GRAS Notice (GRN) No. 860 https://www.fda.gov/food/generally-recognized-safe-gras/gras-notice-inventory

> NutraSource, Inc. 6309 Morning Dew Ct, Clarksville, MD 21029 (410)-531-3336 or (301) 875-6454

May 3, 2019

Dr. Paulette Gaynor Division of Biotechnology and GRAS Notice Review Office of Food Additive Safety (HFS-200) Center for Food Safety and Applied Nutrition Food and Drug Administration 5001 Campus Drive College Park, MD 20740



Subject: GRAS Notification – Docosahexaenoic acid (DHA)-rich Oil As a Food Ingredient

Dear Dr. Gaynor,

On behalf of Hubei Fuxing BioTechnology, Co., Ltd, we are submitting a GRAS notification for docosahexaenoic acid (DHA)-rich oil as a food ingredient. The enclosed document provides the notice of a claim that a food ingredient, the DHA-rich oil, described in the enclosed notification is exempt from the premarket approval requirement of the Federal Food, Drug, and Cosmetic Act because it has been determined to be generally recognized as safe (GRAS), based on scientific procedures, as a food ingredient. We believe that this determination and notification are in compliance with Pursuant to 21 C.F.R. Part 170, subpart E.

We enclose an original copy of this notification and a CD Rom for your review. Please feel free to contact me if additional information or clarification is needed as you proceed with the review. We would appreciate your kind attention to this matter.

Sincerely,

5/3/2019

Susan Cho, Ph.D. Susanschol@yahoo.com Agent for Hubei Fuxing BioTechnology, Co., Ltd

# DETERMINATION OF THE GENERALLY RECOGNIZED AS SAFE (GRAS) STATUS OF DOCOSAHEXAENOIC ACID-RICH OIL AS A FOOD INGREDIENT

Prepared for Hubei Fuxing BioTechnology, Co., Ltd

Prepared by: NutraSource, Inc. 6309 Morning Dew Court Clarksville, MD 21029 Tel: 410-531-3336 Susanscho1@yahoo.com

#### GENERALLY RECOGNIZED AS SAFE (GRAS) STATUS OF DOCOSAHEXAENOIC ACID (DHA)-RICH OIL AS A FOOD INGREDIENT

#### Table of contents

PART 1. SIGNED STATEMENTS AND A CERTIFICATION	5
1.A. Name and Address of the Notifier	5
1.B. Common or Trade Name	5 5
1.C. Applicable Conditions of Use of the Notified Substance	5
1.C.1. Foods in Which the Substance is to be Used	5
1.C.2. Levels of Use in Such Foods	5 5 7
1.C.3. Purpose for Which the Substance is Used	7
1.C.4. Description of the Population Expected to Consume the Substance	7
1.D. Basis for the GRAS Determination	7
1.E. Availability of Information	7
1.F. Availability of FOIA Exemption	7
1.G. Certification	7
1.H. Name, Position/Title of Responsible Person Who Signs Dossier and Signature	7
1.I. FSIS/USDA Statement	7
PART 2. IDENTITY, MANUFACTURING, SPECIFICATIONS, AND TECHNICAL	8
EFFECTS OF DHA	
2.A.1. Identity of the Notified Substance	8
2.A.1.1. Common Name	8
2.A.1.2. Chemical Names	8
2.A.1.3. Chemical Abstract Service (CAS) Registry Number	8
2.A.1.4. Empirical Formula	8
2.A.1.5. Molecular Weight	8
2.A.1.6. Structural Formula	8
2.A.1.7. Physical Properties	8
2.A.1.8. Background	8
2.A.2. Potential Toxicants in the Source of the Notified Substance	9
2.A.3. Particle Size	15
2.B. Method of Manufacture	15
2.C. Specifications and Composition	18
2.D. Stability	26
2.E. Intended Technical Effects	26
PART 3. EXPOSURE ESTIMATES	27
3.A. Intended Use	27
3.B. Exposure Estimates	28
3.C. Food Sources of DHA	28
PART 4. SELF-LIMITING USE LEVELS	30
PART 5. HISTORY OF CONSUMPTION	31
PART 6. BASIS FOR GRAS DETERMINATION	32
6.A. Current Regulatory Status	32
6.B. Review of Safety Data	33
6.B.1. Metabolic Fate of DHA	33

6.B.2. Studies on Mutagenicity and Genotoxicity of DHA Derived from <i>Schizochytrium</i> sp.	34
6.B.3. Animal Toxicity Studies DHA Derived from Schizochytrium sp.	34
6.B.4. Human Clinical Studies of DHA	39
6.B.5. Potential Adverse Effects	47
6.C. Safety Determination	47
6.D. Conclusions and General Recognition of the Safety of DHA-Rich Oil	49
6.D.1. Common Knowledge Element of the GRAS Determination	49
6.D.2. Technical Element of the GRAS Determination (Safety Determination)	49
6.E. Discussion of Information Inconsistent with GRAS Determination	49
PART 7. REFERENCES	50
7.A. References That Are Generally Available	50
7.B. References That Are Not Generally Available References	55
Appendix A. Certificates of Analysis	56
Appendix B. Identification of Fuxing's DHF Strain	
Appendix C. Mutagenicity Study of DHA	
Appendix D. Oral Acute Toxicity Study of DHA in Rats	

# Tables

Table 1.	Maximum Intended Use Levels of DHA-Rich Oil from Schizochytrium sp.	6
Table 2.	A List of Solvent Residues Tested for DHA	9
Table 3.	Analysis of PAHs for DHA-Rich Oil	10
Table 4.	Analysis of PCBs for DHA-Rich Oil	11
Table 5.	List of Dioxins and Furans Tested for DHA-Rich Oil	12
Table 6.	Pesticides Screened for DHA-Rich Oil	12
Table 7.	Analytical Results for Amnesic Shellfish Poison	14
Table 8.	Analysis of Mycotoxins for DHA-Rich Oil	14
Table 9.	Raw Materials Used in Fermentation	16
Table 10.	Processing Aids	16
Table 11.	Taxonomic Classification of Schizochytrium sp.	18
Table 12.	Specifications of DHA-Rich Oil	19
Table 13.	Summary of Analytical Values for Fuxing's DHA-Rich Oil	20
Table 14.	Fatty Acid Profile of Fuxing's DHA-Rich Oil	21
Table 15.	Comparison of Fatty Acid Profiles of DHA-Rich Oils	23
Table 16.	Plant Sterols and Plant Stanols in Fuxing's DHA-Rich Oil	25
Table 17.	Comparison of Plant Sterols in DHA-Rich Oils	25
Table 18.	Regulatory Approvals for Use of DHA-Rich Oil in Foods and Infant Formulas	32
Table 19.	Animal Toxicity Studies of DHA-Rich Oil or DHA-Rich Microalgae from	36
	Schizochytrium sp. Source	
Table 20.	Adult Human Studies of DHA	42
Table 21.	Human Studies of DHA in Toddlers and Children	44
Table 22.	Human Studies of DHA during Pregnancy	45
Table 23.	Human Studies of DHA in Term-Infants	46

# Figures

Figure 1.	Structure of DHA	8
Figure 2.	Manufacturing Flow Diagram of DHA-Rich Oil	17

#### PART 1. SIGNED STATEMENTS AND A CERTIFICATION

Pursuant to 21 CFR Part 170, subpart E, Hubei Fuxing Biotechnology, Co., Ltd (hereinafter referred to as 'Fuxing') submits a Generally Recognized as Safe (GRAS) notice and claims that the use of docosahexaenoic acid (DHA) in foods, as described in Parts 2 through 7 of this GRAS notice, is not subject to premarket approval requirements of the FD&C Act based on its conclusion that the substance is GRAS under the conditions of its intended use.

#### 1.A. Name and Address of the Notifier

Contact:	Rebecca Li
Company:	Fuxing Co., Ltd
Address:	Floor 11 <sup>th</sup> , Bldg.23, Yinhu Enterprise Zone, Baishazhou Ave., Hongshan District,
	Hubei Province, China
Tel:	+86-18971139417
E-mail: 24	711275@qq.com

#### 1.B. Common or Trade Name

Docosahexaenoic acid-rich oil, DHA-rich oil, docosahexaenoic acid-rich algal oil, DHA-rich algal oil, DHA-oil

#### 1.C. Applicable Conditions of Use of the Notified Substance

#### 1.C.1. Foods in Which the Substance is to be Used

(1) Select conventional foods

Fuxing intends for DHA-rich oil to be used in food categories currently listed in 21 CFR 184.1472(a)(3), except in egg, meat, poultry, and fish products (Table 1). These are the same food categories found in the GRAS notifications for fish oil concentrate (GRN 105), algal oil derived from *Schizochytrium* sp. (GRN 137), and algal oil derived from *Ulkenia* sp. (GRN 319) for which the FDA did not raise any questions as to the safety when the intended uses included the food categories identified for menhaden oil. The only difference is that Fuxing does not intend to use its DHA-rich oil in egg, meat, poultry, and fish products which are included in 21 CFR 184.1472(a)(3).

#### (2) Infant formulas

DHA-rich oil will also be used as a nutritional food ingredient in exempt (preterm) and non-exempt (term) infant formulas (soy-, whey-, milk-, amino acid-, or hydrolyzed protein-based formulas; ages from birth to 12 months), in combination with a source of arachidonic acid (ARA).

#### 1.C.2. Levels of Use in Such Foods

Select Conventional Foods

As shown in Table 1, Fuxing intends for DHA-rich oil (containing  $\geq$ 36% DHA) to be used in the same food categories as those listed in 21 CFR 184.1472(a)(3) (menhaden oil), except in egg, meat, poultry, and fish products, at maximum use levels that are 27.775% of those specified in 21 CFR 184.1472(a)(3), which was finalized in 2005 (FDA, 2005).

Food category	Maximum us	se levels, %
	Menhaden	
	oil	Current notice
Baked goods and baking mixes (1)	5.0	1.39
Cereals (4)	4.0	1.11
Cheese products (5)	5.0	1.39
Chewing gum (6)	3.0	0.83
Condiments (8)	5.0	1.39
Confections and frostings (9)	5.0	1.39
Dairy products analog (10)	5.0	1.39
Fats and oils (12) (not including infant formula)	12.0	3.34
Frozen dairy products (20)	5.0	1.39
Gelatins and puddings (22)	1.0	0.28
Gravies and sauces (24)	5.0	1.39
Hard candy (25)	10.0	2.78
Jams and jellies (28)	7.5	2.08
Milk products (31)	5.0	1.39
Nonalcoholic beverages (3)	0.5	0.14
Nut products (32)	5.0	1.39
Pastas (23)	2.0	0.56
Plant protein products (33)	5.0	1.39
Processed fruit juices (35)	1.0	0.28
Processed vegetable juices (36)	1.0	0.28
Snack foods (37)	5.0	1.39
Soft candy (38)	4.0	1.11
Soup mixes (40)	3.0	0.83
Sugar substitutes (42)	10.0	2.78
Sweet sauces, toppings, and syrups (43)	5.0	1.39
White granulated sugar (41)	4.0	01.11

Table 1. Maximum Intended Use Levels of DHA-Rich Oil from Schizochytrium sp.<sup>1</sup>

<sup>1</sup>The food categories correspond to those listed in 21 CFR 170.3(n). The number in parenthesis following each food category is the paragraph listing of that food category in 21 CFR 170.3(n). Intended use has been adopted from in 21 CFR 184.1472(a)(3).

#### Infant Formula

Fuxing intends to market DHA-rich oil, produced from *Schizochytrium* sp., as a direct ingredient in preterm and term infant formulas (soy-, whey-, milk-, amino acid-, or hydrolyzed protein-based formulas; ages from birth to 12 months) in combination with a safe and suitable source of ARA. The intended use level of DHA-rich oil is similar to or same as all other approved uses for incorporation of DHA in infant formula (GRNs 553, 667, 730, and 776). DHA-rich oil may be used at a maximum use level of 1.39% of dietary fat since it has  $\geq$ 36% DHA. This level corresponds to a maximum of 0.5% of total fat as DHA. The ratio of DHA to ARA would range from 1:1 to 1:2. The intended use level is similar to all other approved uses for incorporation of DHA-rich oil in infant formula (GRN 553 - stamped page 12; GRN 677 - page 6; GRN 731 - page 5; GRN 776 - page 3; GRN 777 - page 3).

#### 1.C.3. Purpose for Which the Substance is Used

The substance will be used as a nutritional ingredient in selected foods and in term and preterm infant formulas.

#### 1.C.4. Description of the Population Expected to Consume the Substance

The population expected to consume the substance consists of members of the general population who consume at least one of the products described above, and preterm and full-term infants.

#### 1.D. Basis for the GRAS Determination

This GRAS conclusion is based on scientific procedures in accordance with 21 CFR 170.30(a) and 170.30(b).

#### **1.E. Availability of Information**

The data and information that are the basis for this GRAS conclusion will be made available to FDA upon request by contacting Susan Cho at NutraSource, Inc. at the address above. The data and information will be made available to FDA in a form in accordance with that requested under 21 CFR 170.225(c)(7)(ii)(A) or 21 CFR 170.225(c)(7)(ii)(B).

#### 1.F. Availability of FOIA Exemption

None of the data and information in Parts 2 through 7 of this GRAS notice are exempt from disclosure under the Freedom of Information Act, 5 U.S.C. §552.

#### 1.G. Certification

We certify that, to the best of our knowledge, our GRAS notice is a complete, representative, and balanced submission that includes unfavorable information, as well as favorable information, known to us and pertinent to the evaluation of the safety and GRAS status of the use of the substance.

#### 1.H Name, Position/Title of Responsible Person Who Signs Dossier and Signature

Name: Rebecca Li Title: Export Manager Date: May 3, 2019

Address correspondence to Susan S. Cho, Ph.D., NutraSource, Inc. Agent for Fuxing

#### 1.I. FSIS/USDA Statement

Fuxing does not intend to add DHA-rich oil to any meat and/or poultry products that come under USDA jurisdiction. Therefore, 21 CFR 170.270 does not apply.

# PART 2. IDENTITY, MANUFACTURING, SPECIFICATIONS, AND TECHNICAL EFFECTS OF DHA

#### 2.A.1. Identity of the Notified Substance

#### 2.A.1.1. Common Name

Docosahexaenoic acid-rich oil, DHA-rich oil, docosahexaenoic acid-rich algal oil, DHA-rich algal oil, DHA-oil

#### 2.A.1.2. Chemical Names

Its systematic name is *all-cis*-docosa-4,7,10,13,16,19-hexa-enoic acid, and its shorthand name is 22:6(n-3).

# 2.A.1.3. Chemical Abstract Service (CAS) Registry Number 6217-54-5

0217 01 0

#### 2.A. 1.4. Empirical Formula

Molecular formula, C<sub>22</sub>H<sub>32</sub>O<sub>2</sub>

2.A.1.5. Molecular Weight

328.488

#### 2.A.1.6. Structural Formula

Figure 1 shows the structure of DHA.

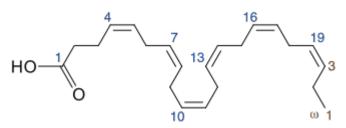


Figure 1. Structure of DHA

#### **2.A.1.7.** Physical Properties

Density, 0.943 g/cm<sup>3</sup>

#### 2.A.1.8. Background

Docosahexaenoic acid (DHA) is an omega-3 fatty acid (FA) that is a primary structural component of the human brain, retina, and other tissues. It can be synthesized from alphalinolenic acid or obtained directly from maternal milk, algal oil, or fish oil. Fatty acids can be desaturated endogenously up to the  $\Delta 9$  position due to the lack of certain enzymes in humans (Kremmyda et al., 2011). For this reason, linoleic (18:2n-6) and  $\alpha$ -linolenic (18:3n-3) acids must be obtained from the diet and are termed as essential FAs. Further elongation and desaturation of these FA to produce long-chain polyunsaturated fatty acids (PUFA) is possible but not very efficient in humans. Examples of PUFA include arachidonic acids (ARA; 20:4n-6), eicosapentaenoic (EPA; 20:5n-3), and DHA (22:6n-3). Thus, these FAs may be conditionally essential depending on essential FA availability.

Fuxing's DHA-rich oil is derived from the heterotrophic fermentation of the marine alga, *Schizochytrium* sp. strain DHF. DHA's structure is a carboxylic acid with a 22-carbon chain *cis*-double bonds; the first double bond is located at the third carbon from the omega end (methyl terminus). Thus, it is classified as an omega-3 fatty acid.

#### 2.A.2. Potential Toxicants in the Source of the Notified Substance

Potential toxicants have not been identified in Fuxing's DHA-rich oil. High-performance liquid chromatography (HPLC) reveals that Fuxing's DHA-rich oil is ≥36.0% pure with an average of 39.4%. No significant amounts of solvent residues, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), dioxins and furans, pesticides, domoic acid, or mycotoxins have been detected in Fuxing's DHA-rich oil (Tables 2 to 8 and Appendix A). The Certificates of Analysis (COA) for DHA-rich oil are presented in Appendix A (a pdf file).

#### Solvent Residues

As shown in Table 2, no significant amounts of residual solvents were detected in DHArich oil as no organic solvents are used to extract the DHA-rich oil from the fermentation biomass.

#### PAHs, PCBs, Dioxins and Furans and Pesticides

The analysis of 5 non-consecutive lots of DHA-rich algal oil samples found that concentrations of PAHs, PCBs, dioxins and furans, and pesticides (including selected organochlorine and organophosphorus pesticides) were at levels below or close to the detection limits (Tables 3 to 6; Certificates of Analysis are shown in Appendix A).

#### Shellfish Poison and Mycotoxins

No amnesic shellfish poison (domoic acid) and mycotoxins (fumonosins, aflatoxins, ochratoxin A, zearalenone, or vomitoxin) were detected from Fuxing's DHA-rich oil (Tables 7 and 8).

Parameters, mg/kg	Lot Numb	Lot Numbers				
	D1807	D1808	D1811	D1812	D1812	
	1101J	1801J	1401J	2601J	2701J	
1,1,1-Tichloroethane	<0.2	<0.2	< 0.2	<0.2	<0.2	< 0.2
1,1,2-Tichloroethane	<0.2	<0.2	< 0.2	<0.2	<0.2	< 0.2
1,2-Dichloroethane	<0.5	< 0.5	< 0.5	<0.5	<0.5	< 0.5
1,2-Dimethoxyethane	<1	<1	<1	<1	<1	<1
1-Butanol	<1	<1	<1	<1	<1	<1
2-Hexanone	<1	<1	<1	<1	<1	<1
Acetone	<1	<1	<1	<1	<1	<1

#### Table 2. A List of Solvent Residues Tested for DHA

Benzene	<0.1	<0.1	< 0.1	< 0.1	<0.1	< 0.1
Butyl acetate	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5
Carbon tetrachloride	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5
Chlorobenzene	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5
Chloroform	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Cyclohexane	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Dichloromethane	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Ethanol	<1	<1	<1	<1	<1	<1
Ethyl acetate	<1	<1	<1	<1	<1	<1
Heptane	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Hexane (sum of n-	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5
hexane, iso and 3-						
methyl pentane)						
Isopropanol	<1	<1	<1	<1	<1	<1
Methanol	<1	<1	<1	<1	<1	<1
Methyl ethyl ketone	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methyl-tert-butylether	<0.2	<0.2	<0.2	<0.2	<0.2	< 0.2
Tetralin	<5	<5	<5	<5	<5	<5
Toluene	<0.2	< 0.2	<0.2	<0.2	<0.2	< 0.2
Trichloroethylene	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Xylenes (sum)	< 0.2	< 0.2	<0.2	<0.2	< 0.2	<0.2

Table 3. Analysis of PAHs for DHA-Rich Oil

Parameters, µg/kg	Lot Numbe	Lot Numbers				
	D1807	D1808	D1811	D1812	D1812	
	1101J	1801J	1401J	2601J	2701J	
5-Methylchrysene	<1	<1	<1	<1	<1	<1
Benz(a)anthracene	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5
Benzo(a)pyrene	<0.5	<0.5	<0.5	<0.5	0.8	<0.6
Benzo(b)fluoranthene	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5
Benzo-(c)-fluorene	<1	<1	<1	<1	1.6	<1.1
Benzo(g,h,i)perylene	<0.5	<0.5	<0.5	< 0.5	<0.5	< 0.5
Benzo-(j)-	<0.5	<0.5	< 0.5	0.6	<0.5	< 0.5
fluoranthene						
Benzo(k)fluoranthene	<0.5	<0.5	< 0.5	< 0.5	<0.5	< 0.5
Chrysene	<0.5	<0.5	< 0.5	< 0.5	0.7	< 0.5
Cyclopenta(c,d)pyrene	<1	<1	<1	<1	<1	<1
Dibenz(a,h)anthracene	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5
Dibenzo(a,e)pyrene	<1	<1	<1	<1	<1	<1
Dibenzo(a,h)pyrene	<1	<1	<1	<1	<1	<1
Dibenzo(a,i)pyrene	<1	<1	<1	<1	<1	<1
Dibenzo(a,l)pyrene	<1	<1	<1	<1	<1	<1
Indeno(1,2,3-	< 0.5	< 0.5	<0.5	<0.5	<0.5	< 0.5
cd)pyrene						

Sum of all positive	In-	In-	In-	0.6	3.1	
identified PAH	applicable	applicable	applicable			
Sum of PAH 4				In-	1.5	
				applicable		

# Table 4. Analysis of PCBs for DHA-Rich Oil

Parameters, mg/kg		Lot Numbers				
	D1807	D1808	D1811	D1812	D1812	Mean
	1101J	1801J	1401J	2601J	2701J	
PCB 1	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 101	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 104	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 105	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 118	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 126	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 128	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 138	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 153	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 170	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 18	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 180	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 187	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 188	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 195	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 201	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 206	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 209	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 28	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 29	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 44	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 50	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 52	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 66	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 77	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 8	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCB 87	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Sum Non-Dioxin-Like	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PCBs (28+52+101+						
138+153+180)						
Total PCB	< 0.1	<0.1	< 0.1	<0.1	< 0.1	<0.1

Table 5. List of Dioxins and Furans Tested for DHA-Rich Oil						
Dioxins and Furans, pg/g	D18071101J	D18111401J	D18122701J			
1,2,3,4,6,7,8-HeptaCDD	< 0.130	< 0.131	< 0.126			
1,2,3,4,6,7,8-HeptaCDF	< 0.0912	< 0.0914	< 0.0881			
1,2,3,4,7,8,9-HeptaCDF	< 0.0635	< 0.0636	< 0.0613			
1,2,3,4,7,8-HexaCDD	< 0.0619	< 0.0620	< 0.0597			
1,2,3,4,7,8-HexaCDF	< 0.0961	< 0.0962	<0.0928			
1,2,3,6,7,8-HexaCDD	< 0.0847	< 0.0848	< 0.0818			
1,2,3,6,7,8-HexaCDF	< 0.0879	< 0.0881	< 0.0849			
1,2,3,7,8,9-HexaCDD	< 0.0798	< 0.0799	< 0.0770			
1,2,3,7,8,9-HexaCDF	< 0.0651	< 0.0653	< 0.0629			
1,2,3,7,8-PentaCDD	< 0.0407	< 0.0408	< 0.0393			
1,2,3,7,8-PentaCDF	< 0.0586	< 0.0587	< 0.0566			
2,3,4,6,7,8-HexaCDF	< 0.0798	< 0.0799	< 0.0770			
2,3,4,7,8-PentaCDF	< 0.0912	< 0.0914	< 0.0881			
2,3,7,8-TetraCDD	< 0.0309	< 0.0310	< 0.0299			
2,3,7,8-TetraCDF	< 0.0847	< 0.0848	< 0.0818			
OctaCDD	< 0.945	<0.946	<0.912			
OctaCDF	< 0.195	< 0.196	< 0.189			
WHO(2005)-PCDD/F TEQ	Not Detected	Not Detected	Not Detected			
(lower-bound)						
WHO(2005)-PCDD/F TEQ	0.0840	0.0841	0.0811			
(medium-bound)						
WHO(2005)-PCDD/F TEQ	0.168	0.168	0.162			
(upper-bound)						

Table 5. List of Dioxins and Furans Tested for DHA-Rich Oil

#### Table 6. List of Pesticides Screened for DHA-Rich Oil

Pesticide (LOQ, mg/kg)	Pesticide (LOQ, mg/kg)	Pesticide (LOQ, mg/kg)
2-Phenylphenol (0.01)	Acetochlor (0.06)	Aclonifen (0.05)
Aldrin (0.01)	Ametryne (0.02)	Aramite (0.04)
Atrazine (0.02)	Benfluralin (0.01)	Bifenox (0.05)
Bifenthrin (0.01)	Biphenyl (0.01)	Bromfenvinphos (0.02)
Bromophos (0.01)	Bromophos-ethyl (0.01)	Bromopropylate (0.01)
Butachlor (0.01)	Butafenacil (0.01)	Cadusafos (0.02)
Captafol (0.06)	Captan (0.06)	Captan/THPI (sum calculated
		as Captan)
Carbophenothion (0.05)	Carbophenothion-methyl	Carboxin (0.06)
	(0.05)	
Chlorbenside (0.06)	Chlordane (sum)	Chlordane, alpha (0.01)
Chlordane, gamma (0.01)	Chlorfenapry (0.05)	Chlorfenson (0.05)
Chlorfenvinphos (0.01)	Chlormephos (0.05)	Chlorobenzilate (0.01)
Chloroneb (0.01)	Chloropropylate (0.01)	Chlorothalonil (0.01)
Chlorpyrifos (-ethyl) (0.01)	Chlorpyrifos-methyl (0.01)	Chlorthal-dimethyl (0.01)

