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Ministry of Agriculture, Livestock and Food Supply	BINAGRI - SISLEGIS
Normative Ruling 60/2011 12/23/2011	

MINISTRY OF AGRICULTURE, LIVESTOCK AND FOOD SUPPLY

MINISTER'S OFFICE

NORMATIVE RULING NO. 60, OF DECEMBER 22, 2011

THE MINISTER OF AGRICULTURE, LIVESTOCK AND FOOD SUPPLY, exercising the authority vested in him by Article 87, sole paragraph, item II, of the Brazilian Constitution, considering the provisions of Law No. 9972 of May 25, 2000, of Decree No. 6268 of November 22, 2007, and of Decree No. 5741, of March 30, 2006, of MAPA Ordinance No. 381, of May 28, 2009, and of Proceeding No. 21000.010492/2009-68, does resolve:

Article 1. To establish the Technical Regulation for Maize through this Normative Ruling.

Sole paragraph. This Technical Regulation does not apply to popcorn, which is subject to specific regulations.

CHAPTER I

PRELIMINARY PROVISIONS

Article 2. The objective of this Technical Regulation is to define the official standard for the classification of maize, considering its identity and quality requirements, sampling, presentation and marking or labeling, in aspects relating to product classification.

Article 3. For the purposes of this Technical Regulation, the following definitions are considered:

I - maize: kernels from the species *Zea mays* L.;

II - insect-bored kernels: kernels or pieces of kernels attacked by insects that are considered pests for kernels stored in any of their evolutionary phases;

III - damaged kernels: kernels or pieces of kernels that are sour, shriveled or immature, fermented, germinating, opaque and moldy:

a) sour: kernels or pieces of kernels that are completely darkened by the action of heat, moisture or advanced fermentation, reaching the entire kernel mass; the kernels that are totally burned are also considered sour due to the similarity of appearance;

b) shriveled or immature: kernels devoid of internal mass, stiffened and wrinkled due to incomplete physiological development, and small kernels and those with a corneal endosperm (ear tip) will not be considered shriveled or immature, but normal kernels;

c) fermented: kernels or pieces of kernels showing partial darkening of the germ or endosperm caused by fermentation or heat; the kernels that are partially burned are also considered fermented due to the similarity of appearance; kernels presenting purple plumule as a varietal characteristic are not considered defective;

d) germinating: kernels or pieces of kernels that are visibly beginning to germinate;

e) opaque: kernels or pieces of kernels presenting a variation in their natural color, from whitish to opaque, showing inside the entire starchy endosperm with color and aspect of plaster (floury);

f) moldy: kernels or pieces of kernels that present fungal contamination (mold or mildew) visible to the naked eye, regardless of the size of the affected area, as well as kernels or pieces of kernels presenting a greenish or bluish color in the germ produced by the presence of fungi;

IV - broken kernels: pieces of kernels that leak through a sieve with round holes of five millimeters (5.00 mm) in diameter and are retained in a sieve with round holes of three millimeters (3.00 mm) in diameter;

V - impurities: pieces of kernels that leak through a sieve with round holes of three millimeters (3.00 mm) in diameter, as well as specks of the product itself that are retained in sieves with round holes of five millimeters (5.00 mm) and three millimeters (3.00 mm).

mm) in diameter, other than kernels or pieces of corn kernels;

VI - foreign matter: bodies or specks of any nature, foreign to the product, such as kernels or seeds of other plant species, dirt, dead insects, among others;

VII - macroscopic materials: materials that are foreign to the product and that can be detected by direct observation, with the naked eye, without the aid of optical instruments, and that are related to the risk to human health according to the specific legislation;

VIII - microscopic materials: materials that are foreign to the product and that can be detected with the aid of optical instruments, and that are related to the risk to human health according to the specific legislation;

IX - genetically modified organism (GMO): whose genetic materials (Deoxyribonucleic Acid-DNA and Ribonucleic Acid-RNA) that have been modified by any genetic engineering technique;

X - substances harmful to health: foreign substances or agents of biological, chemical or physical origin that are harmful to health, such as mycotoxins, residues of phytosanitary products or other contaminants, provided for in a specific legislation, thus not being considered those whose amounts are verified within the maximum limits determined; and

XI - moisture: percentage of water found in the product sample free of foreign matter and impurities, determined by an official method or by an apparatus that gives an equivalent result;

Sole paragraph. Corn kernels showing changes or abnormalities not mentioned in this article will be considered normal kernels.

