

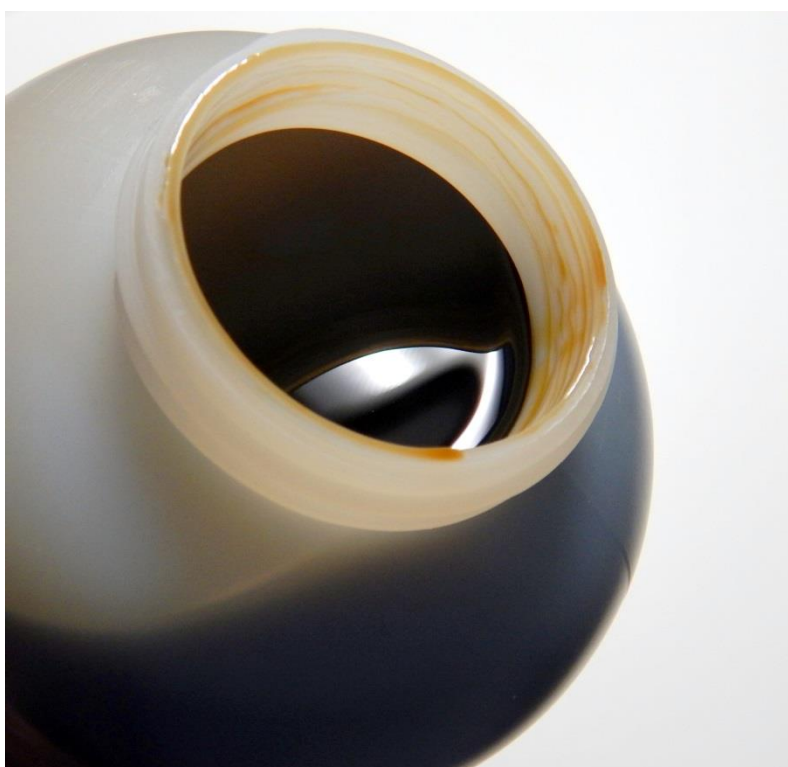


LetCo

LIQUID ENERGY TRADING COMPANY SWISS S.A.

Betaine Molasses

(Product code LQS-A32Ag)



Product: Betaine Liquid 40%

Description: Betaine molasses is a natural source extracted from sugar beet molasses. Betaine has a role in water balance and it is considered as a natural compound for osmotic stress relief.

Betaine molasses is used as a feed additive in poultry, swine, ruminant and aqua diets.

Application: Betaine is used for its main functions:

- Replacement of choline and/or methionine
- Osmoregulation to reduce the effects of:
 - Heat stress
 - A dysfunctional gut or gut infections
- Carcass Improvement:
 - Lower feed costs
 - Contribution to feed safety

Appearance: brown liquid, free-flowing

Specification:

Parameter	Unit	Value	Method
Betaine	% i.S.	Min. 40	HPLC
Dry substance	%	Min. 55	
pH		9 - 12	
Ash	%	Max. 2	Residue on ignition

Packaging: Bulk , IBC

Storage: 2 years from manufacturing date

Stability: Betaine is heat stable up to 200°C and as such stable in pelleting and extrusion process. Betaine liquid will remain liquid until – 30°C

Dosage:

Poultry	0,3 – 6 kg per ton of finished feed
Pigs	0,3 – 6 kg per ton of finished feed
Dairy cows	30 – 150g per head per day, depending on milk production
Aquaculture	3 – 45 kg per ton of finished feed

Analysis 2014

Parameter	Unit	Value	Method
Dry matter (Brix)	%	63,25	
pH		11,37	
Betaine	%	40,57	HPLC
Betaine	%	64,15	Calculated in DM
Sucrose	%	5,56	
Glucose	%	<0,1	
Fructose	%	1,20	

Analyse 2014

Parameter	Unit	Value in original product	Value based on 88% DM	Method
Water	%	41,7		VO(EG) 152/2009, III, A
Crude ash	%	1,0	1,6	VO(EG) 152/2009, III, M
Crude protein (Nx6,25)	%	33,8		VO(EG) 152/2009, III, C
Fat B (HCL)	%	< 0,2		VO(EG) 152/2009, III, H
Starch	%< 0,2			VO(EG) 152/2009, III, L
Total sugars	%	6,8	10,3	VO(EG) 152/2009, III, J
Crude fibre	%	< 0,5		VO(EG) 152/2009, III, I
ADF om	%	< 0,4		VDLUFA Bd. III, Kap. 6.5.2
Gas formation	ml/200mg	14,4	21,7	VDLUFA Bd. III, Kap. 25.1
NEL (HFT)	MJ/kg	4,5	6,79	FMV – Anlage 4 (2013)
ME – Cattle	MJ/kg	7,4	11,2	FMV – Anlage 4, GfE 2009
ME - Pigs	MJ/kg	10,7	16,2	FMV – Anlage 4, GfE 2008
ME - Poultry	MJ/kg	6,1	9,2	VO(EG) 152/2009, VII
Calcium (Ca)	%	< 0,05		DIN EN 15621
Phosphorus (P)	%	< 0,05		DIN EN 15621
Sodium (Na)	%	0,16	0,24	DIN EN 15621
Magnesium (Mg)	%	< 0,02		DIN EN 15621

Potassium (K)	%	0,34	0,51	DIN EN 15621
Total sulfur (S)	%	< 0,05		DIN EN 15621
Chloride	%	<0,02		VDLUFA Bd. III, 10.5.1 (mod.)
Copper (Cu)	%	< 2,0		DIN EN 15621
Zinc (Zn)	%	< 10,0		DIN EN 15621
Manganese (Mn)	%	< 10,0		DIN EN 15621
Iron (Fe)	%	< 20,0		DIN EN 15621
Selenium (Se)	mg/kg	< 0,1		DIN EN ISO 17294-2 (mod.)
Lysine	%	< 0,05		VO(EG) 152/2009, III, F #5
Methionine	%	< 0,05		VO(EG) 152/2009, III, F #5
Cystine	%	< 0,05		VO(EG) 152/2009, III, F #5
Threonine	%	< 0,05		VO(EG) 152/2009, III, F #5
Aspartic acid	%	< 0,05		VO(EG) 152/2009, III, F #5
Serine	%	< 0,05		VO(EG) 152/2009, III, F #5
Glutamic acid	%	< 0,05		VO(EG) 152/2009, III, F #5
Proline	%	0,32	0,48	VO(EG) 152/2009, III, F #5
Glycine	%	0,060	0,091	VO(EG) 152/2009, III, F #5
Alanine	%	< 0,05		VO(EG) 152/2009, III, F #5
Valine	%	< 0,05		VO(EG) 152/2009, III, F #5
Isoleucine	%	< 0,05		VO(EG) 152/2009, III, F #5
Leucine	%	< 0,05		VO(EG) 152/2009, III, F #5
Tyrosine	%	< 0,05		VO(EG) 152/2009, III, F #5
Phenylalanine	%	< 0,05		VO(EG) 152/2009, III, F #5
Histidine	%	< 0,05		VO(EG) 152/2009, III, F #5
Arginine	%	< 0,05		VO(EG) 152/2009, III, F #5
Trimethylamine	mg/kg	20,3	30,6	§64 LFGB L 10.00-4 (UI) #5

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