

Sample Information Report

Evonik East Africa (Kenya) (63790), Nairobi, Kenya

Lab Customer: Evonik East Africa (Kenya-Nairobi), Nairobi, 56039

Lab code: NW23-0398045-001 Date of delivery: 2023-05-23 Date of release: 2023-05-23

Material Type: Raw Materials Material: Fish Meal Phase:

Origin Country: Kenya Origin Subregion: - Origin Province: -

Description:

Description 1: AminoNIR 1 Fish Meal Sample JKUAT(Fish meal-T25)





Evonik East Africa (Kenya) (63790), Nairobi, Kenya

Lab Customer: Evonik East Africa (Kenya-Nairobi), Nairobi, 56039

Lab code: NW23-0398045-001 Material: Fish Meal

Description:

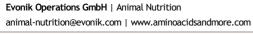
Results of amino acid analysis

Parameter	Content (% as is)	Content (%)*	Content (% in CP)
Dry matter	88.42		
CP **	67.27	69.24	
Methionine	1.729	1.779	2.57
Cystine	0.581	0.598	0.864
Methionine + Cystine **	2.222	2.287	3.304
Lysine	5.128	5.278	7.624
Threonine	2.637	2.714	3.92
Tryptophan	0.624	0.643	0.928
Arginine	3.986	4.103	5.926
Isoleucine	2.708	2.787	4.026
Leucine	4.671	4.807	6.943
Valine	3.094	3.185	4.6
Histidine	1.376	1.416	2.045
Phenylalanine	2.56	2.635	3.805
Glycine	4.543	4.676	6.753
Serine	2.474	2.547	3.678
Proline	2.977	3.064	4.426
Alanine	4.252	4.376	6.321
Aspartic acid	6.046	6.223	8.988
Glutamic acid	8.743	8.998	12.997
NH3	1.029	1.059	1.529
Sum including NH3 **	59.03	60.755	87.751
Sum without NH3 **	57.926	59.619	86.11

^{*} DMS: Figures standardized to a dry matter content of 91%, CP = Crude protein, calibration based on Dumas combustion method (CP factor 6.25)

NIRS calibration equation: agFISH36_177473_v10









^{**} estimated with separate calibration equation



Evonik East Africa (Kenya) (63790), Nairobi, Kenya

Evonik East Africa (Kenya-Nairobi), Nairobi, 56039 Lab Customer:

Lab code: NW23-0398045-001 Material: Fish Meal

Description:

Standardized ileal digestible amino acid content (Pig)

Parameter	Content (% as is)	Content (%)*
Methionine	1.521	1.566
Cystine	0.442	0.455
Methionine + Cystine **	1.867	1.921
Lysine	4.564	4.698
Threonine	2.294	2.361
Tryptophan	0.543	0.559
Arginine	3.707	3.816
Isoleucine	2.41	2.481
Leucine	4.157	4.278
Valine	2.723	2.803
Histidine	1.197	1.232
Phenylalanine	2.227	2.292

 $^{^{\}ast}$ DMS: Figures standardized to a dry matter content of 91%







^{**} estimated with separate calibration equation



Evonik East Africa (Kenya) (63790), Nairobi, Kenya

Evonik East Africa (Kenya-Nairobi), Nairobi, 56039 Lab Customer:

Lab code: NW23-0398045-001 Material: Fish Meal

Description:

Standardized ileal digestible amino acid content (Broiler)

Parameter	Content (% as is)	Content (%)*
Methionine	1.487	1.53
Cystine	0.355	0.365
Methionine + Cystine **	1.711	1.761
Lysine	4.359	4.487
Threonine	2.136	2.199
Tryptophan	0.493	0.508
Arginine	3.388	3.487
Isoleucine	2.275	2.341
Leucine	3.97	4.086
Valine	2.537	2.612
Histidine	1.114	1.147
Phenylalanine	2.125	2.187
Glycine	3.68	3.787
Serine	2.054	2.114
Proline	2.411	2.482
Alanine	3.657	3.764
Aspartic acid	4.716	4.854
Glutamic acid	7.519	7.739

 $^{^{\}star}$ DMS: Figures standardized to a dry matter content of 91%







^{**} estimated with separate calibration equation



Evonik East Africa (Kenya) (63790), Nairobi, Kenya

Lab Customer: Evonik East Africa (Kenya-Nairobi), Nairobi, 56039

Lab code: NW23-0398045-001 Material: Fish Meal

Description:

AMINONIR® Prox

Parameter	Content (% as is)	Content (%)*
Dry matter	88.42	
CP **	67.27	69.24
Ether Extract	9.2	9.5
Crude Ash	18.4	18.9
Phosphorus (mg/kg)	23083	23757

^{*} DMS: Figures standardized to a dry matter content of 91%, CP = Crude protein, calibration based on Dumas combustion method (CP factor 6.25)

