

# SECTION II

## Food Commodity Fact Sheets

The Food Commodity Fact Sheets present useful information to providers and users of U.S. food aid under P.L. 480. The Sheets contain general information on use of the commodity in the P.L. 480 Program, data on the average nutritional values of commodities and formulae used in the P.L. 480 food aid programs, information on components, ingredients and specifications, and packaging and shelf life information from USDA. The information contained in these Fact Sheets is updated as new data becomes available and therefore represents the most current information available.

**The following Food Commodity Fact Sheets are available:**

- Beans, Black
- Beans, Blackeye (Cowpeas)
- Beans, Great Northern
- Beans, Kidney (Light Red, Dark Red, All types)
- Beans, Navy (Pea Beans)
- Beans, Pink
- Beans, Pinto
- Beans, Small Red
- Bulgur (BW)
- Bulgur, Soy Fortified (SFBW)
- Corn (bagged, bulk)
- Cornmeal
- Cornmeal, Soy Fortified (CMSF)
- Corn Soy Blend <sup>1</sup> (CSB)
- Corn Masa Flour
- Corn Soy Masa Flour, Instant
- Lentils
- Peas
- Rice (milled, non-parboiled, bagged, bulk)
- Rice (milled, parboiled, bagged, bulk)
- Sorghum (bagged, bulk)
- Sorghum, Soy Fortified Grits<sup>1</sup> (SFSG)
- Soybeans (bulk)
- Soybean Meal (bulk)
- Fortified Refined Vegetable Oil (Edible Vegoil)
- Wheat (bagged, bulk)
- Wheat Flour (all purpose flour [AP] and bread flour)
- Wheat Soy Blend (WSB)

<sup>1</sup> Commodity may require nutrient analysis in order to be complete; USDA nutrient data may not be appropriate for the commodity type used in the P.L. 480 Program.

The Food Commodity Fact Sheets are organized as follows:

## **1. NUTRITIONAL VALUES (per 100 g of Raw Commodity)**

Commodity proportions presented in the Nutritional Value tables are all for 100 g amounts of raw, non-cooked commodity. They were obtained from USDA Purchase Announcements dating from October 1997 through December 1, 1998. The USDA Nutrient Database for Standard Reference (Release 12: <http://www.nal.usda.gov/fnic/foodcomp>) was used to obtain nutritional data on each of the ingredient commodities except Small Red Beans, which was obtained from the National Dry Bean Council (NDBC), because there was no data in the USDA reference. Vitamin and mineral fortification amounts were obtained from the Purchase Announcements. Except for Corn Soy Blend (CSB) and Wheat Soy Blend (WSB), the commodities are enriched to restore vitamins and minerals lost in processing. Note that the definition of enrichment is the restoration of nutrients lost in food processing while fortification refers to the addition of nutrients. For CSB and WSB, the figures in the tables represent the total of the naturally occurring nutrients plus the fortification ingredients added. For all other commodities, the nutrient levels given in the tables approximate the naturally occurring nutrient levels in the food or formulation of foods making up the commodity. Where nutrient values were not available in the USDA Nutrient Database, “n/a” is listed in the nutrient tables.

## **2. COMPONENTS**

All Commodity Fact Sheets contain information on the components of the commodities and/or formulae. Descriptions of the commodities that were not considered to be a specification were included in this section. For example, bulgur is described as “cracked, debranned and partially precooked to lower final cooking time, reduce toughness and some of the crude fiber.”

## **3. SPECIFICATIONS**

Specifications included in this section were mostly obtained from USDA:FSA:PDD:EOB. (<http://www.fas.usda.gov/excredits/pl480/commodities/commlist.html>.) In cases where specifications from the Foreign Agriculture Service (FAS) web site were not available, specification information was obtained directly from the purchase announcements. It is important to note however, that the actual nutrient values in particular lots of food may vary from the exact values specified in the purchase announcements. Specifications in export purchase announcements are also subject to change periodically. The nutrient values given in the commodity fact sheets will be updated when these changes occur. Each commodity fact sheet also provides the source of the nutritional value information.

The section on specifications includes information, as appropriate, on the commodity class or grade, filth, fumigation, physical and chemical requirements of the finished product, and enrichment ingredients.

## **4. PACKAGING**

The information on packaging was obtained from the Export Operations Branch at the Procurement Donations Division of the Farm Services Agency of USDA during November 1998.

## **5. SHELF LIFE**

Shelf life data were obtained from the 1988 Commodity Fact Sheets and confirmed by USDA Export Operations Branch at the Procurement Donations Division of the Farm Services Agency (of USDA

USDA/FSA/EOD/PPD) during November 1998. Refer to “Section III: Storage/Shelf Life Specifications” for more information.

# Beans, Black

This unprocessed commodity is used as a protein source in all categories of programs. Local tastes and preferences differ. U.S. dry beans come in many varieties with different size, color and taste characteristics. When ordering, please specify Black Bean and any alternates that are culturally acceptable.

## 1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S. Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database, Release 12, Laboratory Home Page, (<http://www.nal.usda.gov/fnic/foodcomp>). These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values.

## 2. COMPONENTS

100% Black Beans

## 3. SPECIFICATIONS

Black Beans shall be grade U.S. No. 2 or better. Beans may include up to 5 percent total defects due to surface dirt which is readily removed during processing, and shall meet the specifications for the class(es) of beans listed in the "U.S. Standards for Beans."

(Source: USDA :FSA:PDD:EOB December, 1997.

Contact 202-690-3565.

<http://www.fas.usda.gov/excredits/pl480/commodities/peabeans.htm>)

## 4. PACKAGING

50-kg (110.23 lb.) woven polypropylene bags. This fabric contains an inhibitor to resist ultra-violet absorption along with an anti-skid coating.

## 5. SHELF LIFE

At least one year. Dry beans will keep indefinitely if stored in a dry place. Cooking time will increase as beans age beyond one year. See "Section III: Storage/Shelf Life Specifications" for more information.

Nutrient	Amount	Unit
Water	11.02	g
Energy	341.0	Kcal
Protein	21.6	g
Total Lipid	1.42	g
Carbohydrate	62.37	g
Fiber, total dietary	15.2	g
Ash	3.6	g
Calcium	123.0	mg
Iron	5.02	mg
Magnesium	171	mg
Phosphorus	352	mg
Potassium	1483	mg
Sodium	5.0	mg
Zinc	3.6	mg
Copper	0.841	mg
Manganese	1.06	mg
Selenium	3.2	mcg
Vitamin C	0.0	mg
Thiamin	0.8	mg
Riboflavin	0.193	mg
Niacin	1.955	mg
Pantothenic acid	0.899	mg
Vitamin B-6	0.286	mg
Folate	444.3	mcg
Vitamin B-12	0.0	mcg
Vitamin A	17.0	IU
Vitamin E	n/a	mg-ATE
Vitamin D	n/a	IU
Iodine	n/a	mcg

# Beans, Blackeye

## (Cowpeas)

These unprocessed commodities are used as protein sources in all categories of programs. Local tastes and preferences differ. U.S. dry beans come in many varieties with different size, color and taste characteristics. Please specify Blackeye Bean and any alternates that are culturally acceptable.

