

PHILIPPINE NATIONAL STANDARD

PNS/BAFPS 59:2008
ICS 67.080.10

Cashew kernels – Specification



BUREAU OF PRODUCT STANDARDS

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Foreword

The development of the Philippine National Standards for Cashew kernel (PNS/BAFPS 59:2008) was undertaken in order to reflect the recent technology developments in the industry and the need for harmonization with Codex requirements in Heavy Metals, Pesticide Residues and Hygiene.

A Technical Committee (TC) and Sub-Committee (SC) organized by Bureau of Agriculture and Fisheries Product Standards (BAFPS) through Special Order No. 411, series of 2001 and Special Order No. 169, series of 2007 to identify members and experts that shall be involved in the formulation of the revised PNS for Cashew Kernels. The TC and Sub-Committee of BAFPS conducted technical reviews and public consultations in the three major islands of the country for the finalization of the draft standards.

The PNS for Cashew Kernel aims to provide common understanding on the scope, definition, minimum requirements, classification, size classification, tolerances, packaging, sampling, marking and labeling, contaminants and hygiene.

1 Scope

This standard establishes a system of grading and classifying commercial cashew-nuts scientifically known as *Anacardium occidentale L.* produced in the Philippines.

2 References

The title of the standard publications and other references of this standard are listed on the inside back cover.

3 Definitions

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

3.1

butts (B)

kernels which have been broken crosswise, are less than 7/8 but not less than 3/8 of a whole kernel, and the cotyledons are still naturally attached. This grade may also be designated as “B”

3.2

cracking

the process of breaking the shell of the cashewnuts either by hitting the shell with the use of wooden mallet or a cracking machine for removal of shells

3.3

damage

any injury or defects which materially affects the appearance, edibility and shipping quality of the cashew kernels. The following should be considered as damage:

- a. broken kernels - mechanically damaged kernels;
- b. discolored kernel – a deviation from the natural color of the testa;
- c. moldy kernel – presence of fungi visible to the naked eye;
- d. rancid kernel – distinct disagreeable flavor and aroma;
- e. shriveled kernel – wrinkled or deformed kernels due to immature nuts; and
- f. rotten kernel – decayed or spoiled kernel

3.4

kernel

slightly curved, white and with fine texture and delicate flavor

3.5

scorching

a discoloration due to over-heating during shelling or blanching

3.6

seedcoat or testa

reddish brown, thin, membrane-like pellicles covering of a kernel

3.7

shell

the hard stony covering of a kernel after detaching from the apple fruit

3.8

shrivelled

a complete withering of the kernel that distorts its characteristic shape

3.9

speckled

a brown stain which appears after removal of the testa on some kernel

3.10

splits

one half of a cashew kernel that has been split lengthwise, provided not more than 1/8 of this cotyledon has been broken off. This grade may also be designated as "S"

3.11

white/ivory/light ash

characteristic color of the cashew kernel without testa

3.12

whole

the characteristic shape of a cashew kernel and not more than 1/8 th of the kernel has been broken off. This grade may also be designated as "W"

4 Varieties

Varieties of cashew in the Philippines are as follows:

- a. Yellow fruited variety – the fruit is large and of good flavor.
- b. Yellowish – red variety – the fruit is small and of good flavor.
- c. Other promising varieties are: Mitra; Fernandez; Gonzales; Caliwag; Recto and Eleazar.
- d. National Seeds Industry Council (NSIC) Cashew Varieties (See Annex A).

5 Minimum requirements

In all classes, subject to the special provisions of all classes and the tolerances allowed, they must be:

- a. Mature and ripe, sound, clean and practically free from any visible foreign matters.

- b. Raw , uniform in size, shape and color.
- c. Free from pest/disease damages.
- d. Free from mould.
- e. Free of any foreign smell and/or taste.
- f. Free from adhering testa or shell liquid.
- g. Free from any rancidity.
- h. Dry (moisture content of the kernel shall not exceed 5%).
- i. Unshriveled.

6 Classification

6.1 Quality

Cashew kernels shall be classified according to its general appearance, quality and condition.

6.1.1 Extra class – Cashew kernels in this class must be of superior quality. They must meet characteristic of the variety and/or commercial type. Their color must be white, pale ivory, pale ash-grey or light yellow. The kernel must be whole; absence of shriveled kernel; uniform in size and shape; completely free from infestation of insect damage; mold; rancidity; adhering testa and objectionable extraneous matter. They must be practically free from defects with the exception of very slight superficial defects are allowed, provided these do not affect the general appearance of the produce, the quality, the keeping quality and presentation in the package. These cashew kernels are designated as White Whole.