NIRS calibration equation: pgFISH31_199473_v7









^{**} estimated with separate calibration equation



Evonik East Africa (Kenya) (63790), Nairobi, Kenya

Lab Customer: Evonik East Africa (Kenya-Nairobi), Nairobi, 56039

Lab code: NW23-0398045-001 Material: Fish Meal

Description:

AMINONIR® NRG

Parameter	Content (as is)	Content *
Gross Energy (GE) [MJ/kg]	18.328	18.864
Gross Energy (GE_KCAL) [kcal/kg]	4378	4506
Digestible Energy Growing Pigs (DE_GP) [MJ/kg]	15.271	15.717
Digestible Energy Growing Pigs (DE_GP_KCAL) [kcal/kg]	3647	3754
Digestible Energy Sows (DE_S) [MJ/kg]	15.271	15.717
Digestible Energy Sows (DE_S_KCAL) [kcal/kg]	3647	3754
Metabolisable Energy Growing Pigs (ME_GP) [MJ/kg]	13.82	14.224
Metabolisable Energy Growing Pigs (ME_GP_KCAL) [kcal/kg]	3301	3397
Metabolisable Energy Sows (ME_S) [MJ/kg]	13.82	14.224
Metabolisable Energy Sows (ME_S_KCAL) [kcal/kg]	3301	3397
Net Energy Growing Pigs (NE_GP) [MJ/kg]	8.68	8.933
Net Energy Growing Pigs (NE_GP_KCAL) [kcal/kg]	2073	2134
Net Energy Sows (NE_S) [MJ/kg]	8.68	8.933
Net Energy Sows (NE_S_KCAL) [kcal/kg]	2073	2134
Apparent Metabolisable Energy (AME _n) [MJ/kg]	12.267	12.626
Apparent Metabolisable Energy (AME _{n_} KCAL) [kcal/kg]	2930	3016

 $^{^{\}ast}$ DMS: Figures standardized to a dry matter content of 91%









Evonik East Africa (Kenya) (63790), Nairobi, Kenya

Lab Customer: Evonik East Africa (Kenya-Nairobi), Nairobi, 56039

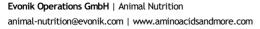
Lab code: NW23-0398045-001 Material: Fish Meal

Description:

Results of fatty acid analysis / Total contents after ether extraction

Parameter	Content (in RM)	Content (in Fat)
Lauric acid (C12:0)	0.008	0.091
Tridecylic acid (C13:0)	0.006	0.06
Myristic acid (C14:0)	0.479	5.205
Iso-myristic acid (C14:Iso)	0.006	0.065
Myristoleic acid (C14:1n5)	0.007	0.077
Iso-pentadecylic acid (C15:Iso)	0.029	0.311
Aiso-pentadecylic acid (C15:Aiso)	0.006	0.064
Palmitic acid (C16:0)	2.381	25.871
Iso-Palmitic acid (C16:0:Iso)	0.011	0.119
Palmitoleic acid (C16:1n7)	0.894	9.714
Trans-palmitoleic acid (C16:1:trans)	0.02	0.217
Hexadecadienoic acid (C16:2n4)	0.008	0.087
15-Methyl palmitic acid (C17:Iso)	0.007	0.08
Stearic acid (C18:0)	0.815	8.86
Iso-oleic acid (C18:1:Iso)	0.033	0.361
Vaccenic acid (C18:1n7)	0.26	2.826
Oleic acid (C18:1n9)	2.339	25.415
Linoleic acid (C18:2n6:cis)	0.742	8.063
Alpha-linolenic acid (C18:3n3)	0.134	1.454
Gamma-linolenic acid (C18:3n6)	0.026	0.284
Octadecatetraenoic acid (C18:4n3)	0.094	1.017
Eicosenoic acid (C20:1n9)	0.135	1.464
n6-Eicosadienoic acid (C20:2n6)	0.055	0.6
n3-Eicosatrienoic acid (C20:3n3)	0.01	0.107
Eicosatrienoic acid (C20:3n6)	0.05	0.546
Eicosatetraenoic acid (C20:4n3)	0.04	0.44











Evonik East Africa (Kenya) (63790), Nairobi, Kenya

Evonik East Africa (Kenya-Nairobi), Nairobi, 56039 Lab Customer:

Lab code: NW23-0398045-001 Material: Fish Meal

Description:

Results of fatty acid analysis / Total contents after ether extraction

Content (in RM)	Content (in Fat)
0.06	0.656
0.123	1.332
0.02	0.213
0.066	0.721
0.013	0.139
0.039	0.428
4.091	44.454
1.893	20.573
3.333	36.217
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	0.06 0.123 0.02 0.066 0.013 0.039 4.091 1.893









Sample Information Report

Evonik East Africa (Kenya) (63790), Nairobi, Kenya

Lab Customer: Evonik East Africa (Kenya-Nairobi), Nairobi, 56039

Lab code: NW23-0398046-001 Date of delivery: 2023-05-23 Date of release: 2023-05-23