### 1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S. Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database, Release 12, Laboratory Home Page, (<http://www.nal.usda.gov/fnic/foodcomp>). These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values.

### 2. COMPONENTS

100% Pea Beans (Blackeye Beans, Cowpeas)

### 3. SPECIFICATIONS

Blackeye Beans (Cowpeas) shall be grade U.S. No. 2 or better but shall contain no more than 5 percent of beans with surface dirt which is readily removed during processing and shall meet the specifications for the class(es) of beans listed in the "U.S. Standards for Beans."

(Source: USDA :FSA:PDD:EOB December, 1997.

Contact 202-690-3565)

<http://www.fas.usda.gov/excredits/pl480/commodities/peabeans.htm>)

### 4. PACKAGING

50 kg (110.23 lb.) woven polypropylene bags. This fabric contains an inhibitor to resist ultra-violet absorption along with an anti-skid coating.

### 5. SHELF LIFE

At least one year. Dry beans will keep indefinitely if stored in a dry place. Cooking time will increase as beans age beyond one year. See "Section III: Storage/Shelf Life Specifications" for more information.

Nutrient	Amount	Unit
Water	11.95	g
Energy	336.0	Kcal
Protein	23.52	g
Total Lipid	1.26	g
Carbohydrate	60.03	g
Fiber, total dietary	10.6	g
Ash	3.24	g
Calcium	110.0	mg
Iron	8.27	mg
Magnesium	184.0	mg
Phosphorus	424.0	mg
Potassium	1112.0	mg
Sodium	16.0	mg
Zinc	3.37	mg
Copper	0.845	mg
Manganese	1.528	mg
Selenium	9.0	mcg
Vitamin C	1.5	mg
Thiamin	0.853	mg
Riboflavin	0.226	mg
Niacin	2.075	mg
Pantothenic acid	1.496	mg
Vitamin B-6	0.357	mg
Folate	632.6	mcg
Vitamin B-12	0.0	mcg
Vitamin A	50.0	IU
Vitamin E	n/a	mg-ATE
Vitamin D	n/a	IU
Iodine	n/a	mcg

# Beans, Great Northern

This unprocessed commodity is used as a protein source in all categories of programs. Local tastes and preferences differ. U.S. dry beans come in many varieties with different size, color and taste characteristics. When ordering, please specify Great Northern Bean and any alternates that are culturally acceptable.

## 1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S. Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database, Release 12, Laboratory Home Page, (<http://www.nal.usda.gov/fnic/foodcomp>). These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values.

## 2. COMPONENTS

100% Great Northern Beans

## 3. SPECIFICATIONS

Great Northern Beans shall be grade U.S. No. 2 or better. Beans may include up to 5 percent total defects due to surface dirt which is readily removed during processing; and shall meet the specifications for the class(es) of beans listed in the "U.S. Standards for Beans."

(Source: USDA :FSA:PDD:EOB December, 1997.

Contact 202-690-3565)

<http://www.fas.usda.gov/excredits/pl480/commodities/peabeans.htm>)

## 4. PACKAGING

50-kg (110.23 lb.) woven polypropylene bags. This fabric contains an inhibitor to resist ultra-violet absorption along with an anti-skid coating.

## 5. SHELF LIFE

At least one year. Dry beans will keep indefinitely if stored in a dry place. Cooking time will increase as beans age beyond one year. See "Section III: Storage/Shelf Life Specifications" for more information.

Nutrient	Amount	Unit
Water	10.7	g
Energy	339.0	Kcal
Protein	21.86	g
Total Lipid	1.14	g
Carbohydrate	62.37	g
Fiber, total dietary	20.2	g
Ash	3.93	g
Calcium	175.0	mg
Iron	5.47	mg
Magnesium	189.0	mg
Phosphorus	447.0	mg
Potassium	1387.0	mg
Sodium	14.0	mg
Zinc	2.31	mg
Copper	0.837	mg
Manganese	1.423	mg
Selenium	12.9	mcg
Vitamin C	5.3	mg
Thiamin	0.653	mg
Riboflavin	0.237	mg
Niacin	1.955	mg
Pantothenic acid	1.098	mg
Vitamin B-6	0.447	mg
Folate	482.0	mcg
Vitamin B-12	0.0	mcg
Vitamin A	3.0	IU
Vitamin E	n/a	mg-ATE
Vitamin D	n/a	IU
Iodine	n/a	mcg

# Beans, Kidney

## (Light, Dark, All types)

This unprocessed commodity is used as a protein source in all categories of programs. Local tastes and preferences differ. U.S. dry beans come in many varieties with different size, color and taste characteristics. When ordering, please specify Kidney Bean (including color and size) and any alternates that are culturally acceptable.

### 1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S. Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database, Release 12, Laboratory Home Page, (<http://www.nal.usda.gov/fnic/foodcomp>).

These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values.

### 2. COMPONENTS

100% Kidney Beans (All types)

### 3. SPECIFICATIONS

Kidney Beans shall be grade U.S. No. 2 or better. Beans may include up to 5 percent total defects due to surface dirt which is readily removed during processing, and shall meet the specifications for the class(es) of beans listed in the "U.S. Standards for Beans."

(Source: USDA :FSA:PDD:EOB December, 1997.

Contact 202-690-3565)

<http://www.fas.usda.gov/excredits/pl480/commodities/peabeans.htm>)

### 4. PACKAGING

50 kg (110.23 lb.) woven polypropylene bags. This fabric contains an inhibitor to resist ultra-violet absorption along with an anti-skid coating.

### 5. SHELF LIFE

At least one year. Dry beans will keep indefinitely if stored in a dry place. Cooking time will increase as beans age beyond one year. See "Section III: Storage/Shelf Life Specifications" for more information.