Chlorthion (0.05)	Chlozolinate (0.02)	Crufomate (0.05)
Cyanazine (0.02)	Cyanofenphos (0.05)	Cyanophos (0.02)
Cyfluthrin (0.05)	Cyhalothrin, lamda- (0.01)	Cypermethrin (0.05)
Cyphenothrin (0.05)	DDD, o,p'- (0.01)	DDD, p,p'- (0.01)
		DDD, p,p - (0.01) DDT (sum)
DDE, o,p- (0.01)	DDE, p,p'- (0.01)	
DDT, o,p'- (0.01)	DDT, p,p'- (0.01)	Deltamethrin (0.05)
Dichlobenil (0.05)	Dichlofenthion (0.02)	Dichlofluanid (0.02)
Dichlorobenzophenone o,p' (0.02)	Dichlorobenzophenone p,p' (0.02)	Dichlorvos (0.05)
Dicloran (0.05)	Dicofol (sum)	Dicofol, o,p'- (0.02)
Dicofol, p,p'- (0.02)	Dieldrin (0.02)	Dieldrin (sum)
Dienochlor (0.05)	Dinobuton (0.05)	Dioxabenzofos (0.02)
Dioxathion (0.05)	Diphenylamine (0.01)	Edifenphos (0.02)
Endosulfan (sum) ()	Endosulfan, alpha- (0.05)	Endosulfan, beta- (0.05)
Endosulfan, sulfat- (0.02)	Endrin (0.05)	EPN (0.05)
Ethalfluralin (0.01)	Ethion (0.02)	Etridiazole (0.02)
Etrimfos (0.02)	Fenamiphos (0.05)	Fenchlorphos (0.02)
Fenchlorphos (sum)	Fenchlorphos oxon (0.01)	Fenfluthrin (0.01)
Fenitrothion (0.02)	Fenpropathrin (0.02)	Fenson (0.02)
Fenthion (0.02)	Fenvalerate & Esfenvalerate	Fenvalerate & Esfenvalerate
(0.02)	(sum of RS & SR isomers) (0.02)	(sum of RR, SS, RS, SR) ()
Fenvalerate & Esfenvalerate	Fluchloralin (0.05)	Flucythrinate (0.05)
(sum of RR & SS isomers)		• • • •
(0.02)		
Flumetralin (0.05)	Fluotrimazole (0.01)	Fluquinconazole (0.02)
Fluvalinate-tau (0.02)	Fonofos (0.02)	Formothion (0.05)
HCB (0.01)	HCH gamma(Lindan) (0.01)	HCH, alpha- (0.01)
HCH, beta- (0.01)	HCH, delta- (0.01)	HCH, epsilon- (0.01)
Heptachlor (0.01)	Heptachlor (sum) ()	Heptachlor epoxide cis (0.01)
Heptachlor epoxide trans	Heptenophos (0.02)	Iprobenfos (0.02)
(0.01)		
Isazophos (0.01)	Isocarbofos (0.02)	Isodrin (0.02)
Isofenphos (0.02)	Isofenphos-methyl (0.01)	Isoprothiolane (0.02)
Jodfenphos (0.02)	Kresoxim-methyl (0.01)	Landrin (0.02)
Malaoxon (0.05)	Malathion (0.02)	Malathion (sum) ()
Mecarbam (0.04)	Mepronil (0.01)	Methacriphos (0.02)
Methamidophos (0.1)	Methidathion (0.02)	Methoxychlor (0.02)
Methyl-	Metribuzin (0.04)	Mevinphos (0.02)
Pentachlorophenylsulfide		
(0.06)		
Mirex (0.01)	N-Desethyl-pirimiphos- methyl (0.01)	Nitrapyrin (0.01)
Nitrofen (0.02)	Nitrothal-isopropyl (0.01)	Octachlorodipropyl ether (S 421) (0.05)

Ofurace (0.01)	Oxadiazon (0.02)	Oxychlordane (0.02)
Oxyfluorfen (0.02)	Paclobutrazol (0.01)	Parathion (0.01)
Parathion-methyl (0.04)	PCB 101 (0.01)	PCB 138 (0.01)
PCB 153 (0.01)	PCB 180 (0.01)	PCB 28 (0.01)
PCB 52 (0.01)	Pentachloranisole (0.01)	Pentachloroaniline (0.01)
Pentachlorobenzene (0.01)	Permethrin (0.02)	Phenkapton (0.05)
Phenothrin (0.01)	Phenthoate (0.02)	Phorate (0.04)
Phosphamidon (0.04)	Picoxystrobin (0.01)	Piperophos (0.01)
Pirimiphos-ethyl (0.01)	Procymidone (0.01)	Profenofos (0.01)
Profluralin (0.02)	Prometryn (0.02)	Propanil (0.01)
Propazine (0.01)	Prothiofos (0.02)	Pyrazophos (0.01)
Pyridalyl (0.06)	Pyridaphenthion (0.02)	Pyrifenox (0.04)
Pyrimethanil (0.01)	Quinalphos (0.01)	Quintozene (0.01)
Quizalofop-P-ethyl (0.01)	Silafluofen (0.06)	Silthiofam (0.01)
Tebufenpyrad (0.01)	Tecnazene (0.02)	Tefluthrin (0.02)
Terbufos (0.02)	Tetrachlorvinphos (0.02)	Tetradifon (0.02)
Tetrahydrophthalimide	Tetramethrin (0.02)	Tetrasul (0.01)
(THPI) (0.06)		
Tolyfluanid (0.02)	Triallate (0.02)	Triazamate (0.01)
Triazophos (0.02)	Trichloronat (0.01)	Trifluralin (0.02)
Triticonazole (0.01)	Uniconazole (0.02)	Vinclozolin (0.02)

Blue and purple fonts indicate organochlorine and organophosphorus pesticides, respectively.

Table 7. Analytical Results for Amnesic Shellfish Poison

Amnesic Shellfish Poison,	D1807	D1808	D1811	D1812	D1812	
Domoic Acid, ug/g	1101J	1801J	1401J	2601J	2701J	
Detection limit	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	
Results	Not	Not	Not	Not	Not	
	Detected	Detected	Detected	Detected	Detected	

Table 8. Analysis	of Mycotoxins	for DHA-Rich Oil
1	••••••••••••••••••••••••••••••••••••••	

Parameters, µg/kg	Lot Numb	Lot Numbers					
	D1807	D1808	D1811	D1812	D1812		
	1101J	1801J	1401J	2601J	2701J		
Fumonisin	<30	<30	<30	<30	<30	<30	
(B1+B2+B3)							
Fumonisin B1	<10	<10	<10	<10	<10	<10	
Fumonisin B2	<10	<10	<10	<10	<10	<10	
Fumonisin B3	<10	<10	<10	<10	<10	<10	
Aflatoxin B1	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1	
Aflatoxin B2	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	
Aflatoxin G1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	

Aflatoxin G2	< 0.1	< 0.1	< 0.1	<0.1	< 0.1	< 0.1
Sum of all positive	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Aflatoxins						
Vomitoxin	<50	<50	<50	<50	<50	<50
(Deoxynivalenol)						
Ochratoxin A	<1	<1	<1	<1	<1	<1
Zearalenone	<25	<25	<25	<25	<25	<25

#### 2.A.3. Particle Size

DHA-rich oil – Not applicable.

#### 2.B. Method of Manufacture

#### Fermentation

The sterilized culture flask is inoculated with a non-toxigenic, non-pathogenic *Schizochytrium* sp. strain DHF and shaken at  $26 \pm 4^{\circ}$ C for 48 to 72 hours. The pH is adjusted with NaOH or citric acid. The culture flasks are transferred to the first seed tank and then subsequently scaled up in a series of seed tanks. The fermentation medium contains yeast extract, glucose, potassium sulfate, corn syrup powder (corn steep liquor), malic acid, sodium hydroxide, and citric acid.

#### **Purification**

After fermentation, the pH is adjusted to 8-9 with sodium hydroxide, and then the cell wall is hydrolyzed for 2 to 4 hours by alkaline protease (source: Novozyme Alcalase 2.4 L FG; 2.4 AU/mL). The crude DHA-rich oil is separated from the fermentation biomass by disc centrifuge. The oil is then subjected to degumming (citric acid, EDTA, and water), deacidification (sodium hydroxide), decolorization (nitrogen, activated carbon, and activate clay at 70 to 90°C for 45 to 60 minutes), filtration, and deodorization (at 190 to 210°C and -230 pa for 1.5 to 3.5 hours).

#### Packaging

After cooling to 70-90°C in a temporary tank, nitrogen and antioxidants (0.2% vitamin E and 0.05% ascorbyl palmitate) are added to the oil. The refined oil is placed into aluminum drums and stored after QC testing.

Ingredient	CAS number	Regulatory status
Yeast extract	8013-01-2	21CFR 172.896
Glucose	50-99-7	21 CFR 168.121
Potassium sulfate	7778-80-5	21CFR 184.1643
Corn syrup powder (corn steep liquor)	66071-94-1	21CFR 184.1033
Malic acid	97-67-6	21CFR 184.1069
Sodium hydroxide	1310-73-2	21CFR 184.1763
Citric acid	5959-29-1	21CFR 184.1033

#### Table 9. Raw Materials Used in Fermentation

Processing aids	CAS number	Regulatory status				
Tocopherols	1406-66-2	21CFR 184.1890				
Activated clay	1302-78-9	21CFR 184.1155				
Activated carbon	14808-60-7	21CFR 170.30 (c)(1)				
Ascorbyl palmitate	137-66-6	21CFR 182.3149				
Citric acid monohydrate	5959-29-1	21CFR 184.1033				
Sodium hydroxide	1310-73-2	21CFR 184.1763				

Table 10. Processing Aids

Manufacturing process of the DHA-rich oil meets current Good Manufacturing Practice (cGMP) requirements for the production of food. All growth media, raw materials, and processing aids used in the DHA fermentation and manufacturing processes meet internationally recognized specification requirements for food production. The fermentation process is well-controlled and critical control points are monitored to detect insufficient controls on the process (such as incomplete sterilization, incorrect pH or temperature ranges, insufficient fatty acid composition, etc.). If any of those control characteristics fail to meet internal specifications, the fermentation is terminated and the batch rejected. Contamination checks also are conducted in the seed and production fermenter. All finished batches of DHA-rich oil undergo rigorous quality assurance testing to meet well-defined product specifications prior to release.

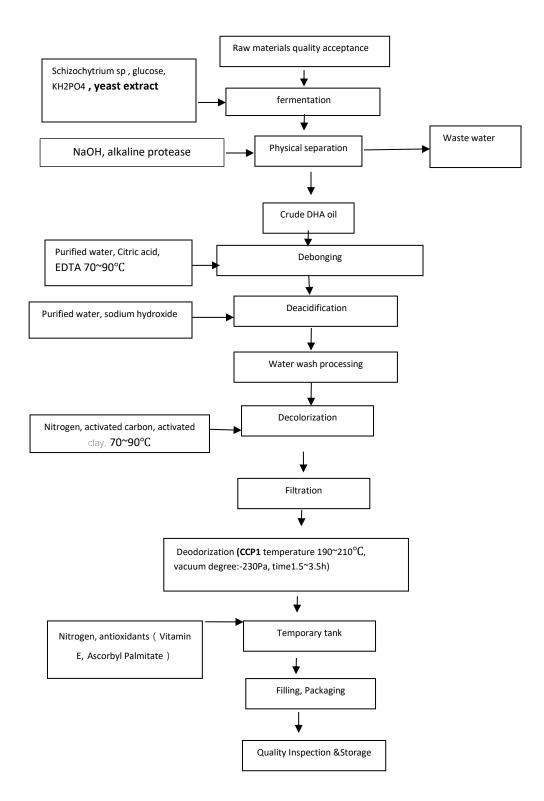


Figure 2. Manufacturing Flow Diagram of DHA-Rich Oil

#### Characterization of the Production Microorganism

The principle of the production method (via algal production) is similar to those described by other companies whose production methods for DHA-rich oils received 'no objections' letters from the FDA (GRN 137 - FDA, 2004a; GRN 553 - FDA, 2015; GRN 677 -FDA, 2017; GRN 731/732 - FDA, 2018a, 2018b; GRN 776/777 - FDA, 2018c, 2018d). DHArich algal oils are derived from the heterotrophic fermentation of the marine alga, a nontoxigenic and non-pathogenic strain of *Schizochytrium* sp. Based on the morphology and 18S rRNA gene sequence analysis, China Center for Type Culture Collection (CCTCC) identified Fuxing's strain DHF as Schizochytrium sp. Schizochytrium sp. is a thraustochytrid and a member of the Chromista kingdom (Appendix B). There are no reports of this organism producing toxic chemicals or being pathogenic. Consumption by man of thraustochytrids, especially those of the genus Schizochytrium, is primarily through consumption of mussels and clams. Indirect consumption, through the marine food chain (fish and shellfish), is more widespread. Analysis of the finished products confirmed the absence of common shellfish toxins. Schizochytrium sp. microorganisms are widespread and are commonly found in marine environments throughout the world. There have never been any reports of toxic compounds produced by these microorganisms. Taxonomic Classification of Schizochytrium sp. is presented in Table 11.

	~ J I
Class	Scientific Classification
Kingdom	Chromista
Subkingdom	Harosa
Phylum	Bigyra
Subphylum	Sagenista
Class	Labyrinthulea
Order	Thraustochytrida
Family	Thraustochytriaceae
Genus	Schizochytrium sp.

Table 11. Taxonomic Classification of Schizochytrium sp.

#### 2.C. Specifications and Composition

Table 12 presents the specifications of Fuxing's DHA-rich oil in comparison with those described in GRNs 137 (page 21, stamped page 26), 553 (page 17, stamped page 23), 677 (page 15), 731/732 (page 17/page 19), 776 (page 10) and 777 (page 10). Table 13 summarizes the analytical values for Fuxing's DHA-rich oil. Five non-consecutive lots of DHA-rich oil samples were analyzed for DHA, acid value, peroxide value, free fatty acids, trans fatty acids, heavy metals, and microbiology to ensure that Fuxing's DHA-rich oil products meet the specifications and are free from contaminations. DHA-rich oil is a free flowing, yellow oil.

Tables 14 and 15 show the FA profiles of Fuxing's DHA-rich oil in comparison with those described in GRNs 137 (page 24, stamped page 29), 553 (page 18, stamped page 29), 677 (page 20), 731/732 (page 20/page 21), and 776/777 (both on page 12). The DHA content is comparable to those described in previous GRAS notices (current notice vs. GRN 137 vs. GRN 553 vs. GRN 667 vs. GRN 730/731 vs. GRN 776:  $\geq$ 36% vs. 32-45 vs.  $\geq$ 35% vs.  $\geq$ 35% vs.  $\geq$ 45% vs.  $\geq$ 35%). The fatty acid profiles of these oils are similar to each other: palmitic acid and docosapentaenoic acid (DPA) are predominant fatty acids, next to DHA (Tables 14 and 15).

Table 12. Specifications of DHA-Rich Oil

		Specifications							
Parameter	Current notice	GRN 137 <sup>a</sup>	GRN 553 <sup>b</sup>	GRN 667 <sup>b</sup>	GRN 731 <sup>b</sup> & 732 <sup>c</sup>	GRN 776 <sup>b</sup>	GRN 777 <sup>b</sup>	for the Current Notice	
DHA, %	≥36	32 - 45	≥35	>35	≥45	≥35	≥55	AOCS Ce 2-66 AOCS Ce 1-62	
Acid value, mg KOH/g	$\leq 0.5$	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	AOCS Cd 3d-63	
Free fatty acid, as % oleic acid	≤ 0.4	NA	<0.4	NA	< 0.1			AOCS Ca 5a-40	
Trans fatty acids, %	≤1.0	<2.0	<3.5	NA	<1.0	<1	<1	AOCA Ce 1f-96	
Unsaponifiable matter, %	≤3.0	<4.5	<3.5	<3.5	<3.0	<3.5	<3.5	AOCS Ca 6b-53	
Peroxide value, meq/kg	≤5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	AOCS Cd 8b-53	
Moisture (direct drying method), wt%	≤0.1	< 0.1	< 0.02	< 0.05	<0.1	< 0.05	< 0.05	AOCS Ca 2e-84	
Docosapentaenoic acid (DPA, n-6), %	≤15	10-20			NA			AOCS Ce 2-66 AOCS Ce 1-62	
Copper, ppm	≤0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.05	< 0.05	BS EN ISO 17294-2	
Iron, ppm	≤0.1	< 0.5	< 0.2	< 0.2	< 0.5	< 0.2	< 0.2	2016 mod. except Iron	
Lead, ppm	≤0.1	< 0.2	< 0.1	< 0.1	< 0.1	< 0.01	< 0.01	- Eurofin internal	
Arsenic, ppm	≤ 0.1	< 0.5	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	method ICP-OES,	
Cadmium, ppm	≤0.1		< 0.1	NA	< 0.1	< 0.01	< 0.01	ICO-OES	
Mercury, ppm	≤0.04	< 0.2	< 0.04	< 0.1	< 0.04	< 0.04	< 0.04	BS EN 13806:2002	
Coliforms, cfu/ml	≤10	NA	< 1	NA	< 1	<10 MPN/g	<10	AOAC 991.14	
Molds, cfu/ml	≤10	NA	< 1	NA	< 1	<100	<100	AOAC 997.02	
Yeast, cfu/ml	<u>≤</u> 10	NA	< 1	NA	< 1	<100	<100		
Salmonella/25 g	Not Detected	NA	Not Detected	NA	Not Detected			AOAC-RI 121501	

\*Total FFA; AOAC = Association of Official Analytical Chemists; AOCS = American Oil Chemist's Society; BS-EN=British adoption of a European (EN) standard; CFU = Colony Forming Units; MPN=most probable number. <sup>a</sup>DHA-rich oil derived from *C. cohnii* for selected general food application; <sup>b</sup>DHA-rich oil derived from *Scizochytrium* sp. for infant formula application; <sup>c</sup>DHA-rich oil derived from *Scizochytrium* sp. for selected general food application.

	Analytical	values supp	orting spec	ifications		Mean
Parameter	D18071	D18081	D18111	D18122	D18122	
	101J	801J	401J	601J	701J	
DHA, %	38.24	38.06	38.78	38.30	43.48	39.37
Acid value, mg KOH/g	0.52	0.34	0.38	0.38	0.60	0.44
Free fatty acid, as %	0.26	0.17	0.19	0.19	0.30	0.22
oleic acid						
Trans fatty acids, %	0.20	0.12	0.15	< 0.01	< 0.01	< 0.16
Unsaponifiable matter,	1.66	1.04	1.58	1.03	1.95	1.45
%						
Peroxide value, meq/kg	< 0.1	2.1	< 0.1	1.1	< 0.1	< 0.7
Moisture, g/100 g	0.02	0.02	0.02	0.01		0.02
Copper (Cu), mg/kg	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Iron (Fe), mg/100 g	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Lead (Pb), mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Arsenic (As), mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Cadmium (Cd), mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Mercury (Hg), mg/kg	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Coliforms, cfu/ml	<10	<10	<10	<10	<10	<10
Molds, cfu/ml	<10	<10	<10	<10	<10	<10
Yeast, cfu/ml	<10	<10	<10	<10	<10	<10
Salmonella, /25 g	Not	Not	Not	Not	Not	Not
	Detected	Detected	Detected	Detected	Detected	Detected

Table 13. Summary of Analytical Values for Fuxing's DHA-Rich Oil\*

\*Samples were taken from 5 non-consecutive batches.

Table 14. Fatty Acid Profile of Fuxing's DHA-Rich Oil

Parameters, %	Lot Numbe		Mean			
	D1807	D1808	D1811	D1812	D1812	
	1101J	1801J	1401J	2601J	2701J	
C08:0 Octanoic (Caprylic)	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
C10:0 Decanoic (Capric)	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
C11:0 Undecanoic (Hendecanoic)	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
C12:0 Dodecanoic (Lauric)	0.04	0.13	0.04	0.13	0.05	0.08
C14:0 Tetradecenoic (Myristic)	0.46	2.60	0.46	2.59	0.43	1.31
C14:1 Tetradecenoic (Myristoleic)	0.02	0.50	< 0.02	< 0.02	< 0.02	< 0.12
C15:0 Pentadecanoic	0.79	1.29	0.80	1.32	1.13	1.07
C15:1 Pentadecenoic	< 0.02	0.02	< 0.02	0.02	< 0.02	< 0.02
C16:0 Hexadecanoic (Palmitic)	22.24	34.56	22.30	34.82	21.67	27.12
C16:1 Hexadecenoic (Palmitoleic)	0.15	0.27	0.13	0.28	0.13	0.19
C16:2 Hexadecadienoic	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
C16:3 Hexadecatrienoic	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
C16:4 Hexadecatetraenoic	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
C17:0 Heptadecanoic (Margaric)	0.97	0.43	0.99	0.44	1.53	0.87
C17:1 Heptadecenoic (Margaroleic)	0.02	< 0.02	0.02	< 0.02	< 0.02	< 0.02
C18:0 Octadecanoic (Stearic)	1.23	1.00	1.25	1.02	1.13	1.13
C18:1 Octadecenoic (Oleic + isomers)	3.25	0.44	3.29	0.44	1.07	1.70
C18:2 Octadecadienoic (Linoleic + isomers)	6.84	0.85	6.99	0.84	2.50	3.60
C18:2 Octadecadienoic Omega 6 (Linoleic)	6.82	0.77	6.88	0.78	2.45	3.54
C18:3 Octadecatrienoic (Linolenic + isomers)	0.84	0.19	0.91	0.19	0.53	0.53
C18:3 Octadecatrienoic Omega 3 (Alpha Linolenic)	0.75	0.13	0.76	0.13	0.36	0.43
C18:3 Octadecatrienoic Omega 6 (Gamma Linolenic)	0.10	0.07	0.15	0.06	0.17	0.11
C18:4 Octadecatetraenoic Omega 3 (Stearidonic)	0.10	0.15	0.11	0.16	0.13	0.13
C20:0 Eicosanoic (Arachidic)	0.26	0.13	0.27	0.13	0.24	0.21
C20:1 Eicosenoic (Gondoic + isomers)	0.03	< 0.02	0.06	< 0.02	0.03	< 0.03
C20:2 Eicosadienoic Omega 6	0.03	< 0.02	0.04	< 0.02	0.02	< 0.03
C20:3 Eicosatrienoic	0.22	0.15	0.23	0.11	0.21	0.18
C20:3 Eicosatrienoic Omega 3	< 0.02	0.06	< 0.02	< 0.02	< 0.02	< 0.03

C20:3 Eicosatrienoic Omega 6	0.22	0.10	0.23	0.10	0.21	0.17
C20:4 Eicosatetraenoic (Arachidonic + isomers)	0.90	2.20	1.09	2.24	0.65	1.42
C20:4 Eicosatetraenoic Omega 3	0.49	0.48	0.50	0.50	0.55	0.50
C20:4 Eicosatetraenoic Omega 6 (Arachidonic)	0.41	1.72	0.59	1.74	0.09	0.91
C20:5 Eicosapentaenoic Omega 3	0.19	0.40	0.23	0.46	0.33	0.32
C21:5 Heneicosapentaenoic Omega 3	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
C22:0 Docosanoic (Behenic)	0.15	0.08	0.16	0.08	0.13	0.12
C22:1 Docosenoic (Erucic + isomers)	< 0.02	< 0.02	< 0.02	0.04	< 0.02	< 0.02
C22:2 Docosadienoic Omega 6	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
C22:3 Docosatrienoic, Omega 3	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
C22:4 Docosatetraenoic Omega 6	0.05	0.03	0.06	0.03	0.05	0.04
C22:5 Docosapentaenoic	10.62	4.92	10.96	5.10	11.80	8.68
C22:5 Docosapentaenoic Omega 3	0.05	0.09	0.06	0.11	0.15	0.09
C22:5 Docosapentaenoic Omega 6	10.58	4.83	10.90	4.99	11.65	8.59
C22:6 Docosahexaenoic Omega 3	38.24	38.06	38.78	38.30	43.48	39.37
C24:0 Tetracosanoic (Lignoceric)	< 0.02	< 0.02	0.15	0.06	0.07	< 0.06
C24:1 Tetracosenoic (Nervonic)	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Sum of Omega 3 Isomers	39.82	39.37	40.45	39.67	45.00	40.86
Sum of Omega 6 Isomers	18.21	7.52	18.85	7.71	14.65	13.38
Total Fat as Triglycerides	91.43	92.31	93.15	92.76	91.07	92.14
Total Fatty Acids Calc.	87.69	88.42	89.35	88.85	87.38	88.34
Total Monounsaturated Fatty Acids	3.48	1.25	3.50	0.80	1.26	2.06
Total Polyunsaturated Fatty Acids	58.06	46.96	59.40	47.44	59.72	54.32
Total Saturated Fatty Acids	26.16	40.22	26.44	40.61	26.41	31.97

	Current notice	GRN 137 <sup>a</sup>	GRN 553 <sup>b</sup>	GRN 677 <sup>b</sup>	GRN 731 <sup>b</sup> & 732 <sup>c</sup>	GRN 776 <sup>b</sup>	GRN 777 <sup>b</sup>
DHA (Docosahexaenoic acid)	≥36	32 - 45	≥35	≥35	≥45	≥35	≥55
specifications, %							
Actual content, %	39.4		43.3		50.7	38.2	61.1
Fatty Acid Profile, g/100g							
C 6:0 (Caproic acid)			NA	NA	< 0.02		
C 8:0 (Caprylic acid)	< 0.02		NA	NA	< 0.02		
C 10:0 (Capric acid)	< 0.02		NA	NA	< 0.02		
C 12:0 (Lauric acid)	0.08	0.04	< 0.10	0.91	0.10	0.2	0.10
C 14:0 (Myristic acid)	1.31	10.11	1.18	11.87	0.82	4.0	1.27
C 14:1 (Myristoleic acid)	< 0.12		< 0.10	< 0.10	< 0.02		0.37
C 15:0 (Pentadecanoic acid)	1.07		0.24	0.52	0.06		0.10
C 15:1 (Pentadecenoic acid)	< 0.02		NA	NA	0.07		
C 16:0 (Palmitic acid)	27.12	23.68	13.78	25.43	20.96	44.7	20.57
C 16:1 (Palmitoleic acid)	0.19	1.76	< 0.10	3.42	0.51		0.30
C 17:0 (Margaric acid or	0.87		< 0.10	<0.10-	0.08		0.10
Heptadecanoic acid)				0.15			
C 18:0 (Stearic acid)	1.13	0.45	1.65	0.82	1.30	1.1	0.77
C 18:1 (Oleic acid)	1.70	NA	25.00	4.77	0.27		0.70
C 18:1n7 (Vaccenic acid)		Trace-1.36	0.26	NA	0.51	-	
C 18:2n6 (Linoleic acid)	3.54		2.01	0.33	< 0.02	0.6	0.13
C 18:3n3 (alpha-Linolenic acid)	0.43		< 0.10	NA	0.14		0.20
C 18:3n6 (gamma-Linolenic acid)	0.11		NA	0.23	0.09		0.10
C 20:0 (Arachidic acid)	0.21		0.32	< 0.10	0.29		0.10
C 20:1 (Eicosenoic acid)	< 0.03		< 0.1	<0.01-	< 0.02		< 0.05
				< 0.10			
C 20:2n6 (Eicosodienoic acid)			0.13	NA	< 0.02		N.D.
C 20:3n3 (Eicosatrienoic acid)			NA	NA	1.34		N.D.
C 20:3n6 (homo-gamma-Linolenic acid)			<0.1	1.18	0.21	0.1	0.13

Table 15. Comparison of Fatty Acid Profiles of DHA-Rich Oils

C 20:4n6 (Arachidonic acid)	0.91	0.94	0.69	NA	0.15	0.3	0.10
C 20:5n3 (Eicosapentaenoic acid;	0.32	2.63	6.22	NA	0.70	0.2	0.67
EPA)							
C 21:0 (Heneicosanoic acid)			NA	NA	0.04		
C 22:0 (Behenic acid)	0.12		0.35	< 0.10	0.15		0.10
C 22:1n9 (Erucic acid)			NA	NA	< 0.02		
C 22:2n6 (Docosadienoic acid)	< 0.02		0.53	NA	< 0.02		
C 22-5n3 (Docosapentaenoic acid)	0.09		0.76	NA	0.11	0.2	0.27
C 22-5n6 (Docosapentaenoic acid)	8.59	13.5	2.53	7.81	10.33	7.8	10.50
C 23:0 (Tricosanoic acid)			NA	NA	< 0.02		
C 24:0 (Lignoceric acid)	< 0.06		0.14	< 0.10	0.15		0.10
C 24:1 (Nervonic acid)	< 0.02		< 0.10	NA	0.41		0.10

NA= not available; <sup>a</sup>DHA-rich oil derived from *C. cohnii* for selected general food application; <sup>b</sup>DHA-rich oil derived from *Scizochytrium* sp. for infant formula application; <sup>c</sup>DHA-rich oil derived from *Scizochytrium* sp. for selected general food application.