Material Type: Raw Materials Material: Fish Meal Phase:

Origin Country: Kenya Origin Subregion: - Origin Province: -

Description:

Description 1: AminoNIR 1 Fish Meal Sample JKUAT(Fish meal-T75)



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Evonik East Africa (Kenya) (63790), Nairobi, Kenya

Evonik East Africa (Kenya-Nairobi), Nairobi, 56039 Lab Customer:

Lab code: NW23-0398046-001 Material: Fish Meal

Description:

Results of amino acid analysis

Parameter	Content (% as is)	Content (%)*	Content (% in CP)
Dry matter	88.78		
CP **	66.75	68.43	
Methionine	1.72	1.763	2.577
Cystine	0.566	0.58	0.848
Methionine + Cystine **	2.175	2.229	3.258
Lysine	5.163	5.293	7.735
Threonine	2.666	2.733	3.994
Tryptophan	0.629	0.645	0.943
Arginine	3.983	4.083	5.967
Isoleucine	2.712	2.78	4.063
Leucine	4.68	4.798	7.011
Valine	3.072	3.149	4.602
Histidine	1.365	1.4	2.046
Phenylalanine	2.542	2.605	3.807
Glycine	4.452	4.563	6.669
Serine	2.461	2.522	3.686
Proline	2.903	2.976	4.349
Alanine	4.222	4.328	6.325
Aspartic acid	6.114	6.267	9.159
Glutamic acid	8.708	8.926	13.045
NH3	0.995	1.02	1.491
Sum including NH3 **	58.432	59.896	87.534
Sum without NH3 **	57.323	58.759	85.873

^{*} DMS: Figures standardized to a dry matter content of 91%, CP = Crude protein, calibration based on Dumas combustion method (CP factor 6.25)

NIRS calibration equation: agFISH36_177473_v10







 $^{^{**}}$ estimated with separate calibration equation



Evonik East Africa (Kenya) (63790), Nairobi, Kenya

Lab Customer: Evonik East Africa (Kenya-Nairobi), Nairobi, 56039

Lab code: NW23-0398046-001 Material: Fish Meal

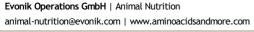
Description:

Standardized ileal digestible amino acid content (Pig)

Parameter	Content (% as is)	Content (%)*
Methionine	1.514	1.552
Cystine	0.43	0.441
Methionine + Cystine **	1.827	1.873
Lysine	4.595	4.711
Threonine	2.32	2.378
Tryptophan	0.548	0.561
Arginine	3.704	3.797
Isoleucine	2.414	2.474
Leucine	4.165	4.27
Valine	2.704	2.771
Histidine	1.188	1.218
Phenylalanine	2.211	2.267

 $[\]ensuremath{^*}$ DMS: Figures standardized to a dry matter content of 91%









^{**} estimated with separate calibration equation



Evonik East Africa (Kenya) (63790), Nairobi, Kenya

Evonik East Africa (Kenya-Nairobi), Nairobi, 56039 Lab Customer:

Lab code: NW23-0398046-001 Material: Fish Meal

Description:

Standardized ileal digestible amino acid content (Broiler)

Parameter	Content (% as is)	Content (%)*
Methionine	1.479	1.517
Cystine	0.345	0.354
Methionine + Cystine **	1.675	1.717
Lysine	4.389	4.499
Threonine	2.16	2.214
Tryptophan	0.497	0.51
Arginine	3.386	3.47
Isoleucine	2.278	2.335
Leucine	3.978	4.078
Valine	2.519	2.582
Histidine	1.106	1.134
Phenylalanine	2.11	2.162
Glycine	3.606	3.696
Serine	2.042	2.094
Proline	2.351	2.41
Alanine	3.631	3.722
Aspartic acid	4.769	4.888
Glutamic acid	7.489	7.676

 $^{^{\}star}$ DMS: Figures standardized to a dry matter content of 91%







^{**} estimated with separate calibration equation



Evonik East Africa (Kenya) (63790), Nairobi, Kenya

Evonik East Africa (Kenya-Nairobi), Nairobi, 56039 Lab Customer:

Lab code: NW23-0398046-001 Material: Fish Meal

Description:

AMINONIR® Prox

Parameter	Content (% as is)	Content (%)*
Dry matter	88.78	
CP **	66.75	68.43
Ether Extract	13.1	13.4
Crude Ash	16.2	16.6
Phosphorus (mg/kg)	19677	20170

^{*} DMS: Figures standardized to a dry matter content of 91%, CP = Crude protein, calibration based on Dumas combustion method (CP factor 6.25)

NIRS calibration equation: pgFISH31_199473_v7







^{**} estimated with separate calibration equation



Evonik East Africa (Kenya) (63790), Nairobi, Kenya

Lab Customer: Evonik East Africa (Kenya-Nairobi), Nairobi, 56039

Lab code: NW23-0398046-001 Material: Fish Meal

Description:

AMINONIR® NRG

Parameter	Content (as is)	Content *
Gross Energy (GE) [MJ/kg]	19.669	20.162
Gross Energy (GE_KCAL) [kcal/kg]	4698	4816
Digestible Energy Growing Pigs (DE_GP) [MJ/kg]	16.758	17.178
Digestible Energy Growing Pigs (DE_GP_KCAL) [kcal/kg]	4003	4103
Digestible Energy Sows (DE_S) [MJ/kg]	16.758	17.178
Digestible Energy Sows (DE_S_KCAL) [kcal/kg]	4003	4103
Metabolisable Energy Growing Pigs (ME_GP) [MJ/kg]	15.166	15.546
Metabolisable Energy Growing Pigs (ME_GP_KCAL) [kcal/kg]	3622	3713
Metabolisable Energy Sows (ME_S) [MJ/kg]	15.166	15.546
Metabolisable Energy Sows (ME_S_KCAL) [kcal/kg]	3622	3713
Net Energy Growing Pigs (NE_GP) [MJ/kg]	10.002	10.252
Net Energy Growing Pigs (NE_GP_KCAL) [kcal/kg]	2389	2449
Net Energy Sows (NE_S) [MJ/kg]	10.002	10.252
Net Energy Sows (NE_S_KCAL) [kcal/kg]	2389	2449
Apparent Metabolisable Energy (AME _n) [MJ/kg]	13.315	13.649
Apparent Metabolisable Energy (AME _n _KCAL) [kcal/kg]	3180	3260

 $^{^{\}ast}$ DMS: Figures standardized to a dry matter content of 91%









Evonik East Africa (Kenya) (63790), Nairobi, Kenya

Lab Customer: Evonik East Africa (Kenya-Nairobi), Nairobi, 56039

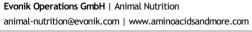
Lab code: NW23-0398046-001 Material: Fish Meal

Description:

Results of fatty acid analysis / Total contents after ether extraction

Parameter	Content (in RM)	Content (in Fat)
Lauric acid (C12:0)	0.008	0.065
Tridecylic acid (C13:0)	0.01	0.075
Myristic acid (C14:0)	0.644	4.923
Iso-myristic acid (C14:Iso)	0.007	0.057
Myristoleic acid (C14:1n5)	0.008	0.061
Iso-pentadecylic acid (C15:Iso)	0.041	0.314
Aiso-pentadecylic acid (C15:Aiso)	0.008	0.064
Palmitic acid (C16:0)	3.348	25.607
Iso-Palmitic acid (C16:0:Iso)	0.015	0.114
Palmitoleic acid (C16:1n7)	1.234	9.439
Trans-palmitoleic acid (C16:1:trans)	0.02	0.15
15-Methyl palmitic acid (C17:Iso)	0.008	0.06
Stearic acid (C18:0)	1.122	8.582
Iso-oleic acid (C18:1:Iso)	0.052	0.395
Vaccenic acid (C18:1n7)	0.378	2.894
Oleic acid (C18:1n9)	3.787	28.96
Linoleic acid (C18:2n6:cis)	1.297	9.922
Alpha-linolenic acid (C18:3n3)	0.229	1.749
Gamma-linolenic acid (C18:3n6)	0.036	0.276
Octadecatetraenoic acid (C18:4n3)	0.149	1.14
Eicosenoic acid (C20:1n9)	0.244	1.867
n6-Eicosadienoic acid (C20:2n6)	0.082	0.625
n3-Eicosatrienoic acid (C20:3n3)	0.016	0.123
Eicosatrienoic acid (C20:3n6)	0.081	0.623
Eicosatetraenoic acid (C20:4n3)	0.06	0.461
Arachidonic acid (C20:4n6)	0.021	0.16
		(3/2)











Evonik East Africa (Kenya) (63790), Nairobi, Kenya

Lab Customer: Evonik East Africa (Kenya-Nairobi), Nairobi, 56039

Lab code: NW23-0398046-001 Material: Fish Meal

Description:

Results of fatty acid analysis / Total contents after ether extraction

Parameter	Content (in RM)	Content (in Fat)
Erucic acid (C22:1n9)	0.034	0.256
Docosapentaen acid (DPA) (C22:5n3:DPA)	0.059	0.451
Lignoceric acid (C24:0)	0.014	0.108
Nervonic acid (C24:1n9)	0.054	0.41
Mono-unsaturated Fatty Acids	7.05	53.915
Poly-unsaturated Fatty Acids	1.978	15.13
Saturated acids	4.771	36.489











Sample Information Report

Evonik East Africa (Kenya) (63790), Nairobi, Kenya

Lab Customer: Evonik East Africa (Kenya-Nairobi), Nairobi, 56039

Lab code: NW23-0398047-001 Date of delivery: 2023-05-23 Date of release: 2023-05-23

