

# Fishmeal & fish oil

## Product specifications







FF Skagen is one of the world's leading producers of fishmeal and fish oil. We develop, produce and market healthy products used as protein supplements for rearing animals and fish.

FF Skagen A/S is owned by the "FF Skagen Foundation", mainly owned by the fishermen and the fishing industry. The company's factories are located at the port of Skagen and port of Hanstholm - with the sea as our nearest neighbour and direct access to daily supplies of fresh fish. Here, 130 employees transform 500.000 tons of fresh fish into approximately 170.000 tons of FF fishmeal and FF fish oil annually at advanced processing plants. FF Skagen has an annual turnover of DKK 1.8 billion and exports to more than 60 countries.

FF Skagen is certified according to MSC, FEMAS, MarinTrust, Soil Association and Naturland.

FF Skagen is a member of the Marine Ingredients Denmark.

# CONTENT

3	FF LT Supreme
4	FF NSM/Special A
5	FF Classic
6	FF Natur
7	FF Soil Association
8	FF Naturland
9	FF MSC
10	Hanstholm Prime
11	FF Golden Oil
12	FF Golden Oil Soil Association
13	FF Golden Oil Naturland
14	Analyses Fishmeal
16	Analyses Fishmeal & Fish Oil
19	Certified quality & food safety





# FF LT Supreme

Fishmeal in a class of its own for piglets, trout, salmon and petfood

FF LT Supreme fishmeal is gently prepared under very low heat. FF LT Supreme fishmeal is in a class of its own with a high content of proteins and minerals and unsurpassed high protein digestibility. The result is an exceptional growth rate. FF LT Supreme is particularly suitable for the first weeks of an animal's life, during which it is absolutely crucial that the composition of the feed is as close to animals' natural food as possible.

FF LT Supreme means not only an extraordinarily good feeding economy. It also means increased welfare because FF LT Supreme provides a feed content balance, where rapid growth does not come at the expense of animals, natural development, strength and health.

FF LT Supreme is guaranteed salmonella-free.



Chemical composition	
Protein	68-72%
Fat	max 12%
Water	max 10%
Salt	max 1-7%
Ash	10-18%
TVN	max 0,18% NH3N
Water soluble protein	min 18% max 32%
PH-Stat digestibility	min 90%
Histamin	max 500
Cadevarin	max 1000

Amino acid content mean value in g / kg DM			
Alanine	48.43	Lysine	66.08
Arginine	47.92	Methionine	26.07
Aspartic	76.81	Phenylalanine	34.42
Cystine	8.24	Proline	34.66
Glutamic acid	106.22	Serine	35.51
Glycine	43.61	Threonine	35.89
Histidine	20.66	Tryptophan	9.31
Isoleucin	38.75	Tyrosine	29.01
Leucine	62.47	Valine	46.76

Minerals (content per kg DM)	
Calcium	35.2 g
Phosphorus	23.9 g
Magnesium	2.2 g
Sodium	7.3 g
Potassium	13.0 g
Iron	332.0 mg
Manganese	15.0 mg
Copper	5.0 mg
Zinc	106.0 mg
Selenium	2.38 mg

Vitamins (content per kg DM)	
Vitamin E	4.0 mg
Tiamin	1.0 mg
Riboflavin	7.5 mg
Pyridoxine	2.5 mg
Niacin	65.0 mg
Biotin	8.0 mg
Vitamin B12	0.04 mg

Antioxidant added during production

*Note: This technical information has been drafted in order to help compounders in their work. The information reported above is reliable, but only has an indicative value. It cannot engage our companies beyond guarantees mentioned in contracts.*





# FF NSM/Special A

Easily digestible nutrient concentrate for piglets, salmon and petfood

FF NSM/Special A fishmeal is a protein concentrate made from fresh fish and processed in a gentle process that preserves the original natural qualities of the flesh of the fresh fish. FF NSM/Special A meal is packed with nutritional content that is as close to the animals' natural food as possible. It has the same high levels of the essential amino acids and an unparalleled ease of digestibility.

FF NSM/Special A can be used in both wet as well as dry feed mixes. It can also be combined with FF Golden Oil. The result is a feed base that corresponds closely to the natural food of salmon and trout, both in taste and nutritional value.

FF NSM/Special A is guaranteed salmonella-free.



Chemical composition	
Protein	68-72%
Fat	max 12%
Water	max 10%
Ash	10-20%
Salt	max 1-7%
PH-Stat digestibility	min 88%

Minerals (content per kg DM)	
Calcium	35.2 g
Phosphorus	23.9 g
Magnesium	2.2 g
Sodium	7.3 g
Potassium	13.0 g
Iron	332.0 mg
Manganese	15.0 mg
Copper	5.0 mg
Zinc	106.0 mg
Selenium	2.38 mg

Amino acid content mean value in g / kg DM			
Alanine	49.57	Lysine	60.92
Arginine	47.17	Methionine	23.55
Aspartic	75.52	Phenylalanine	30.19
Cystine	7.43	Proline	33.44
Glutamic acid	111.82	Serine	34.02
Glycine	50.18	Threonine	32.96
Histidine	15.48	Tryptophan	8.49
Isoleucin	35.98	Tyrosine	25.10
Leucine	60.59	Valine	41.37