Table 16 summarizes the sterol content in Fuxing's DHA-rich oil. Table 17 presents the sterol content of Fuxing's DHA-rich oil in comparison with those described in GRNs 553 (page 21, stamped page 27), 677 (page 21), and 776 (page 14). As shown in Table 17, the total concentrations of plant sterols and plant stanols of Fuxing's DHA-rich oil are comparable to those described in previous GRAS notices.

Parameters, mg/100 g		L	ot Numbe	rs		Mean
	D1807	D1808	D1811	D1812	D1812	
	1101J	1801J	1401J	2601J	2701J	
Brassicasterol	15	9	15	10	22	14
Cholesterol	210	113	210	114	356	201
Campesterol	15	5	15	5	9	10
Campestanol	1	1	1	1	5	2
Stigmasterol	27	10	28	10	40	23
Unidentified sterols	196	115	197	116	235	172
Sitosterol	67	23	68	23	66	49
Sitosterol + delta-5-avenasterol	7	5	8	6	6	6
Delta-5,24-stigmastadienol	10	4	10	3	10	7
Delta-7-stigmastenol	28	13	28	13	31	23
delta-7-Avenasterol	6	1	6	1	5	4
Cycloartenol	2	2	3	2	2	2
24-Methylenecycloartanol	2	3	3	3	1	2
Citrostadienol	2	1	2	1	1	1
Total plant sterols + plant stanols	372	186	375	188	428	310

Table 16. Plant Sterols and Plant Stanols in Fuxing's DHA-Rich Oil

Table 17.	Comparison	of Plant	Sterols in	DHA-Rich Oils
-----------	------------	----------	------------	---------------

Current Notice	GRN 553	GRN 677	GRN 776
0.014	1.3	< 0.1	9.5
0.201	13.3	24.3	33.8
0.010	0.1	1.2	0.4
0.002	2.0	< 0.1	<0.1
0.023	64.2	< 0.1	1.9
0.172			
0.049			
0.006			
0.007	0.4	7.0	0.7
0.023	1.7	26.1	1.4
0.004	0.3	3.6	0.3
0.002			
0.002			
0.001			
0.31 wt%	0.56 wt%	0.23 wt%	1.01 wt%
	0.014         0.201         0.010         0.002         0.023         0.172         0.049         0.006         0.007         0.023         0.007         0.023         0.004         0.002         0.004         0.002         0.001	0.014       1.3         0.201       13.3         0.010       0.1         0.002       2.0         0.023       64.2         0.172       0.049         0.006       0.007         0.003       1.7         0.0049       0.3         0.002       0.001	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$

Expanded from GRN 776.

#### 2.D. Stability

The stability of Fuxing's DHA-rich oil is expected to be similar to those of other algal oils with a similar DHA content. DHA algal oil is typically shipped and stored in a tightly closed, nitrogen-blanketed, light-resistant container under frozen conditions (-25 °C). As discussed in GRN 677, the results of one study support the stability of the frozen product for a period of 1 year. Fuxing will recommend product use (best before date) within 1 year of the date of manufacture.

#### 2.E. Intended Technical Effects

DHA-rich oil will be used as a nutritional ingredient in select conventional foods and in term and preterm infant formulas.

#### PART 3. EXPOSURE ESTIMATES

#### 3.A. Intended Use

#### Select Conventional Foods

DHA-rich oil will be added to the same food categories, excluding egg, meat, poultry, and fish products, as those currently listed in 21 CFR 184.1472(a)(3) (menhaden oil) at maximum use levels that are 27.775% of those specified in that regulation. DHA-rich oil is not to be combined with any other added oil that is a significant source of DHA or EPA. We derived the 27.775% value because of the following factors:

- 1) Since menhaden oil is considered GRAS at a level providing no more than 3 grams of DHA and EPA per day, the use levels in each food category are decreased by 50% so that the total daily consumption of DHA from the DHA-rich oil will be no more than 1.5 grams per day.
- 2) The levels of use are based on the quantity of DHA-algal oil that can be added to each product. An additional adjustment is needed because the DHA-algal oil has a different concentration of DHA than that found in menhaden oil. DHA-algal oil contains approximately 36 wt% compared to about 20% of combined EPA and DHA in menhaden oil. An additional adjustment of 55.55% (20/36) is needed to accommodate the different concentrations of DHA in the two oils.
- 3) The 27.775% adjustment is calculated by multiplying the 50% adjustment that is needed in accordance with the first bullet point above by the 55.55% adjustment that is needed in accordance with the second bullet point above, i.e.,  $(0.50) \times (0.555) \times 100 = 27.775\%$ .

These are the same food categories (except egg, meat, poultry, and fish products) found in the GRAS notification for fish oil concentrate (GRN 105, stamped pages 5 to 6 and page 10) and DHA-algal oils (GRN 137, stamped pages 10 to 12 and 27 to 28 - FDA, 2004a; GRN 319, stamped pages 6 to 7 and page 17- FDA, 2010; GRN 732, page 25 -FDA, 2018b) for which the agency did not raise any objections to the company's conclusion that its fish oil concentrate and DHA-algal oils derived from *Schizochytrium* sp. and *Ulkenia* sp. would be considered GRAS when used in the food categories identified for menhaden oil.

#### Infant Formulas

The intended use level is similar to all other approved uses for incorporation of algal DHA-rich oils in exempt (preterm) and non-exempt (term) infant formula (GRN 41, stamped page 101 - FDA, 2001; GRN 94, stamped page 3 - FDA, 2006a; GRN 379, stamped page 8 - FDA, 2011b; GRNs 553, stamped page 12 - FDA, 2015; GRN 677, page 6 - FDA, 2017; GRN 731, page 5 - FDA, 2018a; GRN 776, page 3 - FDA, 2018c; GRN 777, page 3 - FDA, 2018d). DHA-rich oil may be used at a maximum use level of 1.39% of total dietary fat since it has  $\geq$ 36% DHA. This level corresponds to a maximum of 0.5% of total dietary fat as DHA. The ratio of DHA to ARA would range from 1:1 to 1:2.

#### **3.B. Exposure Estimates**

#### For Select Conventional Food Applications

The proposed use levels of the DHA-rich oil are expected to result in a maximum dietary exposure of less than 1.5 g of DHA per day. In GRN 137, the estimate exposure at the intended use levels is 1.4 g/person/day from the current intended use levels (which was indicated as the future use levels at that time). Because DHA-rich oil is intended to be used as an alternative to menhaden oil, there will be no increase in exposure to DHA from the intended use described in Table 1.

DHA-rich oil is intended to be the sole source of DHA in any given food category. It would be possible, however, to blend DHA-rich oil with other sources of DHA and/or EPA. FDA has determined in its review of other sources of DHA and/or EPA that these oils may be used at a level providing up to 3.0 g of DHA and/or EPA per day. In the event that a manufacturer blends DHA-rich oil with another oil that is a source of DHA and/or EPA, such blending would be appropriate provided that (1) the DHA-rich oil is used at a level consistent with Table 1 and its use would not result in more than 1.5 g of DHA/person/day and (2) the other oil source of DHA and/or EPA is used at a level that would not result in a cumulative exposure of DHA and EPA greater than 3.0 g/person/day. In addition, the NOAEL value of 5,000 mg/kg bw/day found in a subchronic toxicity study in rats (details are found in Part 6.B.3) further supports the safe intake of DHA at the maximum exposure level of 1.5 g/day.

#### For Infant Formula Application

It is assumed that infants consume about 100 to 120 kcal/kg body weight (bw)/day, of which fat constitutes approximately 50% of calories, or approximately 5.5 to 6.7 g fat/kg bw/day (1 g of fat is equivalent to 9 kcal). Assuming incorporation of the proposed DHA ingredient at a maximum use level of 0.5% of total fatty acids (i.e., a maximum of 0.5% total fat as DHA), DHA-rich oil may be used at a maximum use level of 1.39% of dietary total fat since it has >36% DHA. The intended use will result in 27 to 33 mg DHA/kg bw/day. This DHA intake estimate is consistent with current DHA recommendations for preterm and term infants of 18 to 60 mg/kg bw/day depending on gestational age (Koletzko et al., 2014).

Fuxing's DHA-rich oil is intended for use in infant formula in an identical manner as the currently approved oils. Fuxing's DHA-rich oil will replace, rather than add to, intake from these oils. Thus, cumulative EDIs are not expected to be changed.

#### **3.C. Food Sources of DHA**

Human milk provides small quantities of DHA and ARA, usually less than 1% of total fatty acids (Brenna et al., 2007). Fish oil and egg yolks also are known to be excellent sources of DHA.

#### Summary of Consumption Data

For select conventional food applications, DHA-rich oil will be added to the same food categories as those currently listed in 21 CFR 184.1472(a)(3) (menhaden oil) at the maximum use levels, with the exception of egg, meat, poultry, and fish products. The proposed use levels

of the DHA-rich oil are expected to result in a maximum dietary exposure of less than 1.5 g of DHA per day. To ensure the safe use of the substance, DHA-rich oil is intended to be the sole source of DHA in any given food category.

For infant formulas, the intended use will result in 27 - 33 mg/kg bw/day of DHA which is consistent with current DHA recommendations for term and preterm infants of 18 - 60 mg DHA/kg bw depending on the gestational age.

#### PART 4. SELF-LIMITING USE LEVELS

The use of DHA-rich oil will be based on the maximum use levels of menhaden oil in specific food categories established by FDA for menhaden oils such that the intake does not exceed 3.0 g/person/day. The use limitations of EPA and DHA were based on the content of EPA and DHA in menhaden oil, which is approximately 20%. Therefore, since DHA-rich oil contains a DHA content of  $\geq$ 36% and no significant EPA level, it can reasonably be concluded that approximately 27.775% as much menhaden oil as DHA-rich oil will have to be consumed for the same intake of DHA. Inversely, any limitation of use levels from DHA-rich oil will have to be less than 50% of the use levels of menhaden oil to ascertain compliance with the safe intake level.

For infant formulas, no known self-limiting levels of use are associated with the DHArich oil. However, the ratio of ARA:DHA is expected to be in the range of 2:1 to 1:1.

#### PART 5. HISTORY OF CONSUMPTION

#### EXPERIENCE BASED ON COMMON USE IN FOODS BEFORE 1958

The statutory basis for the conclusion of GRAS status of algal DHA-rich oil in this document is not based on common use in food before 1958. The GRAS determination is based on scientific procedures. As described above, DHA is a naturally occurring food component. It is reasonable to conclude that it was present in food prior to 1958.

#### PART 6. BASIS FOR GRAS DETERMINATION

#### 6.A. Current Regulatory Status

Due to the compositional similarity and DHA content of fish and marine algal-derived oils to Fuxing's DHA-rich oil from *Schizochytrium* sp, the available scientific literature on the safety of these oils supports the safety of DHA-rich oil derived from *Schizochytrium* sp.

In 1989, the FDA affirmed the GRAS status of partially hydrogenated menhaden oil (with an iodine number 185) and fully hydrogenated menhaden oil for use in foods with certain limitations (U.S. FDA, 1989). Subsequently, in 1997, the FDA affirmed the GRAS status of menhaden oil and partially hydrogenated menhaden oil (with an iodine number S110), provided that under the conditions of intended use in foods, the total EPA + DHA daily intake does not exceed 3 g/person/day (U.S. FDA, 1997). In 2005, FDA issued a final rule on menhaden oil reallocating the use levels and categories of use within the GRAS affirmation but ensuring daily intakes of EPA and DHA do not exceed 3 g/person/day (U.S. FDA, 2005). Thus, in 21 CFR 184.1472(a)(3), menhaden oil is considered GRAS at a level providing no more than 3 g of combined DHA and EPA per person per day. Subsequently, GRAS notices on fish oils as sources of DHA and EPA (GRN 105 - FDA, 2002a; GRN 109 - FDA, 2002b; GRN 138 - FDA, 2004b; GRN 193 - FDA, 2006b; GRN 242 - FDA, 2008; GRN 371 - FDA, 2011a) have received no questions by the FDA. In addition, algal DHA derived from Schizochytrium sp. (GRN 137 -FDA, 2004a; GRN 732 - FDA, 2018b) received GRAS notice status with U.S. FDA to result in a maximum dietary exposure of less than 1.5 g of DHA per day (Table 18). Subsequently, algal DHA from Ulkenia sp. (GRN 319 - FDA, 2010) also has established a GRAS notice status with U.S. FDA for general food applications.

As shown in Table 18, algal DHA-rich oil derived from *Schizochytrium* sp. (GRN 553 - FDA, 2015; GRN 677 - FDA, 2017; GRN 731 - FDA, 2018a, and GRNs 776/777 - FDA, 2018c, 2018d) received GRAS notice status with U.S. FDA for infant formula applications. Other sources of DHA-rich oils include *Crypthecodinium cohnii* (GRN 41 - FDA, 2001) and tuna oils (GRN 94 - FDA, 2006a; GRN 379 - FDA, 2011b).

Item	Year	Submission
	Approved	
Foods with inten	ded uses as	a direct food ingredient in the same categories as considered
GRAS for menh	aden oil [210	CFR184.1472(a)(3)]
GRN 137	2004	Algal DHA (>35%) derived from <i>Schizochytrium</i> sp.
GRN 319	2010	Algal DHA derived from Ulkenia sp.
GRN 732	2018	Algal oil (>45% DHA) derived from Schizochytrium sp.
		(except fish products)
Current notice		Algal oil (>36% DHA) derived from Schizochytrium sp. (except
		fish products)
Infant Formula		
GRN 41	2001	DHASCO (DHA-rich single-cell oil from Crypthecodinium
		cohnii for use in infant formula)

Table 18. Regulatory Approvals for Use of Algal DHA-Rich Oil in Foods and Infant Formulas

GRN 553	2015	Algal oil (40% DHA) derived from Schizochytrium sp.
GRN 677	2017	Algal oil (35-42% DHA) derived from Schizochytrium sp.
GRN 731	2018	Algal oil (>45% DHA) derived from Schizochytrium sp.
GRN 776	2018	Algal oil (>35% DHA) derived from <i>Schizochytrium</i> sp.
GRN 777	2018	Algal oil (>55% DHA) derived from Schizochytrium sp.
Current notice		Algal oil ( $\geq$ 36% DHA) derived from <i>Schizochytrium</i> sp.

#### 6.B. Review of Safety Data

As the DHA-rich oil in this GRAS notice has similar specifications compared to those described in the previous FDA GRAS notices involving algal DHA-rich oils (Table 12), it is recognized that the information and data in those GRAS notices are pertinent to the safety of the DHA-rich oil in this GRAS notice. Based on a comparison of the specifications and the composition for these products, it is concluded that they are essentially similar.

Therefore, this notice incorporates by reference the safety and metabolism studies discussed in the previous GRAS notices (GRNs 137, 553, 677, 731/732, and 776/777) and will not discuss previously reviewed references in detail. Additionally, this notice discusses animal studies that have been published between July 2017 and March 2019 (i.e., since the FDA's review of DHA-rich oil for food applications in 2017-2018). The subject of the present GRAS notice is DHA-rich oil derived from *Schizochytrium* sp.

**6.B.1. Metabolic Fate of DHA** (adopted from Kremmyda et al., 2011; Kroes et al., 2003; Martin et al., 1993)

DHA is mainly found in the form of triglycerides (TG), although they also occur in phospholipids in breast milk (Martin et al., 1993). In general, dietary TGs undergo enzymatic hydrolysis in the upper intestine to free fatty acids and 2-monoglycerides. These products are then integrated into bile acid micelles for diffusion into the interior of the intestinal epithelial cells for subsequent incorporation into new or reconstituted TGs (Kroes et al., 2003). These reconstructed TGs enter the lymph in the form of chylomicrons for transport to the blood, which allows distribution and incorporation into plasma lipids, erythrocyte membranes, platelets, and adipose tissue. The chylomicron-contained TGs are hydrolyzed by lipoprotein lipase during the passage through the capillaries of adipose tissue and the liver to release free fatty acids to the tissues for metabolism or for cellular uptake, with subsequent re-esterification into TGs and phospholipids for storage as energy or as structural components of cell membranes. The metabolism of fatty acids occurs in the mitochondria following their transport across the mitochondrial membrane in the form of acylcarnitine. Fatty acids are metabolized predominantly via beta-oxidation, a process that involves shortening of the fatty acid carbon chain and the production of acetic acid and acetyl CoA, which combines with oxaloacetic acid and enters the citric acid cycle for energy production. The degree of transport of fatty acids across the mitochondrial membrane is contingent upon the length of the carbon chain; fatty acids of 20 carbons or more are transported into the mitochondria to a lesser degree than shorter chain fatty acids. Therefore, long chain fatty acids, such as DHA, may not undergo mitochondrial betaoxidation to the same extent (Kroes et al., 2003). Instead, they are preferentially channeled into the phospholipid pool where they are rapidly incorporated into the cell membranes of the

developing brain and retina. These fatty acids may be conditionally essential depending on essential fatty acids availability.

#### 6.B.2. Studies on Mutagenicity and Genotoxicity of DHA Derived from Schizochytrium sp.

Due to the abundance of papers, this mutagenicity and genotoxicity review limits the studies on DHA derived only from *Schizochytrium* sp., instead of covering DHA from various sources. The results of all mutagenicity and genotoxicity tests were negative.

#### **A Recent Study**

#### Bacterial reverse mutation assays for DHA-rich oil (Gao, 2019a)

In the reverse mutation assay using five strains of *Salmonella typhimurium* (TA97, TA98, TA100, TA102, and TA1535), Fuxing's DHA-rich oil (100, 50, 15, and 12.5  $\mu$ L/plate, respectively) did not increase the number of revertant colonies in any tester strain in the presence or absence of metabolic activation by S9 mix. None of the revertant colonies exceeded three times the mean of the solvent control in the presence or absence of the metabolic activation when treated with the DHA-rich oil. There was no dose-related increase over the range tested for any of the five tester strains used. The data indicated that Fuxing's DHA-rich oil was non-mutagenic under the test conditions. Details Are described in Appendix C.

#### **Studies Reviewed in Previous GRAS Notices**

In GRNs 553 (pages 32-33, stamped pages 38-39), 677 (pages 33-41), and 731/732 (pages 28-30/pages 31-32), it was summarized that no studies found mutagenicity or genotoxicity of DHA-rich oil or DHA-rich microalgae (DRM) from *Schizochytrium* sp. The studies reviewed in these GRAS notices include bacterial reverse mutation assays (Hammond et al., 2002; Fedorova et al., 2011a; 2011b; Lewis et al., 2016; Schmitt et al., 2012a), chromosome aberration assays (Fedorova et al., 2011a; 2011b; Hammond et al., 2002; Lewis et al. 2016; Schmitt et al., 2002; Lewis et al., 2011a; 2011b; Hammond et al., 2002; Lewis et al., 2011a; 2011b; Hammond et al., 2002; Lewis et al., 2016; Schmitt et al., 2011a; 2011b; Hammond et al., 2002; Lewis et al., 2016; Schmitt et al., 2012b), mammalian erythrocyte micronucleus tests (Lewis et al., 2016), and *in vitro* CHO AS52/XPRT gene mutation assay (Hammond et al., 2002), and did not show any mutagenicity or genotoxicity of DHA-rich algal oil and DRM under the test conditions.

Overall, studies consistently show that all preparations of DHA-rich oil are not mutagenic or genotoxic.

#### 6.B.3. Animal Toxicity Studies DHA Derived from Schizochytrium sp.

The results of various animal toxicity studies are summarized in Table 19. Due to the abundance of papers reporting no adverse effects of DHA in animals, this animal toxicity review has focused on studies of DHA derived from *Schizochytrium* sp., instead of DHA from various sources.

#### Acute Toxicity Study of Fuxing's DHA-rich Oil

Gao (2019b) evaluated the acute toxicity of DHA after oral administration in rats. The test substance was administered to young rats by oral gavage at doses of 0 (control), 1.0, 2.0, or 4.0 mL/kg body weight (bw) (5 males and 5 females per group). Animals were observed for 14

days to monitor changes in clinical signs (i.e., changes in eyes, mucous membranes, or behavior patterns; loss of fur or scabbing), body weight, and clinical signs, as well as food consumption. At the end of the study, animals were sacrificed, and major organs (such as liver, kidneys, spleen, heart, and lungs) were examined macroscopically and microscopically, if needed. No animal died during the 14-day observation period, and no clinical signs of abnormality were observed at any dose level. Furthermore, no significant differences in mean body weight, food consumption, and organ weights were found among the groups. No treatment-related abnormalities were observed in the macroscopic examinations. In summary, an acute oral LD<sub>50</sub> for DHA was determined to be above 4.0 mL/kg bw (the maximum dose volume) in both male and female rats. Details Are described in Appendix D.

#### Studies of Other DHA-Rich Oils from Schizochytrium sp.

In GRNs 553 (page 33, stamped page 39), 677 (pages 33-41), and 731-732 (pages 30-34; pages 33-37), the NOAELs of DHA-rich oils, DHA-ethyl ester, and DHA-rich microalgae were summarized as follows:

- For DHA-rich algal oils, the NOAELs, established from subchronic toxicity studies, ranged from 3,258 to 5,000 mg/kg bw/day in rats (Fedorova-Dahms et al., 2011a; Hammond et al., 2001a; Lewis et al., 2016; Schmitt et al., 2012a). The LD<sub>50</sub> was determined to be over 5 g/kg bw, the highest dose tested, in rats (Schmitt et al., 2012a).
- 2) For DHA-rich algal oil, the NOAELs, found from subchronic and/or reproductive toxicity studies of first and second generations, ranged from 2,069 to 7,464 mg/kg bw/day in rats (Fedorova-Dahms et al., 2011b; Schmitt et al., 2012b)
- From developmental toxicity studies, the NOAELs were in the range of 2,000 to 5,000 mg/kg bw/day in rats (Falk et al., 2017; Schmitt et al., 2012b) and 1,800 mg/kg bw/day in NZW rabbits (Hammond et al., 2001b),
- 4) For DHA ethyl ester, the NOAEL was established at 2,000 mg/kg bw/day from a 9month safety study in beagle dogs (Dahm et al., 2016), and
- 5) For DHA-rich microalgae (DRM), the NOAELs were estimated to be 1,368 mg DRM/kg bw/day (corresponding to approximately 305 mg DHA/kg bw/day) from a subchronic toxicity study in pigs (Abril et al., 2003), 22,000 mg/kg bw/day from a developmental toxicity study in rats (Hammond et al., 2001b), and 17,847 to 21,000 mg DRM/kg bw/day (corresponding to 1,500-1,800 mg DHA/kg bw/d) from a single generation reproduction study in rats (Hammond et al., 2001c).

Individual studies are summarized in Table 19.

<u>Conclusion</u>: For purposes of the safety evaluation, a NOAEL of 5,000 mg/kg bw/day was chosen for DHA-rich oil (or 2,000 mg/kg bw/day for DHA) in rats.

Material Studied	Study Design	Dose	Duration	Species	Primary Observations	NOAEL mg/kg bw/d unless noted otherwise	Reference
Acute Tox	icity Study of Fux	ing's DHA-rich	Oil		-		
DHA- rich oil	Acute oral toxicity (gavage)	Up to 4 mL/kg bw	Single dose	Rat	Clinical signs of abnormality	LD <sub>50</sub> >>>4 mL/kg bw	Gao et al., 2019
Studies Re	viewed in Previou	is GRAS Notices	1				
DHA- rich oil	Acute oral toxicity (gavage)	5,000 mg/kg	14 d	Rat	No treatment-related adverse effects	LD <sub>50</sub> >5 g/kg	Schmitt et al., 2012a
	Acute oral toxicity (diet)	1, 2.5, or 5% in diet	14 d	Rat	No treatment-related adverse effects	M, 3,258; F, 3,542 mg/kg bw	Schmitt et al., 2012a
	Subchronic toxicity (oral gavage)	1,000, 2,500, or 5,000 mg/kg bw/d	90 d	Rat	No treatment-related adverse effects	5,000	Lewis et al., 2016
	Subchronic toxicity (diet)	0.5, 1.5, or 5% in diet	90 d	Rat	Reduced food consumption in all treatment and fish oil control groups; attributed to high fat content rather than treatment.	3,246	Fedorova- Dahms et al., 2011a
	Subchronic toxicity (diet)	1, 2.5, or 5% in diet	90 d	Rat	No treatment-related adverse effects	M, 3,305; F, 3,679	Schmitt et al., 2012a
	Subchronic toxicity (diet)	400, 1,500, or 4,000 mg/kg bw/d	13 wk	Rat	No treatment-related adverse effects	4,000	Hammond et al., 2001a
	Subchronic and reproductive toxicity of first	1, 2.5, or 5% in diet	75-90 d	Rat	No treatment-related adverse effects	M during premating, 3,421; M after mating, 2,339; F during mating, 3,558; F	Schmitt et al., 2012b

Table 19. Animal Toxicity Studies of DHA-Rich Oil or DHA-Rich Microalgae from Schizochytrium sp. Source

	generation (diet)					during gestation, 3,117; F during lactation, 7,464	
	Subchronic toxicity of F1 (diet)	0.5, 1.5, or 5% in diet	90 d	Rat	No treatment-related adverse effects	4,260	Fedorova- Dahms et al., 2011b
	Developmental toxicity of mothers (diet)	0.5, 1.5, or 5% in diet	15 d	Rat	No treatment-related adverse effects	4,260	Fedorova- Dahms et al., 2011b
	Developmental and subchronic toxicity of second generation (diet)	1, 2.5, or 5% in diet	106-111 d	Rat	No treatment-related adverse effects in the 5% group males; Higher food consumption and BW in the 5% group females	M, 3,526; F, 2,069	Schmitt et al., 2012b
	Developmental toxicity (oral gavage)	1,000, 2,500, or 5,000 mg/kg bw/d	Gestat- ion days 6 to 20	Rat	No treatment-related adverse effects	5,000	Falk et al., 2017
	Developmental toxicity (gavage)	400-2,000 mg/kg bw/d	20 d	Rat	No treatment-related adverse effects	2,000	Schmitt et al., 2012b
	Developmental toxicity (gavage)	180, 600, or 1,800 mg/kg/d	30 d	Rabbit	High-dose (1,800) DHA oil and fish oil groups: F0- reduced food consumption and body wt	Maternal, 600; Develop: 1,800	Hammond et al., 2001b
DHA ethyl ester	Chronic toxicity (oral gavage)	150, 1,000, and 2,000 mg/kg bw/d	9 mo	Beagle dog	No treatment-related adverse effects	2,000	Dahm et al., 2016
DHA- rich micro-	Subchronic toxicity (diet)	1.17, 3.39, or 5.75 kg DRM per pig over 42 d; 2.68 kg	42-120 d	Pig	No treatment-related adverse effects (598, 261, 756, and 1,281 g DHA per pig during expt. period)	DRM, 1,368; DHA, ~305	Abril et al., 2003

algae		DRM over					
(DRM)		120 d					
	Developmental	0.6, 6.0, or	15 d	Rat	No treatment-related	22,000	Hammond
	safety (diet)	30% DRM in			adverse effects		et al.,
		diet					2001b
	Single-	0.6, 6.0, or	13 wk	Rat	No treatment-related	DRM - M, 17,847;	Hammond
	generation	30% DRM in			adverse effects	F, 21,000;	et al.,
	reproduction	diet				DHA - M, 1,500;	2001c
	toxicity (Diet)					F, 1,800	

M=males; F=females.

