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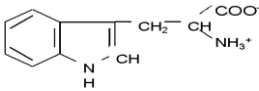
L-Tryptophan 98 % Feed Grade is produced by fermentation from raw materials of agricultural origin (such as beet molasses or starch hydrolysates).

This product is intended only for animals and should not be used in human products or human consumption.

1. Physical description

Whitish to yellowish powder.

2. Chemical description

Chemical structure	
Chemical formula	C ₁₁ H ₁₂ N ₂ O ₂
Molecular weight	204.23
Isomer	L (Laevo-rotatory)

3. Commercial guarantee

L-Tryptophan, %	98	Minimum	HPLC analysis
Moisture, %	1	Maximum	105°C for 4 hours
Purity, %	98	Minimum	L-Tryptophan on dry matter

4. Regulatory position

L-Tryptophan, technically pure (L-Tryptophan 98 % Feed Grade) is in the scope of Regulation (EC) 1831/2003 of 22/09/2003 on additives for use in animal nutrition (OJ EU n° L 268 of 18/10/2003), category: "nutritional additives", additive group: "amino acids, their salts and analogues" and is approved for use in all animal species.

5. Nutritional values*

Dry matter, %	99.0	Minimum	105°C for 4 hours
Tryptophan content, %	98.0	Minimum	HPLC analysis
Digestibility coefficient, %	100		INRA -AFZ 2002
Crude Protein, %	84.0	Minimum	(N Dumas x 6.25) by convention
ME poultry, kcal.kg ⁻¹ (MJ.kg ⁻¹)	5850 (24.48)	With DE = GE & N retention = 0.40	Sauvant et al., 2004; p.38.
DE pig, kcal.kg ⁻¹ (MJ.kg ⁻¹)	6510 (27.24)	From GE values (DE = GE)	Calorimetric bomb
ME pig, kcal.kg ⁻¹ (MJ.kg ⁻¹)	6120 (25.61)	ME : DE = 0.939	Sauvant et al., 2004.
NE pig, kcal.kg ⁻¹ (MJ.kg ⁻¹)	4730 (19.79)	NE : ME = 0.773	Sauvant et al., 2004.

*Values for information purpose only and do not constitute any commercial guarantee

Source: Sauvant D., Perez J.-M., Tran G, 2004. Tables of composition and nutritional value of feed materials. Wageningen Academic Publishers, INRA Editions and AFZ, Paris

6. Packaging and storage

Packaging

10 kg bags on shrink wrapped pallets and "Big bags".

Storage

Store in dry conditions in a sealed or closed container and protected from light and heat. Avoid any source of combustion.


Stability

➤ Original 10 kg bags unopened: the product is stable for at least 3 years if stored under recommended conditions.

➤ Original "Big bags" unopened: the product is stable for at least 1 year if stored under recommended conditions.

The batch number and the production date are printed on the bags.

Application date : 30/09/2011

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7. Additional information

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General specifications

pH	4.5 to 7	solution at 0.5 %
Bulk density, kg/l	0.2 to 0.3	
Melting point / Decomposition temperature	289 °C	
Solubility in water	1.136 g/100g water	at 25°C

Chemical characteristics

Residue on ignition, %	1	Maximum
Ammonium, %	0.2	Maximum
Chloride, %	0.2	Maximum
Sodium, %	0.2	Maximum
Specific rotation, °	- 28.4 to - 33	at 20°C, C1%, H ₂ O

Other information

Heavy metals		Complying with EU Directive 2002/32/EC
<i>Arsenic</i>	2 mg/kg	Maximum
<i>Lead</i>	5 mg/kg	Maximum
<i>Mercury</i>	0.1 mg/kg	Maximum
<i>Cadmium</i>	0.5 mg/kg	Maximum
<i>Fluor</i>	30 mg/kg	Maximum
Pesticides		Complying with EU Directive 2002/32/EC
Dioxins, dioxins-like PCBs		Complying with EU Directive 2002/32/EC

Examples of practical utilisation of L-Tryptophan in compound feeds

Range of supplementation commonly used. Do not represent maximum or minimum inclusion levels.

		In kg per ton of feed
Pigs	Piglet	0.5 to 1.0
	Sow	0.1 to 0.5
	Growing-Finishing pig	0.1 to 0.5
Poultry	Turkey	0.1 to 1.0
	Broiler	0.1 to 0.5
	Laying hens	0.1 to 1.0
Others	Fish	0.1 to 1.0
	Calf milk replacers	0.1 to 1.0
	Pet food	0.1 to 1.0
	Rabbit	0.1 to 1.0

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