Nutrient	Amount	Unit
Water	11.75	g
Energy	333.0	Kcal
Protein	23.58	g
Total Lipid	0.83	g
Carbohydrate	60.01	g
Fiber, total dietary	24.9	g
Ash	3.83	g
Calcium	143.0	mg
Iron	8.2	mg
Magnesium	140.0	mg
Phosphorus	407.0	mg
Potassium	1406.0	mg
Sodium	24.0	mg
Zinc	2.79	mg
Copper	0.958	mg
Manganese	1.021	mg
Selenium	3.2	mcg
Vitamin C	4.5	mg
Thiamin	0.529	mg
Riboflavin	0.219	mg
Niacin	2.06	mg
Pantothenic acid	0.78	mg
Vitamin B-6	0.397	mg
Folate	394.1	mcg
Vitamin B-12	0.0	mcg
Vitamin A	8.0	IU
Vitamin E	n/a	mg-ATE
Vitamin D	n/a	IU
Iodine	n/a	mcg

# Beans, Navy

## (Pea Beans)

This unprocessed commodity is used as a protein source in all categories of programs. Local tastes and preferences differ. U.S. dry beans come in many varieties with different size, color and taste characteristics. When ordering, please specify Navy Bean and any alternates that are culturally acceptable.

### 1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S. Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database, Release 12, Laboratory Home Page, (<http://www.nal.usda.gov/fnic/foodcomp>).

These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values.

### 2. COMPONENTS

100% Navy Beans

### 3. SPECIFICATIONS

Navy Beans shall be grade U.S. No. 2 or better. Beans may include up to 5 percent total defects due to surface dirt which is readily removed during processing, and shall meet the specifications for the class(es) of beans listed in the "U.S. Standards for Beans."

(Source: USDA:FSA:PDD:EOB December, 1997.

Contact 202-690-3565

<http://www.fas.usda.gov/excredits/pl480/commodities/peabeans.htm>)

### 4. PACKAGING

50 kg (110.23 lb.) woven polypropylene bags. This fabric contains an inhibitor to resist ultra-violet absorption along with an anti-skid coating.

### 5. SHELF LIFE

At least one year. Dry beans will keep indefinitely if stored in a dry place. Cooking time will increase as beans age beyond one year. See "Section III: Storage/Shelf Life Specifications" for more information.

Nutrient	Amount	Unit
Water	12.36	g
Energy	335.0	Kcal
Protein	22.33	g
Total Lipid	1.28	g
Carbohydrate	60.65	g
Fiber, total dietary	24.4	g
Ash	3.37	g
Calcium	155.0	mg
Iron	6.44	mg
Magnesium	173.0	mg
Phosphorus	443.0	mg
Potassium	1140.0	mg
Sodium	14.0	mg
Zinc	2.54	mg
Copper	0.879	mg
Manganese	1.309	mg
Selenium	11	mcg
Vitamin C	3.0	mg
Thiamin	0.645	mg
Riboflavin	0.232	mg
Niacin	2.063	mg
Pantothenic acid	0.68	mg
Vitamin B-6	0.437	mg
Folate	369.7	mcg
Vitamin B-12	0.0	mcg
Vitamin A	4.0	IU
Vitamin E	0.44	mg-ATE
Vitamin D	n/a	IU
Iodine	n/a	mcg

# Beans, Pink

This unprocessed commodity is used as a protein source in all categories of programs. Local tastes and preferences differ. U.S. dry beans come in many varieties with different size, color and taste characteristics. When ordering, please specify Pink Bean and any alternates that are culturally acceptable.

## 1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S. Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database, Release 12, Laboratory Home Page, (<http://www.nal.usda.gov/fnic/foodcomp>). These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values.

## 2. COMPONENTS

100% Pink Beans

## 3. SPECIFICATIONS

Pink Beans shall grade U.S. No. 2 or better. Beans may include up to 5 percent total defects due to surface dirt which is readily removed during processing, and shall meet the specifications for the class(es) of beans listed in the "U.S. Standards for Beans."

(Source: USDA :FSA:PDD:EOB December, 1997.

Contact 202-690-3565)

<http://www.fas.usda.gov/excredits/pl480/commodities/peabeans.htm>)

## 4. PACKAGING

50 kg (110.23 lb.) woven polypropylene bags. This fabric contains an inhibitor to resist ultra-violet absorption along with an anti-skid coating.

## 5. SHELF LIFE

At least one year. Dry beans will keep indefinitely if stored in a dry place. Cooking time will increase as beans age beyond one year. See "Section III: Storage/Shelf Life Specifications" for more information.

Nutrient	Amount	Unit
Water	10.06	g
Energy	343.0	Kcal
Protein	20.96	g
Total Lipid	1.13	g
Carbohydrate	64.19	g
Fiber, total dietary	12.7	g
Ash	3.66	g
Calcium	130.0	mg
Iron	6.77	mg
Magnesium	182.0	mg
Phosphorus	415.0	mg
Potassium	1464.0	mg
Sodium	8.0	mg
Zinc	2.55	mg
Copper	0.81	mg
Manganese	1.376	mg
Selenium	13.0	mcg
Vitamin C	0.0	mg
Thiamin	0.772	mg
Riboflavin	0.192	mg
Niacin	1.892	mg
Pantothenic acid	0.997	mg
Vitamin B-6	0.527	mg
Folate	463.2	mcg
Vitamin B-12	0.0	mcg
Vitamin A	0.0	IU
Vitamin E	0.1	mg-ATE
Vitamin D	n/a	IU
Iodine	n/a	mcg

# Beans, Pinto

This unprocessed commodity is used as a protein source in all categories of programs. Local tastes and preferences differ. U.S. dry beans come in many varieties with different size, color and taste characteristics. When ordering, please specify Pinto Bean and any alternates that are culturally acceptable.

## 1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S. Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database, Release 12, Laboratory Home Page, (<http://www.nal.usda.gov/fnic/foodcomp>). These nutrient values are provided as a guide for use in the calculation of food aid rations; users should realize food aid shipments may vary from these exact nutrient values.

## 2. COMPONENTS

100% Pinto Beans

## 3. SPECIFICATIONS

Pinto Beans shall be grade U.S. No. 2 or better. Beans may include up to 5 percent total defects due to surface dirt which is readily removed during processing, and shall meet the specifications for the class(es) of beans listed in the "U.S. Standards for Beans."

(Source: USDA :FSA:PDD:EOB December, 1997.

Contact 202-690-3565)

<http://www.fas.usda.gov/excredits/pl480/commodities/peabeans.htm>

## 4. PACKAGING

50 kg (110.23 lb.) woven polypropylene bags. This fabric contains an inhibitor to resist ultra-violet absorption along with an anti-skid coating.

## 5. SHELF LIFE

At least one year. Dry beans will keep indefinitely if stored in a dry place. Cooking time will increase as beans age beyond one year. See "Section III: Storage/Shelf Life Specifications" for more information.