Vitamins (content per kg DM)	
Vitamin E	4.0 mg
Tiamin	1.0 mg
Riboflavin	7.5 mg
Pyridoxine	2.5 mg
Niacin	65.0 mg
Biotin	8.0 mg
Vitamin B12	0.04 mg

Antioxidant added during production

*Note: This technical information has been drafted in order to help compounders in their work. The information reported above is reliable, but only has an indicative value. It cannot engage our companies beyond guarantees mentioned in contracts.*







## FF Classic

All-round protein supplement for chicken, hens, pigs, eel, shrimp and petfood

FF Classic is a nutritious all-round fishmeal product that is suitable for a wide variety of animal species. FF Classic combines high biological value with better feed efficiency and greater economy. Animals fed with FF Classic achieve high daily growth through FF Classic's significant contribution to amino acid content in the healthy, balanced compound.

FF Classic is particularly suitable for egg-laying hens as a significant protein source in the production of hatching eggs. For pigs and pregnant sows, FF Classic's high content of raw fats and varied mineral content results in larger litters, improved viability and increased fertility. FF Classic is also a good and nutritious feed for eel and shrimp farms, where the biological values and easy digestibility promote a higher daily growth rate.

FF Classic is guaranteed salmonella-free.



Chemical composition	
Protein	70-72%
Fat	max 12%
Water	max 10%
Salt	max 1-7%
Ash	10-18%

Minerals (content per kg DM)	
Calcium	35.2 g
Phosphorus	23.9 g
Magnesium	2.2 g
Sodium	7.3 g
Potassium	13.0 g
Iron	332.0 mg
Manganese	15.0 mg
Copper	5.0 mg
Zinc	106.0 mg
Selenium	2.38 mg

Amino acid content mean value in g / kg DM			
Alanine	47.55	Lysine	55.90
Arginine	41.38	Methionine	21.76
Aspartic	67.93	Phenylalanine	27.93
Cystine	6.29	Proline	30.09
Glutamic acid	101.99	Serine	31.15
Glycine	45.92	Threonine	30.73
Histidine	14.94	Tryptophan	7.53
Isoleucin	33.56	Tyrosine	21.70
Leucine	55.90	Valine	40.38

Vitamins (content per kg DM)	
Vitamin E	4.0 mg
Tiamin	1.0 mg
Riboflavin	7.5 mg
Pyridoxine	2.5 mg
Niacin	65.0 mg
Biotin	8.0 mg
Vitamin B12	0.04 mg

Antioxidant added during production

*Note: This technical information has been drafted in order to help compounders in their work. The information reported above is reliable, but only has an indicative value. It cannot engage our companies beyond guarantees mentioned in contracts.*





# FF Natur

## Approved as protein supplement for organic salmon farming

FF Natur is a nutritious fishmeal product that is targeted at salmon farming. It is used in one of the world's most discerning and salmon consumer-oriented industries, namely the Norwegian.

FF Natur is the closest you can get to salmon's natural food in taste and nutritional values. Made from herring and filleting trimmings from the herring industry - totally compliant with the requirements for sustainability and welfare. Only natural antioxidants are added to make FF Natur the perfect protein supplement in a balanced and organic feed compound.

FF Natur is primarily supplied in bulk as larger batches - guaranteed salmonella-free.



Deklaration:	
Protein	65-72%
Water	max 10%
Fat	max 12%

*Antioxidant added during production  
Contains: NaCl 4.5% as a natural component*

*Note: This technical information has been drafted in order to help compounders in their work. The information reported above is reliable, but only has an indicative value. It cannot engage our companies beyond guarantees mentioned in contracts.*







# FF Soil Association

## Approved as a protein supplement by MSC

FF MSC is a nutritious fishmeal product that is targeted at organic salmon farming. It is used in one of the world's most discerning and salmon consumer-oriented industries, namely the Norwegian.

FF MSC is the closest you can get to salmon's natural food in taste and nutritional values. Made from herring and filleting waste from the herring industry - totally compliant with the requirements for sustainability and welfare. Only natural antioxidants are added to make FF MSC the perfect protein supplement in a balanced and ecological feed compound.

FF MSC is primarily supplied in bulk as larger batches - guaranteed salmonella-free and approved as protein supplement in the UK and France by MSC.



Declaration:	
Protein	65-68%
Water	max 10%
Fat	max 12%

*Antioxidant added during production  
Contains: NaCl 4.5% as a natural component*

*Note: This technical information has been drafted in order to help compounders in their work. The information reported above is reliable, but only has an indicative value. It cannot engage our companies beyond guarantees mentioned in contracts.*





# FF Naturland Fishmeal

FF Skagen Naturland fishmeal is produced from sustainable trimmings from the fishing industry - approved by the German Naturland as protein supplement in organic farming and aquaculture. Naturland is one of the world's most respected organic brands with more than 53,000 members. The organization works in accordance with organic standards stricter than e.g. the German ecolabel, Bio-Siegel. FF Naturland fishmeal is guaranteed free from salmonella.