#### 6.B.4. Human Clinical Studies of DHA

Numerous algal and marine sources of DHA have been evaluated by the FDA and other global regulatory agencies over the past 18 years for proposed incorporation in food for human consumption. The FDA previously reviewed the safety of fish oil containing two omega-3 fatty acids, EPA and DHA, in the 1997 final rule affirming menhaden oil as GRAS (FDA, 1997). The FDA raised concerns about the consumption of high levels of EPA and DHA, which may increase bleeding time, increase levels of low-density lipoproteins cholesterol (LDL-C), and have an effect on glycemic control in subjects with type 2 diabetes (menhaden oil final rule; 62 FR 30751; June 5, 1997). Based on this review, the FDA concluded that a combined intake of EPA and DHA of up to 3 g/person/day would not result in any adverse health effects. In 2005, FDA issued a final rule on menhaden oil, reallocating the use levels and categories of use within the GRAS affirmation, but ensuring daily intakes of EPA and DHA do not exceed 3 g/person/day (U.S. FDA, 2005). Since DHA represents approximately one half of combined DHA plus EPA, it is reasonable to consider that the acceptable daily intake (ADI) of DHA is 1.5 g/person/day.

Numerous GRAS notices have considered that DHA from marine algal oil is equivalent to that of fish oil. In addition, the bioequivalence of two types of algal DHA-rich oils (derived from either *Crypthecodinium cochnii* or *Schizochytrium* sp.) was demonstrated in preweaning farm piglets when administered in a blend with ARA oil (Fedorova-Dahms et al., 2014). Both algal DHA-rich oils were added to the formula at concentrations of 0.32% and 0.96% DHA (% of total fatty acids). There were no test article-related effects of any diet on piglet growth and development (clinical observations, body weight, and food consumption), clinical pathology parameters (hematology, clinical chemistry, coagulation, and urinalysis), and terminal necropsy parameters (macro- and microscopic pathology evaluations). DHA content in plasma, red blood cell (RBC), heart, liver, and brain showed dose related accumulation and confirmed no differences between the two algal DHA-rich oils. The authors concluded that dietary exposure to two types of algal DHA-rich oils was well tolerated by the preweaning piglets during the 3-week dosing period right after birth, and both algal DHA-rich oils (derived *Crypthecodinium cochnii* or *Schizochytrium* sp.) were bioequivalent.

We have evaluated recent scientific literature published between August 2017 and March 2019 to determine if there is any new information pertaining to the FDA's safety concerns that would contradict what was concluded and recommended by FDA in the 2005 final rule on menhaden oil and in the previous GRAS notices involving algal DHA-rich oils. We have limited the discussion to algal DHA-rich oil and unknown sources of DHA, and excluded the studies of DHA from marine sources and DHA ethyl ester. All of the studies of algal DHA-rich oil and unspecified sources of DHA reported no adverse events/effects on measured outcomes (Tables 19 to 21).

#### Studies of DHA in Adults (Table 20)

Daily doses of up to 2 g DHA from algal sources were not associated with treatmentrelated adverse effects on measured outcomes (Molfino et al., 2017; Smith et al., 2017; Manes et al., 2017; McDonald and Sieving, 2018). These studies measured effects of DHA on the ability of DHA incorporation in red blood cell (RBC) membranes; the potential differences in DHA incorporation ability in women with BRCA 1/2 gene mutation, women with family history of breast cancer, women with sporadic breast cancer, and healthy women (Molfino et al., 2017); additional adjunctive benefits in patients with mild- to -moderate depression taking antidepressant medication in patients with mild to moderate major depressive disorder who were non-responsive to medication or psychotherapy (Smith et al., 2018); the safety, clinical symptoms, and changes of brain functional imaging in Spinocerebellar ataxia 38 (SCA38) patients (Manes et al., 2017); and electroretinography and visual test outcomes (McDonald and Sieving, 2018). Tolerance of the DHA was good, with only one case of rash and digestive discomfort, potentially related to DHA after 8 weeks of administration (Smith et al., 2018). In a study by McDonald and Sieving (2018), there were eight adverse events reported by four participants. All eight events were considered not related to DHA supplementation. In a study by Maines et al. (2017), no side effects or adverse events were reported during the 56-week DHA supplementation period.

In addition, daily doses up to 2.7 g DHA (unknown sources of DHA) also did not result in adverse effects on measured outcomes (Allaire et al., 2018; Cianci et al., 2017). Outcomes measured in these studies included phenotypic change in LDL-C and mechanisms responsible for the differential LDL-C response to DHA or EPA supplementation in subjects at risk of cardiovascular disease (Allaire et al., 2018), and menopausal symptoms, sexuality and quality of life, and on the auditory brainstem response in perimenopausal women (Cianci et al., 2017).

#### Studies in Children (Table 21)

In a study by Devlin et al. (2017), toddlers aged 13.4 months were randomized to receive DHA (200 mg/d; manufacturer-DSM; *Schizochytrium* source) and ARA (200 mg/day) (supplement) or a corn oil (control) until age 24 months. No adverse effects of DHA/ARA were noted on cognitive development in healthy-term toddlers.

Demmelmair et al. (2018) also reported that supplementation of algal DHA doses from 0 to 7 mg/kg (manufacturer-Nutricia; algal type not specified) for 6 months had no adverse effects on neurological and intellectual functions in children with phenylketonuria.

#### Studies of DHA in Pregnant Women and Offspring (Table 22)

Foster et al. (2017) determined if DHA given during pregnancy to obese mothers resulted in lower offspring adiposity. Mothers with gestational diabetes or obesity were randomized to receive DHA supplementation at 800 mg/day (manufacturer-DSM; DHASCO -algal type not specified) or placebo (corn/soy oil) starting at 25–29 weeks of gestation. Anthropometric measures were collected at birth, and maternal erythrocyte DHA and arachidonic acid levels were measured at the 26- and 36-week gestation. At the two- and four-year follow-up time points, offspring adiposity measures along with a diet recall were assessed. No adverse effects of DHA were reported.

Mulder et al. (2018) also reported that children (5–6 years) whose mothers received 400 mg/day DHA (unspecified source of DHA) or a placebo during pregnancy resulted in no adverse effects on infant development persist into early childhood.

Overall, the review of recent human clinical trials is consistent with the conclusions of the previous GRAS notices (GRNs 137 and 732) that intake of DHA is safe as long as the daily intake does not exceed 1.5 g/person/day.

#### Studies of Infant Formula Supplemented with DHA

All of the previous GRAS notices provided information/clinical study data that supported the safety of the proposed DHA ingredients for use in infant formula. In all of the studies summarized in these notifications, there were no significant adverse effects/events or tolerance issues in infants attributable to DHA-supplemented formulas when compared to the control-group infant formulas. The studies reviewed in these notifications supported the safe use of DHA in infant formula up to 0.96% of total fatty acids.

It is believed that DHA-rich oil derived from *Schizochytrium* sp. is bioequivalent to DHA from another type of algal oil (such as *C. cohnii*) or fish oil. Thus, we have focused on the studies of infant formulas supplemented with DHA from algal sources (*Schizochytrium* sp., *C. cohnii*, and unspecified sources) to make general conclusions about the safety of algal DHA-rich oil derived from *Schizochytrium* sp. Our review focused on papers published between July 2017 and March 2019.

#### Studies of Term Infants

In the DHA Intake and Measurement of Neural Development (DIAMOND) studies of Colombo et al. (2017), healthy, term infants were enrolled at 1-9 day of age and were randomly assigned to be fed one of the following 4 infant formulas containing equivalent nutrient amounts for 12 months: control (0% DHA), 0.32, 0.64, or 0.96% algal DHA derived from *C. cohnii*. All 3 DHA-supplemented formulas also provided 0.64% ARA derived from *M. alpina* (Table 23). Algal DHA, up to 0.96% of total FAs, was well tolerated, and no adverse effects were noted on measured outcomes including tolerance, adverse events, growth, RBC concentrations of fatty acids, visual acuity, cognitive function, and school readiness.

A previous GRAS notice reviewed the study by Chase et al. (2015), which investigated the effect of supplementation of DHASCO-5 oil derived from *Schizochytrium* sp. on stimulated inflammatory cytokine production in white blood cells (WBC) in infants with a high genetic risk for type 1 diabetes. DHA-rich oil supplementation began either in the last trimester of pregnancy (41 infants) or in the first 5 months after birth (57 infants) with a follow-up at up to 36 months of age. This study showed that supplementation of infant diets with DHA-rich oil was safe. No adverse effects were noted on measured outcomes such as concentrations of DHA in infant and maternal RBC membranes and in breast milk, and inflammatory cytokines.

#### Preterm Infants

Since August 2017, no new infant studies with DHA derived from *Schizochytrium* sp. were published. Previous GRAS notices reviewed the studies by Almaas et al. (2015; 2016), which tested the hypothesis that DHA/ARA supplementation in very low birth weight infants would influence cerebral white matter measured by diffusion tensor imaging (DTI) and improve behavioral and cognitive outcomes at 8 years of age. In these studies, human milk supplemented with 32 mg DHA (0.86% of total fatty acids) and 31 mg ARA (0.91% of total fatty acids) was fed to preterm infants for 9 weeks after birth with an 8-year follow-up. No adverse effects were reported on behavioral or cognitive outcomes.

Objective	Subject	Daily Dose	Duration;	Measurements	Reference
Studios of DUA from Minne	-1		Design		
Studies of DHA from Micros		2 /1 DUA	10.1	DUA 1 1 10 2	M 1C
To assess the ability of	43 women: 11 women	2 g/d DHA	10 d;	DHA levels and Omega-3	Molfino et
DHA incorporation in	with BRCA 1/2 gene	(Manufacturer-	before and after DHA	Index in RBC membranes at baseline and after	al., 2017
RBC membranes, in breast	mutation, 12 women	DMF, Italy; from	alter DHA		
cancer patients and in	with family history of breast cancer, 10			supplementation; serum	
healthy controls and the potential differences in the	,	Schizochytrium		concentrations of cytokines;	
1	women with sporadic	sp.); no placebo		Self-reported dietary seafood	
DHA incorporation ability	breast cancer, 10	group		consumption, DHA, and	
	healthy women (control); mean ages,			Omega-3 Index	
	47.3-48.3 y				
To test if DHA dietary	11 subjects (2 males, 9	0 or 2 g/d DHA	3 mo; X	Food frequency and NEI-VF25	McDonald
supplementation improves	females) with	(manufacturer-	5 mo, A	questionnaires; complete	and
macular function	Stargardt disease;	Martek/DSM;		ophthalmic exam; multifocal	Sieving,
in patients with a	26-63  y (median  40  y)	algae type, NA;		electroretinography (ERG,	2018
macular disorder, namely		40% DHA)		primary outcome) and 30-Hz	2010
Stargardt disease				flicker ERG; Humphrey	
associated with mutations				10-2 visual field; D15 color	
in the ABCA4 gene				tests; serum lipids; adverse	
				events	
To investigate if DHA	28 patients with mild	260 or 520 mg	8 wk open-	Depression; clinical	Smith et
provides additional	to moderate major	DHA/d;	label pilot	Severity; daytime sleepiness;	al., 2018
adjunctive benefits in	depressive disorder	(manufacturer-	trial	tolerance of DHA	
patients with mild to	who were non-	DSM; algae			
moderate depression taking	responsive to	type, NA)			
antidepressant	medication or				
medication	psychotherapy; mean				
	age, 49 y				
To evaluate effects of	10 Spinocerebellar	Phase 1-0 or	A total of	Standardized clinical	Manes et
DHA on the safety, its	ataxia 38 (SCA38)	600 mg DHA/d;	56 wk-16	assessment; brain 18-	al., 2017

Table 20. Adult Human Studies of DHA\*

efficacy for clinical symptoms, and changes of brain functional imaging	patients; mean age 48.7 y	Phase 2- 600 mg DHA/d only (manufacturer- Sofedus; algae type, NA)	wk-double blind, followed by 40 wk open-label trial	fluorodeoxyglucose positron emission tomography; Electroneurography; ELOVL5 expression; side effects	
Source, Not specified To examine the phenotypic change in LDL and mechanisms responsible for the differential LDL-C response to DHA or EPA supplementation	48 men and 106 women at risk of cardiovascular disease; 18-70 y	3 phases: 2.7 g DHA, 2.7 g EPA, and 3.0 g corn oil (Source, NA)	10 wk; X	Anthropometric measures, compliance; serum LDL particle sizes and serum concentrations of proprotein convertase subtilisin/kexin type 9 (PCSK9), glucose, total apoB100, apoCIII, and insulin	Allaire et al., 2018
To evaluate the effect of DHA 625 mg in women who experience menopausal symptoms, on sexuality and quality of life, and on the auditory brainstem response	56 perimenopausal women; age 49-53 y	625 mg DHA; no placebo control (Source, NA); no placebo control	6 mo; single arm	Perimenopausal symptoms measured by Kupperman Index; female Sexual Function Index (FSFI), and the Female Sexual Distress Scale (FSDS)	Cianci et al., 2017

\*Excluding studies of DHA from fish oil source or DHA-ethyl ether; d=days; DHA=docosahexaenoic acid; EPA=eicosapentaenoic acid; mo=months; NA=not available; P=parallel design; RBC=red blood cell; wk=weeks; X=crossover design.

Objective	Subject	Dose	Duration;	Measurements	Reference
			Design		
Studies of Algal DHA					
To investigate the	133 healthy term	2 groups: DHA (200	Until 24	Bayley Scales of Infant and	Devlin et
effects of DHA and	(37–41 weeks	mg/d) from	mo of age;	Toddler Development 3rd	al., 2017
ARA on cognitive	gestation)	DHASCO <sup>®</sup> -S oil	Р	Edition (Bayley-III) cognitive	
development in	toddlers, mean	(manufacturer-DSM,		and language composites and	
toddlers	age 1.34 y	Schizochytrium sp.		Beery–Buktenica Developmental	
		source) and ARA		Test of Visual–Motor Integration	
		(DSM; 200 mg/day)		(Beery VMI) at 24 mo;	
		supplement or a corn		circulating DHA and ARA	
		oil control		levels: maternal intelligence	
To study whether a	109 children	5 DHA doses from 0	6 mo; P	Neurological and intellectual	Demmel-
DHA supply modified	with	to 7 mg/kg (0, 20, 43,		functions; non-fasted blood	mair et al.,
plasma DHA and	phenylketonuria,	80, and 127 mg		(serum) concentrations of lipids	2018
neurological and	age 5 to 13 y	DHA/d) from algal		and phenylalanine; plasma	
intellectual		source (manufacturer-		glycerophospholipid (GPL) fatty	
functioning in		Nutricia; type of		acids	
phenylketonuria		algae-NA)			

Table 21. Human Studies of DHA in Toddlers and Children\*

\*Excluding studies of DHA from fish oil source or DHA-ethyl ether; ARA=arachidonic acid; DHA=docosahexaenoic acid; mo=months; NA=not available; P=parallel design.

			- ·	2.6	<b>D</b> 0
Objective	Subject	Dose	Duration	Measurements	Reference
Studies of DHA from A	lgal Sources				
To determine if DHA	72 women were	DHA (800 mg/d)	Until	Maternal erythrocyte DHA and	Foster et al.
given during	enrolled at 25-	supplementation	delivery of	ARA levels at 26 and 36 wk	2017
pregnancy to obese	29 weeks of	(algal DHA oil	babies; P	gestation; 63 offspring –	
mothers results in	gestation (mean	from DSM, algae		anthropometric measurements	
lower offspring	26.6 weeks);	type-NA) or corn		including adiposity at birth and 2 y	
adiposity	92% Hispanic	oil		and 4 y follow-up; the Bayley	
	mothers; mean			Scales of Infant and Toddler	
	age 29.2 y			Development, Third Edition at 2 y	
				of age; children's eating habit	
				survey by mothers at 2 y and 4 y	
Studies of DHA from Un	nknown Sources				
To determine whether	Pregnant women	400 mg/d DHA or	20 wk from	The association of maternal DHA	Mulder et
the observed effects of	at 16 weeks of	a placebo during	16 wk of	intake and status in gestation with	al., 2018
fetal DHA inadequacy	gestation-age,	pregnancy	gestation	child neurodevelopment test scores;	
on infant development	NA; 200 infants		until	associations of child dietary DHA	
persist into early	(96 maternal		delivery;	with maternal dietary and	
childhood	DHA; 104		Follow-up of	erythrocyte markers of DHA	
	placebo)		children at	sufficiency during gestation	
	- /		5.75 y; P		
			-		

Table 22. Human Studies of DHA during Pregnancy\*

\*Excluding studies of DHA from fish oil source or DHA-ethyl ether; ARA=arachidonic acid; DHA=docosahexaenoic acid; NA=not available; P=parallel design; y=years.

Objective	Subject	Dose	Duration	Measurements	Reference
Study of DHA from Algal S	Source				
To investigate the	343 term	3 concentrations of DHA	Formula fed	Developmental outcome;	Columbo et
DHA/ARA balance as an	infants,	(Mead Johnson; derived	from birth	sustained attention at 4, 6, and	al., 2017
important variable in the	2,490 and	from C. cohnii): 0.32%,	for 12 mo;	9 mo; function and problem-	
contribution of LCPUFAs	4,200 g at	0.64%, or 0.96% (or 0, 17,	follow-up	solving tasks at 36 to 72 mo	
to cognitive and	birth	34, or 51 mg DHA/100	from birth to	of age; verbal and composite	
behavioral development in		kcal) with fixed conc. of	6 y	IQ at 60 and 72 mo; RBC and	
infancy		0.64% ARA (or 34 mg		ARA concentrations of DHA	
		ARA/100 kcal; from <i>M</i> .		at 4 and 12 mo of age	
		<i>alpina</i> ); or control-			
		unsupplemented			

Table 23. Human Studies of DHA in Term-Infants\*

\*Excluding studies of DHA from fish oil source or DHA-ethyl ether; ARA=arachidonic acid; IQ=intelligence quotient; LCPUFAs= long chain polyunsaturated fatty acids; mo=months; y=years.

#### 6.B.5. Potential Adverse Effects

As discussed in Section 6.B.4, the FDA raised concerns about the consumption of high levels of EPA and DHA, which may increase bleeding time, increase levels of LDL-C, and have an effect on glycemic control in subjects with type 2 diabetes (menhaden oil final rule; 62 FR 30751; June 5, 1997). In affirming the GRAS status of menhaden oil, FDA concluded that the use of menhaden oil as a direct food ingredient is GRAS, provided that the combined daily intake of EPA and DHA from consumption of menhaden oil does not exceed 3 g/person/day. To assure that the combined exposure to EPA and DHA would not exceed 3 g/person/day, FDA established maximum levels of use of menhaden oil that would be permitted in specified food categories [21 CFR 184.1472(a)(3)]. No studies on type 2 diabetics have reported increased glucose levels in plasma when higher amounts (4.5 to 6.9 g/person/day) of omega-3 fatty acids were ingested (Bucher et al., 2002; Buckley et al., 2004). It is noteworthy that the Institute of Medicine (IOM, 2002) has not established any Tolerable Upper Intake Levels (UL) for DHA and EPA while establishing Dietary Reference Intakes for Americans.

Overall, our review of human clinical trials supports the ADI of 1.5 g/person/day for DHA in adults. No adverse effects of DHA in infant formula up to 0.96% of total fatty acids were reported.

#### 6.C. Safety Determination

Numerous human and animal studies have reported health benefits of DHA with no major adverse effects. There is broad-based and widely disseminated knowledge concerning the chemistry of DHA-rich oil. This GRAS determination is based on the data and information generally available and consented opinion about the safety of DHA.

The following safety evaluations fully consider the composition, intake, and nutritional, microbiological, and toxicological properties of DHA-rich oil as well as appropriate corroborative data.

- 1. Fuxing's manufacturing process for DHA-rich oil meets the cGMP requirements and uses common food industry materials and processes. Fuxing observes the principles of HACCP-controlled manufacturing process and rigorously tests its final production batches to verify adherence to quality control specifications.
- Analytical data from multiple lots indicate that DHA-rich oil reliably complies with established specifications and meets all applicable purity standards. Its purity is over 36.0% DHA. No significant amounts of PCBs, PAHs, pesticide residues, solvent residues, domoic acid, and mycotoxins have been detected from Fuxing's DHA-rich oil.
- 3. As the DHA-rich oil in this GRAS notice has similar specifications and composition to those described in previous FDA GRAS notices (GRNs 137, 553, 677, 731/732, and 776), it is concluded that Fuxing's DHA-rich oil is substantially equivalent to those described in GRNs 137, 553, 677, 731/732, and 776. Thus, it is recognized that the information and data presented or reviewed in the GRN notices are pertinent to

the safety of the DHA-rich oil in this GRAS notice. As noted above, the FDA did not question the safety of DHA-rich oils for the specified food uses in response to GRAS notifications on DHA-rich oil derived from *Schizochytrium* sp. (GRNs 137, 553, 677, 731-732, and 776).

- 4. Fuxing's DHA-rich oil will be added to the same food categories as those currently listed in 21 CFR 184.1472(a)(3) (menhaden oil), excluding egg, meat, poultry, and fish products, at maximum use levels that are 27.775% of those specified in that regulation. Based on the final rule on menhaden oil described in 21 CFR 184.1472(a)(3), the ADI for DHA has been established as 1.5 g/person/day. In addition, algal DHA-rich oils derived from *Schizochytrium* sp. (GRNs 137 and 732) received FDA GRAS notice status to result in a maximum dietary exposure of less than 1.5 g of DHA per day. Furthermore, historical consumption of DHA supports the safety of DHA as long as the consumption level does not exceed 1.5 g/person/day. Recently published studies continue to support the safety of DHA as a food ingredient.
- 5. Fuxing's DHA-rich oil may be used at a maximum use level of 0.5% of total fat as DHA (U.S. FDA, 2001) in infant formulas for term and preterm infants. This level corresponds to a maximum of 1.39% of dietary fat as Fuxing's DHA-rich oil (U.S. FDA, 2001). The intended use level is the same as another approved use for incorporation of DHA-rich oils in infant formula for term and preterm infants (GRNs 553, 677, 731, and 776/777). Recently published studies continue to support the safety of DHA as a nutritional food ingredient for infants.
- 6. It is assumed that Fuxing's DHA-rich oil derived from *Schizochytrium* sp. will replace currently marketed DHA or other DHA sources. Thus, cumulative exposures are not expected to change.
- 7. In the previous GRAS notices to the FDA, the safety of DHA has been established in toxicological studies in animals, and mutagenicity and genotoxicity studies, and is further supported by clinical studies in human. The NOAEL was determined to be 5,000 mg/kg bw/day in a subchronic toxicity study in rats. The EDIs under the intended use are far less than the estimated safe intake levels in infants.

#### 6.D. Conclusions and General Recognition of the Safety of DHA-Rich Oil

#### 6.D.1. Common Knowledge Element of the GRAS Determination

Several sources of DHA or DHA-rich oil have been evaluated by the FDA and other global regulatory agencies over the past 18 years for the proposed incorporation of DHA in foods for human consumption. Relevant U.S. GRAS notifications include GRNs 137, 553, 677, 731/732, and 776/777 (FDA, 2004a; 2015; 2017; 2018a-d). All the GRAS notices provided information/clinical study data that supported the safety of the proposed DHA ingredients for use in human foods. In all the studies summarized in these notifications, there were no significant adverse effects/events or tolerance issues attributable to DHA. Due to the compositional similarity and DHA content of fish and algae-derived oils to Fuxing's DHA-rich oil, the available scientific literature on the safety of these oils supports the safety of DHA-rich oil derived from *Schizochytrium* sp. Because this safety evaluation was based on generally available and widely accepted data and information, it satisfies the so-called "common knowledge" element of a GRAS determination.

#### 6.D.2. Technical Element of the GRAS Determination (Safety Determination)

In addition, the intended uses of DHA have been determined to be safe though scientific procedures as set forth in 21 CFR 170.3(b); thus, satisfying the so-called "technical" element of the GRAS determination. The specifications of the proposed GRAS substance, Fuxing's DHA-rich oil derived from *Schizochytrium* sp., is substantially equivalent to those that have received FDA's 'no question' letters.

This GRAS determination for DHA is based on scientific procedures. Numerous human and animal studies examined the health benefits of DHA-rich oils. There are no reports of safety concerns in any of the studies as long as the consumption level does not exceed 1.5 g/person/day in the general population. In infants, no adverse effects of DHA in infant formula up to 0.96% of total fatty acids were reported. The literature indicates that DHA-rich oil offers consumers health benefits without serious adverse effects.

Fuxing observes the principles of HACCP-controlled manufacturing process and rigorously tests its final production batches to verify adherence to quality control specifications.

The information and data provided by Fuxing in this report and supplemented by the publicly available literature/toxicity data on DHA and DHA-rich algal oil provide a sufficient basis for an assessment of the safety of DHA-rich oil from *Schizochytrium* sp. for the proposed use as an ingredient in food when prepared according to cGMP.

It is concluded that Fuxing's proposed use of DHA-rich oil is safe within the terms of the Federal Food, Drug, and Cosmetic Act (meeting the standard of reasonable certainty of no harm) and, thus, it is GRAS.

#### 6.E. Discussion of Information Inconsistent with GRAS Determination

We are not aware of information that would be inconsistent with a finding that the proposed use of DHA, meeting appropriate specifications and used according to cGMP, is GRAS.

#### PART 7. REFERENCES

#### 7.A. References That Are Generally Available

Abril R, Garrett J, Zeller SG, Sander WJ, Mast RW. Safety assessment of DHA-rich microalgae from *Schizochytrium* sp. Part V: Target animal safety/toxicity study in growing swine. Regul Toxicol Pharmacol. 2003;37:73-82.

Allaire J, Vors C, Tremblay AJ, Marin J, Charest A, Tchernof A, Couture P, Lamarche B. Highdose DHA has more profound effects on LDL-related features than high-dose EPA: The ComparED study. J Clin Endocrinol Metab. 2018;103:2909-17.

Almaas AN, Tamnes CK, Nakstad B, Henriksen C, Walhovd KB, Fjell AM, Due-Tønnessen P, Drevon CA, Iversen PO. Long-chain polyunsaturated fatty acids and cognition in VLBW infants at 8 years: an RCT. Pediatrics. 2015;135:972-80.

Almaas AN, Tamnes CK, Nakstad B, Henriksen C, Grydeland H, Walhovd KB, Fjell AM, Iversen PO, Drevon CA. Diffusion tensor imaging and behavior in premature infants at 8 years of age, a randomized controlled trial with long-chain polyunsaturated fatty acids. Early Hum Dev. 2016;95:41-6.