CHAPTER II

CLASSIFICATION AND TOLERANCES

Article 4. The classification of maize is determined according to its identity and quality requirements.

Paragraph 1. The maize identity requirement is defined by the product's own species as defined in item I, article 3 of this Normative Ruling.

Paragraph 2. The maize quality requirements are defined according to consistency and shape, color of the kernel and the maximum tolerance limits established in Table 1 of this Normative Ruling.

Article 5. Maize will be classified into Groups, Classes and Types, as follows:

Paragraph 1. Based on the consistency and shape of kernels, maize will be classified into the following Groups:

I - hard: when presenting at least 85% in weight kernels that are hard, i.e. presenting predominantly horny endosperm, showing a glassy aspect; as for the shape, kernels that are predominantly oval and with a convex and smooth crown are considered hard;

II - dented: when presenting at least 85% in weight kernels that are dented, i.e. with partial or full floury consistency; as for the shape, kernels that are predominantly dented with a crown showing a sharp indentation are considered dented;

III - semi-hard: when presenting at least 85% in weight kernels with intermediate consistency and shape between hard and dented; and

IV - mixed: when not included in the previous groups, and the percentages of the mixture of other groups are specified in the classification document.

Paragraph 2 Based on the color of kernels, maize will be classified into the following classes:

I - yellow: consisting of maize containing at least ninety-five percent (95%), in weight, of yellow, pale yellow or orange-yellow kernels; the yellow maize kernel with a slight red or pink color in the pericarp will be considered yellow class;

II - white: consisting of maize containing at least ninety-five percent (95%), in weight, of white kernels; the maize kernel with ivory or straw color will be considered white;

III - colors: consisting of maize containing at least ninety-five percent (95%), in weight, of uniformly colored kernels, but different from the yellow and white classes; for the maize kernel with a slight variation in the pericarp color, the predominant color will be considered; and

IV - mixed: consisting of maize that does not fall into any of the previous classes.

Paragraph 3 Maize will be classified into three (3) types according to its quality and defined by the maximum tolerance limits established in Table 1 of this Normative Ruling, and it can also be classified as Not Meeting the Type or Disqualified:

TABLE 1 - Maximum tolerance limits expressed as a percentage (%)

Classification	Damaged kernels		Broken kernels	Foreign Matter and Impurities	Insect-bored Kernels
	Sour	Total			
Type 1	1.00	6.00	3.00	1.00	2.00
Type 2	2.00	10.00	4.00	1.50	3.00
Type 3	3.00	15.00	5.00	2.00	4.00
Not Meeting the	5.00	20.00	More than 5.00	More than 2.00	8.00

I - the maize that does not meet the parameters established for Type 3 in Table 1 of this Normative Ruling will be considered Not Meeting the Type:

a) maize classified as Not Meeting the Type due to sour kernels, total damaged or insect-bored kernels may be sold as is, provided they are identified as Not Meeting the Type, or such kernels may be reprocessed, split or recomposed for purposes of classification into a type;

b) the maize classified as Not Meeting the Type due to broken kernels or foreign matter and impurities may not be sold as is, and must be reprocessed, split or recomposed for purposes of classification into a type; and

c) the maize presenting live insects or other pests found in stored kernels cannot be sold as is, and must be purged or subjected to another effective control process before being sold;

II - the maize presenting in the cargo, lot or sample to be analyzed one or more of the situations below will be disqualified and its trading and entry into the country will be prohibited:

a) poor conditions, including a generalized appearance of mold or fermentation;

b) presence of treated seeds or toxic seeds;

c) strange odor, improper to the product, which prevents its proposed use; and

d) tolerance limits above those established for sour, total damaged or insect-bored kernels provided for in Table 1 of this Normative Ruling for kernels Not Meeting the Type.

Article 6. When one of the product's disqualifying characteristics is identified, the accredited classification entity shall issue the corresponding Classification Report stating that the product is Disqualified.

Sole paragraph. In the event provided for in the main section of this article, such event shall be reported to the Federal Oversight Office of Agriculture, Livestock and Food Supply (SFA) of the State where the product is stored, so that inspection classification procedures are adopted.

Article 7. The SFA of the State shall be responsible for adopting the applicable measures regarding the destination of the disqualified product, and to coordinate, as appropriate, with other official bodies.