Nutrient	Amount	Unit
Water	10.95	g
Energy	340.0	Kcal
Protein	20.88	g
Total Lipid	1.13	g
Carbohydrate	63.41	g
Fiber, total dietary	24.4	g
Ash	3.63	g
Calcium	121.0	mg
Iron	5.88	mg
Magnesium	159.0	mg
Phosphorus	418.0	mg
Potassium	1328.0	mg
Sodium	10.0	mg
Zinc	2.54	mg
Copper	0.774	mg
Manganese	1.13	mg
Selenium	18.5	mcg
Vitamin C	7.3	mg
Thiamin	0.555	mg
Riboflavin	0.238	mg
Niacin	1.446	mg
Pantothenic acid	0.763	mg
Vitamin B-6	0.443	mg
Folate	506.3	mcg
Vitamin B-12	0.0	mcg
Vitamin A	5.0	IU
Vitamin E	0.21	mg-ATE
Vitamin D	n/a	IU
Iodine	n/a	mcg

# Beans, Small Red

This unprocessed commodity is used as a protein source in all categories of programs. Local tastes and preferences differ. U.S. dry beans come in many varieties with different size, color and taste characteristics. When ordering, please specify Small Red Bean and any alternates that are culturally acceptable.

## 1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S. Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database, Release 12, Laboratory Home Page, (<http://www.nal.usda.gov/fnic/foodcomp>). These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values.

## 2. COMPONENTS

100% Small Red Beans

## 3. SPECIFICATIONS

Small Red Beans shall be grade U.S. No. 2 or better. Beans may include up to 5 percent total defects due to surface dirt which is readily removed during processing, and shall meet the specifications for the class(es) of beans listed in the "U.S. Standards for Beans."

(Source: USDA :FSA:PDD:EOB December, 1997.

Contact 202-690-3565)

<http://www.fas.usda.gov/excredits/pl480/commodities/peabeans.htm>

## 4. PACKAGING

50 kg (110.23 lb.) woven polypropylene bags. This fabric contains an inhibitor to resist ultra-violet absorption along with an anti-skid coating.

## 5. SHELF LIFE

At least one year. Dry beans will keep indefinitely if stored in a dry place. Cooking time will increase as beans age beyond one year. See "Section III: Storage/Shelf Life Specifications" for more information.

Nutrient	Amount	Unit
Water	Max 18%	g
Energy	350.0	Kcal
Protein	22.0	g
Total Lipid	1.0	g
Carbohydrate	62.0	g
Fiber, total dietary	9.0	g
Ash	n/a	g
Calcium	150.0	mg
Iron	7.0	mg
Magnesium	200.0	mg
Phosphorus	450.0	mg
Potassium	1450.0	mg
Sodium	18.0	mg
Zinc	3.0	mg
Copper	7.0	mg
Manganese	0.8	mg
Selenium	n/a	mcg
Vitamin C	n/a	mg
Thiamin	0.7	mg
Riboflavin	0.2	mg
Niacin	2.2	mg
Pantothenic acid	0.750	mg
Vitamin B-6	0.250	mg
Folate	0.250	mcg
Vitamin B-12	n/a	mcg
Vitamin A	n/a	IU
Vitamin E	n/a	mg-ATE
Vitamin D	n/a	IU
Iodine	n/a	mcg

# Bulgur

This processed commodity is generally used as a staple food for all categories of programs. Bulgur is cracked, debranned, and partially precooked to lower final cooking time, reduce toughness and some of the crude fiber.

## 1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S. Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database Laboratory Home Page, Release 12, (<http://www.nal.usda.gov/fnic/foodcomp>) These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values.

The values for thiamin, riboflavin, niacin, vitamin A, calcium and iron represent the minimum levels of enrichment nutrients (converted to a 100 g basis) as listed in Specifications below.

## 2. COMPONENTS

100% Whole Wheat

## 3. SPECIFICATIONS

The bulgur shall be milled from wheat of any of the classes defined in the "Official Grain Standards of the United States," for wheat except red durum wheat or mixtures of wheat of contrasting classes.

Nutrient	Amount	Unit
Water	9.0	g
Energy	342.0	Kcal
Protein	12.3	g
Total Lipid	1.3	g
Carbohydrate	75.9	g
Fiber, total dietary	18.3	g
Ash	1.5	g
Calcium	110	mg
Iron	2.90	mg
Magnesium	164	mg
Phosphorus	300	mg
Potassium	410	mg
Sodium	17.0	mg
Zinc	1.9	mg
Copper	0.3	mg
Manganese	3.0	mg
Selenium	2	mcg
Vitamin C	0	mg
Thiamin	0.44	mg
Riboflavin	0.26	mg
Niacin	3.53	mg
Pantothenic acid	1.0	mg
Vitamin B-6	0.3	mg
Folate	150	mcg
Vitamin B-12	0	mcg
Vitamin A	2205	IU
Vitamin E	0.2	mg-ATE
Vitamin D	n/a	IU
Iodine	n/a	mcg

**CHEMICAL AND PHYSICAL REQUIREMENTS**

ITEM	REQUIREMENT <sup>1</sup>	
	Minimum	Maximum
Moisture	--	11.5
Protein (Nx5.7), % <sup>2</sup>	9.3	--
Crude Fiber, % <sup>2</sup>	--	2.3
Ash, % <sup>2</sup>	--	3 <sup>3</sup>
Foreign Material:		
Other grains except wheat, %	--	0.10
Material except other grains, % <sup>4</sup>	--	0.10
Scorched particles (whole or pieces of kernels), %	--	0.20
Ungelatinized particles (whole or pieces of kernels), %	--	1.0
Whole processed kernels remaining on woven-wire-cloth sieve, %	--	4.0
Material that will pass through U.S. Standard No. 8 woven-wire-cloth sieve, %	80	--
Material that will pass through U.S. Standard No. 14 woven-wire-cloth sieve, %	--	18
Material that will pass through U.S. Standard No. 30 woven-wire-cloth sieve, %	--	0.9

<sup>1</sup> All percentages are on the basis of weight.

<sup>2</sup> These limiting factors are on a moisture-free basis.

<sup>3</sup> Prior to calcium enrichment, Bulgur may not have an ash content exceeding 2.0% on a moisture free basis.

<sup>4</sup> Including grain hulls either attached or detached. However, any hulls attached to product should be detached before inclusion in the hull fraction.

ENRICHMENT INGREDIENTS	Minimum	Maximum
Thiamine, mg/lb.	2.0	3.0
Riboflavin, mg/lb.	1.2	1.8
Niacin or niacinamide, mg/lb.	16.0	24.0
Vitamin A Palmitate, IU/lb.	10,000	12,000
Calcium (in harmless and assimilable form), mg/lb.	500	750
Iron (reduced iron, 325 mesh, to be used as the iron source), mg/lb.	13.0	26.0

(Source: USDA :FSA:PDD:EOB April, 1996. Contact 202-690-3565  
<http://www.fas.usda.gov/excredits/pl480/commodities/bulgar.htm>)

**4. PACKAGING**

50 kg (110.23 lb.) bags made of woven polypropylene. This fabric contains an inhibitor to resist ultra-violet absorption along with an anti-skid coating.