The Program Comprises:

### FF Naturland Classic

All-round protein supplement for organic chicken, hens, pigs, eel, shrimp and petfood. With high biological value, FF Naturland Classic adds both an improved exploitation of the feed and a better economy. Animals who are fed with FF Naturland Classic achieve a higher daily growth rate due to the high amount of amino acids in the healthy, balanced feed.

### FF Naturland LT

Fishmeal second to none for organic piglets, trout and salmon. FF Naturland LT fishmeal has a high content of proteins and minerals and an unsurpassed high protein digestibility. The result is an extreme growth. FF Naturland LT is especially suitable for the animals' first weeks, during which the feed essentially should be very close the animals' natural feed as possible.

### FF Naturland Special A

Easily digestible nutrient concentrate for organic piglets and salmon. FF Naturland Special A has been bred through a gentle process, which preserves the original qualities of the fish. It is filled with nutritious values, which are very close to the animals' natural feed and has the same high content of essential amino acids and equal unsurpassed digestibility.

### FF Naturland Trimmings

Approved protein supplement by Naturland and Soil Association. FF Naturland Trimmings is a nutritious fishmeal product targeted organic salmon farming. The product is added natural antioxidants, which makes FF Naturland Trimmings a perfect protein supplement to a well-balanced and organic feed. It is among other places used in one of the world's most quality conscious salmon industries – namely the Norwegian.

### Declaration:

Protein	65-68%
Water	Max 10%
Fat	Max 12%

*Antioxidant added during production  
Contains: NaCl 4.5% as a natural component*



*Note: This technical information has been drafted in order to help compounders in their work. The information reported above is reliable, but only has an indicative value. It cannot engage our companies beyond guarantees mentioned in contracts.*







# FF MSC

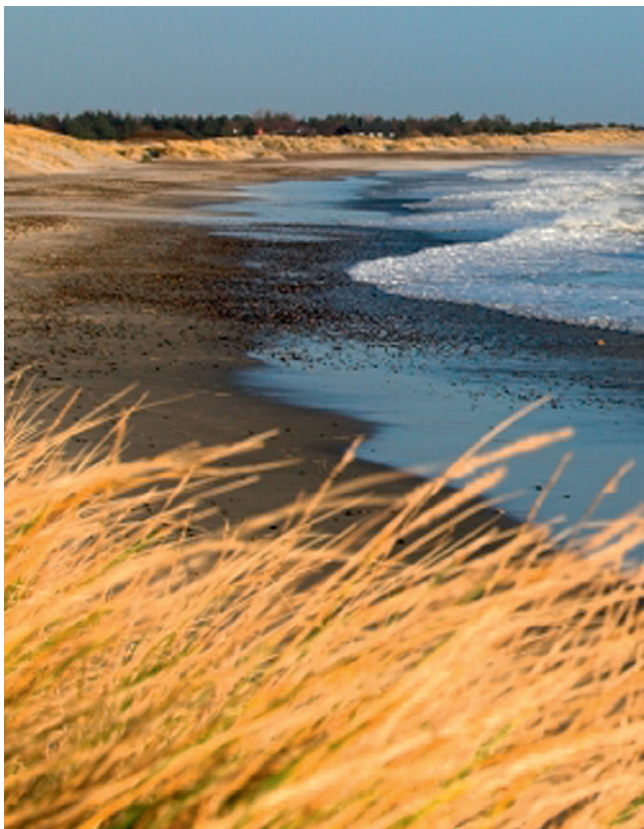
Certified as protein supplement by the Soil Association



FF MSC is a nutritious fishmeal product that is targeted at organic salmon farming. It is used in one of the world's most discerning and salmon consumer-oriented industries, namely the Norwegian.

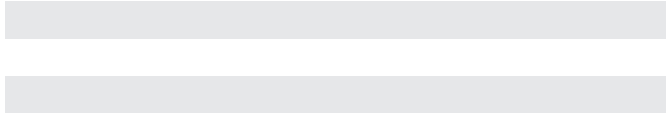
FF MSC is the closest you can get to salmon's natural food in taste and nutritional values. Made from herring and filleting waste from the herring industry - totally compliant with the requirements for sustainability and welfare. Only natural antioxidants are added to make FF MSC the perfect protein supplement in a balanced and ecological feed compound.

FF MSC is primarily supplied in bulk as larger batches - guaranteed salmonella-free and approved as an organic protein supplement in the UK and France by the Soil Association.



### Declaration:

Protein	65-68%
Water	Max 10%
Fat	Max 12%
Salt	Max 1-7%



*Antioxidant added during production*

**Note:** This technical information has been drafted in order to help compounders in their work. The information reported above is reliable, but only has an indicative value. It cannot engage our companies beyond guarantees mentioned in contracts.





# Hanstholm Prime

All-round protein supplement for chicken, hens, pigs, eel, shrimp and petfood

Hanstholm Prime is a nutritious all-round fishmeal product that is suitable for a wide variety of animal species. Hanstholm Prime combines high biological value with better feed efficiency and greater economy. Animals fed with Hanstholm Prime achieve high daily growth through Hanstholm Prime's significant contribution to amino acid content in the healthy, balanced compound.