Article 8. In case the disqualified product may be used for purposes other than the proposed use, the SFA of the State shall establish the necessary procedures to monitor the product until its complete de-characterization or destruction, where applicable, and the product owner or its representative shall be the depositary, in addition to bearing the costs of the operation.

Article 9. The Ministry of Agriculture, Livestock and Food Supply (MAPA) may analyze substances harmful to health, macroscopic, microscopic and microbiological materials related to the risk to human health, and conduct analysis to detect GMOs, according to the specific legislation, regardless of the product classification results.

Paragraph 1. The product will be disqualified when the presence of the substances mentioned in the main section of this article is identified in limits higher than the maximum limit established in the specific legislation, or when the presence of unauthorized substances for the product is identified.

Paragraph 2. The burden of analysis referred to in the main section of this article will be borne by those responsible for the product or by their representative.

CHAPTER III

REQUIREMENTS AND GENERAL PROCEDURES

Article 10. The maize must be physiologically developed, healthy, clean and dry, subject to the tolerance limits established in Table 1 of this Normative Ruling.

Article 11. The percentage of moisture technically recommended for trading purposes will be up to fourteen percent (14.0%).

Paragraph 1 Maize with moisture higher than the rate recommended in this Technical Regulation may be sold, and the information on moisture percentage shall be included in the Product Classification Document.

Paragraph 2 The interested parties or the parties involved in the product selling process will be responsible for handling, proper use

and other necessary precautions for the conservation of the product with moisture above the rate provided for in the main section of this article.

CHAPTER IV

SAMPLING

Article 12. The samples collected, which will be the basis for classification, shall contain the necessary data to identify the party interested in classifying the product, and information on identification of the lot or volume of product from which they were collected.

Article 13. The owner, holder or carrier shall provide the identification and movement of the product, regardless of its conditions, enabling an adequate sampling.

Article 14. The individual or legal entity that collected the sample will be responsible for the representativeness of the sample, in relation to the lot or volume from which it was collected, upon presentation of the corresponding supporting document.

Article 15. During the imported maize classification and the inspection classification, the holder of the inspected goods, its legal representative, carrier or warehouse shall provide the conditions necessary for sampling as required by the inspection authority.

Article 16. Sampling during road, rail and water transport shall follow the methodology below:

I - samples shall be collected at points uniformly distributed in the vehicle, according to Table 2 of this Normative Ruling, at depths that reach the upper third, the middle and the lower third of the cargo to be sampled, reaching a minimum quantity of two kilograms (2 kg) per sample point, subject to the following criteria:

Table 2 - Number of sample collection points in relation to the lot size:

Quantity of product in the lot (tons)	Minimum number of points for sample taking
up to 15 tons	5
from 15 to 30 tons	8
more than 30 tons	11

II - the total sampled products shall be uniform, quartered and reduced by four kilograms (4 kg) to compose, at least, four (4) samples, consisting of one kilogram (1 kg) each, which will be representative of the lot.

Article 17. Sampling through handling equipment or kernels in motion during loading, unloading or inter-silo transfer operations shall follow the methodology below:

I - the collection of samples shall be conducted with appropriate equipment, with collections of five hundred grams (500g) on conveyor belts, by extracting, at least, ten kilograms (10 kg) of product for each fraction of up to five hundred tons (500t) of the quantity of product to be sampled, at regular intervals of equal time, calculated according to the flow at each terminal;

II - the ten kilograms (10 kg) extracted from each 500-ton fraction shall be uniform, quartered and separated to compose the sample that will be analyzed at every five thousand tons (5000t) maximum of the lot.

III - add the ten (10) partial samples that were separated for each five thousand tons (5000t), according to item II of this article, which shall be uniform, quartered and reduced by at least four kilograms (4 kg) to compose, at least, four (4) samples, consisting of one kilogram (1 kg) each, which will be representative of the lot.

Article 18. The collection of samples in silos and bulk warehouses will be conducted at the receiving or shipping system of the storage unit, according to the methodology for sampling in handling equipment.

Article 19. Sampling bagged products in a conventional warehouse shall follow the methodology below:

I - the collection in the lot will be random in at least ten percent (10%) of bags, and shall cover all sides of the pile; and

II - the minimum amount collected will be thirty grams (30g) per bag, up to at least ten kilograms (10 kg) of the product, which shall be uniform, quartered and reduced by at least four kilograms (4 kg) to compose at least four (4) samples, consisting of at least one kilogram (1 kg) each, which will be representative of the lot.

