

Endorsement of Sudanese standardFortified flour

2011/4739

The technical committee of Grain, Legumes beans and its products and the Technical Committee for Food Additives and Contaminants, reference to article (7) from SSMO law 2008, the above-mentioned committees developed the Sudanese standard project to be presented to the general manager for his review and endorsement.

The technical committee of Grain, Legumes beans and its products

Name	Organization
Abdalmoniem Ibrahim	Faculty of Agriculture- University of Khartoum
Dr Hyatt Abdalrahman	Agriculture research center
Mamoun Osman Ahmed	Ministry of industry
Dr Elnazeer Ahmed	IRCC
Eltalib Eissa	Millers sector
Dr Thoria Elnajeeb Okasha	SSMO
Amira Mohamed Elhassan	SSMO

Technical Committee for Food Additives and Contaminants

	Name	Organization
1.	Khoagli Elnour	Faculty of Agriculture- University of Khartoum
2.	Dr Nurelhoda Abdalglail	Agriculture research center
3.	Dr Elzubair Drag	Laboratory and veterinary research center
4.	Dr Mohamed Elhassn	Private sector
5.	Dr MimonaMubarak	IRCC
6.	Maki Ali	Industrial administration
7.	Magada Ahmed	Aborgiala factory for meat industry
8.	Emad Sharief	SSMO
9.	Taiba Mohamed Osman	SSMO

Standard general manager..... Date 6/3/2011

I recommended endorsement of the standard

General manger: ..... Date: .....

Administration council :..... Date: .....

Minister: ..... Date .....

Standard Sudanese specification

Fortified wheat flour

2011/4793

## The Sudanese Standards and Metrology Organization (SSMO)

### **Introduction:**

The Sudanese Standards and Metrology Organization is a scientific and observatory authority that developed the national standards through technical national committee in collaboration with the relevant stakeholders.

This specification was prepared by The Sudanese Standards and Metrology Organization through collaborative work between the technical committee of Grain, Legumes beans and its products and the Technical Committee for Food Additives and Contaminants.

### **General Standards Administration**

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## 1. Scope

This is a fortified flour standards for human consumption

## 2. Definition

The fortified cereal flour is the flour that produced by mixing seeds of wheat, maize, corn, millet ...etc. that added to it vitamins, and minerals and other recommended nutritional elements from specialized bodies.

## 3. Conditions:

## 3.1. General conditions:

The general requirements of the below standards should be included in the fortified grain flour based on the flour type:

3.1.1. Sudanese standard specification for wheat flour number (037/2007).

3.1.2. Sudanese standard specification for maize flour number (2482/2008).

3.1.3. Sudanese standard specification for corn flour number (2483/2007).

3.1.4. Sudanese standard specification for millet flour number (3805/2007).

3.1.5. Any other Sudanese standards issued by the SSMO on any other grain.

## 3.2. Technical conditions:

3.2.1 in addition to the above standards in 1.3, the fortified flour should contain levels of nutrients to consider adding in case of using any of the following Fortificants in the below table:

Table of nutrient minerals and quantity: -

Nutrient	Flour extraction rate	Compound	Level of nutrient to be added in parts per million (ppm)
Iron	less than 80%	- NaFeEDTA	20
		- Ferrous Sulfate	30
		- Ferrous Fumarate	30
	- Electrolytic Iron	60	
	80% and more	NaFeEDTA	20
Folic acid	all extraction rate	Folic Acid	1.3
Vitamin B12	all extraction rate	Cyanocobalamin	0.01
Vitamin A	all extraction rate	Vitamin A Palmitate	1.5
Zinc	less than 80%	Zinc Oxide	40
	80% and more	Zinc Oxide	80

Note: The estimated levels of added vitamins and minerals based on individual flour consumption of 150-300 g/day

#### 4. Packing:

When packing of the fortified flour the packing materials must be sound and good and doesn't lead to food contamination and don't affect the healthy flour properties. Also, it must not affect the taste, color, smell and technological properties of flour.

#### 5. Illustrative data:

The packing must have the following information:

- 5.1. Product name and trade name (if exist)
- 5.2. Product name (fortified flour name)
- 5.3. Name and quantity of nutrient
- 5.4. production date (day-month-year).
- 5.5. Expiry date
- 5.6. net weight Kg

#### 6. Expiry date:

The expiration date of fortified flour is six months from production.

#### 7. Sampling:

The sampling must be according to the Sudanese standards on grinded cereal sampling (2007/489)

#### 8. Testing methodology:

- 8.1. Determination of Iron and Zinc according to the American Association of Cereal Chemists (AACC) number (40-75).
- 8.2. Determination of Folic Acid according to the Association of Official Analytical Chemists (AOAC) number 992.05.
- 8.3. Determination of Vit B<sub>12</sub> according to the Association of Official Analytical Chemists (AOAC) number 986.23.
- 8.4. Determination of Vit A according to the American Association of Cereal Chemists (AACC) number (60-86).

#### 9. Transportation:

- 9.1. The product must be transported in good conditions that prevented it from pests, environmental hazards, pollution and damage.
- 9.2. The transport vehicle must be clean and didn't use before in transportation of pesticide and or any other poisoning product.
- 9.3. The transport vehicle must not be used in transferring any subject that may change or affect the chemical and physical properties of the product.

#### 10. Storage:

The product must be stored in a well-ventilated, moisture-proof store that has never been stored with any health harmful substances and is safe as it protects the flour from damage by insects, cupping, other pests, moisture or heat.

## 11. Technical terminology

Fortified cereal flour	دقيق الغلال المدعم
Fortification Additives	مضافات التدعيم
Flour fortification rate	معدل استخلاص الدقيق
Pesticides	مبيدات الافات
insecticides	مبيدات الحشرات
NaFeEDTA	وابعي خلات الميثيلين ثنائي امين
Ferrous Sulfate	سلفات الحديدوز
Ferrous Fumarate	فيومرات الحديدوز
Electrolytic	الحديد الالكتروني
Folic Acid	حمض الفوليك
Vit B12	فيتامين ب 12
Vit A	فيتامين ا
Zinc	الزنك

## 12. References

- a. Recommendation on Wheat and Maize flour fortification (WHO-2009)
- b. American Association of Cereal Chemists (AACC/2000).
- c. Association of Official Analytical Chemists (AOAC).
- d. Sudanese standard specification for wheat flour number (037/2007).
- e. Sudanese standard specification for maize flour number (2482/2008).
- f. Sudanese standard specification for corn flour number (2483/2007).
- g. Sudanese standard specification for millet flour number (3805/2007).