned in Article (2.2).
- 5.6 The percentage of pesticide residues must not exceed the approved limits mentioned in the Gulf Standard in Article (2.3).
- 5.7 The percentage of pollutants and toxins in food must not exceed the approved limits mentioned in the Gulf Standard Specification in Article (2.4).
- 5.8 In the event that the classification of green coffee beans is written on the product card, proof of this must be submitted to the concerned authorities.
- 5.9 It is not permitted to import or trade green coffee beans that is less than the grade 4.

6. SAMPLING

Samples of green coffee beans mentioned in the Gulf Standard in Articles (2.5) and (2.6) may be drawn.

7. EXAMINATION AND TESTING METHODS

- 7.1 Moisture content can be estimated using hygrometers.
- 7.2 Grading can be done by sorting 350g of green coffee beans on a table at least 2 feet long by 2 feet wide (60 centimeters by 60 centimeters), placed on a black mat the same size as the table, the light level must be full

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spectrum and at least 4,000 Kelvin (K) / 1200 lux (lux) / 120 ft (fc) on table top and rug.

7.3 The level of water activity of the grade 1 class is determined according to the standard specification to be approved by the authority in Article (2.7).

8. PACKING, TRANSPORTATION AND STORAGE

- 8.1 Green coffee is packed in suitable packages according to the Gulf standard mentioned in Article (2.8).
- 8.2 The packaged product is transported in such a way as to protect it from contamination.
- 8.3 The packaged product shall be stored in clean, well-ventilated stores, away from sources of heat, moisture and harmful substances, preferably in dark colored packages or bags.

9. ILLUSTRATIVE DATA

Without prejudice to what is stated in the Gulf standard mentioned in Article (2.1), the following data must be indicated on each bag or package:

- 9.1 The name of the product which is "Green coffee beans".
- 9.2 The name of the variety according to Article (3.1).
- 9.3 In the case of writing the degree of classification, it must be in accordance with Article No. (4).
- 9.4 The treatment process that took place on it can be mentioned.

Table (1) – Primary Defects

Completely Black	Full Acidity	Cherry/Pod	Fungus Damaged	Severe Insect Damage	Foreign Matter
					

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Table (2) – Secondary Defects

Parchment	Hull/Husk	Broken/Chipped	Partly Black
Partly Acidic	Floater	Light Insect Damage	Shell
Immature	Withered		

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Appendix (3) - Indicative Form for Classifying Green Coffee Beans (Optional)

Green Coffee Beans Classification Model

Name of the Classifier:	Day and Date:
Type of Beans:	Sample No.:

Primary Defects	The Number of Recurrences That Represent One Complete Defect	Total Number of Defects	Secondary Defects	The Number of Recurrences That Represent One Complete Defect	Total Number of Defects
Completely Black			Parchment		
Full Acidity			Hull/Husk		
Cherry/Pod			Broken/Chipped		
Foreign Matter			Light Insect Damage		
Fungus Damaged			Partly Black		
Severe Insect Damage			Partly Acidic		
Total			Floater		
			Shell		
			Immature		
			Withered		
			Total		

Water Activity	
Parentage of Moisture %	

Degree of Classification: _____

Reference Lists:

- 1- Food and Agricultural Organization (FAO) – chapter 8 “Quality and export standards”.
- 2- Food and Agricultural Organization (FAO) – Annex 7 “Green Coffee Classification and Grading”.
- 3- Food and Agricultural Organization (FAO) – Annex 10 “Pictures”.
- 4- ISO 10470:2004(en) Green coffee – Defect reference chart.
- 5- ISO 3509:2005(en) Coffee and coffee products - Vocabulary.
- 6- Specialty Coffee Association - Coffee Standards.
- 7- Philippine National Standard - PNS 54: 2003 “Green coffee beans – Specification”.
- 8- Food and Drug Authority (FDA) - MPM: V-1. “Beverages and Beverage Materials”.