Brenna JT, Varamini B, Jensen RG, Diersen-Schade DA, Boettcher JA, Arterburn LM. Docosahexaenoic and arachidonic acid concentrations in human breast milk worldwide. Am J Clin Nutr. 2007;85:1457-64.

Bucher HC, Hengstler P, Schindler C, Meier G. N-3 polyunsaturated fatty acids in coronary heart disease: a meta-analysis of randomized controlled trials. Am J Med. 2002;112:298-304.

Buckley R, Shewring B, Turner R, Yaqoob P, Minihane AM. Circulating triacylglycerol and apoE levels in response to EPA and docosahexaenoic acid supplementation in adult human subjects. Br J Nutr. 2004;92:477-83.

Chase HP, Boulware D, Rodriguez H, Donaldson D, Chritton S, Rafkin-Mervis L, Krischer J, Skyler JS, Clare-Salzler M; Type 1 Diabetes TrialNet Nutritional Intervention to Prevent (NIP) Type 1 Diabetes Study Group. Effect of docosahexaenoic acid supplementation on inflammatory cytokine levels in infants at high genetic risk for type 1 diabetes. Pediatr Diabetes. 2015;16:271-9.

Cianci A, Maiolino L, Giunta G, Rapisarda AMC, Di Mauro P, Caruso S. Neurovegetative disorders of perimenopausal women treated with docosahexaenoic acid (DHA, 625 mg). Gynecol Endocrinol. 2017;33:980-4.

Colombo J, Jill Shaddy D, Kerling EH, Gustafson KM, Carlson SE. Docosahexaenoic acid (DHA) and arachidonic acid (ARA) balance in developmental outcomes. Prostaglandins Leukot Essent Fatty Acids. 2017;121:52-6.

Dahms I, Beilstein P, Bonnette K, Salem N Jr. Safety of docosahexaenoic acid (DHA) administered as DHA ethyl ester in a 9-month toxicity study in dogs. Food Chem Toxicol. 2016;92:50-7.

Demmelmair H, MacDonald A, Kotzaeridou U, Burgard P, Gonzalez-Lamuno D, Verduci E, Ersoy M, Gokcay G, Alyanak B, Reischl E, Müller-Felber W, Faber FL, Handel U, Paci S, Koletzko B. Determinants of plasma docosahexaenoic acid levels and their relationship to neurological and cognitive functions in PKU patients: A double blind randomized supplementation study. Nutrients. 2018;10.

Devlin AM, Chau CMY, Dyer R, Matheson J, McCarthy D, Yurko-Mauro K, Innis SM, Grunau RE. Developmental outcomes at 24 months of age in toddlers supplemented with arachidonic acid and docosahexaenoic acid: Results of a double blind randomized, controlled trial. Nutrients. 2017;9(9).

Falk MC, Zheng X, Chen D, Jiang Y, Liu Z, Lewis KD. Developmental and reproductive toxicological evaluation of arachidonic acid (ARA)-rich oil and docosahexaenoic acid (DHA)-Rich oil. Food Chem Toxicol. 2017;103:270-8.

Food and Drug Administration (FDA). 1989. Substances Affirmed as Generally Recognized as Safe: Hydrogenated and partially hydrogenated menhaden oils (Final rule) (21 CFR, Part 184, Docket No. 866-0289). Fed Reg (U.S.) 54 (178):38219.

FDA. 1997. Substances affirmed as Generally Recognized as Safe: Menhaden oil; Final rule. Federal Reg. 62:30751.

FDA. 2001. Agency Response Letter. GRAS Notice No. GRN000041. DHASCO (docosahexaenoic acid-rich single-cell oil) and ARASCO (arachidonic acid-rich single-cell oil). May 17, 2001.

http://www.fda.gov/Food/FoodIngredientsPackaaina/GenerallyRecognizedasSafeGRAS/GRASL istingducm 154 126.htm.

FDA. 2002a. Agency Response Letter. GRAS Notice No. GRN000105. Fish oil concentrate. October 12, 2002.

http://www.fda.gov/Food/IngredientsPackagingLabeling/GRAS/NoticeInventory/ucm153913. htm.

FDA. 2002b. Agency Response Letter. GRAS Notice No. GRN 109 Tuna oil. Dec 4, 2002. https://wayback.archiveit.org/7993/20171031032432/https://www.fda.gov/Food/IngredientsPackagingLabeling/GRAS/N oticeInventory/ucm153918.htm

FDA. 2004a. Agency Response Letter. GRAS Notice No. GRN000137. Algal oil (Schizochytrium sp.). February 12, 2004. http://www.fda.gov/Food/FoodIngredientsPackanina/GenerallyRecognizedasSafeGRAS/GRAS Listingducm 153961.htm. FDA. 2004b. Agency Response Letter. GRAS Notice No. GRN000138. Fish oil. April 20, 2004. http://www.fda.gov/Food/IngredientsPackagingLabeling/GRAS/NoticeInventory/ucm153965. htm.

FDA. 2005. 21CFR 184.1472. Menhaden oil final rule (21 CFR, Part 184, Fed Reg (U.S.) 70 (55):14530-2.

FDA. 2006a. Agency Response Letter. GRAS Notice No. GRN000094. Docosahexaenoic acidrich oil from tuna (DHA-rich tuna oil) and arachidonic acid-rich oil from *Mortierella alpina (AArich fungal oil)*. April 18, 2006.

http://www.fda.gov/Food/FoodIngredientsPackanina/GenerallyRecognizedasSafeGRAS/GRASL istingducm 154630.htm.

FDA. 2006b. Agency Response Letter. GRAS Notice No. GRN000193. Fish oil (predominantly sardine and anchovy); tuna oil. August 3, 2006.

http://www.fda.gov/Food/IngredientsPackagingLabeling/GRAS/NoticeInventory/ucm154669. htm.

FDA. 2008. Agency Response Letter. GRAS Notice No. GRN 000242. Krill oil. October 14, 2008. https://wayback.archive-

it.org/7993/20171031031428/https://www.fda.gov/Food/IngredientsPackagingLabeling/GRAS/N oticeInventory/ucm154374.htm

FDA. 2010. Agency Response Letter. GRAS Notice No. GRN000319. Micro-algal oil *Ulkenia* sp. SAM2179. August 4, 2010.

FDA. 2011a. Agency Response Letter. GRAS Notice No. GRN000371. Krill oil. July 22, 2011. https://www.fda.gov/Food/IngredientsPackagingLabeling/GRAS/NoticeInventory/ucm267323.ht m.

FDA. 2011b. Agency Response Letter. GRAS Notice No. GRN000379. November 8, 2011. http://www.fda.gov/Food/FoodIngredientsPackanina/GenerallyRecognizedasSafeGRAS/GRASL istingducm 282570.htm.

FDA. 2015. Agency Response Letter. GRAS Notice No. GRN000553. Algal oil (40% docosahexaenoic acid) derived from *Schizochytrium* sp. June 19, 2015. https://www.fda.gov/Food/IngredientsPackagingLabeling/GRAS/NoticeInventory/ucm462744.ht m.

FDA. 2017. Agency Response Letter. GRAS Notice No. GRN000677. Docosahexaenoic acid oil produced in *Schizochytrium* sp. May 2, 2017. https://www.fda.gov/downloads/Food/IngredientsPackagingLabeling/GRAS/NoticeInventory/U CM566347.pdf. FDA. 2018a. Agency Response Letter. GRAS Notice No. GRN000731. Docosahexaenoic acid oil produced in *Schizochytrium* sp. April 6, 2018. https://www.fda.gov/downloads/Food/IngredientsPackagingLabeling/GRAS/NoticeInventory/U CM630673.pdf.

FDA. 2018b. Agency Response Letter. GRAS Notice No. GRN 000732. Docosahexaenoic acid oil produced in *Schizochytrium* sp. April 6, 2018. https://www.fda.gov/downloads/Food/IngredientsPackagingLabeling/GRAS/NoticeInventory/U CM630674.pdf.

FDA. 2018c. Agency Response Letter. GRAS Notice No. GRN000776. Algal oil (35% docosahexaenoic acid) from *Schizochytrium* sp. strain FCC-1324. October 26, 2018. https://www.fda.gov/downloads/Food/IngredientsPackagingLabeling/GRAS/NoticeInventory/uc m625983.pdf.

FDA. 2018d. Agency Response Letter. GRAS Notice No. GRN000777. Algal oil (55% docosahexaenoic acid) from *Schizochytrium* sp. strain FCC-3204. October 26, 2018. https://www.fda.gov/downloads/Food/IngredientsPackagingLabeling/GRAS/NoticeInventory/uc m625998.pdf.

Fedorova-Dahms I, Marone PA, Bailey-Hall E, Ryan AS. Safety evaluation of DHA-rich algal oil from *Schizochytrium* sp. Food Chem Toxicol. 2011;49:70-7.

Fedorova-Dahms I, Marone PA, Bauter M, Ryan AS. Safety evaluation of DHA-rich algal oil from *Schizochytrium* sp. Food Chem Toxicol. 2011;49:3310-8.

Fedorova-Dahms I, Thorsrud BA, Bailey E, Salem N Jr. A 3-week dietary bioequivalence study in preweaning farm piglets of two sources of docosahexaenoic acid produced from two different organisms. Food Chem Toxicol. 2014;65:43-51.

Foster BA, Escaname E, Powell TL, Larsen B, Siddiqui SK, Menchaca J, Aquino C, Ramamurthy R, Hale DE. Randomized Controlled Trial of DHA Supplementation during Pregnancy: Child Adiposity Outcomes. Nutrients. 2017;9.

Hammond BG, Mayhew DA, Kier LD, Mast RW, Sander WJ. Safety assessment of DHA-rich microalgae from *Schizochytrium* sp. Regul Toxicol Pharmacol. 2002;35:255-65.

Hammond BG, Mayhew DA, Robinson K, Mast RW, Sander WJ. Safety assessment of DHA-rich microalgae from *Schizochytrium* sp. Regul Toxicol Pharmacol. 2001;33:356-62.

Hammond BG, Mayhew DA, Holson JF, Nemec MD, Mast RW, Sander WJ. Safety assessment of DHA-rich microalgae from *Schizochytrium* sp. Regul Toxicol Pharmacol. 2001;33:205-17.

Hammond BG, Mayhew DA, Naylor MW, Ruecker FA, Mast RW, Sander WJ. Safety assessment of DHA-rich microalgae from *Schizochytrium* sp. Regul Toxicol Pharmacol. 2001;33:192-204.

Institute of Medicine (IOM). 2002. The Dietary Reference Intake for energy, carbohydrate, fiber, fat, fatty acids, cholesterol, protein, and amino acids. The National Academies Press. Washington D.C.

Koletzko B, Boey CC, Campoy C, Carlson SE, Chang N, Guillermo-Tuazon MA, Joshi S, Prell C, Quak SH, Sjarif DR, Su Y, Supapannachart S, Yamashiro Y, Osendarp SJ. Current information and Asian perspectives on long-chain polyunsaturated fatty acids in pregnancy, lactation, and infancy: systematic review and practice recommendations from an early nutrition academy workshop. Ann Nutr Metab. 2014;65:49-80.

Kremmyda LS, Tvrzicka E, Stankova B, Zak A. Fatty acids as biocompounds: Their role in human metabolism, health and disease: A review. part 2: Fatty acid physiological roles and applications in human health and disease. Biomed Pap Med Fac Univ Palacky Olomouc Czech Repub. 2011;155:195-218.

Kroes R, Schaefer EJ, Squire RA, Williams GM. A review of the safety of DHA45-oil. Food Chem Toxicol. 2003;41:1433-46.

Lewis KD, Huang W, Zheng X, Jiang Y, Feldman RS, Falk MC. Toxicological evaluation of arachidonic acid (ARA)-rich oil and docosahexaenoic acid (DHA)-rich oil. Food Chem Toxicol. 2016;96:133-44.

Manes M, Alberici A, Di Gregorio E, Boccone L, Premi E, Mitro N, Pasolini MP, Pani C, Paghera B, Perani D, Orsi L, Costanzi C, Ferrero M, Zoppo A, Tempia F, Caruso D, Grassi M, Padovani A, Brusco A, Borroni B. Docosahexaenoic acid is a beneficial replacement treatment for spinocerebellar ataxia 38. Ann Neurol. 2017;82:615-21.

Martin JC, Bougnoux P, Antoine JM, Lanson M, Couet C. Triacylglycerol structure of human colostrum and mature milk. Lipids. 1993;28:637-43.

MacDonald IM, Sieving PA. Investigation of the effect of dietary docosahexaenoic acid (DHA) supplementation on macular function in subjects with autosomal recessive Stargardt macular dystrophy. Ophthalmic Genet. 2018;39(4):477-486.

Molfino A, Amabile MI, Mazzucco S, Biolo G, Farcomeni A, Ramaccini C, Antonaroli S, Monti M, Muscaritoli M. Effect of oral docosahexaenoic acid (DHA) supplementation on DHA levels and omega-3 index in red blood cell membranes of breast cancer patients. Front Physiol. 2017;8:549.

Mulder KA, Elango R, Innis SM. Fetal DHA inadequacy and the impact on child neurodevelopment: a follow-up of a randomised trial of maternal DHA supplementation in pregnancy. Br J Nutr. 2018;119:271-9.

Schmitt D, Tran N, Peach J, Bauter M, Marone P. Toxicologic evaluation of DHA-rich algal oil: Genotoxicity, acute and subchronic toxicity in rats. Food Chem Toxicol. 2012a;50:3567-76.

Schmitt D, Tran N, Peach J, Edwards T, Greeley M. Toxicologic evaluations of DHA-rich algal oil in rats: developmental toxicity study and 3-month dietary toxicity study with an in utero exposure phase. Food Chem Toxicol. 2012b;50:4149-57.

Smith DJ, Sarris J, Dowling N, O'Connor M, Ng CH. Adjunctive low-dose docosahexaenoic acid (DHA) for major depression: An open-label pilot trial. Nutr Neurosci. 2018;21:224-8.

#### 7.B. Reference that Is Not Generally Available

Gao Y. 2019a. Mutagenicity Study of DHA-rich Oil. A report for NutraSource, Inc.

Gao Y. 2019b. Acute oral toxicity of DHA-rich Oil in rats. A report for NutraSource, Inc.

DHA-rich oil (Fuxing)

### Appendix A. Certificates of Analysis

Please see an attached pdf file.

### Appendix B. Identification of Fuxing's DHF Strain. China Center for Type Culture Collection (CCTCC) Report No. 2019027. 2019

Please see an attached pdf file.

Analytical Report

Sample Code

Certificate No.

eurofins Appendir A - COAs AR-18-54-017436-03



502-2019-00010198

"This analytical report replaces the previous issued analytical report no.: AR-19-SU-017435-01

AR-19-SU-017436-03

#### 中国认问 检测 TESTING CNA 5 L3788

Report date 19-Apr-2018

			Yanrong Wu	Street, I bel, P.R	chenhu Town, Chenhu Town, China
Our reference: Client Sample Code: Sample described as: Sample Packaging: Sample reception date: Analysis starting date: Analysis ending date:	502-2019-00010195/ AR-19- D16071101J DHA抽题 Scaled metal bottle 20-Feb-2019 20-Feb-2019 19-Apr-2019	-SU-017436-03			
Antval Temperature (°C)	17.6	Sample	Weight	600g	*2
		Results	Unit	LOQ	LOD
Mercury (Hg)	AS) Method: BS EN 13606;2002 (ICP-MS) Method: BS EN ISO	<0.005	nigikg	0.005	
Manganese (Mn)	m (ICP-MS) Method: 85 EN ISO	≪0.1	mg/kg	0.1	
Molybdienum (Mo) 48 SU056 Nickel (ICP	} *MS) Method: BS EN ISO 17294	<0.03	nigikg	0.03	
Nicket (Ni) +# SU05D Lead (ICP-	MS) Method: BS EN ISO 17294-	<0.1 2 2016 mod.	ng/kg	0.1	
Lead (Pb)	P-MS) Method: BS EN ISO 1728	<0.05 M-2 2016 mod.	mg/kg	0.85	
Arsenic (As)	(ICP-MS) Method: BS EN ISO 1	<0.05 7294-2 2016 mod.	mg/kg	0.05	
Chromium (Cr)	(ICP-MS) Method: BS EN ISO 17	<0.1 294-2 2016 mod.	mg/kg	0.1	
Cadmium (Cd) +# SU05J Copper (IC	P-MS) Method: BS EN ISO 1729	<0.01 4-2 2016 mod.	malka	0.01	
Copper (Cu)	s (ICP-MS) Method: BS EN ISO	<0.1	mg/kig d.	0.1	
Phosphorus (P)	DES) Method: Internal Method IC	47,4	mg/kg	5	
Iron (Fs)	ACOT INBUILDU. NIVERIAN MEDIDO IC	<0.1	mg/100 g	1,0	
		Results	Unit	LOQ	LOD
de ever telles à la constant de la	Screening(GC) Method: BS EN 12	2393;2013			
#SUS1A Pesticide S Screened pesticid	and the second second second second second	<l00< td=""><td>mg/kg</td><td></td><td></td></l00<>	mg/kg		

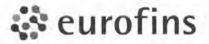
Eurofine Tech. Service (Support No. 101, Jialingjiang Roy SNO Suzhou 215000 curofins

+86 400 828 5088 Phone

Fax www.eurofins.cn



Jiangeu Province, P.I



	Results	Unit	LOQ	LOD
#SU10Z Cronobacter spp. in 10g Method: ISO 229				
Cronobacter spp	Not Detected	/10 g		
	Results	Unit	LOQ	LOD
A# SU20L Protein Method: AOAC 984.13	10000			
Protein	<0.1 (k=6.25)	g/100 g	0.1	
SU217 Physical inspection Method: Internal Meth		ation		
Physical inspection	see attached			
	document			
Ash Method: AOAC 941.12; AOAC 923.03				
Ash	0.04	g/100 g	0.01	
A# SU372 Cholesterol Method: GB 5009,128-2016				
Cholesterol	2381	mg/kg	10	
	Results	Unit	LOQ	LOD
	Internal, GC-MS/MS			
2,3,7,8-TetraCDD	< 0.0309	pg/g		
1,2,3,7,8-PentaCDD	< 0.0407	pg/g		
1,2,3,4,7,8-HexaCDD	< 0.0619	pg/g		
1,2,3,6,7,8-HexaCDD	< 0.0847	pg/g		
1,2,3,7,8,9-HexaCDD	< 0.0798	pg/g		
1,2,3,4,6,7,8-HeptaCDD	< 0.130	pg/g		
OctaCDD	< 0.945	pg/g		
2,3,7,8-TetraCDF	< 0.0847	pg/g		
1,2,3,7,8-PentaCDF	< 0.0586	pg/g		
2,3,4,7,8-PentaCDF	< 0.0912	pg/g		
1,2,3,4.7,8-HexaCDF	< 0.0961	pg/g		
1,2,3,6,7,8-HexaCDF	< 0.0879	pg/g		
1,2,3,7,8,9-HexaCDF	< 0.0651	pg/g		
2,3,4,6,7,8-HexaCDF	< 0.0798	pg/g		
1,2,3,4,6,7,8-HeptaCDF	< 0.0912	pg/g		
1,2,3,4,7,8,9-HeptaCDF	< 0.0635	pg/g		
OctaCDF	< 0.195	pg/g		
WHO(2005)-PCDD/F TEQ	Not Detected	pg/g		
(lower-bound)				
WHO(2005)-PCDD/F TEQ	0.0840	pg/g		
(medium-bound)	4.642			
WHO(2005)-PCDD/F TEQ	0.168	pg/g		
(upper-bound)		11.00	1.4.5	1145
	Results	Unit	LOQ	LOD
★ SF0XA add 1 on to the GC/MS-pesticide screening				00.00-34 : 2010-09, mod.
Tralomethrin	<0.05	mg/kg	0.05	
FL023 Plant sterols and plant stanols (not enriched Brassicasterol				
Cholesterol	15	mg/100 g	1	
	210	mg/100 g	1	
Campesterol Campestanol	15	mg/100 g	1	
Construction of the second sec	1	mg/100 g	1	
Stigmasterol Unidentified sterols	27	mg/100 g	1	
Sitosterol	196	mg/100 g	1	
Sitosterol Sitostanol+ delta-5-avenasterol	67	mg/100 g	1	
	7	mg/100 g	1	
Delta-5,24-stigmastadienol	10	mg/100 g	1	
Delta-7-stigmastenol	28	mg/100 g	1	
delta-7-Avenasterol	6	mg/100 g	1	
Cycloartenol	2	mg/100 g	1	

Eurofins Tech. Service (Sustan) Schurg

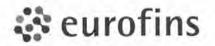
eurofins

STING SERVI

No. 101, Jialingjiang Ross SND

Suzhou 215000 Jiangsu Province, P.R Phone +86 400 828 5088

Fax

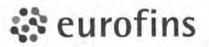


Page 3/7 AR-19-SU-017436-03

	Results	Unit	LOQ	LOD
24-Methylenecycloartanol	2	mg/100 g	1	
Citrostadienol	2	mg/100 g	đ	
Total plant sterols + plant stanols	372	mg/100 g	1	
A JC00V PAH acc. to EU 208/2005 (15+1) M	ethod: Internal, GC-MS			
5-Methylchrysene	<1	µg/kg	1	
Benz(a)anthracene	<0.5	µg/kg	0.5	
Benzo(a)pyrene	<0.5	µg/kg	0.5	
Benzo(b)fluoranthene	<0.5	µg/kg	0.5	
Benzo-(c)-fluorene	<1	µg/kg	1	
Benzo(g,h,i)perylene	<0.5	µg/kg	0.5	
Benzo-(j)-fluoranthen	<0.5	µg/kg	0.5	
Benzo(k)fluoranthene	<0.5	µg/kg	0.5	
Chrysene	<0.5	µg/kg	0.5	
Cyclopenta(c,d)pyrene	<1	µg/kg	1	
Dibenz(a,h)anthracene	<0.5	µg/kg	0.5	
Dibenzo(a,e)pyrene	<1	µg/kg	1	
Dibenzo(a,h)pyrene	<1	µg/kg	1	
Dibenzo(a,i)pyrene	<1	µg/kg	1	
Dibenzo(a,l)pyrene	<1	have	1	
Indeno(1,2,3-cd)pyrene	<0.5	µg/kg	0.5	
Sum of all positive identified PAH	Inapplicable	pg/kg	with.	
Sum PAH 4	Inapplicable	µg/kg		
		havea		
Patulin Patulin	<5	µg/kg	5	
☆ JCAF2 Aflatoxins B1, B2, G1, G2 (fats, oils, I				on EN 14102
Aflatoxin B1	<0.1	µg/kg	D.1	UII EIN 14123
Aflatoxin B2	<0.1	µg/kg	0.1	
Aflatoxin G1	<0.1	µg/kg	0.1	
Aflatoxin G2	<0.1	µg/kg	0.1	
Sum of all positive Aflatoxins	<0.4	hðykð	0,1	
# JJW2Z Sterigmatocystin Method: Internal, I		HAWA		
Sterigmatocystin Method, Internal, I	<10	µg/kg	10	
LW0XD Domoic acid, DA Method: In house		pana	10	
Amnesic Shellfish Poison, Domoic acid	<3.0	µg/g	3	
Amnesic Shellfish Poison, Domoic Acid	Not Detected	pala	3	
* QA00F Peroxide Value Method: AOCS Cd				
Peroxide value	<0.1	meg/kg	0.1	
Acid Value Method: AOCS Cd 3d-6		moding	0.1	
Acid value (mg KOH/g)	0.52	mg KOH/g	0.05	
Free fatty acids (as oleic acid)	0.26	%	0.01	
CA01L p-Anisidine Value Method: AOCS C		-79	0.01	
p-Anisidine Value	5.6			
Color (Lovibond Scale) Method: AO			1	
Color, red scale, 1 inch cell path	CS CC 13e-92; 150 15305			
Color, yellow scale, 1 inch cell path	1.0			
☆ QA034 Fumonisins (IAC-LC-MSMS) Metho				
Fumonisin (B1+B2+B3)	d: JAOAC, 92 (2), 496. <30	uplica	20	
Fumonisin (B1+B2+B3) Fumonisin B1	<10	µg/kg	30	
		µg/kg	10	
Fumonisin B2	<10	µg/kg	10	
Fumonisin B3	<10	µg/kg	10	
CA04E Residual Solvents (GC-MS) Method				
1,1,1-Trichloroethane	<0.2	mg/kg	0,2	
1,1,2-Trichloroethane	<0.2	mg/kg	0.2	

Eurofins Tech. Service (Surger) Shift (Surger) No. 101, Jialingjiang Rose SND Suzhou 215000 Jiangsu Province, P.F.

