



# Lupin FLOUR Technical Data Sheet

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**Origin:** Western Australia, Australia

**Product Description:** The Lupin Co Lupin Flour originates from Australian Sweet Lupin (ASL) seed (Lupinus Angustifolius) and are a Legume selected specifically for the low alkaloids (low bitterness/bean/green flavour). Approx 95% of all sweet lupin is grown in Australia and of this over 85% is grown in Western Australia (WA). Classic breeding comes from Mediterranean varieties which were introduced to WA during the early 1960's. Our lupins are harvested from the above-ground pods formed on the plant, cleaned and sized on farm, followed by careful removal of the outer husk (lupin hull) which is mainly hemi-cellulose fibre. Then follows a triple colour analysis to make sure we have only the beautiful golden lupin endosperm. A multiple dry size reduction process then follows to produce delicate and versatile flakes and then flour. The process is all done at a temperature not exceeding 36C, measured throughout the process by laser thermometers.

**Ingredients:** Pure, natural, Australian Sweet Lupin and Australian Sweet Air - nothing else.

**GMO status:** GMO free

**Storage and Shelf Life:** 24 months – if stored cool, dark and dry.

**Particle size:** 80-120um

**Available sizes:**

- 15kg paper bag, stitched
- 500kg bulk bag/tote – spout top/spout bottom.
- 1,000kg bulk bag/tote – spout top/spout bottom

**HS Code:** 1106.10.00

**Organoleptic Characteristics:**

- Flavour – neutral with no off flavour sometimes found with other legumes
- Aroma – Sweet, earthy, smells like the taste of wheat, dry with no off smell
- Texture – smooth, nutty mouth feel

**Physical:** A soft golden colour, blends easily with other dry materials, total hydration <3 minutes. Usage like a carbohydrate, but isn't a carbohydrate.

**Microbial Characteristics:**

- Clostridium Perfringens (CFU/g) - <10
- Coagulase Positive Staphylococci (CFU/g) - <100
- Ecoli (CFU/g) - <10
- Coliforms (CFU/g) - <10
- Enterobacteriaceae (CFU/g) - <10
- Salmonella sp /25g – not detected
- Total Plate Count (CFU/g) –  $10^4$  (usually shown to be less than  $10^2$ )
- Yeast (CFU/g) -  $<10^3$  (usually shown to be less than  $10^2$ )
- Mould (CFU/g) –  $<10^3$  (usually shown to be less than  $10^2$ )

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\*Independent NATA accredited

laboratories are utilised at all times for compliance with the Foods Standards Australia & New Zealand Codes in particular 1.4.1 Clause 3 and Standard 1.4.1 Clause 5

**Protein digestibility corrected amino acid score (PDCAAS): 0.53 \*\***

**Protein Digestibility Estimated:** 90 [1,2]

**Allergen Data:** Lupin is a declared allergen in Australia, New Zealand and EU. Wheat is grown on our farms however Gluten is not processed at our manufacturing site. We analyse final product independently and gluten is not detected at <5.0mg/kg. No other allergens are included in any of our processing facility.

**Certification:** HACCP/GMP, US Food and Drug Administration, Dept of Agriculture and Water Resources (Aust) Export Registered Establishment approved, Kosher, Halal (third party certificates available on request), Coeliac Aust.

**Nutritional Facts:**

Compositional Analysis	Range
Moisture (%)	9-10
Water Activity (Aw)	0.378
Energy (per 100gm)	1350kJ
Protein (%)	38-41
Fat (%)	6-7
- Saturated fat (% of Fat)	20
- Polyunsaturated fat (% of Fat)	45
- Monounsaturated fat (% of Fat)	35
- Cholesterol (%)	0
Ash (%)	3-4
Digestible Carbohydrates (%)	2.5-4
Dietary Fibre (%)	36-39
Calcium (mg/100g)	150
Sodium (mg/100g)	30
Potassium (mg/100g)	810
<b>Food Standards Australia and New Zealand* Range</b>	
Alkaloids (%)	<0.02
Phomopsin (ppm)	<5

Amino acid profile for Lupin Protein	
Amino Acids	(g/100g)
Alanine	1.40
Arginine	4.80
Aspartic acid	4.50
Cysteine	0.70
Glutamic acid	9.00
Glycine	1.60
Histidine	1.00
Isoleucine	1.60
Leucine	2.90
Lysine	1.50
Methionine	0.30
Phenylalanine	1.50
Proline	2.30
Serine	2.10
Threonine	1.80
Tryptophan	0.41
Tyrosine	1.60
Valine	1.50
Cyst + Meth	1.00
Tyr + Phen	3.10

[1] Villarino, C., Jayasena, V., Coorey, R., Chakrabarti-Bell, S. & Johnson, S. 2015. The effects of lupin (*Lupinus angustifolius*) addition to wheat bread on its nutritional, phytochemical and bioactive composition and protein quality. *Food Res. Int.* vol. 76, pp. 58-65. [2] Chew, P. G. Casey, A & Johnson, S. K. 2003, Protein quality and physico-functionality of Australian sweet lupin (*Lupinus angustifolius* cv. Gungurru) protein concentrates prepared by isoelectric precipitation or ultrafiltration. *Food Chem.* vol. 83, pp. 575-583. \*\* Determined by multiplying the protein digestibility (%) with the limiting amino acid score.