



## PASTEURIZED PREMIUM MACADAMIA NUT KERNEL SPECIFICATION

This Specification supersedes all previous specifications.

1. All reasonable endeavours have been made to ensure the accuracy of the information provided in this specification.
2. It is explicitly stated that the information contained in this specification does not imply any recommendation regarding the suitability of the product for any specific purpose or application.
3. The purchaser acknowledges & agrees that it is their sole responsibility to determine whether the product is suitable for any particular purpose or application.
4. The purchaser further acknowledges that the product is an agricultural product & is therefore subject to seasonal variability.

**Product:** Macadamia Nut Kernel

**Description:** Macadamia nuts are the edible seeds of the macadamia tree (*Macadamia integrifolia* or *Macadamia tetraphylla*, & their hybrids).

**Ingredient:** The breakdown of the raw materials in our product is 100% Macadamia Nut Kernel.

**Origin:** Wholly processed in South Africa.

**Certified BRCGS Food Safety Management System:** The methods, practices & controls used in processing & packing this product are in conformance with good manufacturing practices assuring that the product is safe for use for human consumption. The product complies with stringent quality and food safety standards of BRCGS & is of food grade quality.

### PRODUCT DESCRIPTION

**Flavour:** Rich, buttery taste, free from off or objectionable flavours.

**Appearance:** Free flowing whole or half kernels, pieces, or chips

**Colour:** White to Dark Cream

**Texture:** Firm & crunchy

### Sieve analysis & whole & half kernel percentages

STYLE	SCREEN SIZE		WHOLE/ HALVES/PIECES (BY WEIGHT)
	PASSED THROUGH	RETAINED ON	
STYLE 0	N/A	20mm (round hole)	Min 95% whole kernel
STYLE 1	20mm (round hole)	16mm (round hole)	Min 90% whole kernel
STYLE 1S	16mm (round hole)	14mm (round hole)	Min 90% whole kernel
STYLE 2	20mm (round hole)	14mm (round hole)	Blend 50% wholes to 50% halves
STYLE 4L	N/A	14mm (round hole)	Min 80% half kernel
STYLE 4	14mm (round hole)	12mm (round hole)	Natural blend (Halves & Pieces)
STYLE 5	12mm (round hole)	8mm (round hole)	Natural blend (Pieces)
STYLE 6	8mm (round hole)	6mm (round hole)	Natural blend (Pieces)
STYLE 7	6mm (round hole)	3mm (round hole)	Natural blend (Pieces)

**NOTE:** Sizing refers to production screen sizes. Due to the nature of this process, there may be a percentage of kernel that is over or undersize (10% tolerance). The sizes represent average diameters acquired through the utilization of sieves with circular apertures, with the product passing over these screens during the size classification process.



## Physical parameters

PARAMETER	LIMIT	
Rejects % by weight	≤2.0%	
Blemishes & Deviations (Discolouration (basal discolouration/discoloured ring) & immaturity) (Style 0 – 4)	≤2.0% maximum (Visual)	
Blemishes & Deviations (Discolouration & immaturity) (Style 5 - 7)	≤3.0%	
FOREIGN MATTER	LEVEL	MAXIMUM
CRITICAL – Classified as Metal, Glass, Wood, Hard Plastic, Other Nuts, Live Infestation, Rodent Droppings	Absent	N/A
MAJOR – Classified as Plastic, Fibres, String	Absent	N/A
MINOR – Classified as Stalks, Stems, Dead Infestation, Extraneous Vegetable Matter	Target Nil	1pc/100kg maximum
Loose macadamia shells in Style 0 - 4	Target Nil	1pc/11.34kg
Loose macadamia shells in Style 5 - 7	Target Nil	3pc/11.34kg
Impacted Shell (All styles)	Target Nil	2% w/w

**NOTE:** Impacted shell refers to fragments of macadamia shell with an average diameter of ≥2mm, which become embedded into the surface of the kernel as a result of the cracking process.