**5. SHELF LIFE**

At least one year. See "Section III: Storage/Shelf Life Specifications" for more information.

# Bulgur, Soy-Fortified

This processed commodity is generally used as a staple food for all categories of programs. Bulgur is cracked, debranned, and partially precooked to lower final cooking time, reduce toughness and some of the crude fiber.

## 1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S. Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database, Release 12, Laboratory Home Page, (<http://www.nal.usda.gov/fnic/foodcomp>) These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values. The values for thiamin, riboflavin, niacin, vitamin A, calcium and iron represent the minimum levels of enrichment nutrients (converted to a 100 g basis) as listed in Specifications below.

## 2. COMPONENTS

85% Bulgur Milled from any classes of wheat defined in the "official grain standard of the United States." Cracked, debranned.

15% Soy grits Defatted, toasted, or expeller processed.

## 3. SPECIFICATIONS

(See Table next page.)

Nutrient	Amount	Unit
Water	8.7	g
Energy	339.8	Kcal
Protein	18.2	g
Total Lipid	1.3	g
Carbohydrate	69.6	g
Fiber, total dietary	18.18	g
Ash	2.2	g
Calcium	110	mg
Iron	2.90	mg
Magnesium	182.90	mg
Phosphorus	356	mg
Potassium	706	mg
Sodium	17.5	mg
Zinc	2.0	mg
Copper	0.9	mg
Manganese	3.0	mg
Selenium	2	mcg
Vitamin C	0	mg
Thiamin	0.44	mg
Riboflavin	0.26	mg
Niacin	3.53	mg
Pantothenic acid	1.2	mg
Vitamin B-6	0.4	mg
Folate	150	mcg
Vitamin B-12	0	mcg
Vitamin A	2205.00	IU
Vitamin E	0.1	mg-ATE
Vitamin D	n/a	IU
Iodine	n/a	mcg

**CHEMICAL AND PHYSICAL REQUIREMENTS (FINISHED PRODUCT)**

ITEM	REQUIREMENT <sup>1</sup>	
	Minimum	Maximum
Moisture, %	--	11.5
Protein (Nx6.25), % <sup>2</sup>	17.3	--
Crude Fat <sup>2</sup>	--	2.6
Ash, % <sup>2</sup>	--	<sup>3</sup>
Crude Fiber, % <sup>2</sup>	--	2.6
Total Bacteria Count per gram	--	50,000
Foreign Material: Other grains except wheat and soy grits, %	--	0.10
Materials other than cereal grains or soy grits, % <sup>4</sup>	--	0.10
Scorched particles (whole kernels and/or pieces of kernels of wheat or soy), %	--	0.20
Ungelatinized wheat particles (whole kernels and/or pieces of kernels), %	--	0.9
Whole processed kernels remaining on U.S. Standard No. 8 woven-wire-cloth sieve, %	--	3.5
Material that will pass through U.S. Standard No. 8 woven-wire-cloth sieve, %	81	--
Material that will pass through U.S. Standard No. 14 woven-wire-cloth sieve, %	--	23
Material that will pass through U.S. Standard No. 30 woven-wire-cloth sieve, %	--	1.2

<sup>1</sup> All percentages are on the basis of weight.

<sup>2</sup> These limiting factors are on a moisture-free basis.

<sup>3</sup> For maximum ash see table on "Maximum Ash Allowable Without Discount at Specified Calcium Levels" in USDA Specifications

<sup>4</sup> Including grain hulls either attached or detached. However, any hulls attached to product should be detached before inclusion in the hull fraction.

(Source: USDA :FSA:PDD:EOB February 12, 1998. Contact 202-690-3565;

BWSF7: PURCHASE OF BULGUR/SOY-FORTIFIED BULGUR FOR USE IN EXPORT PROGRAMS – SPECIFICATIONS)

**4. PACKAGING**

50 kg (110.23 lb.) bags of woven polypropylene. This fabric contains an inhibitor to resist ultra-violet absorption along with an anti-skid coating.

**5. SHELF LIFE**

At least one year. See "Section III: Storage/Shelf Life Specifications" for more information.

# Corn

This unprocessed whole grain is used primarily for distribution in emergency situations and to a lesser extent in Food for Work (FFW) and Maternal and Child Health (MCH) programs.

## 1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S.

Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database Laboratory Home Page, Release 12,

(<http://www.nal.usda.gov/fnic/foodcomp>). These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values.

## 2. COMPONENTS

100% Yellow Corn

## 3. SPECIFICATIONS

Class: Yellow  
Grade: No. 2 or better  
Moisture (Max.): 14.5%  
Test weight (Min.): 54.0 lbs./bu.

(Source: USDA :FSA:PDD:EOB April, 1996.

Contact 202-690-3565

<http://www.fas.usda.gov/excredits/pl480/commodities/corn.htm>)

## 4. PACKAGING

50 kg (110.23 lb.) bags of woven polypropylene. This fabric contains an inhibitor to resist ultra-violet absorption along with an anti-skid coating.

## 5. SHELF LIFE

At least one year. See "Section III: Storage/Shelf Life Specifications" for more information.

Nutrient	Amount	Unit
Water	10.3	g
Energy	365.0	Kcal
Protein	9.4	g
Total Lipid	4.7	g
Carbohydrate	74.3	g
Fiber, total dietary	n/a	g
Ash	1.2	g
Calcium	7	mg
Iron	2.71	mg
Magnesium	127	mg
Phosphorus	210	mg
Potassium	287	mg
Sodium	35.0	mg
Zinc	2.2	mg
Copper	0.3	mg
Manganese	0.5	mg
Selenium	16	mcg
Vitamin C	0	mg
Thiamin	0.39	mg
Riboflavin	0.20	mg
Niacin	3.63	mg
Pantothenic acid	0.4	mg
Vitamin B-6	0.6	mg
Folate	19	mcg
Vitamin B-12	0	mcg
Vitamin A	469	IU
Vitamin E	0.8	mg-ATE
Vitamin D	n/a	IU
Iodine	n/a	mcg

# Cornmeal

This processed commodity is generally used as a staple food in all categories of programs.

## 1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S.

Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database Laboratory Home Page, Release 12,

(<http://www.nal.usda.gov/fnic/foodcomp>). These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values.

The values for thiamin, riboflavin, niacin, vitamin A, calcium and iron represent the minimum levels of enrichment nutrients (converted to a 100 g basis) as listed in Specifications below.

