 AJINOMOTO EUROLYSINE S.A.S.	Technical data sheet <i>L-Threonine 98.5 % Feed Grade</i>	Reference	SPF.0010
		Revision	B
		Page	1/2

L-Threonine 98.5 % Feed Grade is produced by fermentation from natural 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

White to pale yellow crystalline powder.

2. Chemical description

Chemical structure	$\text{CH}_3\text{-CH-CH-COO}^-$ $\begin{array}{cc} & \\ \text{OH} & \text{NH}_3^+ \end{array}$
Chemical formula	C ₄ H ₉ NO ₃
Molecular weight	119.12
Isomer	L (Laevo-rotatory)

3. Commercial guarantee

Threonine, %	98	Minimum	AOAC 999.13
Moisture, %	0.5	Maximum	105°C for 4 hours
Purity, %	98.5	Minimum	Threonine on dry matter

4. Regulatory position

L-Threonine, technically pure (L-Threonine 98.5 % 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, %	99.5	Minimum	105°C for 4 hours
Threonine, %	98.0	Minimum	AOAC 999.13
Digestibility coefficient, %	100		INRA - AFZ 2002
Crude Protein, %	72.0	Minimum	(N Dumas x 6.25) by convention
ME poultry, kcal.kg ⁻¹ (MJ.kg ⁻¹)*	3570 (14.94)	With DE = GE & N retention = 0.40	Larbier & Leclercq,1992
DE pig, kcal.kg ⁻¹ (MJ.kg ⁻¹)*	4140 (17.32)	From GE values (DE = GE)	Calorimetric bomb
ME pig, kcal.kg ⁻¹ (MJ.kg ⁻¹)*	3790 (15.86)	ME : DE = 0.915	INRA - AFZ 2002
NE pig, kcal.kg ⁻¹ (MJ.kg ⁻¹)*	2950 (12.34)	NE : ME = 0.777	INRA - AFZ 2002

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

6. Packaging and storage

Packaging

25 kg bags on shrink wrapped pallets, 1 metric ton "Big bags" or bulk.


Storage

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

Stability

- Original 25 kg bags unopened : product is stable for at least 3 years if stored under recommended conditions.
 - Original "Big bags" unopened : 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. For bulks, this piece of information is printed on the conformity certificate.

Application date : 15/05/2006

 AJINOMOTO EUROLYSINE S.A.S.	Technical data sheet <i>L-Threonine 98.5 % Feed Grade</i>	Reference	SPF.0010
		Revision	B
		Page	2/2

7. Additional information

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General specifications

pH	5 to 6.5	solution at 5%
Bulk density, kg/l	0.5 to 0.6	
Melting point / Decomposition temperature	255 °C	
Solubility in water	9.76 g/100 g water	at 20°C

Granulometry

	Less than 0.50 mm	100%
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Chemical characteristics

Residue on ignition, %	0.5	Maximum
Potassium, %	0.05	Maximum
Ammonium, %	0.1	Maximum
Chloride, %	0.2	Maximum
Sodium, %	0.05	Maximum
Specific rotation °	- 26 to - 29	at 20°C, C6 %, H ₂ O

Examples of practical utilisation of L-Threonine 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 2
	Growing-Finishing pig	0.2 to 1.5
	Sow	0.1 to 1.5
Poultry	Turkey	0.1 to 1.0
	Laying hen	0.1 to 1.0
	Broiler	0.1 to 1.0
Others	Fish	0.5 to 3.0
	Calf milk replacers	0.5 to 3.0
	Rabbit	0.1 to 1.0
	Pet food	0.1 to 1.0

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