## Final kernel product testing

### Chemical

PARAMETER	LIMITS PREMIUM GRADE	TEST METHODS
Moisture	2%	Halogen Lamp Balance
Free Fatty Acid	<0.5%	ISO 660:2009
Peroxide Value	<3 meq/kg OIL	ISO 3960:2017
Aflatoxin (B1, B2, G1, G2)	(B2, G1, G2) Less than 4ppb (B1) Less than 2ppb	Vicam - HPLC

### Microbiological

ND = Not Detected

PARAMETER	LIMITS	TEST METHODS
	RAW (PASTEURISED)	
Standard Plate count	<10,000 cfu/g	SWJM 35 (ISO 4833 & SANS 5763 & 5221)
Mould & Yeast count	<500 cfu/g	SWJM 50 (NF V08-059)
Total coliforms	<100/g	SWJM 48 (ISO 4832 & SANS 5221)
<i>E. Coli</i>	ND	SWJM 62 (ISO 16649-2)
<i>Salmonella</i>	ND / 375g	SWJM 67 (ISO 6579 & ISO 19250)
<i>Coagulase positive staphylococci</i>	<100/g	SWJM 53 (ISO 6888-1)
<i>Listeria monocytogenes</i>	ND / 25g	SWJM 23 (ISO 11290-1)

## Nutrition & Allergen information

Nutrient	Amount (100g Portion)		Amount (28.35g Portion)		Derived by
Water	1.36	g	0.386	g	Analytical
Energy	718	kcal	204	kcal	Calculated
Energy	3000	kJ	850	kJ	Calculated
Protein	7.91	g	2.24	g	Analytical
Total lipid (fat)	75.8	g	21.5	g	Analytical
Fatty acids, total saturated	12.1	g	3.43	g	Calculated
Fatty acids, total monounsaturated	58.9	g	16.7	g	Calculated



Fatty acids, total polyunsaturated	1.5	g	0.425	g	Calculated
Ash	1.14	g	0.323	g	Analytical
Carbohydrate, by difference	13.8	g	3.91	g	Calculated
Fiber, total dietary	8.6	g	2.44	g	Analytical
Total Sugars	4.57	g	1.3	g	Analytical
Starch	1.05	g	0.298	g	Analytical
Calcium, Ca	85	mg	24.1	mg	Analytical
Iron, Fe	3.69	mg	1.05	mg	Analytical
Sodium, Na	5	mg	1.42	mg	Analytical
Potassium, K	368	mg	104	mg	Analytical
Vitamin D (D2 + D3)	0	µg	0	µg	Assumed zero
Cholesterol	0	mg	0	mg	Assumed zero

Source: U.S. Department of Agriculture, Agricultural Research Service. Food Data Central, 2019. <https://fdc.nal.usda.gov/fdc-app.html#/food-details/170178/nutrients>

### Mandatory Advisory or Warning Statement & Declarations

**Regulatory Compliance:** This product shall comply with the provisions specified in South African regulation R638 of 22nd June 2018: Regulations governing general hygiene requirements for Food Premises, the Transport of Food & Related Matters. Department of Health, No. 41730 Government Gazette, 22nd June 2018: the SANS Food & Beverage Standards, SANS 10330:2020 & SANS 10049:2019, as amended & all other relevant South African legislations. Refer to the website below to ensure compliance [www.sabs.co.za/Sectors-and-Services/Sectors/Food](http://www.sabs.co.za/Sectors-and-Services/Sectors/Food)

**Contaminants & Residues:** This Product shall comply with the provisions specified in GNR. 246 of 11 February 1994: Regulations governing the maximum limits for pesticide residues that may be present in foodstuffs. Department of Health. [www.nda.agric.za/docs](http://www.nda.agric.za/docs)

**Bioengineered/GMO:** Products do not contain detectable genetic material modified by in vitro recombinant deoxyribonucleic acid (rDNA) techniques & have not been modified through conventional breeding or found in nature.