## 2. COMPONENTS

100% Yellow Corn, shelled, dehulled and degermed to reduce susceptibility to rancidity.

## 3. SPECIFICATIONS

Per Federal Specification NC-521E (March 3, 1970), Cornmeal will be enriched to contain: 2.0 to 3.0 mg/lb thiamin; 1.2 to 1.8 mg/lb riboflavin; 16.0 to 24.0 mg/lb niacin or niacinamide; 13.0 to 26.0 mg/lb iron; and 750 mg/lb calcium.

(See Table next page)

## 4. PACKAGING

25 kg (55 lbs.) bags of multi-wall paper. Three plies of paper (minimum) with an inner polyethylene or polypropylene plastic liner. The outer paper ply is treated to provide wet strength.

Nutrient	Amount	Unit
Water	11.6	g
Energy	366.0	Kcal
Protein	8.5	g
Total Lipid	1.7	g
Carbohydrate	77.7	g
Fiber, total dietary	7.4	g
Ash	0.6	g
Calcium	110	mg
Iron	2.90	mg
Magnesium	40	mg
Phosphorus	84	mg
Potassium	162	mg
Sodium	3.0	mg
Zinc	0.7	mg
Copper	0.1	mg
Manganese	0.1	mg
Selenium	8	mccg
Vitamin C	0	mg
Thiamin	0.44	mg
Riboflavin	0.26	mg
Niacin	3.53	mg
Pantothenic acid	0.3	mg
Vitamin B-6	0.3	mg
Folate	150	mccg
Vitamin B-12	0	mccg
Vitamin A	2205	IU
Vitamin E	0.3	mg-ATE
Vitamin D	N/a	IU
Iodine	N/a	mccg

## 5. SHELF LIFE

At least one year. See "Section III: Storage/Shelf Life Specifications" for more information.

**CHEMICAL AND PHYSICAL REQUIREMENTS**

<b>ITEM</b>	<b>REQUIREMENT <sup>1</sup></b>	
	<b>Minimum</b>	<b>Maximum</b>
Moisture	--	13.0
Fat, %	--	1.5
Ash, % <sup>2</sup>	--	<sup>3</sup>
Material that will pass through U.S. Standard No. 20 woven-wire-cloth sieve, %	99	--
Material that will pass through U.S. Standard No. 25 woven-wire-cloth sieve, %	90	--
Material that will pass through U.S. Standard No. 45 woven-wire-cloth sieve, %	30	--
Material that will pass through U.S. Standard No. 80 woven-wire-cloth sieve, %		
Vitamin A Palmitate, IU/lb. <sup>4</sup>	10,000	12,000
Calcium, mg/lb. <sup>2</sup>	500	750

<sup>1</sup> All values are on the basis of weight.

<sup>2</sup> These limiting values are on a moisture-free basis.

<sup>3</sup> For maximum ash see Table on "Maximum Ash Allowable Without Discount at Specified Calcium Levels" (paragraph 9.D) in USDA Specifications.

<sup>4</sup> Vitamin A Palmitate (stabilized) must be added in encapsulated form containing 250,000 IU Vitamin A Palmitate/g. (Source: USDA :FSA:PDD:EOB November, 1997. Contact 202-690-3565 <http://www.fas.usda.gov/excredits/pl480/commodities/cornmeal.html>)

<b>ENRICHMENT INGREDIENTS</b>	<b>Minimum</b>	<b>Maximum</b>
Thiamine, mg/lb.	2.0	3.0
Riboflavin, mg/lb.	1.2	1.8
Niacin or niacinamide, mg/lb.	16.0	24.0
Vitamin A-Palmitate, IU/lb. <sup>1</sup>	10,000	12,000
Calcium (in harmless and assimilable form), mg/lb.	500	750
Iron (reduced iron, 325 mesh, to be used as the iron source), mg/lb. <sup>2</sup>	13.0	26.0

<sup>1</sup> Vitamin A Palmitate (stabilized) must be added in encapsulated form containing 250,000 IU Vitamin A Palmitate/g.

<sup>2</sup> Ferrous sulfate is not to be used as the iron source in any processed cereal products purchased for export assistance programs.

(Source: USDA :FSA:PDD:EOB November, 1997. Contact 202-690-3565 <http://www.fas.usda.gov/excredits/pl480/commodities/sfcornmeal.html>)

# Cornmeal, Soy-Fortified

This processed commodity is most used in emergency programs and to a lesser extent in other categories.

## 1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S.

Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database Laboratory Home Page, Release 12,

(<http://www.nal.usda.gov/fnic/foodcomp>). These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values. The values for thiamin, riboflavin, niacin, vitamin A, calcium and iron represent the minimum levels of enrichment nutrients (converted to a 100 g basis) as listed in Specifications below.

## 2. COMPONENTS

85% Cornmeal	Degermed to reduce susceptibility to rancidity.
15% Soy Flour	Defatted and toasted.
Vitamins & Minerals	Added to help meet nutritional requirements.

## 3. SPECIFICATIONS

(See Table next page)

## 4. PACKAGING

25 kg (55 lb.) bags of multi-wall Paper. Three plies of paper (minimum) with an inner polyethylene or polypropylene plastic liner. The outer paper ply is treated to provide wet strength.

## 5. SHELF LIFE

At least one year. See "Section III: Storage/Shelf Life Specifications" for more information.

Nutrient	Amount	Unit
Water	10.9	g
Energy	360.2	Kcal
Protein	14.9	g
Total Lipid	1.6	g
Carbohydrate	71.1	g
Fiber, total dietary	8.92	g
Ash	1.4	g
Calcium	110	mg
Iron	2.90	mg
Magnesium	77.50	mg
Phosphorus	173	mg
Potassium	495	mg
Sodium	5.6	mg
Zinc	1.0	mg
Copper	0.7	mg
Manganese	0.5	mg
Selenium	7	mcg
Vitamin C	0	mg
Thiamin	0.44	mg
Riboflavin	0.26	mg
Niacin	3.53	mg
Pantothenic acid	0.6	mg
Vitamin B-6	0.3	mg
Folate	150	mcg
Vitamin B-12	0	mcg
Vitamin A	2205.00	IU
Vitamin E	0.3	mg-ATE
Vitamin D	n/a	IU
Iodine	n/a	mcg

**CHEMICAL AND PHYSICAL REQUIREMENTS**

<b>ITEM</b>	<b>REQUIREMENT<sup>1</sup></b>	
	<b>Minimum</b>	<b>Maximum</b>
Moisture	--	13.0
Protein (Nx6.25), % <sup>2</sup>	13.0	--
Fat, % <sup>2</sup>	--	1.5
Crude Fiber, % <sup>2</sup>	--	2.0
Ash, % <sup>2</sup>	--	<sup>3</sup>
Material that will pass through U.S. Standard No. 20 woven-wire-cloth sieve, %	99	--
Material that will pass through U.S. Standard No. 25 woven-wire-cloth sieve, %	91	--
Material that will pass through U.S. Standard No. 45 woven-wire-cloth sieve, %	40	--
Material that will pass through U.S. Standard No. 80 woven-wire-cloth sieve, %		

<sup>1</sup> All values are on the basis of weight.