Hanstholm Prime is particularly suitable for egg-laying hens as a significant protein source in the production of hatching eggs. For pigs and pregnant sows, Hanstholm Prime's high content of raw fats and varied mineral content results in larger litters, improved viability and increased fertility. Hanstholm Prime is also a good and nutritious feed for eel and shrimp farms, where the biological values and easy digestibility promote a higher daily growth rate.

Hanstholm Prime is guaranteed salmonella-free.



Chemical composition	
Protein	70-72%
Fat	max 12%
Water	max 10%
Salt	max 1-7%
Ash	10 - 16%

Amino acid content mean value in g / kg DM			
Alanine	47.55	Lysine	55.90
Arginine	41.38	Methionine	21.76
Aspartic	67.93	Phenylalanine	27.93
Cystine	6.29	Proline	30.09
Glutamic acid	101.99	Serine	31.15
Glycine	45.92	Threonine	30.73
Histidine	14.94	Tryptophan	7.53
Isoleucin	3.56	Tyrosine	21.70
Leucine	55.90	Valine	40.38

Minerals (content per kg DM)	
Calcium	35.2 g
Phosphorus	23.9 g
Magnesium	2.2 g
Sodium	7.3 g
Potassium	13.0 g
Iron	332.0 mg
Manganese	15.0 mg
Copper	5.0 mg
Zinc	106.0 mg
Selenium	2.38 mg

Vitamins (content per kg DM)	
Vitamin E	4.0 mg
Tiamin	1.0 mg
Riboflavin	7.5 mg
Pyridoxine	2.5 mg
Niacin	65.0 mg
Biotin	8.0 mg
Vitamin B12	0.04 mg

Antioxidant added during production

**Note:** This technical information has been drafted in order to help compounders in their work. The information reported above is reliable, but only has an indicative value. It cannot engage our companies beyond guarantees mentioned in contracts.



FF Hanstholm A/S is a subsidiary of FF Skagen. Contact:

FF Skagen A/S · Havnevagtvej 5 · DK-9990 Skagen · Tel +45 98 44 11 00 · Fax +45 98 45 02 11 · info@ffskagen.dk · www.ffskagen.com





# FF Golden Oil

Energy efficient supplement for growth, firm meat and healthy, tasty fish

FF Golden Oil is produced from fresh fish. A fast, hygienic and controlled production provides a clean, fresh product with an exceptionally low content of free fatty acids. The very low free fatty acid content increases the appetite of the fish, because the oil both smells good and tastes good - exactly like their natural food: fresh fish.

FF Golden Oil fish oil is a crucial element in the composition of an energy-rich fish food. The oil is the energy in the feed, which, in addition to encouraging rapid growth, simultaneously provides the salmon with the right consistency and the sought-after fat marbling. Golden Oil strengthens the characteristics of adipose tissue as a taste binder - and ensures the optimal tasty end product.



### Declaration:

Free Fatty Acids	1-7%
Lodine Value	140-190
Unsaponifiable matter	1-3%
Moisture & Impurities	<1%



Antioxidants are added as required

*Note: This technical information has been drafted in order to help compounders in their work. The information reported above is reliable, but only has an indicative value. It cannot engage our companies beyond guarantees mentioned in contracts.*





# FF Golden Oil Naturland

FF Golden Oil Naturland is produced from sustainable trimmings from the fishing industry. The products is approved by the German Naturland as protein supplement in organic farming and aquaculture. Naturland is one of the world's most respected organic brands with more than 53,000 members. The Organization works in accordance with organic standards stricter than e.g. the German ecolabel, Bio-Siegel.



FF Golden Oil Naturland is produced in a fast, hygienic and controlled production, which provides a clean, fresh product with an exceptionally low content of free fatty acids. The very low free fatty acid content increases the appetite of the fish, because the oil both smells good and tastes good - exactly like their natural food: fresh fish.



Declaration:	
Free Fatty Acids	1-7%
Iodine Value	140-190
Unsaponifiable matter	0-3%
Moisture and Impurities	<1%

*Antioxidants are added as required*

**Note:** This technical information has been drafted in order to help compounders in their work. The information reported above is reliable, but only has an indicative value. It cannot engage our companies beyond guarantees mentioned in contracts.







# FF Golden Oil Soil Association

Feed supplement for growth, firm textured meat and healthy fish in organic production

FF Golden Oil Soil Association is produced from 100% trimmings from the fishing industry - approved and certified as ecologically and socially responsible protein supplement from Soil Association, which is one of the world's most respected ecological brands. Soil Association is a UK organic non-profit organization working for sustainable agriculture and aquaculture. Soil Association has over 27,000 members.

FF Golden Oil Soil Association is produced in a fast, hygienic and controlled production, which provides a clean, fresh product with an exceptionally low content of free fatty acids. The very low free fatty acid content increases the appetite of the fish, because the oil both smells good and tastes good - exactly like their natural food: fresh fish.