**Irradiation:** Products do not undergo any form of irradiation during processing.

### Allergens: Macadamia Nut

Allergen	Alkmaar			Ivory		
	Present	Trace	Absent	Present	Trace	Absent
Cereals containing gluten (wheat, rye, barley, oats, spelt Kamut or their hybridized strains) & products thereof	NO	NO	YES	NO	NO	YES
Crustaceans & products thereof	NO	NO	YES	NO	NO	YES
Eggs & products thereof	NO	NO	YES	NO	NO	YES
Fish & products thereof	NO	NO	YES	NO	NO	YES
Peanuts & products thereof	NO	NO	YES	NO	NO	YES
Soybeans & products thereof	NO	NO	YES	NO	NO	YES
Milk & products thereof (including lactose)	NO	NO	YES	NO	NO	YES
Nuts i.e. Almond, Hazelnut, Walnut, Cashew, Pecan nut, Brazil nut, Pistachio nut, <b>Macadamia nut</b> & Queensland nut & products thereof	MACADAMIA	YES	NO	MACADAMIA PECAN HAZELNUT BRAZIL NUT WALLNUT	YES	NO
Celery & products thereof	NO	NO	YES	NO	NO	YES
Mustard & products thereof	NO	NO	YES	NO	NO	YES
Sesame seeds & products thereof	NO	NO	YES	NO	NO	YES
Sulphur dioxide & sulphites at concentrations of more than 10 mg/kg or 10mg/Liter expressed as SO <sub>2</sub>	NO	NO	YES	NO	NO	YES



Glutamates	NO	NO	YES	NO	NO	YES
Benzoate	NO	NO	YES	NO	NO	YES
Aspartame	NO	NO	YES	NO	NO	YES
BHT/BHA	NO	NO	YES	NO	NO	YES
Azo colours	NO	NO	YES	NO	NO	YES
Mollusks & products thereof	NO	NO	YES	NO	NO	YES
Lupin & products thereof	NO	NO	YES	NO	NO	YES

## Additional information

**Packaging:** The Product is packed into nitrogen flushed vacuum sealed aluminium foil bags in fibreboard cartons.

STYLE	KG PER CARTON	POUNDS PER CARTON	Residual Oxygen
Style 0 to Style 4	11.34kg	25.00lb	<2%
Style 5 & Style 6	11.34kg	25.00lb	<5%
Style 7	10.00kg	22.05lb	<5%

**Transport:** The Product is transported under ambient conditions.

**Recommended storage:** Macadamia kernels are a perishable food product and must be handled with care, due to high oil content. If stored or handled incorrectly, the macadamia oil inside the nut will become rancid that will affect the shelf-life, taste, quality and potentially food safety. The product should be regularly checked for any change in quality. Global Macadamias cannot guarantee the shelf -life of any product handled/blended/repacked and stored outside its direct control.

The Product should be stored in original packaging in a clean (10-16°C), dry area (50-60% RH), free from toxic chemicals, odours, insect, & rodent infestation. Shelf life (recommended best before) for raw macadamias is 24 months from date of manufacture/packing if packaged & stored as per above.

## Definitions

- **Reject Kernel** is defined as kernel with major defects/disorders suitable only for non-food use.
- **Commercial Kernel** is defined as kernel exhibiting discolouration & discoloured defects but fit for human consumption.
- **Premium Kernel** is defined as fully matured kernel free from significant defects/disorders in its current form.
- **Whole Kernel** is kernel, which is not split or separated into halves, with no more than ¼ of the kernel missing, given that the kernel contour is not materially affected by the missing portion.
- **Half Kernel** means approximately half of a whole kernel as it normally separates.
- **Infestation** those which are typical of the Product.
- **Loose shell** means any loose shell, which will not pass through a 3mm round opening.
- **Impacted shell** means any kernel with embedded shell which will not pass through a 2mm round opening.
- **Foreign matter** includes any product that is not kernel &/or shell.
- **Pasteurised:** refers to kernel processed through a Napsol pasteurisation system which has been demonstrated to provide a ≥ 5 log reduction of *Salmonella* sp. on macadamia kernel.
- **Grading of kernel is based on a statistical testing regime.** Kernel is collected continuously with the composite sample being representative of the day code to determine the kernel quality.