PHILIPPINE NATIONAL STANDARD

PNS/BAFPS 15 :2004
ICS 65.020.20

Corn (maize) grits (*Zea mays Linn.*) – Grading & Classification

DEPARTMENT OF TRADE & INDUSTRY PHILIPPINES

BUREAU OF PRODUCT STANDARDS

Foreword

This Philippine National Standard for Corn Grits, PNS/BAFPS 15:2004 is concerned with classification of corn grits based on their physical characteristics and current practices existing in the sectors concerned. It includes sections on the essential composition and quality factors, classification and grading, sampling and methods of analysis, determination of moisture content, packing, marking, contaminants and hygiene.

The National Food Authority initially developed this standard for Corn Grits.

Important changes were made by the Bureau of Agriculture and Fisheries Product Standards (BAFPS) on the draft standard prepared by the NFA in accordance with the BPS standards for standards guidelines in 2003. Harmonization with Codex and US standards on the levels of aflatoxin were undertaken in view of the increasing concern for consumer health protection and fair practices in international trade.

A technical committee for the standards of corn grits was organized, represented by several agencies of the Department of Agriculture, Food and Nutrition Research Institute of the Department of Science and Technology, Postharvest Horticulture and Training Center, University of the Philippines at Los Baños and private sectors.

BAFPS together with the committee conducted series of technical reviews and public consultations on the draft standards for corn grits. Comments from the stakeholders were considered prior to its approval.

1 Scope

This standard applies to corn (maize) grits for direct human consumption milled from kernels of common maize, Zea mays L.

2 References

The titles of the standards publications referred to in this standard are listed on the inside back cover.

3 Definitions

For the purpose of this standard, the following definitions shall apply:

3.1 Product definition

3.1.1
corn (maize) grits
milled corn grain where the outer covering and germs have been removed

3.1.2
corn grits No. 10
milled corn grains after sieving are retained in mesh sieve No. 12

3.1.3
corn grits No. 12
milled corn grains after sieving are retained in mesh sieve No. 14

3.1.4
corn grits No.14
corn grains after sieving are retained in mesh sieve No. 16

3.1.5
corn grits no. 16
milled corn grains which pass mesh sieve No. 16

3.1.6
mixed corn grits
consists of corn grits of various colors that do not meet the color requirements for either white or yellow corn grits

3.1.7
white corn grits
milled **white** corn grains which may include not more than 5% of corn grits of other color

3.1.8
yellow corn grits
milled **yellow** corn grains which may include not more than 5% of corn grits of other color

3.2 Essential composition and quality factors

3.2.1
defects

3.2.1.1
aflatoxin
a group of highly poisonous and carcinogenic compounds which are produced by strains of the fungi, ***Aspergillus flavus*** and ***Aspergillus parasiticus*** on suitable substrate such as corn, peanuts, copra, and other oilseeds, cassava, etc. Aflatoxin content is expressed in parts per billion (ppb)

3.2.1.2
discolored grits
pieces of grits of corn, which are materially discolored and damaged by external heat or as a result of heating caused by fermentation

3.2.1.3
foreign matter
impurities such as stones, sand, dirt, weed seeds or any matter, which is not corn grits

3.2.1.4
filth
impurities of animal origin including live and dead insects

3.2.2
quality factors

3.2.2.1
odor
corn grits shall not contain any abnormal or foreign odor

3.2.2.2
color
corn grits shall reasonably be in uniform color

3.2.2.3
moisture content
the water content of corn grit, expressed in percent

4 Classification

4.1 Corn grits shall be classified according to type and size.

4.1.1 Type

a. White Corn grits
b. Yellow Corn grits
c. Mixed Corn grits

4.1.2 Sizes

Corn grits shall conform to the size composition as specified in Table 1.

Table 1 – Percent size composition of corn grits

Corn grits no.	Size composition (%)			
	Size No. 10	Size No. 12	Size No. 14	Size No. 16
10	35 min	35 max	25 max	5 max
12	10 max	35 min	35 max	20 max
14	0	25 max	35 min	40 max
16	0	25 max	40 max	35 min

5 Grading

Corn grits shall conform to the quality grade requirements specified in Table 2.

Table 2 – Quality grade requirements on corn grits

Grade factors (% by weight maximum)	GRADE				
	Premium grade	Grade No. 1	Grade No. 2	Grade No. 3	Grade No. 4
Moisture content	14.00	14.00	14.00	14.00	14.00
Aflatoxin (Food)	20 ppb	20 ppb	20 ppb	20 ppb	20 ppb
Filth	0.1	0.1	0.1	0.1	0.1
Discolored grits	Trace	0.50	1.00	2.00	3.00
Foreign matter	Trace	0.50	0.80	1.00	2.00
Grits of other color	Trace	0.50	1.50	3.00	5.00
Grits of other sizes	1.00	4.00	7.00	10.00	13.00

6 Sampling and methods of analysis

Sampling method to be used for ascertaining conformance to the requirements of this specification shall be in accordance with PNS/ISO 874.

7 Determination of moisture content

The moisture content of the grains shall be determined using officially calibrated moisture meters which are appropriate for the purpose and in accordance with ISO 712:1985/ICC Method No. 110/1 (1986).

8 Packing

Corn grits shall be properly packed in 50 kilogram when packed of light green Woven Polypropylene sacks to protect them against mechanical damage and to facilitate handling and transport.

9 Marking

The outside of each container shall have a label or legible characters grouped on the same side, stamped in indelible ink to provide the following:

9.1 Name and type of the product;
9.2 Grade and grits size;
9.3 Net weight in kilograms;
9.4 Name and address of miller; and
9.5 Date of milling.

10 Contaminants

10.1 Aflatoxin

Corn grits shall comply with the allowable levels as prescribed by this standard.

10.2 Heavy metals

Corn grits shall comply with those maximum residue levels for heavy metals established by the Codex Alimentarius Commission for this commodity.

10.3 Pesticide residues

Corn grits shall comply with those maximum residue levels established by the Codex Alimentarius Commission for this commodity.

11 Hygiene

It is recommended that the produce covered by the provisions of this standard be prepared and handled in accordance with appropriate sections of the Recommended International Code of Practice General Principles of Food Hygiene.

(CAC/RCP 1 – 1969, Rev. 3 – 1997, Amd. (1999), and other relevant Codex texts such as Codes of Hygiene practice and Codes of Practice).

Primer on Philippine Grains Standardization Program-National Food Authority. (2002)

Philippine National Standard of Corn Grits (1999)

CAC Vol. 7. (1994) – Cereals, Pulses, Legumes and Derived Products and Vegetable Proteins

CAC/RCP 1-1969, Rev. 3-1997, Amd. (1999)- Recommended International Code of Practice General Principles of Food Hygiene

CAC Vol. 2 (1993) – Pesticide Residue in Foods

ISO 5233 (1983) - Test Sieves for Cereals

ISO 712: 1985-Determination of Moisture Content of Degermed maize (corn) meal and maize (corn) grits

PNS/ISO 874 – Fresh Fruits and Vegetable – Sampling

Department of Agriculture
Bureau of Agriculture and Fisheries Product Standards

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