Deklaration:	
Free Fatty Acids	1-7%
Lodine Value	140-190
Unsaponifiable matter	0-3%
Moisture & Impurities	<1%

*Antioxidants are added as required*

**Note:** This technical information has been drafted in order to help compounders in their work. The information reported above is reliable, but only has an indicative value. It cannot engage our companies beyond guarantees mentioned in contracts.



# Analyzes Fishmeal

LT Supreme - NSM/Special A - Classic - Natur

## Biogenic Amine Analyzes of FF Skagen Fishmeal

Biogenic Amines ppm	No. Of samples	Average	Minimum	Max	Standard Deviation
Agmatine	3203	309	<5	3979	272
Cadaverine	6302	847	<5	6190	738
Histamine	6302	211	<5	3666	339
Putrescine	6302	408	<5	4645	421
Tyramine	6302	358	<5	3629	397

TVN average 2018: 33.6 in the raw material. TVN average 2019: 33.00. TVN average 2020: 35.00

The samples have been analysed at the FF lab

## Minerals

Sandeel	Calcium %	Phosphorus%	Magnesium%	Potassium %	Sodium %	Manganese mg/kg	Zinc mg/kg	Copper mg/kg	Iron mg/kg
8010-99229 & 92742	1.9	2.2	0.22	1.8	1.2	6	110	5	100
8010-99229 & 92742	1.7	2.2	0.23	1.7	1.4	6	110	5	96
8010-99229 & 92742	1.8	2.2	0.20	1.7	1.0	7	110	5	110
8010-99229 & 92742	2.2	2.3	0.21	1.6	1.0	8	110	<5	110
8010-99229 & 92742	2.0	2.2	0.22	1.6	1.3	8	110	<5	120
<b>Average</b>	<b>1.9</b>	<b>2.2</b>	<b>0.2</b>	<b>1.7</b>	<b>1.2</b>	<b>7.0</b>	<b>110</b>	<b>3.0</b>	<b>107.2</b>

## Sprat

8010-99229 & 92742	2.1	2.1	0.18	1.5	0.85	11	120	6	190
8010-99229 & 92742	2.2	2.1	0.17	1.5	0.68	10	120	<5	130
8010-99229 & 92742	2.4	2.2	0.18	1.5	0.78	11	120	5	150
8010-99229 & 92742	2.2	2.1	0.17	1.6	0.66	11	120	5	150
	2.2	2.1	0.17	1.4	0.74	10	110	5	120
<b>Average</b>	<b>2.22</b>	<b>2.12</b>	<b>0.174</b>	<b>1.5</b>	<b>0.742</b>	<b>10.6</b>	<b>118</b>	<b>4.2</b>	<b>148</b>

## Blue Whiting

8010-99229 & 92742	2.9	2.3	0.23	1.3	1.4	7	110	6	110
8010-99229 & 92742	3.7	2.6	0.25	1.3	1.2	5	78	5	100
8010-99229 & 92742	3.8	2.6	0.18	1.4	1.0	5	68	<5	120
8010-99229 & 92742	3.5	2.6	0.27	1.3	1.3	7	100	6	110
8010-99229 & 92742	4.2	2.9	0.20	1.5	1.1	5	62	5	150
<b>Average</b>	<b>3.62</b>	<b>2.6</b>	<b>0.226</b>	<b>1.36</b>	<b>1.2</b>	<b>5.8</b>	<b>83.6</b>	<b>4.4</b>	<b>118</b>

## Boar

8010-99229 & 92742	5.6	3.4	0.7	0.74	2.4	11	120	<5	570
8010-99229 & 92742	6.0	3.5	0.51	0.74	3.8	8	110	<5	210
<b>Average</b>	<b>5.8</b>	<b>3.5</b>	<b>0.4</b>	<b>0.7</b>	<b>3.1</b>	<b>9.5</b>	<b>115</b>	<b>0.0</b>	<b>390</b>

## Trimmings

8010-99229 & 92742	2.3	2.2	0.16	1.1	0.86	8	100	<5	190
8010-99229 & 92742	2.6	2.5	0.17	1.8	0.88	9	120	<5	160
8010-99229 & 92742	3.0	2.5	0.22	1.6	1.3	9	97	6	180
8010-99229 & 92742	2.6	2.5	0.14	1.7	0.72	10	98	6	140
8010-99229 & 92742	2.1	2.2	0.17	1.8	0.91	9	120	5	130
<b>Average</b>	<b>2.52</b>	<b>2.38</b>	<b>0.172</b>	<b>1.6</b>	<b>0.934</b>	<b>9</b>	<b>107</b>	<b>3.4</b>	<b>160</b>

