

**هيئة التقييس لدول مجلس التعاون لدول الخليج العربية**  
**STANDARDIZATION ORGANIZATION FOR G.C.C (GSO)**

**Final draft Standard**

**GSO 5/FDS 259/2014**

**CORN FLAKES**

**PREPARED BY**  
**Technical committee for food and agricultural products standards.**

This document is a draft Gulf standard circulated for comments and observations on them, so they are subject to change and switch, may not refer to it as a Gulf standard until approved by the Board of Directors of the Gulf.

**ICS:67.060**

## 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 Standard No.: GSO 259 "CORN FLAKES" The Draft Standard has been prepared by State of kuwait .

This standard has been approved as Gulf (Technical Regulation) by GSO Board of Directors in its meeting No..../.... .....held on / / / H , / / G

## **CORN FLAKES**

### **1- Scope and FLELD OF APPLICATION**

This standard is concerned with the requirements that must be met in corn flakes.

### **2- COMPLEMENTARY RERENCES**

- 2.1** GSO 9 " Labeling of prepackaged foods ".
- 2.2** GSO 382 & 383 “Maximum Limits of Pesticide Residues in Agricultural and Food Products – Part 1 & Part 2”.
- 2.3** GSO 258 “Methods of Test for Corn Flakes”.
- 2.4** GSO 1016 " Microbiological Criteria for foodstuffs – part 1 " .
- 2.5** GSO 150 " Expiration periods of food products " . .
- 2.6** GSO 841 " Maximum Limits of Mycotoxins Permitted In Food and Animal Feeds – Aflatoxins " .
- 2.7** GSO 20 " Methods for the determination of contaminating metallic elements in foodstuffs ".
- 2.8** GSO 2233 “Requirements of Nutritional Labeling”
- 2.9** GSO 995 “Sweeteners Permitted for use in food products”

### **3- DESCRIPTION**

**3.1** Plain corn flakes: An alimentary product prepared from clean and sound corn degermed grains (Zea mays/Maize Grains) and processed with or without

suitable flavouring agents, followed by cooking, flaking and drying, to a suitable degree.

**3.2** Coated corn flakes: An alimentary product conforming to what mentioned in 3.1. It is coated with permitted sweeteners as per GSO Standard mentioned in clause 2.9.

### **4- GENERAL REQUIREMENTS**

The following characteristics shall be met in corn flakes:

**4.1 Plain corn flakes**

- 4.1.1 It shall be flaky, crispy, and reasonable uniform in color with no burn ends.
- 4.1.2 It shall have characteristic taste and odour and shall be free from rancidity and undesirable odours and peroxide number should not exceed 15 ml. equivalent to active oxygen for each kilogram..
- 4.1.3 It shall be free from insects and their fragments, and from any other foreign matter.
- 4.1.4 Free from any fungal growth visually
- 4.1.5 It should be even in size with not more than 8% by weight of plain corn flakes shall pass through a woven-wire-cloth sieve of a 2 mm aperture.
- 4.1.6 Moisture content shall not be more than 6% by weight.
- 4.1.7 Total ash content (excluding sodium chloride) shall not be more than 1% on dry weight basis & in case of adding vitamins and / or minerals, total ash content (excluding sodium chloride & calcium salts) shall not be more than 2% on dry weight basis
- 4.1.8 Acid-insoluble ash shall not be more than 0.05% on dry weight basis.
- 4.1.9 Crude fibers shall not be more than 0.75% on dry weight basis.
- 4.1.10 Crude protein content (NX6.25) shall not be less than 6.6% on dry weight basis.
- 4.1.11 Sodium should not be more than 450 mg./100 gm. which means 1.125 gm. of salt/100 gm.
- 4.1.12 All materials used in manufacturing shall conform to the relevant GSO standards.
- 4.1.13 Microbiological limits shall be complied with the GSO Standards mentioned in clause. 2.4.
- 4.1.14 Contaminating minerals, shall not be more than the following limits:
  - Nitrate 200 PPM
  - Arsenic 0.25 PPM
  - Cadmium 0.10 PPM