6.1.2 Class I – Cashew kernels in this class must be of good quality. They must meet characteristic of the variety and/or commercial type. Their color may be of light brown, light ivory, yellow, light ash-grey or deep ivory as a result of over-heating. These cashew kernels are designated as Scorched.

6.1.3 Class II – This class includes cashew kernels which do not qualify for inclusion in the higher class but must be free from insect and pest damages. Their color may be of light brown, amber and light blue. These cashew kernels are designated as Scorched Seconds.

6.1.4 Class III – Cashew kernels which includes the immature and speckled kernels are permitted provided they do not affect the characteristic shape of the kernel. Their color may be deep brown, deep blue, discolored and black spotted. The kernels may be designated as Dessert.

6.2 Designations of classes

Class	Designation	Quality	Color
Extra class	White Whole	Superior quality characteristic of variety or commercial type	White Pale Ivory Pale ash-grey Light yellow
Class I	Scorched	Good quality	Light Brown Light Ivory Light ash-grey Deep Ivory Yellow
Class II	Scorched Seconds	Do not qualify for inclusion in higher classes, but which satisfy minimum requirements specified above.	Light Brown Amber Light Blue
Class III	Dessert	Immature and speckled kernels are permitted provided they do not affect the characteristic shape of the kernel.	Deep Brown Deep Blue Discolored Black spotted

6.2 Size classification

Kernels are classified by style as follows:

(a) **Whole:** Sizing is compulsory in Extra class, but optional for Class I, Class II and Class III.

(b) **Broken:**

Designation

Characteristics

Large pieces

not passing through a sieve of aperture 4.75 mm

Small pieces
(or medium
Brazilian pieces)

passing through a sieve of aperture 4.75 mm but not passing through a sieve of aperture 2.80 mm.

Very small pieces (or Small Brazilian Pieces) passing through a sieve of aperture 2.80 mm but not passing through a sieve of aperture 2.36 mm

Baby bits or granules plemules and fragments of kernels passing through a sieve of aperture 2.80 mm but not passing through a sieve of aperture 1.70 mm.

A. Cashew kernels – White wholes

Grade designation	Trade name	Color/ Characteristics	Count/454 g Size description	Max. moisture%	Broken max. %	NLSG NLG max. %
W – 180	White wholes	White/pale ivory light ash, characteristic shape	170 – 180	5	5	5 (NLSG & SW Together)
W – 210	-do-	-do-	200 – 210	5	5	-do-
W – 240	-do-	-do-	220 – 240	5	5	-do-
W – 320	-do-	-do-	300 - 320	5	5	-do-
W – 450	-do-	-do-	400 – 450	5	5	-do-
W – 500	-do-	-do-	450 – 500	5	5	5 (SW)

Remarks: Kernels shall be completely free from infestation, insect damage, mould, rancidity, adhering testa and objectionable extraneous matter. Scraped and partially shrivelled kernels also permitted provided such scraping/shrivelling does not affect the characteristic shape of the kernel.

NLSG means Next Lower Size Grade; **NLG** means Next Lower Grade

B. Cashew kernels – Scorched wholes

Grade designation	Trade name	Color/ Characteristics	Count/454 g Size description	Max. moisture%	Broken max. %	NLSG NLG max. %
SW	Scorched wholes	Scorched wholes kernels may be scorched/ slightly darkened due to over-heating while roasting or drying in drier/borma	N/A	5	5	7.5 (SSW)
SW – 180	-do-	-do-	170 – 180	5	5	7.5 (NLSG & SSW Together)
SW – 210	-do-	-do-	200 – 210	5	5	-do-
SW – 240	-do-	-do-	220 – 240	5	5	-do-
SW – 320	-do-	-do-	300 – 320	5	5	-do-
SW – 450	-do-	-do-	400 – 450	5	5	-do-
SW – 500	-do-	-do-	450 – 500	5	5	7.5 (SSW)

Remarks: Kernels shall be completely free from infestation, insect damage, mould, rancidity, adhering testa and objectionable extraneous matter. Scraped and partially shrivelled kernels also permitted provided such scraping/shrivelling does not affect the characteristic shape of the kernel.