Phone +86 400 828 5088 Fax



Page 4/7 AR-19-SU-017436-03

	Results	Unit	LOQ	LOD
1,2-Dichloroethane	<0.5	mg/kg	0.5	
1,2-Dimethoxyethane	<1	mg/kg	1	
1-Butanol	<1	mg/kg	1	
2-Hexanone	<1	mg/kg	1	
Acetone	<1	mg/kg	1	
Benzene	<0.1	mg/kg	0,1	
Butyl acetate	<0.5	mg/kg	0.5	
Carbon tetrachloride	<0.5	mg/kg	0.5	
Chlorobenzene	<0.5	mg/kg	0.5	
Chloroform	<0.1	mg/kg	0.1	
Cyclohexane	<0.2	mg/kg	0.2	
Dichloromethane	<0.1	mg/kg	0.1	
Ethanol	<1	mg/kg	1	
Ethyl acetate	<1	mg/kg	1	
Heptane	<0.2	mg/kg	0.2	
Hexane (sum of n-hexane, iso and	<0.5	mg/kg	0,5	
3-methyl pentane)				
Isopropanol	<1	mg/kg	1	
Methanol	<1	mg/kg	1	
Methyl Ethyl Ketone (MEK)	<0.2	mg/kg	0.2	
Methyl-tert-butylether (MTBE)	<0.2	mg/kg	0.2	
Tetralin	<5	mg/kg	5	
Toluene	<0.2	mg/kg	0.2	
Trichloroethylene	<0.1	mg/kg	0.1	
Xylenes (sum)	<0.2	mg/kg	0.2	
	Method: ASU L00.00-34			
PCB 1	< 0.01	mg/kg	0.01	
PCB 101	< 0.01	mg/kg	0.01	
PCB 104	< 0.01	mg/kg	0.01	
PCB 105	< 0.01	mg/kg	0,01	
PCB 118	< 0.01	mg/kg	0.01	
PCB 126	< 0.01	mg/kg	0.01	
PCB 128	< 0.01	mg/kg	0.01	
PCB 138	< 0.01	mg/kg	0.01	
PCB 153	< 0.01	mg/kg	0.01	
PCB 170	< 0.01	mg/kg	0.01	
PCB 18	< 0.01	mg/kg	0.01	
PCB 180	< 0.01	mg/kg	0.01	
PCB 187	<0.01	mg/kg	0.01	
PCB 188	<0.01	mg/kg	0.01	
PCB 195	<0.01	mg/kg	0.01	
PCB 201	<0.01	mg/kg	0.01	
PCB 206	<0.01	mg/kg	0.01	
PCB 209	<0.01	mg/kg	0.01	
PCB 28	<0.01	mg/kg	0.01	
PCB 29	<0.01	mg/kg	0.01	
PCB 44	<0.01	mg/kg	0.01	
PCB 50	<0.01	mg/kg	0.01	
PCB 52	<0.01	mg/kg	0.01	
PCB 66	<0.01		0.01	
PCB 77	<0.01	mg/kg		
PCB 8	<0.01	mg/kg	0.01	
1000	-0.01	mg/kg	0.01	

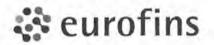
Eurofins Tech. Service (Supervise)

Suzhou 215000 Jiangsu Province, P.R

Received and a second s

Phone +86 400 828 5088

Fax

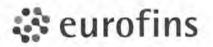


	Results	Unit	LOQ LOD	
Sum Non-Dioxin-Like PCBs	<0.01	mg/kg	0.01	
(28+52+101+138+153+180)				
Total PCB	<0.1	mg/kg	0.1	
☆QA0MT Ochratoxin A (HPLC-FLD) Metho	od: AOAC 2000.16			
Ochratoxin A	<1	µg/kg	1	
☆ QA23L Trans Fatty Acids, relative area % (		1f-96		
Total Trans Fatty Acids	0.20	% of fatty	0.01	
	-0.04	acids		
total trans fatty acids C18:1	<0.01	% of fatty	0.01	
total trans fatty acids C18:2 (without	0.12	acids % of fatty	0.01	
CLA)	0.12	acids	0.01	
total trans fatty acids C18:2 + C18:3	0.20	% of fatty	0.01	
		acids		
total trans fatty acids C18:3	0.08	% of fatty	0.01	
the second second second second second second		acids		
* QA282 Free Fatty Acid, as Oleic Method:	AOCS Ca 5a-40			
Free fatty acids as oleic acid	0.18	%	0.01	
* QA328 Insoluble Impurities Method: AOC				
Insoluble impurities	<0.01	%	0.01	
A QA513 Toxaphene (GC-MSMS)				
Toxaphene Parlar 26	<loq< td=""><td>mg/kg</td><td>0.01</td><td></td></loq<>	mg/kg	0.01	
Toxaphene Parlar 50	<loq< td=""><td>mg/kg</td><td>0.01</td><td></td></loq<>	mg/kg	0.01	
Toxaphene Parlar 62	Not Analyzable	mg/kg	0.01	
* QA560 Sulfallate (Vegedex)				
Sulfallate (Vegedex)	<0.02	mg/kg	0.02	
* QA867 Silicon (ICP-AES) Method: AOCS				
Silicon (Si)	4.2	mg/kg	1	
★ QA967 Unsaponifiable Matter (Ethyl ether o Unsaponifiable matter	ext) Method: AOCS Ca 6b-5 1.66		0.05	
		%	D.05	
ACCA07 Vomitoxin (Deoxynivalenol, DON) L Vomitoxin (Deoxynivalenol)	-G-MSMS Method: Food Add <50	ut Contam Part / µg/kg	50	
* QAA19 Zearalenone (LC-MSMS) Method	the second s			
Zearalenone	25	μg/kg	25	
★ QD089 Fatty Acids-Omega 6 & 3 %W/W				
C08:0 Octanoic (Caprylic)	<0.02	%	0.02	
C10:0 Decanoic (Capric)	<0.02	%	0.02	
C11:0 Undecanoic (Hendecanoic)	< 0.02	%	0.02	
C12:0 Dodecanoic (Lauric)	0.04	%	0.02	
C14:0 Tetradecanoic (Myristic)	0.46	%	0.02	
C14:1 Tetradecenoic (Myristoleic)	0.02	%	0.02	
C15:0 Pentadecanoic	0.79	%	0.02	
C15:1 Pentadecenoic	<0.02	%	0.02	
C16:0 Hexadecanoic (Palmitic)	22.24	%	0.02	
C16:1 Hexadecenoic (Palmitoleic)	0.15	%	0.02	
C16:2 Hexadecadienoic	<0.02	%	0.02	
C16:3 Hexadecatrienoic	<0.02	%	0.02	
C16:4 Hexadecatetraenoic	< 0.02	%	0.02	
C17:0 Heptadecanoic (Margaric)	0.97	%	0.02	
C17:1 Heptadecenoic (Margaroleic)	0.02	%	0.02	
C18:0 Octadecanoic (Stearic)	1.23	%	0.02	
C18:1 Octadecenoic (Oleic + isomers)	3.25	%	0,02	
C18:2 Octadecadienoic (Linoleic +	6.84	%	0.02	
isomers)				

Eurofins Tech. Service (Surtal) Same No. 101, Jialingjiang Ross SND Suzhou 215000 Jiangsu Province, P.F.

ESTING SERVIC

Phone +86 400 828 5088 Fax



		Results	Unit	LOQ	LOD
C18:2	Octadecadienoic Omega 6	6.82	%	0.02	
(Linole					
· · · · · · · · · · · · · · · · · · ·	Octadecatrienoic (Linolenic +	0.84	%	0.02	
isomer	s)				
	Octadecatrienoic Omega 3	0.75	%	0.02	
	Linolenic)				
	Octadecatrienoic Omega 6	0.10	%	0.02	
	na Linolenic)				
	Octadecatetraenoic Omega 3	0.10	%	0.02	
(Steari					
	Eicosanoic (Arachidic)	0.26	%	0.02	
	Eicosenoic (Gondoic + isomers)	0.03	%	0.02	
	Eicosadienoic Omega 6	0.03	%	0.02	
	Eicosatrienoic	0.22	%	0.02	
	Eicosatrienoic Omega 3	<0.02	%	0.02	
	Eicosatrienoic Omega 6	0.22	%	0.02	
	Eicosatetraenoic (Arachidonic +	0,90	%	0,02	
isomer		1.1			
	Eicosatetraenoic Omega 3	0.49	%	0.02	
	Eicosatetraenoic Omega 6	0.41	%	0.02	
(Arach					
	Eicosapentaenoic Omega 3	0.19	%	0.02	
C21:5	Heneicosapentaenoic Omega 3	<0.02	%	0.02	
C22:0	Docosanoic (Behenic)	0.15	%	0.02	
C22:1	Docosenoic (Erucic + isomers)	< 0.02	%	0.02	
C22:2	Docosadienoic Omega 6	< 0.02	%	0.02	
C22:3	Docosatrienoic, Omega 3	<0.02	%	0.02	
C22:4	Docosatetraenoic Omega 6	0.05	%	0,02	
C22:5	Docosapentaenoic	10.62	%	0.02	
C22:5	Docosapentaenoic Omega 3	0.05	%	0.02	
C22:5	Docosapentaenoic Omega 6	10.58	%	0.02	
C22:6	Docosahexaenoic Omega 3	38.24	%	0.02	
C24:0	Tetracosanoic (Lignoceric)	<0.02	%	0,02	
C24:1	Tetracosenoic (Nervonic)	< 0.02	%	0.02	
Sum of	f Omega 3 Isomers	39.82	%	0.05	
Sum of	f Omega 6 Isomers	18.21	%	0.05	
	at as Triglycerides	91.43	%	0.1	
	atty Acids Calc.	87.69	%	0.1	
	tonounsaturated Fatty Acids	3.48	%	0.05	
	olyunsaturated Fatty Acids	58.06	%	0,05	
Total S	Saturated Fatty Acids	26.16	%	0.05	
QD153	Moisture by Karl Fischer Method: AOCS		100		
	re, Karl Fischer	0.02	%	0.01	
SFFED	Pesticide screening using LC/MS/MS in fat				GB L 13.04-5 : 2013-08. mod
Linuror	A compared to make a contract the second sec	<0.01	mg/kg	0.01	
Broma		<0.01	mg/kg	0.01	
Pyreth		<0.1	mg/kg	0.1	
UM5Y6	Aerobic Plate Count /ml AOAC 990.12 M		33		
	c Plate Count	10(est)	cfu/ml		
				12	
UMBYM	Yeast-Mould E <10 >1500 /g (1) PCCG-P /			12	
Moulds		<10	cfu/g		
Yeast		<10	cfu/g		



Phone +86 400 828 5088 Fax www.eurofins.cn

# : eurofins

Page 7/7 AR-19-SU-017436-03

			Results	Unit	LOQ LOD	
Salmonella		Not De	tected	/25 ml		
☆UMM1D Col Coliforms	iforms /ml AOAC 991.14	Method: AOAC 991.14	<10	cfu/ml		
COMMENT			-			
24-methylenecycloa	plant sterols and plant star rtanol, and citrostadienol). eutables is 0,818 mg/100 g		olesterol an	d non-4-desm	nethyl sterols (i.e. cycloa	artenol,
ist of screened r	nolecules (* = limit of	quantification)				
	Pesticide Screening(GC) (I (a) Acstochlar (0.05) (a) Benfuralin (0.01) (e) Bromophos-sthyl (0.01) (a) Captan (0.05)		<ul> <li>(a) Aldrin (0.0</li> <li>(a) Bifanthrin</li> <li>(a) Butachlor</li> <li>(a) Carbopher</li> </ul>	0.01) 0.01)	<ul> <li>(a) Ametryne (0.02)</li> <li>(a) Biphanyl (0.01)</li> <li>(a) Butafensali (0.01)</li> <li>(a) Carbophensali (0.01)</li> </ul>	<ul> <li>(a) Anamite (0.04)</li> <li>(a) Bromferwinfos (0.02)</li> <li>(a) Cadusafos (0.02)</li> <li>(b) Carboxin (0.05)</li> </ul>
Chlotbenside (0.05) Chlotfenvinphos (0.01) Chlorpyrffos (-ethyl) (0.01) Cyanazine (0.02)	<ul> <li>(a) Chlordane (Sum) ()</li> <li>(a) Chlornephoa (0.05)</li> <li>(a) Chlorpyrifos-methyl (0.01)</li> <li>(a) Cysnofenphos (0.05)</li> </ul>	as Ceptan) () (a) Chlordane, alpha (0.01) (a) Chlordane, alpha (0.01) (a) Chlorthal-dimetryl (0.01) (b) Cyanophos (0.02)	<ul> <li>(a) Chlordana</li> <li>(a) Chloronab</li> <li>(a) Chlorthion</li> <li>(a) Cyfluthnn</li> </ul>	(0.01) (0.05)	(0.05) (e) Chlorfenapyr (0.05) (a) Chloropropylate (0.01) (e) Chlozolinata (0.02) (a) Cyhalothim, lembda-lind.	<ul> <li>(a) Chlorfenson (0.05)</li> <li>(a) Chlorothaloni (0.01)</li> <li>(a) Crufomate (0.05)</li> <li>(ii) Cypermethrin (0.05)</li> </ul>
) Cyphenothrin (0.05) ) DDT, a,p- (0.01) ) Dichlersbehzophenone a,p'	<ul> <li>(a) DDD, o.p'- (0.01)</li> <li>(a) DDT, p.p'- (0.01)</li> <li>(a) Dictionobenzophenome p.p'</li> </ul>	<ul> <li>(a) DDD, p.p'- (0.01)</li> <li>(a) Deflamethint (0.05)</li> <li>(a) Dichlervos (0.05)</li> </ul>	<ul> <li>(a) DDE o.p<sup>1</sup>-</li> <li>(a) Dichlobers</li> <li>(a) Dichloran (0)</li> </ul>	(0.05)	Cyhalothnir, gemma-) (0.01) (e) DDE, p.p'- (0.01) (a) Dichlofenthion (0.02) (e) Dicofol (Sum) ()	<ul> <li>(a) DDT (Sum) ()</li> <li>(a) Dichloftuanid (0.02)</li> <li>(a) Dicofol, o.p'- (0.02)</li> </ul>
(0.02) ) Dicofol p.p <sup>-</sup> (0.02) Dicostituion (0.05) ) Endosulfan, sulfat- (0.02) ) Etrimfas (0.02) ) Fernitrothilon (0.02)	(0.02) (a) Dialdm (0.02) (a) Diptenylamine (0.01) (a) Endrin (0.05) (b) Fenaniphos (0.05) (c) Fenaniphos (0.02)	(a) Dieldrin (Sum) () (a) Editemptics (0.02) (a) EPN (0.05) (a) Fenchlorphos (0.02) (a) Fenchlorphos (0.02)	<ul> <li>(a) Dienochlor</li> <li>(a) Endosulfar</li> <li>(a) Ethelfuralit</li> <li>(a) Fenchlorp?</li> <li>(a) Fenchlorp?</li> </ul>	(Sum) () (0.01) (0.01) ()	<ul> <li>(e) Dinobutan (0.05)</li> <li>(a) Endosulfan, alpha- (0.05)</li> <li>(a) Ethion (0.02)</li> <li>(a) Fenchloriphos oxon (0.01)</li> <li>(c) Fenchloriphos oxon (0.01)</li> <li>(c) Fenchlorifatte &amp; Edifanvalerate (Sum of RS&amp;SR feamers)</li> </ul>	<ul> <li>(a) Dickabenzofos (0.02)</li> <li>(a) Endosulfan, beta- (0.05)</li> <li>(a) Endiszole (0.02)</li> <li>(a) Fertfluthrin (0.01)</li> <li>(a) Fertfluthrin (0.01)</li> <li>(b) Fertvalerate &amp; Enfervalerate aum of RR,SS,RS,SR) ()</li> </ul>
) Ferryslerate & Esferivalerate (Sum of RR&SS (somers) (0.02)	(n) Fluchlonslin (0.05)	(a) Flucythmete (0.05)	(a) Flumetnalir	(0.05)	(0.02) (a) Fluctrimezole (0.01)	(a) Fluquincianazofe (0.02)
HKR55 Isomers) (0.02) Fluvalinate-tau (0.02) HCH, beta- (0.01) Heptachlor epoxide trans (0.01)	(e) Fonofos (0,02) (a) HCH, data- (0,01) (a) Heptenophos (0,02)	<ul> <li>(a) Formathion (0.05)</li> <li>(a) HCH, spallon- (0.01)</li> <li>(a) (probentos (0.02)</li> </ul>	<ul> <li>(a) HCB (0.01)</li> <li>(a) Heptachioi</li> <li>(a) Isazofos (0)</li> </ul>	(0.01)	(a) HCH gamma(Lindan) (0.01) (a) Heptachlor (Sum) () (a) Iaocarbophoii (0.02)	<ul> <li>(a) HCH, alpha- (0.01)</li> <li>(a) Heptachlor eportide cia (0.01)</li> <li>(a) Isodrin (0.02)</li> </ul>
(0.01) ) Isolonphos (0.02) ) Malaoxon (0.05) ) Methamidophos (0,1)	<ul> <li>(a) Isofanphos-methyl (0.01)</li> <li>(a) Malathion (0.02)</li> <li>(a) Methidathion (0.02)</li> </ul>	<ul> <li>(a) Isoproihiolane (0.02)</li> <li>(a) Malathon (Sum) ()</li> <li>(a) Methoxychlor (0.02)</li> </ul>			(e) Kresaom-melhyl (0,01) (e) Mepranil (0,01) (a) Metnbuzin (0,04)	<ul> <li>(a) Landmi (0.02)</li> <li>(a) Methecriphos (0.02)</li> <li>(a) Mewnphos (0.02)</li> </ul>
<ol> <li>Mirex (0.01)</li> <li>Drumoe (0.01)</li> <li>Parathian-methyl (0.04)</li> <li>PCB 28 (0.01)</li> <li>Pherivaptro (0.05)</li> <li>Piperophos (0.01)</li> <li>Propent (0.01)</li> <li>Prymfenox (0.04)</li> <li>Sittliofam (0.02)</li> </ol>	(a) N-Desothyl-primiphos-methyl (0,01) (a) Drediston (0,02) (a) PCB 101 (0,01) (a) PCB 52 (0,01) (a) Prenotitin (0,01) (a) Primehas-ethyl (0,01) (a) Propazine (0,01) (b) Pryfrietibanil (0,01) (c) Tebufenpyrad (0,01) (c) Tebufenpyrad (0,01)	(a) Nitrapyrin (0.01) (a) Oxychlordane (0.02) (a) PCB 118 (0.01) (a) Pientachloroanelline (0.01) (a) Pienthiose (0.02) (a) Pirothiose (0.02) (a) Calinaliphos (0.01) (a) Calinaliphos (0.01) (a) Tetrazene (0.02) (b) Tetra	Ede (0.05) (a) Nitrofan (0 (a) Oxyfluorfar (a) PCB 138 ( (a) Pentachlor (a) Photenofas (a) Pynazopho (a) Cuntozen- (a) Terhasul (0 (b) Terhasul (0	i (0.02) 0.01) pariscele (0.01) 04) (0.01) s (0.01) s (0.01) (0.01) 0.02)	(a) Nitrathel-isopropyl (0.01)           (a) Postobutnacci (0.01)           (a) PCB 153 (0.01)           (b) Pentachiorobenzene (0.01)           (c) Profumelin (0.02)           (a) Profumelin (0.02)           (a) Zuizalofop-P-ethyl (0.01)           (a) Totyliudanid (0.02)	(*) Octachlorodipropyl ettes (S-421) (0.05) (a) Perathion (0.01) (a) PCB 150 (0.01) (a) PCB 150 (0.01) (a) Permethin (0.02) (b) Printaphenthion (0.02) (c) Printaphenthion (0.02) (c) Tetrichlorvinphos (0.02) (c) Tetrichlorvinphos (0.02)
Triazamate (0.01)	(0.06) (a) Triazophos (0.02)	(a) Trichloronat (0.01)	(a) Triflucation (		(iii) Trittconazole (0.01)	(n) Uniconazole (0,02)
	Dong	Claire	Wang			sk He
	d Signatory	Authorized				d Signatory
The result(s) relate(s	ification of Quantification	d means t e means th e results of each quantifi and is(are) only for inter	ne test is su ied compound nal use by t	bcontracted bcontracted o ind as set by he client and	not for publicly available	e as evidence.

END OF REPORT

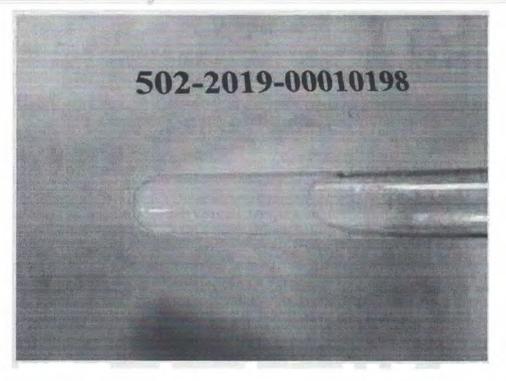


Phone +86 400 828 5088 Fax www.eurofins.cn



### **Physical inspection**

Sample code	502-2019-00010198
Sample name	DHA oil
Color	Light yellow
Odor	Have the special odor of this product
Texture	Oily liquid



Eurofina Tech, Service (Sustan) Statut No. 101, Jialingjiang Rouse SND Suzhou 215000 Jiangsu Province, P.R. Gina

2.81

Phone +86 400 828 5088 Fax +86 512 6878 5966 www.eurofins.cn



### Analytical Report

Sample Code Certificate No.

502-2019-00010197 PR-19-SU-000051-01 Report date 25-Mar-2019



HuBei Fuxing Biotechnology CO,.LTD Yanrong Wu NO.18 Fuxing Street, Chenhu Town, Hanchuan, Hubei, P.R. China Fax 0086 0712-8741957

		1 4 00	00 0/12-0/	41337		
Our reference:	502-2019-00010197/ PR-19-5	SU-000051-01				
Client Sample Code:	D18081801J					
Sample described as:	DHA油脂					
Sample Packaging:	Sealed metal bottle					
Sample reception date:	20-Feb-2019					
Analysis starting date:	20-Feb-2019					
Analysis ending date:	22-Mar-2019					
Arrival Temperature (°C)	17.6	Sample Wei	ight	600g	1*2	
		Results	Unit	LOQ	LOD	
SU007 Mercury (AAS)	Method: BS EN 13806:2002					
Mercury (Hg)		< 0.005	mg/kg	0.005		
SU051 Manganese (IC	CP-MS) Method: BS EN ISO 17	294-2 2016 mod.				
Manganese (Mn)		<0.1	mg/kg	0.1		
SU055 Molybdenum (I	ICP-MS) Method: BS EN ISO 1	7294-2 2016 mod.				
Molybdenum (Mo)		<0.03	mg/kg	0.03		
SU056 Nickel (ICP-MS	S) Method: BS EN ISO 17294-2	2 2016 mod.				
Nickel (Ni)		<0.1	mg/kg	0.1		
SU05D Lead (ICP-MS)	Method: BS EN ISO 17294-2	2016 mod.				
Lead (Pb)		< 0.05	mg/kg	0.05		
SU05E Arsenic (ICP-N	AS) Method: BS EN ISO 17294	-2 2016 mod.				
Arsenic (As)		<0.05	mg/kg	0.05		
SU05F Chromium (ICF	P-MS) Method: BS EN ISO 172	94-2 2016 mod.				
Chromium (Cr)		<0.1	mg/kg	0.1		
SU05G Cadmium (ICP	-MS) Method: BS EN ISO 172	94-2 2016 mod.				
Cadmium (Cd)		< 0.01	mg/kg	0.01		
SU05J Copper (ICP-M	IS) Method: BS EN ISO 17294	-2 2016 mod.				
Copper (Cu)		<0.1	mg/kg	0.1		
SU05K Phosphorus (IC	CP-MS) Method: BS EN ISO 1	7294-2 2016 mod.				
Phosphorus (P)		45.6	mg/kg	5		
SU51B Iron (ICP-OES	) Method: Internal Method ICP-	OES, ICP-OES				
Iron (Fe)	al standards of a simulation but while	<0.1	mg/100 g	0.1		
		Results	Unit	LOQ	LOD	_
SUS1A Pesticide Scree	ening(GC) Method: BS EN 123	93:2013		Les Les		
Screened pesticides		<loq< td=""><td>mg/kg</td><td></td><td></td><td></td></loq<>	mg/kg			
		Results	Unit	LOQ	LOD	
SU10Z Cronobacter st	op. in 10g Method: ISO 22964:		Sinc	LUG		
Cronobacter spp		lot Detected	/10 g			
oronosador opp				100	100	
SU20L Protein Meth	od: AOAC 984.13	Results	Unit	LOQ	LOD	_

Eurofins Tech. Service (Suzhou) Control No. 101, Jialingjiang Reast SND Suzhou 215000 Jiangsu Province, P.R. Spina

STING SERV

Phone +86 400 828 5088

Fax



	Results	Unit	LOQ	LOD
Protein	<0.1 (k=6.25)	g/100 g	0.1	
SU217 Physical inspection Method: Internal	A second s			
Physical inspection	see attached			
	document			
SU227 Ash Method: AOAC 941.12; AOAC 9	23.03			
Ash	0.03	g/100 g	0.01	
SU372 Cholesterol Method: GB 5009.128-20	016			
Cholesterol	1234	mg/kg	10	
	Results	Unit	LOQ	LOD
SF0XA add 1 on to the GC/MS-pesticide scree	ning Selected Parameter(s)	Method: § 64	LFGBL	00.00-34 : 2010-09, mod.
Tralomethrin	<0.05	mg/kg	0.05	
+ FL023 Plant sterols and plant stanols (not enri	ched) Method: NMKL 198	:2014		
Brassicasterol	9	mg/100 g	1	
Cholesterol	113	mg/100 g	1	
Campesterol	5	mg/100 g	1	
Campestanol	1	mg/100 g	1	
Stigmasterol	10	mg/100 g	1	
Unidentified sterols	115	mg/100 g	1	
Sitosterol	23	mg/100 g	1	
Sitostanol+ delta-5-avenasterol	5	mg/100 g	1	
Delta-5,24-stigmastadienol	4	mg/100 g	1	
Delta-7-stigmastenol	13	mg/100 g	1	
delta-7-Avenasterol	1	mg/100 g	1	
Cycloartenol	2	mg/100 g	1	
24-Methylenecycloartanol	3	mg/100 g	1	
Citrostadienol	1	mg/100 g	1	
Total plant sterols + plant stanols	186	mg/100 g	1	
☆ JC00V PAH acc. to EU 208/2005 (15+1) Met				
5-Methylchrysene	<1	µg/kg	1	
Benz(a)anthracene	<0.5	µg/kg	0.5	
Benzo(a)pyrene	<0.5	µg/kg	0.5	
Benzo(b)fluoranthene	<0.5	µg/kg	0.5	
Benzo-(c)-fluorene	<1	µg/kg	1	
Benzo(g,h,i)perylene	<0.5	µg/kg	0.5	
Benzo-(j)-fluoranthen	<0.5	µg/kg	0.5	
Benzo(k)fluoranthene	<0.5	µg/kg	0.5	
Chrysene	<0.5	µg/kg	0.5	
Cyclopenta(c,d)pyrene	<1	µg/kg	1	
Dibenz(a,h)anthracene	<0.5	µg/kg	0.5	
Dibenzo(a,e)pyrene	<1	ha/ka	1	
Dibenzo(a,h)pyrene	<1	µg/kg	1	
Dibenzo(a,i)pyrene	<1	µg/kg	1	
Dibenzo(a,I)pyrene	<1	µg/kg µg/kg	1	
Indeno(1,2,3-cd)pyrene	<0.5	µg/kg	0.5	
Sum of all positive identified PAH	Inapplicable	µg/kg µg/kg	0,0	
Sum PAH 4	Inapplicable	µg/kg µg/kg		
		hawa		
Patulin (oir) Method: Internal, LC-MS/	MS <5	unka	5	
Aflatoxins B1, B2, G1, G2 (fats, oils, lec		µg/kg		on EN 14122
Aflatoxin B1	citnin, egg powder) Method <0.1			UI EN 14123
Aflatoxin B2	<0.1	µg/kg	0.1	
Aflatoxin G1	<0.1	µg/kg µg/kg	0.1	