Article 20. The samples for classification of maize, extracted according to the procedures described in articles 16 to 19 of this Normative Ruling shall be properly packed, sealed, identified, authenticated and will have the following destination:

I - a working sample for classification;

II - a sample to be made available to the interested party;

III - a sample for a request of arbitration, if any; and

IV - a sample for internal quality control by the Accredited Entity.

Article 21. In the inspection classification, the samples extracted according to the procedures described in articles 16 to 19 of this Normative Ruling shall be properly packed, sealed, identified, authenticated and will have the following destination:

I - a working sample for inspection classification;

II - a sample to be made available to the inspected party;

III - a sample for a request for analysis, if any; and

IV - a security sample, in case one of the previous sample units is unusable or further analyses are required, with the exception of analyses that require a specific sampling methodology.

Article 22. When the sample is collected and sent by the interested party, the same sampling criteria and procedures provided for in this Technical Regulation shall be followed.

Article 23. The remaining quantity from the sampling, homogenization and quartering process will be replaced in the lot or returned to the party interested in the product.

Article 24. The person in charge of classifications, the accredited company or entity or the supervisory body will not be compelled to recompose or reimburse the sampled product that may have been damaged or whose quantity has been reduced due to sampling and classification.

CHAPTER V

OPERATIONAL PROCEDURES OR CLASSIFICATION ROADMAP

Article 25. For the operating procedures or maize classification roadmap, the items below shall be followed:

I - before the classification, the person in charge of classifications shall check whether the sample presents any disqualifying condition, according to the provisions of item II, paragraph 3, article 5 of this Normative Ruling; and, in the event any disqualifying condition is identified, he/she shall issue the corresponding Classification Report stating that the product is Disqualified and report this fact to the Federal Oversight Office of Agriculture, Livestock and Food Supply (SFA) of the State where the product is stored, for the inspection classification procedures to be adopted;

II - when the product is in conditions to be classified, use a sample of at least one kilogram (1kg), make it uniform and reduce it using the quartering process to obtain a working sample of at least two hundred and fifty grams (250g), weighed on a previously checked scale, noting the weight obtained for purposes of calculating the tolerance percentages provided for in Table 1 of this Normative Ruling;

III - from the remainder of the sample of at least one kilogram (1 kg) intended for the classification, a subsample shall also be obtained by using the quartering process for determining moisture, from which foreign matter and impurities will be removed; the weight of the subsample shall be in accordance with the recommendations of the manufacturer of the equipment used to check moisture; once moisture is identified, the amount shall be included in the Classification Report;

IV - From the working sample of at least two hundred and fifty grams (250 g), separate the broken kernels and foreign matter and impurities, superimposing the sieve with round holes of five millimeters (5.00 mm) in diameter and the sieve with round holes of three millimeters (3.00 mm) in diameter, executing continuous and uniform movements for thirty (30) seconds:

a) foreign matter and impurities that are retained in the sieves with round holes of five millimeters (5.00 mm) in diameter and of three millimeters (3.00 mm) in diameter will be collected manually and added to those that leaked through the sieve with round holes of three millimeters (3.00 mm) in diameter, and then weighed so as to determine their percentage and include the amount identified in the Classification Report;

b) pieces of kernels that leak through a sieve with round holes of five millimeters (5.00 mm) in diameter and that are retained in a sieve with round holes of three millimeters (3.00 mm) in diameter will be considered broken, and they will be weighted and the amount identified shall be included in the Classification Report; (*Wording given by [Normative Ruling 18/2012/MAPA](#)*)

[Previous Wordings](#)

c) pieces of kernels that leak through a sieve with round holes of five millimeters (5.00 mm) in diameter and are retained in a sieve with round holes of three millimeters (3.00 mm) in diameter will be considered broken, and they will be weighted and the amount identified shall be included in the Classification Report;

V- check the weight of the sample that was retained in the sieve with round holes of five millimeters (5.00 mm) in diameter, and the amount identified shall be included in the Classification Report;

VI - for determination of maize defects, use the portion of kernels retained in the sieve with round holes of five millimeters (5.00

mm) in diameter, measured in accordance with item V of this article, in order to identify and separate the defects as follows:

a) the pieces of healthy kernels that are retained in the sieve with round holes of five millimeters (5mm) in diameter will not be considered as a defect for purposes of product classification; however, its occurrence must be quantified and reported in the Classification Document; (Wording given by [Normative Ruling 18/2012/MAPA](#))