NLSG means Next Lower Size Grade; **NLG** means Next Lower Grade

C. Cashew kernels - Dessert wholes

Grade designation	Trade name	Color/ Characteristics	Count/454 g Size description	Max. moisture%	Broken max. %	NLSG NLG max. %
SSW	Scorched wholes seconds	Kernels may be over-scorched, immature, shrivelled, speckled, discolored and light blue.	N/A	5	5	7.5 (DW)
DW	Dessert wholes	Kernels may be deep scorched, deep brown, deep blue, speckled discolored and black spotted	N/A	5	5	-

Remarks: Kernels shall be completely free from infestation, insect damage, mould, rancidity, adhering testa and objectionable extraneous matter.

NLSG means Next Lower Size Grade; **NLG** means Next Lower Grade

D. Cashew kernels – White pieces

Grade designation	Trade name	Color/ Characteristics	Count/454 g Size description	Max. moisture%	Broken max. %	NLSG NLG max. %
B	Butts	White/pale ivory/light ash. Kernels broken broken cross-wise (evenly or unevenly) naturally attached	N/A	5	5	5 (SB)
S	Splits	White/pale ivory or light ash. Kernels split naturally lengthwise	N/A	5	5	5 (SS)
LWP	Large white pieces	White/pale ivory or light ash	Kernels broken into more than two pieces and not passing through 4 mesh 16 SWG Sieve/4.75 mm I.S.Sieve	5	Nil	5 (SW & SP together)
SWP	Small white pieces	White/pale ivory or light ash	Broken kernels smaller than those described on LWP but not passing through 6 mesh 20 SWG sieve/2.80mm I.S. Sieve	5	Nil	5 (BB & SSP together)

BB	Baby bits	do	Plemules and broken kernels those described as SWP but not passing through a 10 mesh 24 SWG Sieve/1.70 mm I.S.Sieve	5	Nil	1% (Cashew powder)
<p>Remarks: Kernels shall be completely free from infestation, insect damage, mould, rancidity, adhering testa and objectionable extraneous matter. Scraped and partially shrivelled kernels also permitted provided such scraping/shrivelling does not affect the characteristic shape of the kernel.</p>						

NLSG means Next Lower Size Grade; **NLG** means Next Lower Grade

E. Cashew kernels – Scorched pieces

Grade designation	Trade name	Color/ Characteristics	Count/454 g Size description	Max. moisture%	Broken max. %	NLSG NLG max. %
SB	Scorched butts	Kernels broken cross-wise (evenly or unevenly) and naturally attached. Kernels may be scorched/slightly darkened due to over heating while roasting or drying in the drier/borma	N.A	5	5	7.5 (DB)
SS	Scorched splits	Kernels split naturally lengthwise. Kernels may be scorched/slightly darkened due to over-heating while roasting or drying in drier /borma	N.A	5	5	7.5 (DS)
SP	Scorched pieces	Kernels may be scorched/slightly darkened due to over-heating while roasting or drying in drier/borma	Process not passing through a 4 mesh 16 SWG sieve 4.75 mm I.S.Sieve	5	Nil	7.5 (SSP & SSP together)
SSP	Scorched small pieces	Kernels may be scorched/slightly darkened due to over-heating while roasting or drying in drier/borma	Pieces smaller than SP but not passing through a 6 mesh 20 SWG Sieve/2.80 mm I.S. Sieve	5	Nil	5 (DSP)

Remarks: Kernels shall be completely free from infestation, insect damage, mould, rancidity, adhering testa and objectionable extraneous matter. Scraped and partially shrivelled kernels also permitted provided such scraping/shrivelling does not affect the characteristic shape of the kernel.

NLSG means Next Lower Size Grade; **NLG** means Next Lower Grade

F. Cashew kernels – Dessert pieces

Grade designation	Trade name	Color/ Characteristics	Count/454 g Size description	Max. moisture%	Broken max. %	NLSG NLG max. %
SPS	Scorched pieces seconds	Kernels may be over-scorched, immature, shrivelled, speckled, discolored and light blue	Kernels broken into pieces but not passing through a 4 mesh 16 SWG sieve/4.75 mm I.S.Sieve	5	Nil	7.5 (DP & DSP together)
DP	Dessert pieces	Kernels may be deep scorched, deep brown, deep blue, speckled, discolored and black spotted	Kernels broken into pieces but not passing through a 4 mesh 16 SWG sieve/4.75 mm I.S.Sieve	5	Nil	7.5 (DSP)

Remarks: Kernels shall be completely free from infestation, insect damage, mould, rancidity, adhering testa and objectionable extraneous matter.

