

LYSI HF
Fiskislod 5-9
attn. Mr. Guðmundur Guðmundsson
101 Reykjavik
ISLAND**Person in charge** Mr. C. Drüppel
ASM Mr. C. Drüppel

Report date 16.01.2019

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Analytical report AR-19-GF-002718-01**Sample Code 710-2019-00040012**

Reference	Fish oil HO307
Sample sender	Mr. Guðmundur Guðmundsson
Reception date time	02.01.2019
Transport by	DHL
Client sample code	VO82400(3795)
Number of containers	1
Reception temperature	room temperature
End analysis	16.01.2019

Test results

GFL13	Dioxins and Furans (17 PCDD/F) (°) (#)		
Method	Internal, GLS DF 110, GC-MS/MS		
2,3,7,8-TetraCDD		< 0.0625	pg/g
1,2,3,7,8-PentaCDD		< 0.0822	pg/g
1,2,3,4,7,8-HexaCDD		< 0.125	pg/g
1,2,3,6,7,8-HexaCDD		< 0.171	pg/g
1,2,3,7,8,9-HexaCDD		< 0.161	pg/g
1,2,3,4,6,7,8-HeptaCDD		< 0.263	pg/g
OctaCDD		< 1.91	pg/g
2,3,7,8-TetraCDF		< 0.171	pg/g
1,2,3,7,8-PentaCDF		< 0.118	pg/g
2,3,4,7,8-PentaCDF		< 0.184	pg/g
1,2,3,4,7,8-HexaCDF		< 0.194	pg/g
1,2,3,6,7,8-HexaCDF		< 0.178	pg/g
1,2,3,7,8,9-HexaCDF		< 0.132	pg/g

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Eurofins GfA Lab Service GmbH · Neuländer Kamp 1 a · D-21079 Hamburg
Headquarters: Eurofins GfA Lab Service GmbH – Neuländer Kamp 1a D-21079 Hamburg
HRB 115907 AG Hamburg
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Hypovereinsbank • Bank code: 207 300 17 • Account No.: 7000002400 • SWIFT-BIC: HYVEDEMM33
IBAN: DE12 2073 0017 7000 0024 00

Deutsche
Akkreditierungsstelle
D-PL-14629-01-00Durch die Deutsche Akkreditierungsstelle
GmbH (DAkkS) akkreditiertes Prüflaboratorium

DIN EN ISO/IEC 17025:2005

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2,3,4,6,7,8-HexaCDF	< 0.161	pg/g
1,2,3,4,6,7,8-HeptaCDF	< 0.184	pg/g
1,2,3,4,7,8,9-HeptaCDF	< 0.128	pg/g
OctaCDF	< 0.395	pg/g
WHO(2005)-PCDD/F TEQ (lower-bound)	ND	pg/g
WHO(2005)-PCDD/F TEQ (medium-bound)	0.170	pg/g
WHO(2005)-PCDD/F TEQ (upper-bound)	0.339	pg/g

GFL14 polychlorinated biphenyls (12 WHO PCB + 6 ICES PCB) (°) (#)

Method	Internal, GLS DF 110, GC-MS/MS	
PCB 77	< 5.92	pg/g
PCB 81	< 0.888	pg/g
PCB 105	36.2	pg/g
PCB 114	2.61	pg/g
PCB 118	107	pg/g
PCB 123	< 1.32	pg/g
PCB 126	< 0.822	pg/g
PCB 156	14.2	pg/g
PCB 157	4.16	pg/g
PCB 167	8.42	pg/g
PCB 169	< 3.95	pg/g
PCB 189	1.84	pg/g
WHO(2005)-PCB TEQ (lower-bound)	0.00522	pg/g
WHO(2005)-PCB TEQ (medium-bound)	0.106	pg/g
WHO(2005)-PCB TEQ (upper-bound)	0.207	pg/g
PCB 28	< 0.329	ng/g
PCB 52	< 0.329	ng/g
PCB 101	< 0.329	ng/g
PCB 138	< 0.329	ng/g
PCB 153	0.361	ng/g
PCB 180	< 0.329	ng/g
Total 6 ndl-PCB (lower-bound)	0.361	ng/g
Total 6 ndl-PCB (medium-bound)	1.18	ng/g
Total 6 ndl-PCB (upper-bound)	2.01	ng/g