Eurofins Tech. Service (Suztou) Con Eld

+86 400 828 5088 Phone Fax

Suzhou 215000

Jiangsu Province, P.F

No. 101, Jialingjiang Rg ad SND eurofins China

STING SERV



		Results	Unit	LOQ	LOD
Sum of all positive Aflato	oxins	<0.4	µg/kg		
	Method: Internal, LC-MS				
Sterigmatocystin		<10	µg/kg	10	
LWOXD Domoic acid, DA	Method: In house metho	od (210), LC-MS	131.5		
Amnesic Shellfish Poiso	n, Domoic acid	<3.0	hð/ð	3	
Amnesic Shellfish Poiso	n, Domoic Acid	Not Detected			
A QA00F Peroxide Value	Method: AOCS Cd 8-53				
Peroxide value		2.1	meq/kg	0.1	
Acid Value Meth	od: AOCS Cd 3d-63				
Acid value (mg KOH/g)		0.34	mg KOH/g	0.05	
Free fatty acids (as oleic	acid)	0.17	%	0.01	
AQA01L p-Anisidine Value	Method: AOCS Cd 18-	90			
p-Anisidine Value		1.7		1	
	cale) Method: AOCS C	c 13e-92; ISO 15305			
Color, red scale, 1 inch d		0.9			
Color, yellow scale, 1 inc		9			
	.C-MSMS) Method: JAC		100		
Fumonisin (B1+B2+B3)		<30	µg/kg	30	
Fumonisin B1		<10	µg/kg	10	
Fumonisin B2		<10	µg/kg	10	
Fumonisin B3		<10	µg/kg	10	
	(GC-MS) Method: AOC				
1,1,1-Trichloroethane		<0.2	mg/kg	0.2	
1,1,2-Trichloroethane		<0.2	mg/kg	0.2	
1,2-Dichloroethane		<0.5	mg/kg	0.5	
1,2-Dimethoxyethane		<1	mg/kg	1	
1-Butanol		<1	mg/kg	1	
2-Hexanone		<1	mg/kg	1	
Acetone		<1	mg/kg	1	
Benzene		<0.1	mg/kg	0.1	
Butyl acetate		<0.5	mg/kg	0,5	
Carbon tetrachloride		<0.5	mg/kg	0.5	
Chlorobenzene		<0.5	mg/kg	0.5	
Chloroform		<0.1	mg/kg	0.1	
Cyclohexane		<0.2	mg/kg	0.2	
Dichloromethane		<0.1	mg/kg	0.1	
Ethanol		<1	mg/kg	1	
Ethyl acetate		<1	mg/kg	1	
Heptane	A	<0.2	mg/kg	0.2	
Hexane (sum of n-hexan	ie, iso and	<0.5	mg/kg	0.5	
3-methyl pentane)		- 63		5	
Isopropanol		<1	mg/kg	1	
Methanol		<1	mg/kg	1	
Methyl Ethyl Ketone (ME		<0.2	mg/kg	0.2	
Methyl-tert-butylether (M	IBE)	<0.2	mg/kg	0,2	
Tetralin		<5	mg/kg	5	
Toluene		<0.2	mg/kg	0.2	
Trichloroethylene		<0.1	mg/kg	0.1	
Xylenes (sum)	and the second	<0.2	mg/kg	0.2	
	phenyls (Oils & Fats) M	lethod: ASU L00.00-34			
PCB 1		< 0.01	mg/kg	0.01	
PCB 101		< 0.01	mg/kg	0.01	
PCB 104		<0.01	mg/kg	0.01	
PCB 105		< 0.01	mg/kg	0.01	

Eurofins Tech. Service (Suzhou) Service

Phone Fax

Suzhou 215000 Jiangsu Province, P.I

No. 101, Jialingjiang R d SND eurofins 5 China ESTING SERVI

www.eurofins.cn

+86 400 828 5088



		Results	Unit	LOQ	LOD
PCB 1	18	<0.01	mg/kg	0.01	
PCB 1		<0.01	mg/kg	0.01	
PCB 1	28	< 0.01	mg/kg	0.01	
PCB 1	38	< 0.01	mg/kg	0.01	
PCB 1	53	<0.01	mg/kg	0.01	
PCB 1	70	< 0.01	mg/kg	0.01	
PCB 1	8	< 0.01	mg/kg	0.01	
PCB 1	80	<0.01	mg/kg	0.01	
PCB 1	87	< 0.01	mg/kg	0.01	
PCB 1	88	< 0.01	mg/kg	0.01	
PCB 1	95	< 0.01	mg/kg	0.01	
PCB 2	01	<0.01	mg/kg	0.01	
PCB 2	06	< 0.01	mg/kg	0.01	
PCB 2	09	< 0.01	mg/kg	0.01	
PCB 2	8	< 0.01	mg/kg	0.01	
PCB 2	9	< 0.01	mg/kg	0.01	
PCB 4		<0.01	mg/kg	0.01	
PCB 5	0	<0.01	mg/kg	0.01	
PCB 5	2	<0.01	mg/kg	0.01	
PCB 6	6	< 0.01	mg/kg	0.01	
PCB 7	7	<0.01	mg/kg	0.01	
PCB 8		< 0.01	mg/kg	0.01	
PCB 8	7	<0.01	mg/kg	0.01	
Sum N	Ion-Dioxin-Like PCBs	< 0.01	mg/kg	0.01	
	2+101+138+153+180)		5.5		
Total F		<0.1	mg/kg	0.1	
* QA0MT	Ochratoxin A (HPLC-FLD) Method: A				
Ochrat		<1	µg/kg	1	
A QA23L	Trans Fatty Acids, relative area % (GC-				
	rans Fatty Acids	0.12	% of fatty acids	0,01	
	ans fatty acids C18:1	<0.01	% of fatty acids	0,01	
total tra CLA)	ans fatty acids C18:2 (without	0.12	% of fatty acids	0.01	
total tra	ans fatty acids C18:2 + C18:3	0.12	% of fatty acids	0.01	
total tra	ans fatty acids C18:3	<0.01	% of fatty acids	0.01	
¢ QA282	Free Fatty Acid, as Oleic Method: AO	CS Ca 5a-40			
Free fa	atty acids as oleic acid	0.18	%	0.01	
☆ QA328	Insoluble Impurities Method: AOCS C	a 3a-46			
Insolut	ole impurities	<0.01	%	0.01	
¢ QA513	Toxaphene (GC-MSMS)				
Toxap	hene Parlar 26	<loq< td=""><td>mg/kg</td><td>0.01</td><td></td></loq<>	mg/kg	0.01	
Toxapl	hene Parlar 50	<loq< td=""><td>mg/kg</td><td>0.01</td><td></td></loq<>	mg/kg	0.01	
Toxapl	hene Parlar 62	Not Analyzable	mg/kg	0.01	
☆ QA560	Sulfallate (Vegedex)				
Sulfalla	ate (Vegedex)	<0.02	mg/kg	0.02	
& QA867	Silicon (ICP-AES) Method: AOCS Ca	17-01			
	1011	<1	mg/kg	1	
Silicon					
Silicon ☆ QA967	Unsaponifiable Matter (Ethyl ether ext) onifiable matter	Method: AOCS Ca 6b-53 1.04	%	0.05	

Eurofins Tech. Service (Suzhou) Con Ho No. 101, Jialingjiang Read, SND Suzhou 215000 eurofins

STING SERVE

Jiangsu Province, P.F

Phone +86 400 828 5088 Fax www.eurofins.cn



	Results	Unit	LOQ	LOD
Vomitoxin (Deoxynivalenol)	<50	µg/kg	50	
2 QAA19 Zearalenone (LC-MSMS) Method:	Food Addit Contam Part A, 2	013:30(3),541	-9.	
Zearalenone	<25	µg/kg	25	
CD089 Fatty Acids-Omega 6 & 3 %W/W	Method: AOCS Ce 2-66 AOCS	S Ce 1-62		
C08:0 Octanoic (Caprylic)	<0.02	%	0.02	
C10:0 Decanoic (Capric)	<0.02	%	0.02	
C11:0 Undecanoic (Hendecanoic)	< 0.02	%	0.02	
C12:0 Dodecanoic (Lauric)	0.13	%	0.02	
C14:0 Tetradecanoic (Myristic)	2.60	%	0.02	
C14:1 Tetradecenoic (Myristoleic)	0.50	%	0.02	
C15:0 Pentadecanoic	1.29	%	0.02	
C15:1 Pentadecenoic	0.02	%	0.02	
C16:0 Hexadecanoic (Palmitic)	34.56	%	0.02	
C16:1 Hexadecenoic (Palmitoleic)	0.27	%	0.02	
C16:2 Hexadecadienoic	< 0.02	%	0.02	
C16:3 Hexadecatrienoic	< 0.02	%	0.02	
C16:4 Hexadecatetraenoic	< 0.02	%	0.02	
C17:0 Heptadecanoic (Margaric)	0.43	%	0.02	
C17:1 Heptadecenoic (Margaroleic)	< 0.02	%	0.02	
C18:0 Octadecanoic (Stearic)	1.00	%	0.02	
C18:1 Octadecenoic (Oleic + isomers)	0.44	%	0.02	
C18:2 Octadecadienoic (Linoleic +	0.85	%	0.02	
isomers)				
C18:2 Octadecadienoic Omega 6	0.77	%	0.02	
(Linoleic)				
C18:3 Octadecatrienoic (Linolenic +	0.19	%	0.02	
isomers)				
C18:3 Octadecatrienoic Omega 3	0.13	%	0.02	
(Alpha Linolenic)				
C18:3 Octadecatrienoic Omega 6	0.07	%	0.02	
(Gamma Linolenic)				
C18:4 Octadecatetraenoic Omega 3	0.15	%	0.02	
(Stearidonic)				
C20:0 Eicosanoic (Arachidic)	0.13	%	0.02	
C20:1 Eicosenoic (Gondoic + isomers)	<0.02	%	0.02	
C20:2 Eicosadienoic Omega 6	<0.02	%	0.02	
C20:3 Eicosatrienoic	0.15	%	0.02	
C20:3 Eicosatrienoic Omega 3	0.06	%	0.02	
C20:3 Eicosatrienoic Omega 6	0.10	%	0.02	
C20:4 Eicosatetraenoic (Arachidonic +	2.20	%	0.02	
isomers)				
C20:4 Eicosatetraenoic Omega 3	0.48	%	0.02	
C20:4 Eicosatetraenoic Omega 6	1.72	%	0.02	
(Arachidonic)				
C20:5 Eicosapentaenoic Omega 3	0.40	%	0.02	
C21:5 Heneicosapentaenoic Omega 3	<0.02	%	0.02	
C22:0 Docosanoic (Behenic)	0.08	%	0.02	
C22:1 Docosenoic (Erucic + isomers)	<0.02	%	0.02	
C22:2 Docosadienoic Omega 6	<0.02	%	0.02	
C22:3 Docosatrienoic, Omega 3	<0.02	%	0.02	
C22:4 Docosatetraenoic Omega 6	0.03	%	0.02	
C22:5 Docosapentaenoic	4.92	%	0.02	
C22:5 Docosapentaenoic Omega 3	0.09	%	0.02	
C22:5 Docosapentaenoic Omega 6	4.83	%	0.02	