NLSG means Next Lower Size Grade; **NLG** means Next Lower Grade

7 Tolerances

7.1 Quality tolerance

Quality tolerances shall be allowed in each package for produce not satisfying the requirements of the class indicated.

7.2 Size tolerance

Extra class	5 %
Class I and class II	10 %
Class III	15 %

8 Packaging

Kernels must be packed to ensure proper protection of the produce and withstand transport and handling conditions. The packaging materials must be new, clean, of good quality, non-toxic glue and free from foreign matter.

9 Marking and labeling

Each package must bear the following particulars in letters grouped in the same size, legibly and indelibly marked with non-toxic ink and visible from the outside.

Name of produce

Class and size

Net weight (kg)

Name and address of producers, traders and exporters

Origin of the produce

Best before

Product of the Philippines

10 Sampling

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

11 Contaminants

11.1 Heavy metals

Cashew kernel shall comply with those maximum residue levels for heavy metals established by the Codex Alimentarius Commission and/or authority for this commodity.

11.2 Pesticide residues

Cashew Kernel shall comply with those maximum residue limits established by the Codex Alimentarius Commission and/or authority for this commodity.

12 Hygiene

Kernels shall be prepared and handled in accordance with the appropriate sections of the Recommended International Code of Practice of Food – CAC/RCP 1 – 1969 (Rev. 3 – 1997).

Kernels shall comply with microbiological criteria established in accordance with the Principles for the Establishment and Application of Microbiological Criteria for Foods (CAC/GL 21-1997).

Annex A

Cashew varieties grown in the Philippines.

Varieties	Characteristics	Nut	
1. NSIC 1995 Cs 01 (Fariñas) Origin: San Marcelino, Zambales	Weight (g)	6.8	
	Length (cm)	3.3	
	Width (cm)	2.5	
	Shape	Kidney - shaped	
	Color	Ash gray	
			Kernel
	Weight (g)	2.29	
	Length (cm)	2.8	
	Width (cm)	1.1	
	Thickness (cm)	1.1	
	Edible portion (%)	33.5	
	2. NSIC 1995 Cs 02 (Dayap) Origin: San Antonio, Zambales		Nut
		Weight (g)	7.0
Length (cm)		3.3	
Width (cm)		2.5	
Shape		Kidney - shaped	
Color		-	
			Kernel
Weight (g)		2.5	
Length (cm)		2.7	
Width (cm)		1.1	
Thickness (cm)		1.2	
Edible portion (%)		35.0	
3. NSIC 1997 Cs 03 (Makiling) Origin: Dept. of Horticulture, UPLB, College, Laguna			Shell
	Color	Gray	
	Texture	Smooth	
	Thickness (mm)	3.1	
	Weight (g)	5.5	
			Kernel
	Weight (g)	2.8	
	Color	White	
	Edible portion (%)	34	
		Other features of the variety	
		Big nut and kernel; high percentage edible portion (kernel); heavy cashew apple (as dual variety both for apple and nut production).	

4. NSIC 2001 Cs 04 (Zambales Beauty)		Nut
Origin: San Marcelino, Zambales	Weight (g)	8.59
		Shell
	Weight (g)	5.55
	Thickness (mm)	2.97
		Kernel (including testa)
	Weight (g)	5.55
	Color	White
	Flavor	Nutty
	Shelling recovery (%)	35.37
5. NSIC 2001 Cs 05 (Magsaysay)		Nut (sundried)
Origin: San Marcelino, Zambales	Weight (g)	9.0
		Shell
	Weight (g)	6.21
	Thickness (mm)	2.97
		Kernel (including testa)
	Weight (g)	2.79
	Color	White
	Flavor	Nutty
	Shelling recovery (%)	31.04
6. NSIC 2001 Cs 06 (DLR)		Nut (sundried)
Origin: San Marcelino, Zambales	Weight (g)	9.84
		Shell
	Weight (g)	6.80
	Thickness (mm)	2.93
		Kernel (including testa)
	Weight (g)	3.04
	Color	White
	Flavor	Nutty
	Shelling recovery (%)	30.8

7. NSIC 2001 Cs 07 (Gene) Origin: San Marcelino, Zambales		Nut (sundried)
	Weight (g)	10.07
		Shell
	Weight (g)	6.91
	Thickness (mm)	2.97
		Kernel (including testa)
	Weight (g)	3.16
	Color	White
	Flavor	Nutty
	Shelling recovery	31.37

References

PNS/BAFPS 59:2008

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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