The samples have been analysed at Eurofins / Steins







#### Amino acid

Sandeel - g/100g		Aspartic acid	Threo nine	Serine	Glumatic acid	Proline	Glycine	Alanine	Valine	Iso- Leucine
100601M	TBS/ETH 15/4	5.91	2.78	2.66	8.58	2.6	4.26	4.11	3.23	2.66
100602M	TBS 22/4	5.63	2.71	2.43	8.09	2.3	3.79	3.84	3.21	2.74
100603M	TBS/ETH 26/4	6.27	2.97	2.78	8.89	2.6	4.02	4.2	3.48	2.92
100604M	TBS/ETH 3/5	5.52	2.77	2.45	8.31	2.43	3.67	4	3.2	2.7
100605M	TBS/ETH 11/5	5.91	2.76	2.54	8.37	2.61	3.92	4.04	3.34	2.84
100606M	TBS/NAT 22/5	6.43	2.99	2.71	8.91	2.74	3.94	4.38	3.71	3.18
100607M	TBS 5/6	6.4	2.97	2.79	9.05	2.55	3.88	4.12	3.5	3.02
100608M	TBS/NAT 8/6	6.58	3.05	2.9	9.33	2.81	4.12	4.35	3.64	3.1
<b>Average</b>		<b>6.081</b>	<b>2.875</b>	<b>2.658</b>	<b>8.691</b>	<b>2.58</b>	<b>3.95</b>	<b>4.13</b>	<b>3.414</b>	<b>2.895</b>

		Leucine	Tyrosine	Phenyl- alanine	Histi- dine	Lysine	Arginine	Trypto- phan	Cystein+ Cystine	Methi- onine	Ornithine
100601M	TBS/ETH 15/4	4.8	2.08	2.54	1.35	4.87	3.78	0.702	0.547	1.9	0.05
100602M	TBS 22/4	4.66	2.08	2.54	1.26	4.59	3.39	0.676	0.558	1.88	0.090
100603M	TBS/ETH 26/4	5.11	2.18	2.7	1.4	5.12	4	0.761	0.572	2.06	0.031
100604M	TBS/ETH 3/5	4.84	1.71	2.42	1.19	4.2	3.2	0.615	0.478	1.86	0.182
100605M	TBS/ETH 11/5	4.9	2.03	2.54	1.34	4.83	3.58	0.744	0.587	1.96	0.056
100606M	TBS/NAT 22/5	5.46	2.24	2.87	1.45	5.19	3.74	0.77	0.562	2.17	0.084
100607M	TBS 5/6	5.18	2.26	2.71	1.49	5.37	3.89	0.778	0.655	2.09	0.053
100608M	TBS/NAT 8/6	5.36	2.38	2.75	1.52	5.4	4.09	0.785	0.613	2.11	0.035
<b>Average</b>		<b>5.039</b>	<b>2.12</b>	<b>2.634</b>	<b>1.375</b>	<b>4.946</b>	<b>3.709</b>	<b>0.729</b>	<b>0.572</b>	<b>2.004</b>	<b>0.073</b>

Sprat - g/100g		Aspartic acid	Threo nine	Serine	Glumatic acid	Proline	Glycine	Alanine	Valine	Iso- Leucine
100609M	ØBR/NAT 20/3	6.61	3.04	2.87	9.18	2.88	4.27	4.46	3.64	2.99
100610M	ØBR/NAT 28/3	6.48	3	2.82	9.27	2.94	4.21	4.47	3.52	2.9
100611M	ØBR/ETH 5/4	6.79	3.15	2.83	9.76	2.95	4.26	4.68	3.79	3.16
100612M	ØBR/NAT 25/4	6.06	2.8	2.54	8.65	2.65	3.86	4.16	3.43	2.83
100613M	ØBR/NAT 27/4	5.8	2.76	2.6	8.42	2.57	3.92	4.03	3.22	2.61
100614M	ØBR/ETH 2/5	6.4	3.03	2.71	9.16		3.98	4.43	3.64	3.02
100615M	ØBR/ETH 16/5	6.49	3	2.73	9.19	2.8	4.3	4.49	3.64	3.02
100616M	ØBR/ETH 15/5	6.38	3	2.8	8.99	2.77	4.17	4.36	3.51	2.96
<b>Average</b>		<b>6.376</b>	<b>2.973</b>	<b>2.738</b>	<b>9.078</b>	<b>2.794</b>	<b>4.121</b>	<b>4.385</b>	<b>3.549</b>	<b>2.936</b>

		Leucine	Tyrosine	Phenyl- alanine	Histi- dine	Lysine	Arginine	Trypto- phan	Cystein+ Cystine	Methi- onine	Ornithine
100609M	ØBR/NAT 20/3	5.32	2.42	2.84	1.58	5.63	4.35	0.812	0.664	2.12	0.019
100610M	ØBR/NAT 28/3	5.29	2.3	2.82	1.59	5.62	4.27	0.799	0.652	2.02	0.022
100611M	ØBR/ETH 5/4	5.61	2.49	2.9	1.75	5.9	4.37	0.841	0.641	2.25	0.03
100612M	ØBR/NAT 25/4	5.03	2.22	2.63	1.41	5.13	3.93	0.749	0.535	1.97	0.025
100613M	ØBR/NAT 27/4	4.8	2.08	2.42	1.31	4.92	3.86	0.7	0.598	1.85	0.038
100614M	ØBR/ETH 2/5	5.36	2.45	2.91	1.58	5.54	4.02	0.832	0.622	2.13	0.039
100615M	ØBR/ETH 16/5	5.35	2.36	2.88	1.52	5.5	4.21	0.808	0.631	2.16	0.048
100616M	ØBR/ETH 15/5	5.33	2.34	2.79	1.42	5.37	4.16	0.801	0.62	2.08	0.043
<b>Average</b>		<b>5.261</b>	<b>2.333</b>	<b>2.774</b>	<b>1.52</b>	<b>5.451</b>	<b>4.146</b>	<b>0.793</b>	<b>0.620</b>	<b>2.073</b>	<b>0.033</b>