Material Type: Raw Materials Material: Fish Meal Phase:

Origin Country: Kenya Origin Subregion: - Origin Province: -

Description:

Description 1: AminoNIR 1 Fish Meal Sample JKUAT(Fish meal-T50)





Evonik East Africa (Kenya) (63790), Nairobi, Kenya

Lab Customer: Evonik East Africa (Kenya-Nairobi), Nairobi, 56039

Lab code: NW23-0398047-001 Material: Fish Meal

Description:

Results of amino acid analysis

Parameter	Content (% as is)	Content (%)*	Content (% in CP)
Dry matter	88.33		
CP **	67.95	70	
Methionine	1.784	1.838	2.626
Cystine	0.584	0.601	0.859
Methionine + Cystine **	2.243	2.311	3.302
Lysine	5.308	5.468	7.812
Threonine	2.702	2.783	3.976
Tryptophan	0.642	0.662	0.945
Arginine	4.063	4.186	5.98
Isoleucine	2.763	2.846	4.067
Leucine	4.791	4.936	7.052
Valine	3.128	3.222	4.603
Histidine	1.397	1.439	2.055
Phenylalanine	2.597	2.676	3.823
Glycine	4.501	4.637	6.624
Serine	2.475	2.55	3.643
Proline	2.899	2.986	4.266
Alanine	4.29	4.419	6.314
Aspartic acid	6.258	6.447	9.21
Glutamic acid	8.953	9.223	13.176
NH3	1.006	1.036	1.48
Sum including NH3 **	59.721	61.522	87.894
Sum without NH3 **	58.548	60.314	86.168

^{*} DMS: Figures standardized to a dry matter content of 91%, CP = Crude protein, calibration based on Dumas combustion method (CP factor 6.25)

NIRS calibration equation: agFISH36_177473_v10









^{**} estimated with separate calibration equation



Evonik East Africa (Kenya) (63790), Nairobi, Kenya

Evonik East Africa (Kenya-Nairobi), Nairobi, 56039 Lab Customer:

Lab code: NW23-0398047-001 Material: Fish Meal

Description:

Standardized ileal digestible amino acid content (Pig)

Parameter	Content (% as is)	Content (%)*
Methionine	1.57	1.618
Cystine	0.444	0.457
Methionine + Cystine **	1.884	1.941
Lysine	4.724	4.866
Threonine	2.351	2.421
Tryptophan	0.559	0.576
Arginine	3.779	3.893
Isoleucine	2.459	2.533
Leucine	4.264	4.393
Valine	2.752	2.835
Histidine	1.215	1.252
Phenylalanine	2.26	2.328

 $^{^{\}ast}$ DMS: Figures standardized to a dry matter content of 91%







^{**} estimated with separate calibration equation



Evonik East Africa (Kenya) (63790), Nairobi, Kenya

Evonik East Africa (Kenya-Nairobi), Nairobi, 56039 Lab Customer:

Lab code: NW23-0398047-001 Material: Fish Meal

Description:

Standardized ileal digestible amino acid content (Broiler)

Parameter	Content (% as is)	Content (%)*
Methionine	1.535	1.581
Cystine	0.356	0.367
Methionine + Cystine **	1.727	1.779
Lysine	4.511	4.648
Threonine	2.188	2.254
Tryptophan	0.507	0.523
Arginine	3.454	3.558
Isoleucine	2.321	2.391
Leucine	4.073	4.196
Valine	2.565	2.642
Histidine	1.131	1.165
Phenylalanine	2.156	2.221
Glycine	3.646	3.756
Serine	2.055	2.117
Proline	2.348	2.419
Alanine	3.689	3.801
Aspartic acid	4.881	5.028
Glutamic acid	7.699	7.931

 $^{^{\}star}$ DMS: Figures standardized to a dry matter content of 91%







^{**} estimated with separate calibration equation



Evonik East Africa (Kenya) (63790), Nairobi, Kenya

Lab Customer: Evonik East Africa (Kenya-Nairobi), Nairobi, 56039

Lab code: NW23-0398047-001 Material: Fish Meal

Description:

AMINONIR® Prox

Parameter	Content (% as is)	Content (%)*
Dry matter	88.33	
CP **	67.95	70
Ether Extract	11.2	11.6
Crude Ash	16.2	16.7
Phosphorus (mg/kg)	20532	21151

^{*} DMS: Figures standardized to a dry matter content of 91%, CP = Crude protein, calibration based on Dumas combustion method (CP factor 6.25)

NIRS calibration equation: pgFISH31_199473_v7









Dr. I. Reimann

^{**} estimated with separate calibration equation



Evonik East Africa (Kenya) (63790), Nairobi, Kenya

Lab Customer: Evonik East Africa (Kenya-Nairobi), Nairobi, 56039

Lab code: NW23-0398047-001 Material: Fish Meal

Description:

AMINONIR® NRG

Parameter	Content (as is)	Content *
Gross Energy (GE) [MJ/kg]	19.238	19.819
Gross Energy (GE_KCAL) [kcal/kg]	4595	4734
Digestible Energy Growing Pigs (DE_GP) [MJ/kg]	16.484	16.982
Digestible Energy Growing Pigs (DE_GP_KCAL) [kcal/kg]	3937	4056
Digestible Energy Sows (DE_S) [MJ/kg]	16.484	16.982
Digestible Energy Sows (DE_S_KCAL) [kcal/kg]	3937	4056
Metabolisable Energy Growing Pigs (ME_GP) [MJ/kg]	14.918	15.369
Metabolisable Energy Growing Pigs (ME_GP_KCAL) [kcal/kg]	3563	3671
Metabolisable Energy Sows (ME_S) [MJ/kg]	14.918	15.369
Metabolisable Energy Sows (ME_S_KCAL) [kcal/kg]	3563	3671
Net Energy Growing Pigs (NE_GP) [MJ/kg]	9.639	9.93
Net Energy Growing Pigs (NE_GP_KCAL) [kcal/kg]	2302	2372
Net Energy Sows (NE_S) [MJ/kg]	9.639	9.93
Net Energy Sows (NE_S_KCAL) [kcal/kg]	2302	2372
Apparent Metabolisable Energy (AME _n) [MJ/kg]	12.927	13.317
Apparent Metabolisable Energy (AME _n _KCAL) [kcal/kg]	3088	3181

 $^{^{\}ast}$ DMS: Figures standardized to a dry matter content of 91%









Evonik East Africa (Kenya) (63790), Nairobi, Kenya

Lab Customer: Evonik East Africa (Kenya-Nairobi), Nairobi, 56039

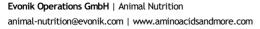
Lab code: NW23-0398047-001 Material: Fish Meal

Description:

Results of fatty acid analysis / Total contents after ether extraction

Parameter	Content (in RM)	Content (in Fat)
Lauric acid (C12:0)	0.008	0.075
Tridecylic acid (C13:0)	0.008	0.068
Myristic acid (C14:0)	0.607	5.414
Iso-myristic acid (C14:Iso)	0.007	0.064
Myristoleic acid (C14:1n5)	0.008	0.067
Iso-pentadecylic acid (C15:Iso)	0.037	0.326
Aiso-pentadecylic acid (C15:Aiso)	0.007	0.064
Palmitic acid (C16:0)	2.967	26.446
Iso-Palmitic acid (C16:0:Iso)	0.014	0.12
Palmitoleic acid (C16:1n7)	1.128	10.054
Trans-palmitoleic acid (C16:1:trans)	0.017	0.155
15-Methyl palmitic acid (C17:Iso)	0.008	0.068
Stearic acid (C18:0)	0.994	8.858
Iso-oleic acid (C18:1:Iso)	0.044	0.392
Vaccenic acid (C18:1n7)	0.324	2.888
Oleic acid (C18:1n9)	3.002	26.755
Linoleic acid (C18:2n6:cis)	0.991	8.829
Alpha-linolenic acid (C18:3n3)	0.178	1.582
Gamma-linolenic acid (C18:3n6)	0.032	0.288
Octadecatetraenoic acid (C18:4n3)	0.119	1.056
Eicosenoic acid (C20:1n9)	0.181	1.618
n6-Eicosadienoic acid (C20:2n6)	0.066	0.588
n3-Eicosatrienoic acid (C20:3n3)	0.013	0.114
Eicosatrienoic acid (C20:3n6)	0.067	0.595
Eicosatetraenoic acid (C20:4n3)	0.05	0.443
Arachidonic acid (C20:4n6)	0.037	0.331
		(3/2)











Evonik East Africa (Kenya) (63790), Nairobi, Kenya

Lab Customer: Evonik East Africa (Kenya-Nairobi), Nairobi, 56039

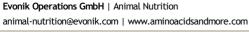
Lab code: NW23-0398047-001 Material: Fish Meal

Description:

Results of fatty acid analysis / Total contents after ether extraction

Parameter	Content (in RM)	Content (in Fat)
Eicosapentaenoic acid (EPA) (C20:5n3:EPA)	0.106	0.946
Erucic acid (C22:1n9)	0.026	0.236
Docosapentaen acid (DPA) (C22:5n3:DPA)	0.066	0.587
Lignoceric acid (C24:0)	0.015	0.133
Nervonic acid (C24:1n9)	0.048	0.424
Mono-unsaturated Fatty Acids	5.494	48.962
Poly-unsaturated Fatty Acids	1.901	16.941
Saturated acids	4.242	37.804
	·	(2/