Mercury 0.03 PPM

Lead 0.20 PPM

4.1.15 Pesticide residues content shall not be more than the limits permitted in accordance with the GSO standards 2.2 .

4.1.16 It is permitted to add the following food additives (per 100 g of the product):

- Vitamin A	0.8 mg
- Vitamin B <sub>1</sub> (Thiamine hydrochloride)	1.10 mg
- Vitamin B <sub>2</sub> (riboflavin)	1.4 mg
- Vitamin B <sub>6</sub> (Pyridoxine hydrochloride)	1.4 mg
- Vitamin B <sub>12</sub>	2.5 µg
- Niacin (Nicotinic acid)	16.0 mg
- Vitamin C (Ascorbic acid)	80 mg
- Vitamin E	12 mg
- Vitamin D	5 µg
Vitamin K	75 µg
- Calcium	800 mg
Zinc	10 mg
- Magnesium	375 mg
- Iron	14 mg
- Copper	1 mg
- Folic acid	200 µg
- Biotin	50 µg
Pantothenic Acid	6 mg

## 4.2 Coated corn flakes

4.2.1 It shall have the characteristics mentioned in 4.1 except 4.1.10.

4.2.2 The syrup used as a coating matter shall be made from sucrose, dextrose or corn syrup or honey or other similar non-artificial sweetening agents, or any combination thereof.

- 4.2.3 It is permitted to add dried fruits, Nuts , Cacao & Cacao products, flavoring agents and edible salt in plain & coated corn flakes in accordance with the conditions of good manufacturing practice.

## 5- SAMPLING

- 5.1 Samples shall be randomly taken according to Table (1). .
- 5.2 The package mentioned in the Table means the smallest package offered to the consumer in the market.
- 5.3 The total number in the Table means:  
Number of cartons in the batch x amount of packages in each carton.

Table (1)  
Number of packages taken as a representative sample  
from each batch contained in the consignment

Total number of packages in one batch of the consignment	Number of packages chosen from each batch
1 to 3	All packages
4 to 15	3
16 to 40	5
41 to 110	8
111 to 300	13
301 to 800	22
Above 800	32

## 6- PACKAGING

The following shall be met on packaging corn flakes:

Corn flakes shall be packed in clean, hygienic, suitable, sound hermetically-sealed, and moisture-proof packages so as not to affect the properties of the product.

## **7- TRANSPORTATION AND STORAGE**

### **7.1 Transportation**

Transportation shall be carried out in such a way as to protect packages from mechanical damage and contamination.

### **7.2 Storage**

The product shall be stored under hygienic conditions in well-ventilated stores and at a distance safe from heat, moisture and contamination sources.

## **8- LABELLING**

Without prejudice to the requirements mentioned in the GSO 09/2013 standard mentioned in 2.1, the following shall be declared on the container:

- 8.1 Product name & type (wheat, or rice or pulses or mixed, etc....)
- 8.2 List of ingredients in descending orders as per percentage.
- 8.3 Production & Expiry Date
- 8.4 Type and percentage of food additives.
- 8.5 Any information needed for product

## References

1- GSO 259/2014(مواصفة رقائق الذرة (كورن فليكس)

**CORN FLAKES**

2-Official Journal of the European Union

**COMMISSION REGULATION (EN) No 1881/2006**

**Setting maximum levels for certain contaminants in foodstuffs**

3-Official Journal of the European Union

**DIRECTIVES COMMISSION DIRECTIVE 2008/100/EC Of 28 October 2008**

**Amending Council Directive 90/496/EEC on nutrition labelling for foodstuffs as regards recommended daily allowances , energy conversion factors and definitions**

4-Official Journal of the European Union

**REGULATION (EC) No 1925/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL OF 20 December 2006 On the addition of Vitamins and certain other substances to foods**

5- الحبوب والبقول ومنتجاتها - رقائق الذرة

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**Cereals , Pulses and derived products – Corn flakes**