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Liquid Lysine Base 50 % Feed Grade, is produced by fermentation from natural raw materials of agricultural origin (such as beet molasses or starch hydrolysates). Liquid Lysine Base 50 % is a solution containing a minimum of 50 % of L-Lysine base corresponding to 64.1 % of L-Lysine HCl 99 % Feed Grade.

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

1. Physical description

Dark brown liquid.

2. Chemical description of the active substance

Chemical structure	$\text{NH}_2\text{-CH}_2\text{-CH}_2\text{-CH}_2\text{-CH}_2\text{-CH-COOH}$ $ $ NH_2
Chemical formula	$\text{C}_6\text{H}_{14}\text{N}_2\text{O}_2$
Molecular weight	146.20
Isomer	L (Laevo-rotatory)

3. Commercial guarantee

Lysine base, %	50	Minimum	AOAC 999.13
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4. Regulatory position

Concentrated liquid L-Lysine base (LLB 50) 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, %	52.4	Average	105°C for 4 hours
Lysine base content, %	50.0	Minimum	AOAC 999.13
Crude Protein, %	61.2	Minimum	(N Dumas x 6.25) by convention
Digestibility coefficient, %	100		INRA - AFZ 2002
ME poultry, kcal.kg ⁻¹ (MJ.kg ⁻¹)*	2640 (11.05)		Larbier & Leclercq,1992
DE pig, kcal.kg ⁻¹ (MJ.kg ⁻¹)*	3110 (13.01)	From L-Lysine HCl value	Calorimetric bomb
ME pig, kcal.kg ⁻¹ (MJ.kg ⁻¹)*	2830 (11.84)	(proportionally to the lysine base content)	INRA - AFZ 2002
NE pig, kcal.kg ⁻¹ (MJ.kg ⁻¹)*	2200 (9.20)		INRA - AFZ 2002

Values for information purpose only and do not constitute any commercial guarantee - * 1 000 kcal = 4.184 MJ

6. Packaging - storage

Packaging

Bulk.

Materials

Storage tanks : stainless steel type 304 or fibre reinforced plastic (FRP) – Pumps : stainless steel type 304.

Product characteristics must be supplied to the manufacturer of the installation to check material compatibility.

Maintenance

Storage tanks should be cleaned twice a year with hot water. If the installation is to be shut down for more than 3 days, pipes should be rinsed with hot water prior to shut down.

Temperature

LLB 50 does not crystallise or freeze at temperature above minus 18°C.


Stability

LLB 50 is stable 1 year if stored at 20°C.

Reference of the delivery

Each load delivered is sampled and considered as a batch referenced by the delivery note number.

Application date : 15/05/2006

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7. Additional information

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General specifications

pH	10 to 11	at 20°C
Density	1.10 to 1.12	at 20°C
Crystallisation and freezing point, °C	- 18	
Boiling point, °C	110 to 120	
Viscosity, centipoises	50	at 20°C
	150	at 0°C
	300	at - 10 °C
Conductivity, microsiemens/cm	3000	

Chemical characteristics (average values based on 2003-2004 analyses)

	Average	Minimum	Maximum
Dry matter, %	52.4	51.5	54
Total Nitrogen (N), %	9.93	9.79	10.06
N from Lysine, %	9.67	9.58	9.72
Ammoniacal nitrogen, %	0.02	0.01	0.02
Other N (amino acids,), %	0.24	0.20	0.32
Other mineral substances, %	0.24	0.21	0.33
Chloride	0.07	0.03	0.11
Sulphates, %	0.08	0.06	0.11
Potassium, %	0.07	0.05	0.08
Sodium, %	0.06	0.04	0.07
Calcium, ppm	10		
Magnesium, ppm	10		
Phosphorus, ppm	40		

Examples of practical utilisation of LLB50 in compound feeds

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

		In kg per ton of feed
Pigs	Piglet	2 to 8
	Growing-Finishing pig	1.5 to 4
	Sow	0.8 to 3
Poultry	Turkey	2.5 to 6
	Broiler	1.5 to 4
	Laying hen	0.3 to 2.5
Others	Fish	1.5 to 9.5
	Calf milk replacers	1.5 to 8
	Rabbit	0.8 to 1.6
	Pet food	0.8 to 1.6

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