

CERTIFICATE OF ANALYSIS

Product name: Crude kemiri oil

Sample No: 146648

Date of report: 8 Jan 2018

Manufacturing date: Jan 2018

Expiry date: Jan 2020

We have tested the samples submitted and the following results were obtained:

Test Items	Method	Unit(s)	LOD	LOQ	Result(s)
Organoleptic Test -Odour -Taste -Colour	SNI 7709 : 2012	- - -	- - -	- - -	Characteristic Normal Brown
Peroxide Value	SNI 7709 : 2012	millequivalents/Kg	-	-	1.99
Acid Value	SNI 01-3555 : 1998 point 8	mg KOH/gram	-	-	56.20
Iodine value (wijs method)	AOCS Cd 1b-87	g I ₂ /100g	-	-	152.39
Saponification Value	AOCS Cd3-25	mg KOH/gram	-	-	193.36
Refractive Index at 40C -Refractive Index at 40 degree Celcius	AOCS Cc 7-25 Refractive Index - Refractometer	-	-	-	1.4670
# Slip Melting Point	AOCS Cc 3-25	degree C	-	-	< 10
# Relative Density (40/40 degree celcius) -Relative Density (20/20 degree Celcius) -Relative Density (25/25 degree Celcius)	ISO 6883 : 2017	- - -	- - -	- - -	0.9215 0.9191

Test Items	Method	Unit(s)	LOD	LOQ	Result(s)
Fatty Acid Composition	AOAC (2005) 996.06				
-Butyric acid Methyl ester (C4:0)		%	0.0001	0.0003	Not detected
-Caproic acid Methyl ester (C6:0)		%	0.0002	0.0007	Not detected
-Caprylic acid Methyl ester (C8:0)		%	0.0002	0.0006	Not detected
-Capric acid Methyl ester (C10:0)		%	0.0001	0.0004	Not detected
-Lauric acid Methyl ester (C12:0)		%	0.0002	0.0006	Not detected
-Tridecanoic acid Methyl ester (C13:0)		%	0.0005	0.0017	Not detected
-Myristic acid Methyl ester (C14:0)		%	0.0001	0.0002	Not detected
-Myristoleic acid Methyl ester (C14:1)		%	0.0005	0.0017	Not detected
-Pentadecanoic acid Methyl ester (C15:0)		%	0.0005	0.0017	Not detected
-Pentadecenoic acid Methyl ester (C15:1)		%	0.0004	0.0015	Not detected
-Palmitic acid Methyl ester (C16:0)		%	0.0003	0.0009	4.98
-Palmitoleic acid Methyl ester (C16:1)		%	0.0005	0.0016	Not detected
-Heptadecanoic acid Methyl ester (C17:0)		%	0.0005	0.0017	Not detected
-Heptadecenoic acid Methyl ester (C17:1)		%	0.0005	0.0015	Not detected
-Stearic acid Methyl ester (C18:0)		%	0.0002	0.0006	3.17
-Oleic Acid Methyl ester (C18:1)		%	0.0001	0.0004	20.79
-Linoleic acid Methyl ester (C18:2)		%	0.0004	0.0013	48.76
-alpha-Linolenic acid Methyl Ester (ALA, C18:3)		%	0.0002	0.0008	22.30
-gamma-Linolenic acid Methyl Ester (C18:3)		%	0.0005	0.0018	Not detected
-Arachidic acid Methyl ester (C20:0)		%	0.0001	0.0004	Not detected
-Eicosenoic acid Methyl ester (20:1)		%	0.0002	0.0008	Not detected
-Eicosadienoic acid Methyl ester (C20:2)		%	0.0005	0.0015	Not detected
-Heneicosanoic acid Methyl ester (C21:0)		%	0.0004	0.0014	Not detected

Test Items	Method	Unit(s)	LOD	LOQ	Result(s)
- cis-8,11,14-Eicosatrienoic acid Methyl ester (C20:3)		%	0.0005	0.0018	Not detected
- Arachidonic acid Methyl ester (20:4) (n-6)		%	0.0006	0.0020	Not detected
- cis-11,14,17-Eicosatrienoic acid Methyl ester (C20:3)		%	0.0004	0.0015	Not detected
- cis-5,8,11,14,17-Eicosapentaenoic acid Methyl ester (EPA, C20:5)		%	0.0005	0.0015	Not detected
- Behenic acid Methyl ester (C22:0)		%	0.0001	0.0002	Not detected
- Erucic acid Methyl ester (C22:1)		%	0.0004	0.0015	Not detected
- Docosadienoic acid Methyl ester (22:2)		%	0.0006	0.0019	Not detected
- Tricosanoic acid Methyl ester (C23:0)		%	0.0005	0.0017	Not detected
- Lignoceric acid Methyl ester (C24:0)		%	0.0002	0.0007	Not detected
- Nervonic acid Methyl ester (C24:1)		%	0.0005	0.0016	Not detected
- cis-4,7,10,13,16,19-Docosahexaenoic acid Methyl ester (DHA, C22:6)		%	0.0005	0.0015	Not detected
- C18:1n9t Elaidic Acid		%	0.0005	0.0018	Not detected
- C18:2n6t Linolelaidic Acid		%	0.0005	0.0018	Not detected

Remark : 1. LOD = "Limit of Detection"

2. Less than = Lower than LOQ "Limit of Quantitation"

"Test(s) marked # on this Report was tested/analyzed by an external laboratory with prior approval of the client"

***** End of Report *****

Issue date: Jan 8th, 2018

Disclaimer: To the best of our knowledge, the above data is correct. We cannot accept liability for any errors in this document. Some parameters are subject to change upon storage, the data in this CoA reflects the status at the time of analysis. This document is valid without signature.