<sup>2</sup> These limiting values are on a moisture-free basis.

<sup>3</sup> For maximum ash see Table on "Maximum Ash Allowable Without Discount at Specified Calcium Levels" (paragraph 9.D) in USDA Specifications.

<b>ENRICHMENT INGREDIENTS</b>	<b>Minimum</b>	<b>Maximum</b>
Thiamine, mg/lb.	2.0	3.0
Riboflavin, mg/lb.	1.2	1.8
Niacin or niacinamide, mg/lb.	16.0	24.0
Vitamin A-Palmitate, IU/lb. <sup>1</sup>	10,000	12,000
Calcium (in harmless and assimilable form), mg/lb.	500	750
Iron (reduced iron, 325 mesh, to be used as the iron source), mg/lb. <sup>2</sup>	13.0	26.0

<sup>1</sup> Vitamin A Palmitate (stabilized) must be added in encapsulated form containing 250,000 IU Vitamin A Palmitate/g.

<sup>2</sup> Ferrous sulfate is not to be used as the iron source in any processed cereal products purchased for export assistance programs.

(Source: USDA :FSA:PDD:EOB November, 1997. Contact 202-690-3565  
<http://www.fas.usda.gov/excredits/pl480/commodities/sfcornmeal.html>)

# Corn Soy Blend

This processed commodity is used mainly as a weaning food in Maternal Child Health Programs (MCH), and to a lesser extent in emergency and other types of programs.

## 1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S. Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database, Release 12, Laboratory Home Page, (<http://www.nal.usda.gov/fnic/foodcomp>). These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values.

## 2. COMPONENTS

- 69.5% Cornmeal: Processed, gelatinized
- 21.8% Soy flour: defatted, toasted
- 5.5% Soybean oil: refined, deodorized, stabilized
- 3.0% Minerals and Vitamin Antioxidant premix

## 3. SPECIFICATIONS

- Salmonella, E. Coli and Coagulase Positive.
- Staphylococci will be negative.
- Dispersability - will be essentially free from lumping or balling when mixed with water.
- For micronutrient addition level standards, refer to Section I, p. 7

(See Table next page.)

## 4. PACKAGING

25 kg (55 lb.) bags of multi-wall paper. Three plies of paper (minimum) with an inner polyethylene or polypropylene plastic liner. The outer paper ply is treated to provide wet strength.

## 5. SHELF LIFE

At least one year. See "Section III: Storage/Shelf Life Specifications" for more information.

Nutrient	Amount	Unit
Water	9.7	g
Energy	375.7	Kcal
Protein	17.2	g
Total Lipid	6.9	g
Carbohydrate	61.7	g
Fiber, total dietary	9.0	g
Ash	1.8	g
Calcium	831	mg
Iron	17.49	mg
Magnesium	173.8	mg
Phosphorus	206	mg
Potassium	634	mg
Sodium	7.3	mg
Zinc	5.0	mg
Copper	0.9	mg
Manganese	0.7	mg
Selenium	6	mcg
Vitamin C	40	mg
Thiamin	0.53	mg
Riboflavin	0.48	mg
Niacin	6.23	mg
Pantothenic acid	3.4	mg
Vitamin B-6	0.5 <sup>1</sup>	mg
Folate	300	mcg
Vitamin B-12	1	mcg
Vitamin A	2612.2	IU
Vitamin E	8.7	mg-ATE
Vitamin D	198.0	IU
Iodine	56.9	mcg

<sup>1</sup> 0.2 mg added as Pyridoxine HCL

**CHEMICAL AND PHYSICAL REQUIREMENTS**

<b>ITEM</b>	<b>REQUIREMENT<sup>1</sup></b>	
	<b>Minimum</b>	<b>Maximum</b>
Moisture, %	--	10.0
Protein (Nx6.25), %	16.7	--
Fat, %	6.0	--
Crude Fiber, %	--	2.0
Material Through a U.S. Standard No. 6 Woven-Wire-Cloth Sieve, %	99.0	--
Material Through a U.S. Standard No. 30 Woven-Wire Cloth Sieve, %	--	92.0
Material Through a U.S. Standard No. 60 Woven-Wire-Cloth Sieve, %	--	57.0
Consistency (Bostwick value) uncooked	--	20.0
Consistency (Bostwick value) Cooked, 11.75 % gruel	9.0	21.0
Total bacteria count per gram	--	50,000

<sup>1</sup> Unless otherwise specified analyses are expressed on a moisture-free basis.

(Source: USDA :FSA:PDD:EOB April, 1996. Contact 202-690-3565  
<http://www.fas.usda.gov/excredits/pl480/commodities/cornsoy.htm>)

# Corn Masa Flour

This blended, protein-fortified, processed commodity is designed for use in the preparation of tortillas and similar products or gruels to be consumed by both children and adults.

## 1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S.

Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database, Release 12, Laboratory Home Page,

(<http://www.nal.usda.gov/fnic/foodcomp>). These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values. The values for thiamin, riboflavin, niacin, vitamin A, calcium and iron represent the minimum levels of enrichment nutrients (converted to a 100 g basis) as listed in Specifications below.

## 2. COMPONENTS

95% Corn Masa Flour:

Whole ground white or yellow corn, partially precooked in lime water, followed by washing, rinsing, grinding, and drying to produce the traditional flavor and performance characteristics suitable for preparation of a wide range of food staples in the form of arepas, corn cakes, corn chips, tortillas, enchiladas, or gruel.

5% Soy Flour: Defatted and toasted.

Vitamin and Mineral Enrichment

## 3. SPECIFICATIONS

(See Table next page.)

## 4. PACKAGING

25 kg (55lb.) bags of multi-wall paper. Three plies of paper (minimum) with an inner polyethylene or polypropylene plastic liner. The outer paper ply is treated to provide wet strength.

## 5. SHELF LIFE

At least one year. See "Section III: Storage/Shelf Life Specifications" for more information.