GFTE1 TEQ-Totals WHO-PCDD/F and PCB (°) (#)

Method	Internal, GLS DF 110, 120, 130, 140, Calculation	
WHO(2005)-PCDD/F+PCB TEQ (lower-bound)	0.00522	pg/g
WHO(2005)-PCDD/F+PCB TEQ (medium-bound)	0.276	pg/g
WHO(2005)-PCDD/F+PCB TEQ (upper-bound)	0.546	pg/g

GFB01 PCB 209, polychlorinated biphenyls 209 in total: food, feed, fishoil, fishmeal, feed, biota (°) (#)

Method Internal, GLS DF 110, 130, GC-HRMS

Total MonoCB	ND	ng/g
Total DiCB	ND	ng/g
Total TriCB	ND	ng/g
Total TetraCB	ND	ng/g
Total PentaCB	0.391	ng/g
Total HexaCB	0.912	ng/g
Total HeptaCB	0.396	ng/g
Total OctaCB	0.0475	ng/g
Total NonaCB	ND	ng/g
DecaCB	0.00369	ng/g
Total Mono- to DecaCB (lower bound)	1.75	ng/g
Total Mono- to DecaCB (medium bound)	2.41	ng/g
Total Mono- to DecaCB (upper bound)	3.07	ng/g

GFB53 organochlorine pesticides (27 OCP + endosulfane): food, feed, biota, fishoil, fishmeal, milk powder (°) (#)

Method Internal, GLS OC 500, GC-MS/MS

Pentachlorobenzene	< 1.25	ng/g
Hexachlorobenzene (HCB)	< 1.25	ng/g
alpha-HCH	< 0.250	ng/g
beta-HCH	< 0.250	ng/g
gamma-HCH (Lindane)	< 0.250	ng/g
delta-HCH	< 0.250	ng/g
o,p'-DDT	< 0.250	ng/g
p,p'-DDT	< 0.250	ng/g
o,p'-DDE	< 0.250	ng/g
p,p'-DDE	0.761	ng/g
o,p'-DDD	< 0.250	ng/g
p,p'-DDD	0.745	ng/g
Aldrin	< 0.250	ng/g
Dieldrin	< 0.599	ng/g
Endrin	< 1.25	ng/g
Endosulfan I (alpha-endosulfan)	< 1.85	ng/g
Endosulfan II (beta-Endosulfan)	< 1.0	ng/g
Endosulfan sulphate	< 1.0	ng/g
Toxaphene Parlar 26	< 1.25	ng/g
Toxaphene Parlar 50	< 1.25	ng/g
Toxaphene Parlar 62	< 2.50	ng/g

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Mirex	< 0.250	ng/g
cis-Chlordane	< 0.250	ng/g
trans-Chlordane	< 0.250	ng/g
oxy-Chlordane	< 0.750	ng/g
trans-Nonachlor	< 0.138	ng/g
Heptachlor	< 0.250	ng/g
cis-Heptachlorepoxide	< 0.375	ng/g
trans-Heptachlorepoxide	< 1.25	ng/g
Octachlorstyrene	< 0.125	ng/g

GFB81 polybrominated diphenyl ethers (24 PBDE): food, feed, biota (°) (#)