The samples have been analysed at the FF lab



# Analyses Fishmeal & Fish Oil

LT Supreme - NSM/Special A - Classic - Natur - Golden Oil

## Elements

				No. of analyses	Average	Maximum	Minimum	LOQ	Limiting values			
Atomic mass		Unit							Fishmeal	Fish oil	Fish feeds	Full feeds
9	Fluorine	mg/kg	40	24	65	9	10		500		350	150
33	Arsenic total	mg/kg	40	6	12.8	1.3			25		10	2
33	Arsenic inorganic	mg/kg	na	na	na	na			2		2	
34	Selenium	mg/kg	6	3.2				Old data				
48	Cadmium	mg/kg	40	0.2	0.5	0.02			2		1	0.1
80	Mercury	mg/kg	40	0.07	0.15	0.01			0.5		0.2	5
82	Lead	mg/kg	40	1.3	6.3	0.05			10			

## Vitamins

Vitamin D	IE/kg	na	na	na	na						3000	
-----------	-------	----	----	----	----	--	--	--	--	--	------	--

## Organic matters

Nitrite (Na-nitrite)	mg/kg	40	1.6	9	0.1				60			15
Toxaphene (Chlorcampher) (26,50,62,sum)	mg/kg	30							0.02	0.2		
	26 mg/kg		0.02	0.02	0.01				0.02	0.2		
	50 mg/kg		0.02	0.02	0.01				0.02	0.2		
	62 mg/kg		0.02	0.02	0.01				0.02	0.2		
	sum mg/kg		0.06	0.1	0.01				0.02	0.2		
Aldrin	mg/kg	30	0.005	0.005	0.005	0.005			0.01	0.1		
Dieldrin	mg/kg	30	0.005	0.005	0.005	0.005			0.01	0.1		
DDD	O,p mg/kg	30	0.005	0.005	0.005	0.005			0.05	0.5		
	P,p mg/kg		0.005	0.005	0.005	0.005			0.05	0.5		
DDE	mg/kg	30							0.05	0.5		
	O,p mg/kg		0.005	0.005	0.005				0.05	0.5		
	P,p mg/kg		0.006	0.006	0.005				0.05	0.5		
	sum mg/kg								0.05	0.5		
DDT (sum af DDT +TDD+DDE isomere)	mg/kg								0.05	0.5		
	O,p mg/kg	30	0.005	0.005	0.005				0.05	0.5		
	P,p mg/kg		0.005	0.005	0.005				0.05	0.5		
	sum mg/kg								0.05	0.5		
Chlordane (gamma/trans - Alphe/cis - Oxi - Sum)	mg/kg								0.02	0.05		
	Gamma/trans mg/kg	30	0.006	0.015	0.005	0.005			0.02	0.05		
	Alpha/cis mg/kg		0.005	0.005	0.005	0.005			0.02	0.05		
	Oxi mg/kg		0.005	0.005	0.005	0.005			0.02	0.05		
	sum mg/kg								0.02	0.05		
Endosulphane (Alpha - Beta - Sulphate - sum)	mg/kg								0.1	0.05		
	Alpha mg/kg	30	0.01	0.01	0.01	0.01			0.1	0.05		
	Beta mg/kg		0.01	0.01	0.01	0.01			0.1	0.05		
	Sulphate mg/kg		0.02	0.02	0.02	0.02			0.1	0.05		
	sum mg/kg								0.1	0.05		