[Previous Wordings](#)

b) separate the damaged kernels (sour, shriveled or immature, fermented, germinating, opaque and moldy) and the insect-bored kernels (Wording given by [Normative Ruling 18/2012/MAPA](#))

[Previous Wordings](#)

c) in case of doubt as to the identification of any defect in the corn kernel, it shall be cut for a better visualization (Added by [Normative Ruling 18/2012/MAPA](#))

[Previous Wordings](#)

VII - weigh all the defects separately and include the weight and the percentage identified for each one in the Classification Report, converting the amounts using the formula below, with the result shown with two (2) decimal places for later classification into type: amount in % = weight of the defect (g) x 100/weight of the working sample (g) free of foreign matter and impurities and broken kernels, as determined in item V of this article;

VIII - classify the product into a Type, considering the percentages identified, according to the distribution of defects and respective tolerance limits contained in Table 1 of this Normative Ruling, subject to the following:

a) if two or more defects are identified for the corn kernel, the most serious defect will prevail, following this decreasing severity scale: moldy, sour, fermented, germinating, insect-bored, shriveled or immature and opaque; and

b) the product shall be classified according to the lowest type identified;

IX - for determination of the maize group, separate the kernels that are whole and perfect and determine the sample weight, and include it in the Classification Report; this amount will be used later to calculate the percentage of kernels of each group:

a) separate kernels according to their consistency and shape, subject to the provisions of paragraph 1, article 5 of this Normative Ruling, then weigh and include the amounts identified in the Classification Report, converting the amounts using the following formula: amount in %

= weight of kernels of each group (g) x 100/weight of working sample (g), as determined in item IX of this article; and

b) the percentages of kernels of each group identified in the sample shall be mandatorily included in the Classification Report;

X - for the determination of the maize class, recombine the working sample used to determine the group and check the sample weight, including the result obtained in the Classification Report, and this amount will be used later to calculate the kernel percentage of each class:

a) separate kernels according to their consistency and shape, subject to the provisions of paragraph 2, article 5 of this Normative Ruling, then weigh and include the amounts identified in the Classification Report, converting the amounts using the following formula: value in % = weight of kernels of each class (g) x 10/weight of working sample (g), determined in item X of this article; and

b) the percentages of kernels of each class identified in the sample shall be mandatorily included in the Classification Report;

XI - in case the maize is considered as Not Meeting the Type or Disqualified, include the reasons that determined such classification in the Classification Report as well as the percentages of the Group or the Mixed Class, as applicable;

XII - complete the Classification Report; and

XIII - review, date, stamp and sign the Classification Report.

CHAPTER VI

PRESENTATION

Article 26. For packaging and presentation of maize, the provisions below shall be followed:

I - maize may be presented in bulk or packaged;

II - the packaging used in packaging maize shall be made of appropriate materials; and

III - the specifications regarding material, making and capacity of packaging used to pack maize shall be in accordance with the specific legislation in force.

CHAPTER VII

MARKING OR LABELING

Article 27. The quality specifications for maize shall be in line with the respective classification document.

Article 28. In the classification document for imported maize, in addition to information on quality, at least the following information shall be included:

I - country of origin;

II - lot; and

III - business name, registration in the Brazilian Registry of Legal Entities (CNPJ) or registration in the Individual Taxpayers' Registry (CPF) and address of the importer.

CHAPTER VIII

FINAL PROVISIONS

Article 29. In order to standardize the classification criteria, the relevant technical function of the Ministry of Agriculture, Livestock and Food Supply may prepare a photographic reference, identifying and characterizing the parameters to be used as the basis for classification of maize, as provided for in this Normative Ruling.

Article 30. Any doubts arising from the application of this Technical Regulation will be resolved by the relevant technical function of the Ministry of Agriculture, Livestock and Food Supply.

Article 31. This Normative Ruling shall come into effect on September 1, 2013. (*Wording given by [Normative Ruling 18/2012/MAPA](#)*)

[Previous Wordings](#)

Article 32. [Ordinance MA No. 845, of November 8, 1976](#), and [Ordinance SDR No. 11, of April 12, 1996](#) are hereby revoked.

MENDES RIBEIRO FILHO

D.O.U., 12/23/2011 – Section 1