Nutrient	Amount	Unit
Water	9.0	g
Energy	365.0	Kcal
Protein	9.3	g
Total Lipid	3.8	g
Carbohydrate	76.3	g
Fiber, total dietary	n/a	g
Ash	1.6	g
Calcium	110	mg
Iron	3	mg
Magnesium	110.0	mg
Phosphorus	223.0	mg
Potassium	298.0	mg
Sodium	5.0	mg
Zinc	1.8	mg
Copper	0.2	mg
Manganese	0.5	mg
Selenium	n/a	mccg
Vitamin C	0.0	mg
Thiamin	0.44	mg
Riboflavin	0.26	mg
Niacin	3.53	mg
Pantothenic acid	0.7	mg
Vitamin B-6	0.4	mg
Folate	150	mccg
Vitamin B-12	0.0	mccg
Vitamin A	2205	IU
Vitamin E	n/a	mg-ATE
Vitamin D	n/a	IU
Iodine	n/a	mccg

**CHEMICAL AND PHYSICAL REQUIREMENTS**

<b>ITEM</b>	<b>REQUIREMENT<sup>1</sup></b>	
	<b>Minimum</b>	<b>Maximum</b>
Moisture, %	--	11.5
Protein, % <sup>1</sup>	11.0	--
Fat, % <sup>1</sup>	3.0	--
Ash, % <sup>1</sup>	--	2.5
Ph	6.7	8.0
Material through a U.S. Standard No. 30 woven-wire-cloth sieve, %	100	--
Material through a U.S. Standard No. 50 woven-wire-cloth sieve, %	85	--
Material through a U.S. Standard No. 100 woven-wire-cloth sieve, %	52	--
Dough Handling	Typical, Cohesive, Pliable	
Baked tortilla	Typical, No cracks	
Flavor	Typical, Lime-corn	
Total bacteria count, per gram	--	50,000

<sup>1</sup> Analyses are expressed on a moisture-free basis.

<b>ENRICHMENT INGREDIENTS</b>	<b>Minimum</b>	<b>Maximum</b>
Thiamine, mg/lb.	2.0	3.0
Riboflavin, mg/lb.	1.2	1.8
Niacin or niacinamide, mg/lb	16.0	24.0
Iron (reduced iron, 325 mesh to be used as the iron source), mg/lb.	13.0	26.0
Vitamin A Palmitate, IU/lb.	10,000	12,000
Calcium (in harmless and assimilable form), mg/lb.	500	1,000

(Source: USDA :FSA:PDD:EOB January 16, 1998. Contact 202-690-3565;  
MF7: PURCHASE OF INSTANT CORN-SOY MASA FLOUR FOR USE IN EXPORT PROGRAMS –  
SPECIFICATIONS)

# Corn Soy Masa Flour, Instant

This blended, protein-fortified, processed commodity is designed for use in the preparation of tortillas and similar products or gruels to be consumed by both children and adults.

## 1. NUTRITIONAL VALUES (per 100 g)

These are average values, taken from the U.S.

Department of Agriculture, Agricultural Research Service (USDA:ARS) 1998 USDA Nutrient Database, Release 12, Laboratory Home Page,

(<http://www.nal.usda.gov/fnic/foodcomp>). These nutrient values are provided as a guide for use in the calculation of food aid rations; users should be aware that shipments of food aid may vary from these exact values. The values for thiamin, riboflavin, niacin, vitamin A, calcium and iron represent the minimum levels of enrichment nutrients (converted to a 100 g basis) as listed in Specifications below.

## 2. COMPONENTS

95% Corn Masa Flour:

Whole ground white or yellow corn, partially precooked in lime water, followed by washing, rinsing, grinding, and drying to produce the traditional flavor and performance characteristics suitable for preparation of a wide range of food staples in the form of arepas, corn cakes, corn chips, tortillas, enchiladas, or gruel.

5% Soy Flour: Defatted and toasted.

Vitamin and Mineral Enrichment

## 3. SPECIFICATIONS

(See Table next page.)

## 4. PACKAGING

25 kg (55lb.) bags of multi-wall paper. Three plies of paper (minimum) with an inner polyethylene or polypropylene plastic liner. The outer paper ply is treated to provide wet strength.

Nutrient	Amount	Unit
Water	8.9	g
Energy	363.1	Kcal
Protein	11.4	g
Total Lipid	3.7	g
Carbohydrate	74.2	g
Fiber, total dietary	n/a	g
Ash	1.8	g
Calcium	110	mg
Iron	2.90	mg
Magnesium	119.0	mg
Phosphorus	246	mg
Potassium	402	mg
Sodium	5.8	mg
Zinc	1.8	mg
Copper	0.4	mg
Manganese	0.6	mg
Selenium	n/a	mcg
Vitamin C	0	mg
Thiamin	0.44	mg
Riboflavin	0.26	mg
Niacin	3.53	mg
Pantothenic acid	0.7	mg
Vitamin B-6	0.4	mg
Folate	150	mcg
Vitamin B-12	0	mcg
Vitamin A	2205	IU
Vitamin E	n/a	mg-ATE
Vitamin D	n/a	IU
Iodine	n/a	mcg

## 5. SHELF LIFE

At least one year. See “Section III: Storage/Shelf Life Specifications” for more information

### CHEMICAL AND PHYSICAL REQUIREMENTS

ITEM	REQUIREMENT <sup>1</sup>	
	Minimum	Maximum
Moisture, %	--	11.5
Protein, % <sup>1</sup>	11.0	--
Fat, % <sup>1</sup>	3.0	--
Ash, % <sup>1</sup>	--	2.5
Ph	6.7	8.0
Material through a U.S. Standard No. 30 woven-wire-cloth sieve, %	100	--
Material through a U.S. Standard No. 50 woven-wire-cloth sieve, %	85	--
Material through a U.S. Standard No. 100 woven-wire-cloth sieve, %	52	--
Dough Handling	Typical, Cohesive, Pliable	
Baked tortilla	Typical, No cracks	
Flavor	Typical, Lime-corn	
Total bacteria count, per gram	--	50,000

<sup>1</sup> Analyses are expressed on a moisture-free basis.

ENRICHMENT INGREDIENTS	Minimum	Maximum
Thiamine, mg/lb.	2.0	3.0
Riboflavin, mg/lb.	1.2	1.8
Niacin or niacinamide, mg/lb	16.0	24.0
Iron (reduced iron, 325 mesh to be used as the iron source), mg/lb.	13.0	26.0
Vitamin A Palmitate, IU/lb.	10,000	12,000
Calcium (in harmless and assimilable form), mg/lb.	500	1,000

(Source: USDA :FSA:PDD:EOB January 16, 1998. Contact 202-690-3565;  
MF7: PURCHASE OF INSTANT CORN-SOY MASA FLOUR FOR USE IN EXPORT PROGRAMS –  
SPECIFICATIONS)