Method Internal, GLS OC 200, GC-MS

2,2',4'-TriBDE (BDE-17)	< 0.00984	ng/g
2,4,4'-TriBDE (BDE-28)	< 0.00984	ng/g
sum of analysed TriBDEs (excl. LOQ)	ND	ng/g
sum of analysed TriBDEs (incl. LOQ)	0.0197	ng/g
2,2',4,4'-TetraBDE (BDE-47)	0.182	ng/g
2,2',4,5'-TetraBDE (BDE-49)	0.0296	ng/g
2,3',4,4'-TetraBDE (BDE-66)	< 0.0118	ng/g
2,3',4',6'-TetraBDE (BDE-71)	< 0.00993	ng/g
3,3',4,4'-TetraBDE (BDE-77)	< 0.00984	ng/g
sum of analysed TetraBDEs (excl. LOQ)	0.212	ng/g
sum of analysed TetraBDEs (incl. LOQ)	0.243	ng/g
2,2',3,4,4'-PentaBDE (BDE-85)	< 0.0197	ng/g
2,2',4,4',5'-PentaBDE (BDE-99)	0.0395	ng/g
2,2',4,4',6'-PentaBDE (BDE-100)	0.0282	ng/g
2,3',4,4',6'-PentaBDE (BDE-119)	< 0.0197	ng/g
3,3',4,4',5'-PentaBDE (BDE-126)	< 0.0197	ng/g
sum of analysed PentaBDEs (excl. LOQ)	0.0676	ng/g
sum of analysed PentaBDEs (incl. LOQ)	0.127	ng/g
2,2',3,4,4',5'-HexaBDE (BDE-138)	< 0.0295	ng/g
2,2',4,4',5,5'-HexaBDE (BDE-153)	< 0.0295	ng/g
2,2',4,4',5,6'-HexaBDE (BDE-154)	< 0.0295	ng/g
2,3,3',4,4',5'-HexaBDE (BDE-156)	< 0.0295	ng/g
sum of analysed HexaBDEs (excl. LOQ)	ND	ng/g
sum of analysed HexaBDEs (incl. LOQ)	0.118	ng/g
2,2',3',4,4',5',6'-HeptaBDE (BDE-183)	< 0.0492	ng/g
2,2',3,4,4',6,6'-HeptaBDE (BDE-184)	< 0.0492	ng/g
2,3,3',4,4',5',6'-HeptaBDE (BDE-191)	< 0.0492	ng/g
sum of analysed HeptaBDEs (excl. LOQ)	ND	ng/g

sum of analysed HeptaBDEs (incl. LOQ)	0.148	ng/g
2,2',3,3',4,4',5,6'-OctaBDE (BDE-196)	< 0.0984	ng/g
2,2',3,3',4,4',6,6'-OctaBDE (BDE-197)	< 0.0984	ng/g
sum of analysed OctaBDEs (excl. LOQ)	ND	ng/g
sum of analysed OctaBDEs (incl. LOQ)	0.197	ng/g
2,2',3,3',4,4',5,5',6-NonaBDE (BDE-206)	< 0.197	ng/g
2,2',3,3',4,4',5,6'-NonaBDE (BDE-207)	< 0.197	ng/g
sum of analysed NonaBDEs (excl. LOQ)	ND	ng/g
sum of analysed NonaBDEs (incl. LOQ)	0.393	ng/g
DecaBDE (BDE-209)	< 0.984	ng/g
Sum of analysed BDEs (excl. LOQ)	0.279	ng/g
Sum of analysed BDEs (incl. LOQ)	2.23	ng/g

JC0E5 Ester-bound 2-chloropropane-1,3-diol (2-MCPD ester)

Method Mod. DGF C-VI 18 (10) Part B, CON-PV 01321 (2018-10), GC-MS/MS

Subcontracted to a Eurofins laboratory accredited for this test.

Total 2-MCPD (free and bound)	<100 *	µg/kg
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JC0E2 Ester-bound 3-chloropropane-1,2-diol (3-MCPD ester)

Method Mod. DGF C-VI 18 (10) Part B, CON-PV 01321 (2018-10), GC-MS/MS

Subcontracted to a Eurofins laboratory accredited for this test.