Sample Information Report

Evonik East Africa (Kenya) (63790), Nairobi, Kenya

Lab Customer: Evonik East Africa (Kenya-Nairobi), Nairobi, 56039

Lab code: NW23-0398053-001 Date of delivery: 2023-05-23 Date of release: 2023-05-23

Material Type: Raw Materials Material: Fish Meal Phase:

Origin Country: Kenya Origin Subregion: - Origin Province: -

Description:

Description 1: AminoNIR 1 Fish Meal Sample JKUAT(Fish meal-T0)





Evonik East Africa (Kenya) (63790), Nairobi, Kenya

Lab Customer: Evonik East Africa (Kenya-Nairobi), Nairobi, 56039

Lab code: NW23-0398053-001 Material: Fish Meal

Description:

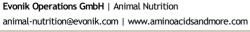
Results of amino acid analysis

Parameter	Content (% as is)	Content (%)*	Content (% in CP)
Dry matter	88.53		
CP **	65.65	67.48	
Methionine	1.675	1.722	2.552
Cystine	0.556	0.571	0.847
Methionine + Cystine **	2.124	2.183	3.235
Lysine	5.015	5.154	7.638
Threonine	2.598	2.67	3.957
Tryptophan	0.605	0.622	0.922
Arginine	3.918	4.027	5.968
Isoleucine	2.626	2.7	4.001
Leucine	4.562	4.689	6.949
Valine	2.993	3.076	4.558
Histidine	1.339	1.376	2.039
Phenylalanine	2.485	2.555	3.786
Glycine	4.552	4.679	6.934
Serine	2.399	2.466	3.655
Proline	2.95	3.032	4.494
Alanine	4.181	4.298	6.369
Aspartic acid	5.905	6.069	8.994
Glutamic acid	8.5	8.737	12.947
NH3	0.986	1.013	1.501
Sum including NH3 **	57.276	58.874	87.244
Sum without NH3 **	56.224	57.793	85.642

^{*} DMS: Figures standardized to a dry matter content of 91%, CP = Crude protein, calibration based on Dumas combustion method (CP factor 6.25)

NIRS calibration equation: agFISH36_177473_v10









^{**} estimated with separate calibration equation



Evonik East Africa (Kenya) (63790), Nairobi, Kenya

Lab Customer: Evonik East Africa (Kenya-Nairobi), Nairobi, 56039

Lab code: NW23-0398053-001 Material: Fish Meal

Description:

Standardized ileal digestible amino acid content (Pig)

Parameter	Content (% as is)	Content (%)*
Methionine	1.474	1.515
Cystine	0.422	0.434
Methionine + Cystine **	1.784	1.834
Lysine	4.463	4.587
Threonine	2.26	2.323
Tryptophan	0.527	0.541
Arginine	3.644	3.745
Isoleucine	2.338	2.403
Leucine	4.06	4.173
Valine	2.633	2.707
Histidine	1.165	1.197
Phenylalanine	2.162	2.223

 $[\]ensuremath{^*}$ DMS: Figures standardized to a dry matter content of 91%









^{**} estimated with separate calibration equation



Evonik East Africa (Kenya) (63790), Nairobi, Kenya

Evonik East Africa (Kenya-Nairobi), Nairobi, 56039 Lab Customer:

Lab code: NW23-0398053-001 Material: Fish Meal

Description:

Standardized ileal digestible amino acid content (Broiler)

Parameter	Content (% as is)	Content (%)*
Methionine	1.441	1.481
Cystine	0.339	0.349
Methionine + Cystine **	1.635	1.681
Lysine	4.262	4.381
Threonine	2.104	2.163
Tryptophan	0.478	0.491
Arginine	3.33	3.423
Isoleucine	2.206	2.268
Leucine	3.878	3.986
Valine	2.454	2.522
Histidine	1.084	1.115
Phenylalanine	2.063	2.12
Glycine	3.687	3.79
Serine	1.991	2.047
Proline	2.39	2.456
Alanine	3.596	3.696
Aspartic acid	4.606	4.734
Glutamic acid	7.31	7.514

 $^{^{\}star}$ DMS: Figures standardized to a dry matter content of 91%







^{**} estimated with separate calibration equation



Evonik East Africa (Kenya) (63790), Nairobi, Kenya

Lab Customer: Evonik East Africa (Kenya-Nairobi), Nairobi, 56039

Lab code: NW23-0398053-001 Material: Fish Meal

Description:

AMINONIR® Prox

Parameter	Content (% as is)	Content (%)*
Dry matter	88.53	
CP **	65.65	67.48
Ether Extract	12.6	12.9
Crude Ash	17.2	17.7
Phosphorus (mg/kg)	23508	24164

^{*} DMS: Figures standardized to a dry matter content of 91%, CP = Crude protein, calibration based on Dumas combustion method (CP factor 6.25)

NIRS calibration equation: pgFISH31_199473_v7







^{**} estimated with separate calibration equation



Evonik East Africa (Kenya) (63790), Nairobi, Kenya

Lab Customer: Evonik East Africa (Kenya-Nairobi), Nairobi, 56039

Lab code: NW23-0398053-001 Material: Fish Meal

Description:

AMINONIR® NRG

Parameter	Content (as is)	Content *
Gross Energy (GE) [MJ/kg]	19.264	19.801
Gross Energy (GE_KCAL) [kcal/kg]	4601	4729
Digestible Energy Growing Pigs (DE_GP) [MJ/kg]	16.182	16.633
Digestible Energy Growing Pigs (DE_GP_KCAL) [kcal/kg]	3865	3973
Digestible Energy Sows (DE_S) [MJ/kg]	16.182	16.633
Digestible Energy Sows (DE_S_KCAL) [kcal/kg]	3865	3973
Metabolisable Energy Growing Pigs (ME_GP) [MJ/kg]	14.645	15.053
Metabolisable Energy Growing Pigs (ME_GP_KCAL) [kcal/kg]	3498	3595
Metabolisable Energy Sows (ME_S) [MJ/kg]	14.645	15.053
Metabolisable Energy Sows (ME_S_KCAL) [kcal/kg]	3498	3595
Net Energy Growing Pigs (NE_GP) [MJ/kg]	9.607	9.875
Net Energy Growing Pigs (NE_GP_KCAL) [kcal/kg]	2295	2359
Net Energy Sows (NE_S) [MJ/kg]	9.607	9.875
Net Energy Sows (NE_S_KCAL) [kcal/kg]	2295	2359
Apparent Metabolisable Energy (AME _n) [MJ/kg]	13.054	13.418
Apparent Metabolisable Energy (AME _{n_} KCAL) [kcal/kg]	3118	3205

 $^{^{\}ast}$ DMS: Figures standardized to a dry matter content of 91%









Evonik East Africa (Kenya) (63790), Nairobi, Kenya

Lab Customer: Evonik East Africa (Kenya-Nairobi), Nairobi, 56039

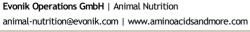
Lab code: NW23-0398053-001 Material: Fish Meal

Description:

Results of fatty acid analysis / Total contents after ether extraction

Parameter	Content (in RM)	Content (in Fat)
Lauric acid (C12:0)	0.008	0.061
Tridecylic acid (C13:0)	0.008	0.067
Myristic acid (C14:0)	0.658	5.23
Iso-myristic acid (C14:Iso)	0.007	0.058
Myristoleic acid (C14:1n5)	0.009	0.071
Iso-pentadecylic acid (C15:Iso)	0.039	0.309
Aiso-pentadecylic acid (C15:Aiso)	0.008	0.064
Palmitic acid (C16:0)	3.333	26.508
Iso-Palmitic acid (C16:0:Iso)	0.015	0.115
Palmitoleic acid (C16:1n7)	1.182	9.404
Trans-palmitoleic acid (C16:1:trans)	0.018	0.139
15-Methyl palmitic acid (C17:Iso)	0.007	0.053
Stearic acid (C18:0)	1.14	9.071
Iso-oleic acid (C18:1:Iso)	0.051	0.405
Vaccenic acid (C18:1n7)	0.325	2.589
Oleic acid (C18:1n9)	3.561	28.322
Linoleic acid (C18:2n6:cis)	1.21	9.628
Alpha-linolenic acid (C18:3n3)	0.189	1.507
Gamma-linolenic acid (C18:3n6)	0.035	0.281
Octadecatetraenoic acid (C18:4n3)	0.133	1.061
Eicosenoic acid (C20:1n9)	0.219	1.743
n6-Eicosadienoic acid (C20:2n6)	0.076	0.606
n3-Eicosatrienoic acid (C20:3n3)	0.014	0.115
Eicosatrienoic acid (C20:3n6)	0.08	0.633
Eicosatetraenoic acid (C20:4n3)	0.052	0.414
Arachidonic acid (C20:4n6)	0.045	0.361
		(3/2)











Evonik East Africa (Kenya) (63790), Nairobi, Kenya

Evonik East Africa (Kenya-Nairobi), Nairobi, 56039 Lab Customer:

Lab code: NW23-0398053-001 Material: Fish Meal

Description:

Results of fatty acid analysis / Total contents after ether extraction

Parameter	Content (in RM)	Content (in Fat)
Eicosapentaenoic acid (EPA) (C20:5n3:EPA)	0.035	0.279
Erucic acid (C22:1n9)	0.029	0.233
Docosapentaen acid (DPA) (C22:5n3:DPA)	0.053	0.423
Lignoceric acid (C24:0)	0.012	0.096
Nervonic acid (C24:1n9)	0.054	0.432
Mono-unsaturated Fatty Acids	6.317	50.248
Poly-unsaturated Fatty Acids	1.994	15.862
Saturated acids	4.599	36.581
	((2/

NIRS calibration equation: fgFISH36_119672_v1







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