LetCo
LIQUID ENERGY TRADING COMPANY SWISS S.A.

Vinasse

(Product code LQS-ES2SG)

Description :
The vinasses is a by-product of the yeast production based on sugar beet molasses.

Analysis results (23.12.2015)

Parameters	**Unit**	**Result**
Water content	%w/w	32,9
Dry matter	%w/w	67,1
Crude ashes	%w/w	22,78
Sodium	%w/w on dry	1,4
Calcium	%w/w on dry	2,06
Potassium	%w/w on dry	13,25
Phosphorus	%w/w on dry	0,1
Magnesium	%w/w on dry	0,16
Sulfur	%w/w on dry	2,31
Chloride in Cl	%w/w on dry	1,39
Nitrates	%w/w on dry	0,27
Sulfates	%w/w on dry	6,92
Total nitrogen	%w/w on dry	4,87
Ammoniacal nitrogen	%w/w on dry	0,27
Total Organic Carbon (TOC)	%w/w on dry	32,76

Parameters	**Unit**	**Result**
Total amino acids (sum)	%w/w on dry	12,29
Betaine	%w/w on dry	11,37
Crude fat	%w/w on dry	0,31
Total sugars in glucose	%w/w on dry	3,47
Organic acids (sum)	%w/w on dry	10,07

Mineral Matter Identification – Elementar Analysis

Parameters	**Result (mg/kg)**	**Result (% w/w)**	**Result (% w/w) on dry material**
Calcium (Ca)	13831	1,38	2,06
Potassium (K)	88902	8,89	13,25
Magnesium (Mg)	1116	0,11	0,16
Sodium (Na)	9386	0,94	1,40
Phosphorus (P)	657	0,07	0,10
Arsenic (As)	<0,25	<0,00003	<0,00004
Mercury (Hg)	< 0,005	-	-
Sulfur (S)	15470	1,55	2,31

Mineral Matter Identification – Anionic profile

Parameters	Result (mg/kg)	Result (% w/w)	Result (% w/w) on dry material
Chloride (Cl)	9338	0,93	1,39
Nitrate (NO3	1795	0,18	0,27
Sulfate (SO4	46399	4,64	6,92

Mineral Matter Identification – Cationic profile

Parameters	Result (mg/kg)	Result (% w/w)	Result (% w/w) on dry material
Ammonium (NH4)	1637	0,16	0,24
Calcium(Ca2)	10574	1,06	1,58
Lithium (Li)	<200	<0,02	-
Magnesium (MG2)	1132	0,11	0,16
Potassium (K)	92098	9,21	13,73
Sodium (Na)	7520	0,75	1,12

Note: The elements analyzed in the anionic and cationic profiles are the one soluble in water.

Organic Matter Identification – via nitrogen & carbon

Parameters	Result (mg/kg)	Result (% w/w)	Result (% w/w) on dry material
Total nitrogen	-	3,27	4,87
Ammoniacal nitrogen	-	0,18	0,27
Total Oragnic Carbon (TOC)	-	21,98	32,76

Total Aminoacids

Parameters	Result (mg/kg)	Result (% w/w)	Result (% w/w) on dry material
Aspartic acid	-	0,7	1,04
Threonin	-	0,2	0,30
Serin	-	0,24	0,36
Glutamic acid	-	4,77	7,11
Prolin	-	<0,03	<0,04
Glycin	-	0,36	0,54
Alanin	-	0,48	0,72
Valin	-	0,24	0,36
Cystein	-	0,11	0,16
Methionin	-	0,07	0,10
Isoleucin	-	0,17	0,25
Leucin	-	0,25	0,37
Tyrosin	-	0,19	0,28
Phenylalein	-	0,14	0,21
Lysin	-	0,18	0,27
Histidin	-	0,07	0,10
Arginin	-	0,08	0,12
Total amino acids (sum)	**-**	**8,25**	**12,29**

Free Aminoacids

Parameters	Result (mg/kg)	Result (% w/w)	Result (% w/w) on dry material
Aspartic acid	-	0,267	0,398
Threonin	-	0,012	0,018
Serin	-	0,046	0,069
Glutamic acid	-	0,485	0,723
Prolin	-	< 0,003	<0,004
Glycin	-	0,029	0,043
Alanin	-	0,151	0,225
Valin	-	0,037	0,055
Cystein	-	0,024	0,036
Methionin	-	< 0,003	<0,004
Isoleucin	-	0,022	0,033
Leucin	-	0,044	0,066
Tyrosin	-	0,048	0,072
Phenylalein	-	0,027	0,04
Lysin	-	0,015	0,022
Histidin	-	0,003	0,004
Arginin	-	0,005	0,007
Total amino acids (sum)	**-**	**1,22**	**1,81**
Betaine	**-**	**7,63**	**11,37**

Organic Matter Identification – other organic compounds

Parameters	Result (mg/kg)	Result (% w/w)	Result
Crude fat	-	0,21	**(% w/w) on dry material**
Total sugar glucose	-	2,33	**Result**

Polyols

Parameters	Result (mg/kg)	Result (% w/w)	Result (% w/w) on dry material
Erythritol	-	< 0,10	< 0,15
Glycerol	-	< 0,20	< 0,30
Lactitol	-	< 0,10	< 0,15
Maltitol	-	< 0,10	< 0,15
Mannitol	-	< 0,10	< 0,15
Sorbitol	-	< 0,10	< 0,15
Xylitol	-	< 0,10	< 0,15

Alcohols

Parameters	Result (mg/kg)	Result (% w/w)	Result (% w/w) on dry material
Ethanol	7,16	0,0007	0,001
Isobutanol	< 2	-	-
Isopentatol	< 2	-	-
Isopropanol	< 2	-	-
Methanol	< 20	-	-
N-butanol	< 2	-	-
N-pentanol	< 2	-	-
N-propanol	< 2	-	-
Tert amyl alcool	< 2	-	-
Tert-butanol	< 2	-	-

Organic acids

Parameters	Result (mg/kg)	Result (% w/w)	Result (% w/w) on dry material
Acetic acid	14444	1,44	2,15
Bultyric acid	562	0,06	0,09
Citric acid	3055	0,31	0,46
Formic acid	5694	0,57	0,85
Isovaleric acid	< 500	< 0,05	-
Lactic acid	41301	4,13	6,15
Oxalic acid	< 200	< 0,02	-
Propionic acid	2039	0,20	0,30
Pyruvic acid	< 500	< 0,05	-
Valeric acid	478	0,05	0,07
Total organic acids (sum)	**67573**	**6,76**	**10,07**

Note: Pyruvic acid and isovaleric acid are coeluted, the sum of both components is < 0,05%.

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