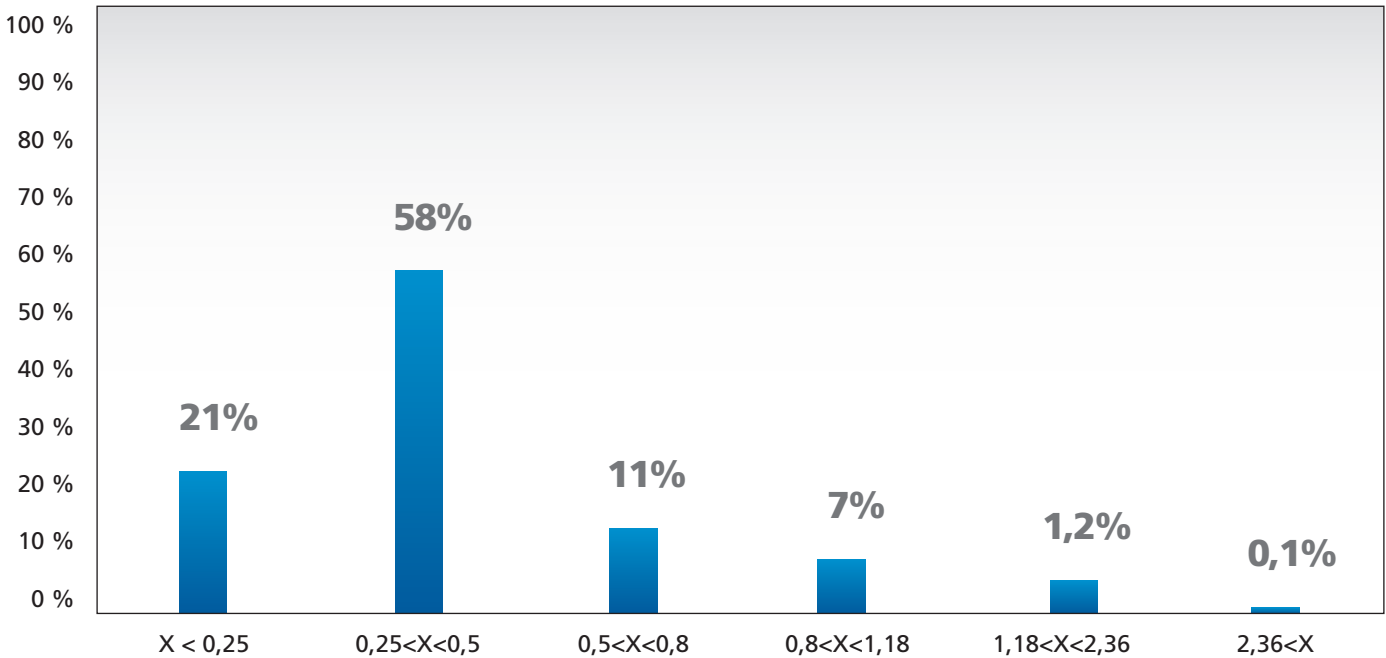






		No. of analyses	Average	Maximum	Minimum	LOQ	Limiting values	
Atomic mass	Unit						Fishmeal	Fish oil
Edrin	mg/kg	30	0.01	0.01	0.01	0.01	0.01	0.05
Heptachlor	mg/kg	30	0.005	0.005	0.005	0.005	0.01	0.2
HCB Hexachlorbenzene	mg/kg	30	0.005	0.005	0.005	0.005	0.01	0.2
HCH (Hexachlorcyclohexane) alpha isomers	mg/kg						0.02	0.2
HCH	Alpha mg/kg	30	0.005	0.01	0.005	0.005	0.01	0,1
HCH	Beta		0.007	0.01	0.005	0.01		
HCH	Gamma/lindane mg/kg		0.05	0.05	0.05	0.005	0.2	2
Chloramphenicole	µg/kg	15	nd			0.1		
PAH (measured as benzo(a)pyrene)	µg/kg	30	na					
Dioxin	ng/kg	1500	0.71				1.25	6
PCB	ng/kg	1500	0.59				3.25	18
NDL-PCB	µg/kg	174	12				30	175
Brominated flame retardants (BFRs)			na					
Perfluorinated compounds: PFOS, PFOA and related compounds			na					

## Average particle size of FF Skagen fishmeal









## Certified quality and feed safety



The Marine Stewardship Council (MSC) is an independent international eco-label for "sustainable fishing methods". Fish with the blue MSC eco-label is a guarantee that the company operates in an environmentally sustainable manner and does not contribute to the global environmental problem of overfishing. The certificate is issued by Det Norske Veritas (DNV).



FF Skagen is MarinTrust certified according to the "Global Standard and Certification Programme for the Responsible Supply of Fishmeal and Fish Oil". The certificate demonstrates FF Skagen's commitment to responsible practice in all areas of feed safety, raw material procurement and delivery.



FF Skagen is certified according to the Soil Association, a British eco-label whose purpose is to protect the environment and promote sustainability. The Soil Association label guarantees that the product - in addition to living up to the ecological requirements of the EU - also meets additional, enhanced ethical, ecological and sustainability standards.



FF Skagen is a member of the Federation of Oils, Seeds and Fats Associations (FOSFA), a union of international traders in oil, seeds and fats. FOSFA International has more than 900 members in 77 countries and sets contract formulation standards.



FF Skagen Naturland fishmeal is certified as ecologically and socially responsible protein supplement from Naturland, which is one of the world's most respected ecological brands.

Naturland has more than 53,000 members and work in accordance with organic standards which is stricter than e.g. the German ecolabel, Bio-Siegel.



Feed Materials Assurance.  
Certified by Kiwa Agri Food.



# Special products FF Skagen know how...



FF Skagen also develops and manufactures custom-made special products that match the individual needs for e.g. nutritional content, protein digestibility, binding capacity etc. In our advanced production plant, we can give meal and oil products different properties so that the special product is targeted at specific needs and requirements.

An effective control system ensures a final product that meets the agreed specifications 100%. We take sealed samples of all supplies for any possible subsequent analysis by the accredited laboratory of the customer's choice.

