

TECHNICAL DATA SHEET

NATURCARE

ANALYSIS (completed on 1-1-2009 100% solution)

METHOD	PARAMETER	RESULT	UNITS
EPA 160.4	Total solids	13.60	%
AOAC 978.02	Total Nitrogen (N)	6.01	%
AOAC 920.03	Ammoniacal Nitrogen (N)	0.85	%
AOAC958.01	Phosphorus (P)	3.02	%
	Potassium (K)	5.01	%
ATOMIC Absorption	Iron	150	mg/Kg
	Magnesium (Mg)	30	mg/Kg
	Sodium (Na)	15	mg/Kg
	Chlorides	<0.15	%

Radioactive Carbon C-14 1-1-2006; laboratory tests USDA approved: complies with USDA regulations for the product tested at 90.

Clean air dilution: VOC is 1.0 g/L meets CAS criteria.

HPLC-FMOC: Perkin Elmer Chromatograph

Glycine:	800 mg/l	Valine:	40 mg/l
Proline:	350 "	Hydroxiprolin:	350 "
Alanine:	350 "	Aspartic Acid:	680 "
Arginine:	30"	Glutamic Acid:	225 "
Lysine:	345 "	Leucine:	50 "
Isoleucine:	125 "	Phenylalanine:	145 "
Methionine:	25 "	Serine:	140 "
Process:	Molecular biosynthesis	L-amino acids:	100%
Purity	> 99.999%		
Toxicity:	Not toxic.	Intravenous toxicity DL ₅₀	> 4.000 mg/Kg

HEAVY METALS:

As	less than	0.005	Cd	less than	0.008
Co	“ “	0.125	Hg	“ “	0.002
Ni	“ “	0.065	Pb	“ “	0.202
Cr	“ “	0.417			

Information on the basic physical and chemical properties.-

BOILING POINT: 115°C FREEZING POINT: -25°C SPECIFIC GRAVITY: 1.16

VAPOUR PRESSURE: <0.005 m Pa (25°C)

(H₂O = 1) VAPOUR DENSITY: *NE

(Air= 1) WATER % wt. *NE APPEARANCE AND ODOUR: Amber, slight amine odour

SOLUBILITY IN WATER AND ORGANIC SOLVENTS:

Minimum: Tyrosine 0.04 g/100 ml H₂O (25 °C); Maximum: Lysine, Threonine and Proline: 190-180-162-g/100 ml (25 °C)

EVAPORATION INDEX: *NE

pH: 6.00-7.00

COEFFICIENT OF SEPARATION FROM WATER AND ORGANIC SOLVENTS: (N-octanol): Log Kow = -2.9; -2.1 (25 °C)

DISSOCIATION CONSTANT: PKa (α-COOH) Min. 1.8 (Histidine); PKa (α- NH₃⁺) Max. 10.8 (cysteine)

***NE: No evidence**

Physical state:	Liquid
Form:	Liquid
Colour:	Dark brown
Odour:	Characteristic of amines
Odour threshold:	Not determined
pH in 10% solution w/w:	6 to 6.5
Dry substance:	13.60%
Melting point/range:	Not determined
Freezing point:	-25°C
Boiling point/range:	115°C
Flash point:	Not determined
Evaporation rate:	<0.005 m Pa (25°C)
Combustibility (solid/gas):	Not determined
Lower explosive limit:	It has not been possible to determine it in the experiments
Upper explosive limit:	It has not been possible to determine it in the experiments
Vapour pressure:	<0.005 m Pa (25° C)
Vapour density:	No available data



Density:	1.16
Water solubility (20°C in g/100 ml):	145 (Minimum Tyrosine 0.04, Maximum Lysine 190 g/100 ml)
N-octanol/water partition coefficient:	Log Kow= -2.9; 2.1 (25°C)
Self-ignition temperature:	Not self-flammable according to the experiments
Thermal decomposition:	From 240 °C
Dynamic viscosity:	52 cP (centipoise)
Kinematic viscosity:	Dynamic viscosity/density= 44.82 CST (centistokes) = 0.00004482 m ² /s
Explosive properties:	None
Comburent properties:	None

10.1. Reactivity.-

Stable under the recommended conditions of storage and handling in their closed original container (see section 7).

10.2. Chemical stability.-

Stable for a minimum of 4 years under the recommended conditions of storage and handling in their closed original container (see section 7).

10.3. Possibility of hazardous reactions.-

None known.

10.4. Conditions that must be avoided.-

Avoid thermic shocks because of the possibility of causing crystallisation.

Avoid storage at temperatures >30 °C and <2 °C because of the difficulty in handling the product due to an increase in viscosity.

With time (>2 years), there is a slight change in the colour and odour, which do not negatively affect the quality of the product.

10.5. Incompatible reactions.-

Strong oxidising agents, due to the possibility of producing exothermic reactions.

10.6. Hazardous decomposition products.-

None under the normal storage conditions.