Total 3-MCPD (free and bound)	130	µg/kg
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JC0E1 Ester-bound 3-chloropropane-1,2-diol (3-MCPD ester) and glycidol (glycidyl ester)

Method Mod. DGF C-VI 18 (10) Part A, CON-PV 01321 (2018-10), GC-MS/MS

Subcontracted to a Eurofins laboratory accredited for this test.

Total 3-MCPD (free and bound)	210	µg/kg
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JCGLY Calc. 3-MCPD forming substances (Glycidol) on fat

Method Internal, CON-PV 01321 (2018-10), Calculation

Subcontracted to a Eurofins laboratory accredited for this test.

3-MCPD from Glycidol (calculated)	80	µg/kg
Glycidol (calculated)	90	µg/kg

JC010 Copper (Cu)

Method DIN EN ISO 17294-2 (2017-01), mod., CON-PV 01274 (2017-12), ICP-MS

Subcontracted to a Eurofins laboratory accredited for this test.

Copper (Cu)	<0.05 *	mg/kg
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JJ0CJ Iron (Fe)

Method DIN EN ISO 17294-2 (2017-01), mod., CON-PV 01274 (2017-12), ICP-MS

Subcontracted to a Eurofins laboratory accredited for this test.

Iron (Fe)	<0.5 *	mg/kg
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JCM03 Lead (Pb)

Method DIN EN 15763:2010 (2010-04), mod., CON-PV 01274 (2017-12), ICP-MS

Subcontracted to a Eurofins laboratory accredited for this test.

Lead (Pb)	<0.02 *	mg/kg
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J8312 Arsenic (As)

Method DIN EN 15763:2010 (2010-04), mod., CON-PV 01274 (2017-12), ICP-MS

Subcontracted to a Eurofins laboratory accredited for this test.

Arsenic (As) <0.1 * mg/kg

J8308 Cadmium (Cd)

Method DIN EN 15763:2010 (2010-04), mod., CON-PV 01274 (2017-12), ICP-MS

Subcontracted to a Eurofins laboratory accredited for this test.

Cadmium (Cd) <0.01 * mg/kg

JCHG2 Mercury (Hg)

Method DIN EN 15763:2010 (2010-04), mod., CON-PV 01274 (2017-12), ICP-MS

Subcontracted to a Eurofins laboratory accredited for this test.

Mercury (Hg) <0.005 * mg/kg

JC00W 12 PAH acc. to EPA

Method Internal, CON-PV 01176 (2018-08), GC-MS

Subcontracted to a Eurofins laboratory accredited for this test.

Sum of all positive identified PAH	Inapplicable	
Sum PAH 4	Inapplicable	
Phenanthrene	<0.5 *	µg/kg
Anthracene	<0.5 *	µg/kg
Fluoranthene	<0.5 *	µg/kg
Pyrene	<0.5 *	µg/kg
Benz(a)anthracene	<0.5 *	µg/kg
Chrysene	<0.5 *	µg/kg
Benzo(b)fluoranthene	<0.5 *	µg/kg
Benzo(k)fluoranthene	<0.5 *	µg/kg
Benzo(a)pyrene	<0.5 *	µg/kg
Dibenz(a,h)anthracene	<0.5 *	µg/kg
Indeno(1,2,3-cd)pyrene	<0.5 *	µg/kg
Benzo(g,h,i)perylene	<0.5 *	µg/kg
Sum of "heavy" PAH (>=5 rings)	Inapplicable	


* = below indicated quantification level

(°) = The test was performed at the laboratory site: Am Neuländer Gewerbepark 4

(#) = Eurofins GfA Lab Service GmbH (Hamburg) is accredited for this test.

< - Concentration below the indicated limit of quantification (LOQ)

ND - not determined since none of the corresponding congeners was above the LOQ



Analytical Service Manager (Christian Drüppel)