Eurofins Tech. Service (Suzhou) Con Etd

No. 101, Jialingjiang R Suzhou 215000

SND eurofins 5 Jiangsu Province, P.F

ESTING SERVI

+86 400 828 5088 Phone

Fax



		F	Results	Unit	LOQ	LOD	
C22:6 Doc	osahexaenoic Omega 3		38.06	%	0.02		
	acosanoic (Lignoceric)		<0.02	%	0.02		
	acosenoic (Nervonic)		<0.02	%	0.02		
	lega 3 Isomers		39.37	%	0.05		
	nega 6 Isomers		7.52	%	0.05		
	s Triglycerides		92.31	%	0.1		
	Acids Calc.		88.42	%	0.1		
	unsaturated Fatty Acids		1.25	%	0.05		
	insaturated Fatty Acids		46.96	%	0.05		
the first first state in	ated Fatty Acids		40.22	%	0.05		
		thod: AOCS Ca 2e-84		1920	1100		
Moisture, K			0.02	%	0.01		
	sticide screening using LC/	MS/MS in fatty food Sele				BL 13.04	-5 : 2013-08, mod
Linuron			<0.01	mg/kg	0.01		
Bromacil			< 0.01	mg/kg	0.01		
Pyrethrins			<0.1	mg/kg	0.1		
	ast-Mould E <10 >1500 /g (	(1) PCCG-P AOAC 997					
Moulds		11 000-1 HORO 331.	<10	cfu/g			
Yeast			<10	cfu/g			
	monollo D Abo Dress /05	ADAC PLANEDA					
& UMCP8 Sal Salmonella	monella D Abs Pres /25 ml			-RI 121501			
		Not De	recrea	/25 ml			
	iforms /ml AOAC 991.14	Method: AOAC 991.14	1.00				
Coliforms			<10	cfu/ml			
The content of total 24-methylenecycloa	plant sterols and plant star rtanol, and citrostadienol). eutables is 0,492 mg/100 g		olesterol an	d non-4-desm	ethyl sterols (i	.e. cycloar	tenol,
The content of total 24-methylenecycloa Amount of total GC-	rtanol, and citrostadienol). eutables is 0,492 mg/100 g		olesterol an	d non-4-desm	ethyl sterols (i	.e. cycloar	tenol,
The content of total 24-methylenecycloa Amount of total GC- ist of screened r	rtanol, and citrostadienol). eutables is 0,492 mg/100 g nolecules (* = limit of	u. quantification)	olesterol an	d non-4-desm	ethyl sterols (i	.e. cycloar	tenol,
The content of total 24-methylenecycloa Amount of total GC- ist of screened r SUS1A	rtanol, and citrostadienol). eutables is 0,492 mg/100 g	u. quantification)	(a) Aldrin (0.0		(a) Ametryne (0.02		tenol,
The content of total 24-methylenecycloa Amount of total GC- ist of screened r SUS1A ) 2-Phenylphenol (0.01) ) Arrazine (0.02)	rtanol, and citrostadienol). eutables is 0,492 mg/100 g nolecules (* = limit of Pesticide Screening(GC) (I (a) Acetochlor (0.06) (a) Berluratin (0.01)	I. quantification) LOQ* mg/kg) (a) Adom(en (0.05) (b) Billence (0.5)	(a) Aldrin (0,0 (a) Bifen5nin (	1) (0.01)	(a) Ametryne (0.02 (a) Biphenyl (0.01)	n	<ul> <li>(a) Aramite (0.04)</li> <li>(a) Bromfervinfos (0.02)</li> </ul>
The content of total 24-methylenecycloa Amount of total GC- List of screened r SUS1A a) 2-Phenybrenol (0.01) a) Atrazine (0.02) B Bromephae (0.01)	rtanol, and citrostadienol). eutables is 0,492 mg/100 g nolecules (* = limit of Pesticide Screening(GC) (I (a) Acetochlor (0.06)	yuantification) OQ* mg/kg) (a) Acionifen (0.05) (a) Bitenox (0.05) (a) Bitenox (0.05) (a) Bermoproylate (0.01) (a) Capten/TMPI (Sum calculated	(a) Aldrin (0.0	1) (0.01) (0.01)	<ul> <li>(a) Ametryne (0.0)</li> <li>(a) Biphenyl (0.01)</li> <li>(a) Butafenacil (0.1)</li> <li>(a) Carbophenothi</li> </ul>	9	(a) Aramite (0,04)
The content of total 24-methylenecycloa Amount of total GC- ist of screened r SUS1A ) 2-Phenylphenol (0.01) ) Arrazime (0.02) ) Bromophae (0.01) ) Bromophae (0.01) ) Chlorbenalde (0.06)	rtanol, and citrostadienol). eutables is 0,492 mg/100 g nolecules (* = limit of Pesticide Screening(GC) (l (a) Acetochlor (0.06) (a) Banturain (0.01) (a) Barturain (0.01) (a) Captan (0.06) (b) Chlordene (Sum) ()	Auguantification) LOQ* mg/kg) (a) Aclorifen (0.05) (a) Brenoropylate (0.01) (a) Captan/THPI (Sum calculated as Captan) () (a) Chordenaalpha (0.01)	<ul> <li>(a) Aldrin (0.0</li> <li>(a) Bilrenhrini (a) Bulachlor (a) Carbopher</li> <li>(a) Chlordane</li> </ul>	1) (0.01) (0.01) nathion (0.05) . germme (0.01)	<ul> <li>(a) Ametryne (0.0)</li> <li>(a) Biphenyl (0.01)</li> <li>(a) Sutafenacil (0.1)</li> <li>(a) Carbophenothi (0.05)</li> <li>(a) Chlorfenapyr (1)</li> </ul>	7) 31) 2n-methyl 2.05)	(a) Aramite (0.04) (a) Bromfervinfos (0.02) (a) Caduados (0.02) (a) Carboxin (0.06) (a) Chlorfenson (0.05)
The content of total 24-methylenecycloa Amount of total GC- ist of screened r SUS1A ) 2-Phenychenol (0.01) ) Atrazime (0.02) ) Bromphas (0.01) ) Captafol (0.06) ) Chlorbenside (0.06) ) Chlorbenside (0.06)	rtanol, and citrostadienol). eutables is 0,492 mg/100 g nolecules (* = limit of Pesticide Screening(GC) (I (a) Acetochlor (0.06) (a) Bromophos-athyl (0.01) (a) Capter (0.06)	quantification)           LOQ* mg/kg)           (a) Actonitor (0.55)           (a) Birency (0.65)           (a) Bromopropylate (0.01)           (a) Coptan/TMPI (Sum calculated as Captan ()	<ul> <li>(a) Aldrin (0.0)</li> <li>(a) Bifenðnin j</li> <li>(a) Bulæchlor (a) Carbopher</li> </ul>	1) (0.01) (0.01) nathion (0.05) . gamme (0.01) (0.01)	(a) Ametryne (0.0) (a) Biphenyl (0.01) (a) Butatenaci (0.1 (a) Carbophenoth) (0.05)	7) 31) on-methyl (0,01)	(a) Avamite (0,04) (a) Bromtenventos (0.02) (a) Cadusafos (0.02) (a) Carboxin (0.05)
The content of total 24-methylenecycloa Amount of total GC- ist of screened r SUS1A ) 2-Phenylphenol (0.01) ) Atrazine (0.02) B Bromsphas (0.01) ) Colorbenside (0.05) ) Chlortenside (0.05) ) Chlortenside (0.01)	rtanol, and citrostadienol). eutables is 0,492 mg/100 g nolecules (* = limit of Pesticide Screening(GC) (I (a) Acetochlor (0.06) (a) Bermophos-athyl (0.01) (a) Scromophos-athyl (0.01) (b) Captar (0.06) (c) Chlormephos (0.05)	Quantification)           OQ* mg/kg)           (a) Actorifier (0.05)           (a) Birmopropylate (0.01)           (a) Birmon/TMPI (Sum calculated as Captan) ()           (a) Chlordane. alpha (0.01)           (a) Chlordane. John (0.01)           (a) Chlordane. John (0.01)	<ul> <li>(a) Aldrin (0.0</li> <li>(a) Bifenthrin ;</li> <li>(a) Sullachlor ;</li> <li>(a) Carbopher</li> <li>(a) Chlordane</li> <li>(a) Chlordane</li> </ul>	1) (0.01) (0.01) nathion (0.05) , gamma (0.01) (0.01) (0.05)	<ul> <li>(a) Ametyne (0.02</li> <li>(b) Biphenyl (0.01)</li> <li>(a) Gutarencel (0.10)</li> <li>(a) Carbophanothi (0.05)</li> <li>(a) Chlorfenapyr (1</li> <li>(a) Chlorfenapyr (1</li> <li>(a) Chlorfeninate (0</li> <li>(a) Cyhelothinn, lar</li> </ul>	7) )1) ).05) a (0,01) .02) http://www.second.org/ .02)	(a) Aramite (0.04) (a) Bromfenvinfos (0.02) (a) Cadusafos (0.02) (a) Carboxin (0.06) (a) Chlorfenson (0.05) (a) Chlorfenson (0.05)
The content of total 24-methylenecycloa Amount of total GC- ist of screened r SUS1A ) 2-Phenylphenol (0.01) ) Arrazime (0.02) ) Bromophae (0.01) ) Bromophae (0.05) ) Chlorbenside (0.06) ) Chlorbenside (0.06) ) Chlorbenside (0.01) ) Chlorpyrifac (-ethyl) (0.01) ) Chlorpyrifac (-ethyl) (0.01) ) Chlorpyrifac (0.02)	rtanol, and citrostadienol). eutables is 0,492 mg/100 g nolecules (* = limit of Pesticide Screening(GC) (l (a) Acetochlor (0.06) (a) Bantlurain (0.01) (a) Bornophos-stlyr (0.01) (b) Chlordane (Sum) (1 (c) Chlordane (Sum) (1 (c) Chlormenhos (0.05) (c) Chlorgence (0.05) (c) Chlorgence (0.05) (c) DDD, e.p. (0.01) (c) DDD, e.p. (0.01)	() (a) Actorifer (0.05) (a) Branox (0.05) (a) Branox (0.05) (a) Branox (0.05) (a) Branox (0.05) (a) Branox (0.01) (a) Captan T/HPI (Sum calculated as Captan () (a) Chlorobenzilate (0.01) (a) Chlorobenzilate (0.01) (a) Chlorobenzilate (0.01) (a) Chlorobenzilate (0.01) (a) Chlorobenzilate (0.01) (b) Chlorobenzilate (0.01) (c) Cyanophos (0.02) (c) DDD, p.p- (0.01)	<ul> <li>(a) Aldrin (0.0</li> <li>(a) Bifenbrini)</li> <li>(a) Biskehler (a) Carbopher</li> <li>(a) Chlorndane</li> <li>(a) Chlorndane</li> <li>(a) Chlorndane</li> <li>(a) Chlorndane</li> <li>(a) Chlorndane</li> <li>(a) Chlorndane</li> <li>(b) Chlorndane</li> <li>(b) Chlorndane</li> <li>(c) Chlorndane</li> <li>(c</li></ul>	1) (0.01) (0.01) nathion (0.05) , gamma (0.01) (0.05) (0.05) (0.05) (0.01)	<ul> <li>(a) Amatyne (0,0)</li> <li>(a) Biphenyl (0,0)</li> <li>(b) Gatsphenoth (0,05)</li> <li>(a) Chlorspropyte (a) Chlorspropyte (a) Chlorspropyte (a) Chlorspropyte (b) (b) (c) (c) (c) (c) (c) (c) (c) (c) (c) (c</li></ul>	() )1) ).05) a (0,01) nbda-(incl. mma-) (0.01) 1)	<ul> <li>(a) Aramite (0.04)</li> <li>(b) Bromfervinfos (0.02)</li> <li>(a) Cadusafos (0.02)</li> <li>(a) Cafusafos (0.05)</li> <li>(a) Chlordenson (0.05)</li> <li>(a) Chlorabteloni (0.01)</li> <li>(a) Crutomate (0.05)</li> <li>(a) Cypermethnin (0.05)</li> <li>(a) DDT (Sum) ()</li> </ul>
The content of total 24-methylenecycloa Amount of total GC- ist of screened r SUS1A ) 2-Pheny(brend (0,01) ) Atrazine (0,02) B Bromisphae (0,01) ) Chlorotenside (0,06) ) Chlorotenside (0,06) ) Chlorotenside (0,01) ) Chlorotenside (0,01) ) Chlorotenside (0,02) ) Dhazine (0,02) ) Dynazine (0,02) ) Dynazine (0,02) ) Dynazine (0,02) ) Dynazine (0,02)	rtanol, and citrostadienol). eutables is 0,492 mg/100 g nolecules (* = limit of Pesticide Screening(GC) (I (a) Acetachlar (0.06) (a) Benfuraln (0.01) (a) Bromophos-sthyl (0.01) (b) Capter (0.06) (c) Chlorophos-sthyl (0.01) (c) Capter (0.06) (c) Chlorophos-sthyl (0.01) (c) Chlorophos-sthyl (0.01) (c) Chlorophos-sthyl (0.01) (c) Cyanofenphos (0.05) (c) DDD, o.p. <sup>c</sup> (0.01) (c) DDD, o.p. <sup>c</sup> (0.01) (c) DDD, o.p. <sup>c</sup> (0.01) (c) DDD, o.p. <sup>c</sup> (0.01) (c) DDT, o.p. <sup>c</sup> (0.01) (c) DT, o.p. <sup>c</sup> (0.01) (	quantification)           LOQ* mg/kg)           (a) Actoniton (0.05)           (a) Biranov (0.05)           (a) Biranov (0.05)           (a) Bromopropylate (0.01)           (a) CoptanTHPI (Sum calculated as Captan) ()           (a) Chlordnane, alpina (0.01)           (b) Chlordnane, alpina (0.01)           (c) Chlordnane, alpina (0.02)	<ul> <li>(a) Aldrin (0,0)</li> <li>(a) Bifenshrin (a)</li> <li>(a) Sutschlor</li> <li>(a) Carbopher</li> <li>(a) Chloraneb</li> <li>(a) Chloraneb</li> <li>(a) Chloraneb</li> <li>(a) Chloraneb</li> <li>(a) Cylluthrin (a)</li> </ul>	1) (0.01) (0.01) (0.05) (0.05) (0.05) (0.05) (0.05) (0.01) (0.05)	<ul> <li>(a) Ametryne (0.0)</li> <li>(a) Biphenyl (0.01)</li> <li>(a) Eutafenaci (0.1)</li> <li>(a) Carbophenothi (0.05)</li> <li>(a) Chlorfenapyr (1</li> <li>(a) Chlorpropylat</li> <li>(a) Chlorgenopylat</li> <li>(a) Chlozolinate (0</li> <li>(a) Cyhalettinn, ga Cyhalothnn, ga</li> </ul>	7) 11) 10.05) 10.05) 10.02) mma-) (0.01) 1) 10.02)	(a) Aramite (0,04) (a) Eromterivintos (0,02) (a) Cadusatos (0,02) (a) Catoxin (0,06) (a) Chlortenson (0,05) (a) Chlortenson (0,05) (a) Crutomate (0,05) (a) Crypermethrin (0,05)
The content of total           24-methylenecycloa           Amount of total GC-           ist of screened r           SUS1A           1) 2-Pnenykphenol (0.01)           1) 3-Pnenykphenol (0.01)           1) 3-Prazine (0.02)           1) Bromophae (0.01)           1) Bromophae (0.05)           1) Chlortenside (0.06)           1) Chlortenside (0.07)           1) Chlortenside (0.07)           1) Chlortenside (0.02)           1) Chlortenside (0.05)           1) DDT, o.p-(0.01)           1) Dichlorobenzophenone o.p' (0.02)	rtanol, and citrostadienol). eutables is 0,492 mg/100 g nolecules (* = limit of Pesticide Screening(GC) (I (a) Acetochlor (0.06) (a) Bertmanin (0.01) (a) Bromophos-athyl (0.01) (a) Chlornephos (0.05) (a) Chlornephos (0.05) (b) Chlornephos (0.05) (c) Chlornephos (0.05) (c) Chlornephos (0.05) (c) DDD, c, p <sup>2</sup> -(0.01) (c) DDD, c, p <sup>2</sup> -(0.01) (c) DDD, c, p <sup>2</sup> -(0.01)	action file           OQ* mg/kg)           (a) Actorifien (0.05)           (a) Biranox (0.05)           (a) Biranox (0.05)           (a) Bromopropylate (0.01)           (a) Chlordner, alpha (0.01)           (a) DD, p.p <sup>2</sup> (0.01)           (a) Delta p.p <sup>2</sup> (0.01)	<ul> <li>(a) Aldrin (0.0</li> <li>(a) Bifenônin ().0</li> <li>(a) Eulechlor (</li> <li>(a) Carbopher</li> <li>(a) Chloranab</li> <li>(a) Chloranab</li> <li>(a) Chloranab</li> <li>(a) Chloranab</li> <li>(a) Chloranab</li> <li>(b) Chloranab</li> <li>(c) Chloranab</li> <li>(c)</li></ul>	1) (0.01) (0.01) nathion (0.05) (0.01) (0.05) (0.05) (0.05) (0.01) (0.05) (0.05)	<ul> <li>(a) Ametryne (0.07)</li> <li>(a) Biphenyl (0.07)</li> <li>(b) Sutafenaci (0.01)</li> <li>(c) Carbophenothi (0.05)</li> <li>(a) Chlordenapyr (1</li> <li>(a) Chlorgopylat</li> <li>(a) Chlozolinate (0</li> <li>(c) Chlozolinate</li></ul>	1) 11) 10.05) a (0.01) (0.01) mma-) (0.01) 1) (0.02) )	(a) Aramite (0.04) (a) Bromfervinfos (0.02) (a) Cadusafos (0.02) (a) Carboxin (0.06) (a) Chlordesoni (0.05) (a) Chlordeslonil (0.01) (a) Crufomate (0.05) (a) Cypermethnin (0.05) (a) DDT (Sum) () (b) DDf (Sum) () (c) DDT (Sum) ()
The content of total 24-methylenecycloa Amount of total GC- ist of screened r SUS1A <sup>(1)</sup> 2-Pnenylphenol (0.01) <sup>(1)</sup> Arrazine (0.02) <sup>(1)</sup> Bromophae (0.01) <sup>(1)</sup> Chlortbenalde (0.06) <sup>(1)</sup> Chlortbenalde (0.06) <sup>(1)</sup> Chlortbenalde (0.06) <sup>(1)</sup> Chlortbenalde (0.06) <sup>(1)</sup> Chlortbenalde (0.06) <sup>(1)</sup> Chlortbenalde (0.05) <sup>(1)</sup> Chlortbenzohenone o.p' <sup>(1)</sup> (0.02) <sup>(1)</sup> Dichylforobenzohenone o.p' <sup>(1)</sup> Dichylforobenzohenone o.p' <sup>(1)</sup> Dichylforobenzohenone o.p' <sup>(1)</sup> Dichylforobenzohenone o.p' <sup>(1)</sup> Dichylforobenzohenone (0.05) <sup>(1)</sup> Dicaytion (0.05)	rtanol, and citrostadienol). eutables is 0,492 mg/100 g nolecules (* = limit of Pesticide Screening(GC) (l (a) Acetochler (0.06) (b) Benfluraln (0.01) (c) Capter (0.06) (c) Chlordens (50m) (1) (c) Capter (0.06) (c) Chlorydrow-methy (0.01) (c) Chlorydrow-methy (0.01) (c) Chlorydrow-methy (0.01) (c) Chlorydrow-methy (0.01) (c) DDD, c,p^-(0.01) (c) DDD, c,p^-(0.01) (c) DDD, c,p^-(0.01) (c) Dieldnobenzophenone p,p' (0.02) (c) Dieldno (0.02) (c) Dieldno (0.02)	quantification)           LOQ* mg/kg)           (a) Actorific (0.05)           (b) Bifmox (0.05)           (a) Bromopropulate (0.01)           (a) CoptanT/HPI (Sum calculated as Captan) ()           (a) Chlordane, alpha (0.01)           (a) Chlordane, alpha (0.01)           (a) Chlordane, olpha (0.01)           (a) Chlordane, olpha (0.01)           (a) Chlordane, olpha (0.01)           (a) Chlordane, olpha (0.02)           (a) DDD, p.p <sup>2</sup> (0.01)           (a) Deliboros (0.05)           (a) Dichloros (0.05)           (a) Dichloros (0.05)           (a) Ediforqhas (0.02)	<ul> <li>(a) Aldrin (0.0)</li> <li>(a) Bifenžnin ().</li> <li>(a) Carbopher</li> <li>(a) Carbopher</li> <li>(a) Chloradae.</li> <li>(a) Chloradae.</li> <li>(a) Chloradae.</li> <li>(a) Chloradae.</li> <li>(b) Chloradae.</li> <li>(a) DDE, a,b<sup>+</sup>.</li> <li>(a) Dichlosoni</li> <li>(a) Dickonol.</li> <li>(a) Dickonol.</li> <li>(a) Dickonol.</li> <li>(a) Dickonol.</li> <li>(a) Dickonol.</li> <li>(a) Dickonol.</li> </ul>	1) (0.01) nathion (0.05) , gamme (0.01) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05)	<ul> <li>(a) Ametryne (0.02)</li> <li>(a) Biphenyl (0.01)</li> <li>(a) Eutafenacil (0.1)</li> <li>(a) Carbophenothi</li> <li>(a) Chlorspropylet</li> <li>(a) Chlorspropylet</li> <li>(b) Chlozolimate (0</li> <li>(c) Chloz</li></ul>	1) 11) no-methyl 1005 1004 1001 1000 100	<ul> <li>(a) Aramite (0.04)</li> <li>(a) Bromferivinfos (0.02)</li> <li>(a) Caduados (0.02)</li> <li>(a) Caduados (0.05)</li> <li>(a) Chlordenson (0.05)</li> <li>(a) Chlordenson (0.05)</li> <li>(a) Crutomate (0.05)</li> <li>(a) Curtomate (0.05)</li> <li>(a) Curtomate (0.05)</li> <li>(a) DDT (Sum) ()</li> <li>(a) Dichlofluania (0.02)</li> <li>(a) Dicodel o, p<sup>2</sup> (0.02)</li> <li>(a) Dicodel puzzlos (0.02)</li> <li>(a) Enclosulfan, bata- (0.05)</li> </ul>
The content of total 24-methylenecycloa Amount of total GC- ist of screened r SUS1A 1 2-Phenylphenol (0.01) 1 Arrazine (0.02) 1 Bromsphose (0.01) 1 Chlorbenalde (0.06) 1 Chlortenwinphos (0.01) 1 Chlortenwinphos (0.01) 1 Chlortenside (0.05) 1 Chlortensphosen o, ethyl (0.01) 1 Chlortensphosen o, ethyl (0.01) 1 Dichlorbenzophenone o, p' (0.02) 1 Dicold, p,p-(0.02) 1 Dicold, p,p-(0.02) 1 Dicolda, p,p-(0.02) 1 Entosoullar, sulfat-(0.02) 1 Entosoullar, sulfat-(0.02)	rtanol, and citrostadienol). eutables is 0,492 mg/100 g nolecules (* = limit of Pesticide Screening(GC) (l (a) Acetochlor (0.06) (a) Bentluraln (0.01) (a) Bromophos-shyt (0.01) (b) Chlorpyrfos-methy (0.01) (c) Capter (0.06) (a) Chlorpyrfos-methy (0.01) (c) Cyanolenphos (0.05) (c) DDD, c.p. <sup>2</sup> (0.01) (c) DD, c.p	cuantification)     (a) Actonifer (0.05)     (a) Bromopropylate (0.01)     (a) Bromopropylate (0.01)     (a) Bromopropylate (0.01)     (a) Colordnan, alpha (0.01)     (a) Chlordnan, alpha (0.02)     (a) DDD, p.p <sup>1</sup> (0.01)     (a) Celtamatrix (0.05)     (a) Dichlorvas (0.05)     (a) Edifonghas (0.02)     (a) Fenh (0.35)     (a) Fenh (0.35)	<ul> <li>(a) Aldrin (0,0)</li> <li>(a) Bifenthrin (a)</li> <li>(a) Carbopher</li> <li>(a) Carbopher</li> <li>(a) Chlortane</li> <li>(a) Chlortane</li> <li>(a) Chlortane</li> <li>(a) Chlortane</li> <li>(a) Dichlobern (i</li> <li>(a) Dichlobern (i</li> <li>(a) Ehcalkrun (i</li> <li>(b) Ehcalkrun (i</li> <li>(b) Ehcalkrun (i</li> <li>(c) Ehcalkrun (i</li> &lt;</ul>	1) (0.01) (0.01) (0.01) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.02) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.05) (0.05) (0.05) (0.05) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.05) (0	<ul> <li>(a) Ametryne (0.02)</li> <li>(a) Biphenyl (0.01)</li> <li>(b) Sutafenaci (0.)</li> <li>(c) Carbophenothi (0.05)</li> <li>(c) Chloropropylat</li> <li>(c) Chlozolinate (0</li> <li>(c) Endosulfan (0.0)</li> <li>(c) Endosulfan (0.0)</li> <li>(c) Enchlorphos (c)</li> </ul>	() )1) on-methyl ).05) (0,01) (0,02) mma-) (0,01) 1) (0,02) ) 5) ohe- (0,05) vision (0,01)	<ul> <li>(a) Aramite (0.04)</li> <li>(a) Eromfenventos (0.02)</li> <li>(a) Carboxin (0.05)</li> <li>(a) Chloretnatoni (0.05)</li> <li>(a) Chloretnatoni (0.01)</li> <li>(a) Crutomate (0.05)</li> <li>(a) Crutomate (0.05)</li> <li>(a) Crutomate (0.05)</li> <li>(a) DDT (Sum) ()</li> <li>(a) Dichlefluanid (0.02)</li> <li>(a) Dicksbenzofos (0.02)</li> <li>(a) Eridiazale (0.02)</li> <li>(a) Eridiazale (0.02)</li> <li>(a) Eridiazale (0.02)</li> <li>(a) Eridiazale (0.02)</li> </ul>
The content of total 24-methylenecycloa Amount of total GC- ist of screened r SUS1A 1 2-Phenylphenol (0.01) 1 Arrazine (0.02) 1 Bromsphose (0.01) 1 Chlorbenalde (0.06) 1 Chlortenwinphos (0.01) 1 Chlortenwinphos (0.01) 1 Chlortenside (0.05) 1 Chlortensphosen o, ethyl (0.01) 1 Chlortensphosen o, ethyl (0.01) 1 Dichlorbenzophenone o, p' (0.02) 1 Dicold, p,p-(0.02) 1 Dicold, p,p-(0.02) 1 Dicolda, p,p-(0.02) 1 Entosoullar, sulfat-(0.02) 1 Entosoullar, sulfat-(0.02)	rtanol, and citrostadienol). eutables is 0,492 mg/100 g nolecules (* = limit of Pesticide Screening(GC) (I (a) Acetochicr (0.06) (a) Bertmanin (0.01) (a) Bromophos-athyt (0.01) (b) Chlornephos (0.05) (c) Chlornephos (0.05) (c) Chlornephos (0.05) (c) Chlornephos (0.05) (c) Chlornephos (0.05) (c) Chlornephos (0.05) (c) DDD, p,5-(0.01) (c) DDD, p,5-(0.01) (c) Dickloroberzophenone p,p' (0.02) (c) Diekloroberzophenone p,p' (0.02) (c) Diekloroberzophenone p,p' (c) Diekloroberzophenone p,p' (c) Diekloroberzophenone (0.01) (c) Diekloroberzo	action file           COQ* mg/kg)           (a) Actorifien (0.55)           (a) Biranox (0.55)           (a) Biranox (0.55)           (a) Biranox (0.55)           (a) Bornoperopylate (0.01)           (a) Cohordoneziate (0.01)           (a) Chlordoneziate (0.01)           (a) Dolb, p.p^2 (0.01)           (a) Delbory (0.05)           (b) Dichlorvos (0.05)           (a) Dieldnin (Sum) ()           (a) ERN (0.05)	<ul> <li>(a) Aldrin (0.0)</li> <li>(a) Bifenöhrin (</li> <li>(a) Sulashlor (</li> <li>(a) Carbopher</li> <li>(a) Chlortaneb</li> <li>(a) Chlortaneb</li> <li>(a) Chlortaneb</li> <li>(a) Chlortaneb</li> <li>(a) DDE, n,p<sup>1</sup>-</li> <li>(a) Dichlobeni</li> <li>(a) Dichlobeni</li> <li>(a) Dichlobeni</li> <li>(a) Dichlobeni</li> <li>(a) Dichlobeni</li> <li>(a) Dichlobeni</li> <li>(b) Endosulfar</li> </ul>	1) (0.01) (0.01) (0.01) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.02) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.05) (0.05) (0.05) (0.05) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.05) (0	<ul> <li>(a) Ametryne (0.0)</li> <li>(a) Biphenyl (0.01)</li> <li>(b) Carbophenothi (0.05)</li> <li>(c) Chlorfenapyr (10)</li> <li>(c) Chlorpropylati</li> <li>(a) Chlordenthin, ga</li> <li>(a) DDE, p,p<sup>1</sup>- (0.0)</li> <li>(a) Dicolol (Sum) (10)</li> <li>(a) Endosuffan, aja</li> <li>(a) Entoin (0.02)</li> <li>(a) Fenchlorphoz</li> <li>(a) Fenchlorphoz</li> <li>(a) Fenchlorphoz</li> <li>(a) Fenchlorphoz</li> <li>(b) Fenchlorphoz</li> <li>(c) Fenchlorphoz</li> <li>(c) Fenchlorphoz</li> <li>(c) Fenchlorphoz</li> <li>(c) Fenchlorphoz</li> <li>(c) Fenchlorphoz</li> </ul>	() (),05) ((),01) ((),01) (0,02) mbda-(inol, mma-) ((),01) ((),02) () () () () () () () () () (	(a) Aramite (0.04) (a) Bromferivinfos (0.02) (a) Caducafos (0.02) (a) Carboxin (0.06) (a) Chlorfenson (0.05) (a) Chlorfenson (0.05) (a) Chlorfenson (0.05) (a) Chlorfenson (0.05) (a) Dichlofluania (0.02) (a) DDT (Sum) (1 (b) Dichlofluania (0.02) (a) Dichlofluania (0.02) (a) Dichlofluania (0.02) (a) Dicadel o,op- (0.02) (a) Endosuffen, beta- (0.05) (a) Erdiozele (0.02)
The content of total 24-methylenecycloa Amount of total GC- ist of screeened r SUS1A <sup>(1)</sup> 2-Pneny(phenol (0.01) <sup>(1)</sup> Arrazine (0.02) <sup>(1)</sup> Chlorbenalde (0.06) <sup>(1)</sup> Chlorbenalde (0.06) <sup>(1)</sup> Chlorbenalde (0.06) <sup>(1)</sup> Chlorbenalde (0.06) <sup>(1)</sup> Chlorbenalde (0.06) <sup>(1)</sup> Chlorbenalde (0.06) <sup>(1)</sup> Chlorbenalde (0.01) <sup>(1)</sup> Chlorbenalde (0.02) <sup>(1)</sup> Chlorbenable (0.01) <sup>(1)</sup> Chlorbenable (0.01) <sup>(1)</sup> Chlorbenable (0.01) <sup>(1)</sup> Dichlorbenabensphenone o.p' <sup>(1)</sup> (0.02) <sup>(1)</sup> Dicklorbenabensphenone o.p' <sup>(1)</sup> (0.02) <sup>(1)</sup> Ethrofis (0.02) <sup>(1)</sup> Ethrofis (0.02) <sup>(1)</sup> Ethrofis (0.02)	rtanol, and citrostadienol). eutables is 0,492 mg/100 g nolecules (* = limit of Pesticide Screening(GC) (l (a) Acetochlor (0.06) (a) Bentluraln (0.01) (a) Bromophos-shyt (0.01) (b) Chlorpyrfos-methy (0.01) (c) Capter (0.06) (a) Chlorpyrfos-methy (0.01) (c) Cyanolenphos (0.05) (c) DDD, c.p. <sup>2</sup> (0.01) (c) DD, c.p	cuantification)     (a) Actonifer (0.05)     (a) Bromopropylate (0.01)     (a) Bromopropylate (0.01)     (a) Bromopropylate (0.01)     (a) Colordnan, alpha (0.01)     (a) Chlordnan, alpha (0.02)     (a) DDD, p.p <sup>1</sup> (0.01)     (a) Celtamatrix (0.05)     (a) Dichlorvas (0.05)     (a) Edifonghas (0.02)     (a) Fenh (0.35)     (a) Fenh (0.35)	<ul> <li>(a) Aldrin (0,0)</li> <li>(a) Bifenthrin (a)</li> <li>(a) Carbopher</li> <li>(a) Carbopher</li> <li>(a) Chlortane</li> <li>(a) Chlortane</li> <li>(a) Chlortane</li> <li>(a) Chlortane</li> <li>(a) Dichlobern (i</li> <li>(a) Dichlobern (i</li> <li>(a) Ehcalkrun (i</li> <li>(b) Ehcalkrun (i</li> <li>(b) Ehcalkrun (i</li> <li>(c) Ehcalkrun (i</li> &lt;</ul>	1) (0.01) (0.01) (0.01) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.01) hoc (sum)() 0.02)	<ul> <li>(a) Ametryne (0.02)</li> <li>(a) Biphenyl (0.01)</li> <li>(b) Sutafencol (0.1)</li> <li>(a) Carbophenothi (0.05)</li> <li>(a) Chloropropylat</li> <li>(b) Chloropropylat</li> <li>(c) Chlozolinate (0</li> <li>(a) Dick pip<sup>1</sup> (0.0</li> <li>(a) Dick pip<sup>1</sup> (0.0</li> <li>(a) Dickolofenthion</li> <li>(a) Dickolofenthion</li> <li>(b) Dicobular, alg</li> <li>(a) Ethion (0.02)</li> <li>(a) Fernoklarphoet</li> <li>(a) Fernoklarphoet</li> <li>(a) Fernoklarphoet</li> <li>(a) Fernoklarphoet</li> </ul>	() (), 005) ((), 011) ((), 011) ((), 021) ((), 021	<ul> <li>(a) Aramite (0.04)</li> <li>(a) Eromferivinfos (0.02)</li> <li>(a) Caduados (0.02)</li> <li>(a) Carboxin (0.05)</li> <li>(a) Chlordbaloni (0.01)</li> <li>(a) Cridorabtaloni (0.01)</li> <li>(a) Cridornate (0.05)</li> <li>(a) Dichloffuania (0.02)</li> <li>(a) Dichloffuania (0.02)</li> <li>(a) Dicotol, e.p- (0.02)</li> <li>(a) Dicotol e.02)</li> <li>(a) Eindoruffan, bata- (0.05)</li> <li>(a) Eridiazole (0.02)</li> <li>(a) Eridiazole (0.02)</li> <li>(b) Fenñuthrin (0.01)</li> <li>(a) Eridiazole (0.02)</li> </ul>
The content of total 24-methylenecycloa Amount of total GC- ist of screeened r SUS1A <sup>(1)</sup> 2-Pneny(phenol (0.01) <sup>(1)</sup> Arrazine (0.02) <sup>(1)</sup> Chlorbenalde (0.06) <sup>(1)</sup> Chlorbenalde (0.06) <sup>(1)</sup> Chlorbenalde (0.06) <sup>(1)</sup> Chlorbenalde (0.06) <sup>(1)</sup> Chlorbenalde (0.06) <sup>(1)</sup> Chlorbenalde (0.06) <sup>(1)</sup> Chlorbenalde (0.01) <sup>(1)</sup> Chlorbenalde (0.02) <sup>(1)</sup> Chlorbenable (0.01) <sup>(1)</sup> Chlorbenable (0.01) <sup>(1)</sup> Chlorbenable (0.01) <sup>(1)</sup> Dichlorbenabensphenone o.p' <sup>(1)</sup> (0.02) <sup>(1)</sup> Dicklorbenabensphenone o.p' <sup>(1)</sup> (0.02) <sup>(1)</sup> Ethrofis (0.02) <sup>(1)</sup> Ethrofis (0.02) <sup>(1)</sup> Ethrofis (0.02)	rtanol, and citrostadienol). eutables is 0,492 mg/100 g molecules (* = limit of Pesticide Screening(GC) (l (a) Acetochlor (0.06) (a) Benfluraln (0.01) (a) Bromochos-athyt (0.01) (b) Chloradane (Sum) (1) (c) Capter (0.06) (a) Chloradane (Sum) (1) (c) Cyanofenghas (0.05) (c) DDD, p,p-(0.01) (c) DDD, p,p-(0.01) (c) Dieldnio (0.05) (c) Dieldnio (0.05) (c) Fengropathin (0.02) (c) Fengropathin (0.02)	uantification)           LOQ* mg/kg)           (a) Actonifien (0.05)           (b) Biranox (0.05)           (a) Biranox (0.05)           (a) Biranox (0.05)           (a) Chorberzylate (0.01)           (a) Chlordene. alpha (0.02)           (b) DDD, p.p² (0.01)           (a) Delatomatinin (0.05)           (b) Dielden (Sum) ()           (a) Eledinghas (0.02)           (b) Dielden (Sum) ()           (c) Fenchlorphos (0.02)           (a) Fenson (0.02)	<ul> <li>(a) Aldrin (0,0)</li> <li>(a) Bifenthinn ()</li> <li>(a) Carbopher</li> <li>(a) Carbopher</li> <li>(a) Chloradae,</li> <li>(a) Chloradae,</li> <li>(a) Chloradae,</li> <li>(a) Chloradae,</li> <li>(a) Chloradae,</li> <li>(b) Dick a, p<sup>1</sup>-</li> <li>(a) Enchlorp ()</li> <li>(a) Fenthlorp ()</li> </ul>	1) (0.01) (0.01) (0.01) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.01) hoc (sum)() 0.02)	<ul> <li>(a) Ametryne (0.02)</li> <li>(a) Biphenyl (0.01)</li> <li>(a) Sutafenaci (0.1)</li> <li>(a) Carbophenothi (0.05)</li> <li>(a) Chlorspropyldt</li> <li>(a) Chlozolinate (0</li> <li>(b) Chlozolinate (10)</li> <li>(c) Chlozolinate (10)</li> </ul>	() (), 005) ((), 011) ((), 011) ((), 021) ((), 021	<ul> <li>(a) Aramite (0.04)</li> <li>(a) Bromfervinfos (0.02)</li> <li>(a) Caduados (0.02)</li> <li>(a) Carboxin (0.05)</li> <li>(a) Chlordenson (0.05)</li> <li>(a) Chlorate (0.05)</li> <li>(a) Curtomate (0.05)</li> <li>(a) Curtomate (0.05)</li> <li>(a) Curtomate (0.05)</li> <li>(a) DDT (Sum) ()</li> <li>(a) Dichlofiuani (0.02)</li> <li>(a) Dictol. o,p'- (0.02)</li> <li>(a) Endosuffan, beta- (0.05)</li> <li>(a) Eridiazele (0.02)</li> <li>(a) Fentylemin (0.01)</li> <li>(a) Fentylemin &amp; Elfentyalenste( aum of RR,SS,R6,SR) ()</li> </ul>
The content of total 24-methylenecycloa Amount of total GC- ist of screened r SUS1A ) 2-Phenylphenol (0,01) ) Atrazime (0,02) Bromsphos (0,01) ) Chlorbenalde (0,05) ) DDT, o,p'- (0,01) ) DDT, o,p'- (0,02) ) Dichlorbenaphenone o,p' (0,02) ) Dichlor, p,p- (0,02) ) Dichlorbenaphenone o,p' (0,02) ) Dichlorbenaphenone o,p' (0,02) ) Dichlorbenaphenone o,p' (0,02) ) Erdosultion (0,02) ) Ferivalerate & Estenvalerate (0,02) ) Ferivalerate & Estenvalerate (0,02)	And citrostadienol).           eutables is 0,492 mg/100 g           nolecules (* = limit of           Pesticide Screening(GC) (I           (a) Acetochlor (0.06)           (a) Bermophos-athyl (0.01)           (a) Entrophos-athyl (0.01)           (a) Chlordane (Sum) ()           (a) Chlorane (Sum) ()           (b) DDD, p,b^- (0.05)           (a) DDD, p,b^- (0.01)           (b) Dichlorobenzophenorie p,b' (0.02)           (c) Dichlorobenzophenorie (0.05)           (a) Erenamiphos (0.05)           (a) Fenpropatition (0.05)           (a) Fenpropatition (0.05)           (a) Fluchloralin (0.05)           (a) Fonofos (0.02)		<ul> <li>(a) Aldrin (0.0</li> <li>(a) Bifenshrin (</li> <li>(a) Bifenshrin (</li> <li>(a) Carbopher</li> <li>(a) Carbopher</li> <li>(a) Chloraneb</li> <li>(a) Chloraneb</li> <li>(a) Chloraneb</li> <li>(b) Dicl.opti</li> <li>(a) Dichlobeni</li> <li>(b) Diclobeni</li> <li>(a) Dichlobeni</li> <li>(b) Diclobeni</li> <li>(a) Dichlobeni</li> <li>(b) Diclobeni</li> <li>(a) Dichlobeni</li> <li>(b) Benchlorpi</li> <li>(a) Fenchlorpi</li> <li>(a) Fenchlorpi</li> <li>(a) Fenchlorpi</li> <li>(a) Flumetralir</li> <li>(a) HCB (0.01</li> </ul>	1) (0.01) (0.01) (0.01) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.01) hos (sum) () 0.02) r (0.05) (0.05)	<ul> <li>(a) Ametryne (0.0;</li> <li>(a) Biphenyl (0.01)</li> <li>(b) Carbophenothi (0.05)</li> <li>(c) Chlorfenapyr (1.05)</li> <li>(a) Chlorfenapyr (1.05)</li> <li>(a) Chlordenapyr (1.05)</li> <li>(a) Chlordenapyr (1.05)</li> <li>(a) Chlordenapyr (1.05)</li> <li>(a) Chlordenapyr (1.05)</li> <li>(a) Dicholothin, ga</li> <li>(a) Dicholot (sum) (1.05)</li> <li>(a) Dicholothin (0.02)</li> <li>(a) Etholn (0.02)</li> <li>(a) Fenchlorphos (1.07)</li> <li>(a) Fluothmazole (1.07)</li> <li>(a) HCH garma(L</li> </ul>	() )1) n-methyl ).05) (0.01) .02) mbda-(inol. mma-) (0.01) 1) (0.02) ) 5) shar-(0.05) sixon (0.01) 2.46rvalerata R Isomers) 0.01) indan) (0.01)	<ul> <li>(a) Aramite (0,04)</li> <li>(a) Eromferivinfos (0,02)</li> <li>(a) Carboxin (0,05)</li> <li>(a) Carboxin (0,05)</li> <li>(a) Chlorfenson (0,05)</li> <li>(a) Chlorfenson (0,05)</li> <li>(a) Crutomate (0,05)</li> <li>(a) Crutomate (0,05)</li> <li>(a) Crutomate (0,05)</li> <li>(a) Crutomate (0,05)</li> <li>(a) DDT (Sum) ()</li> <li>(a) Dicofol, o,p- (0,02)</li> <li>(a) Dioxebenzofos (0,02)</li> <li>(a) Dioxebenzofos (0,02)</li> <li>(a) Eindiazole (0,02)</li> <li>(a) Eindiazole (0,02)</li> <li>(a) Fenvalerate &amp; Euferwaleratel sum of RR,SS,RS, SR () ()</li> <li>(a) Floquinconazole (0,02)</li> <li>(a) HCH, alpha-(0,01)</li> </ul>
The content of total 24-methylenecycloa Amount of total GC- ist of screened r SUS1A ) 2-Phenylphenol (0,01) ) Arratine (0.02) ) Bromophos (0,01) ) Chlortownide (0,06) ) Chlortownide (0,06) ) Chlortownide (0,06) ) Chlortownion (0,05) ) Chlortownion (0,05) ) Chlortownion (0,05) ) DDT, o,p'- (0,02) ) Dortos, o,p'- (0,02) ) Dicolol, p,p'- (0,02) ) Endosuffica .ullfat- (0,02) ) Fenivation (0,0	rtanol, and citrostadienol). eutables is 0,492 mg/100 g molecules (* = limit of Pesticide Screening(GC) (I (a) Acetochor (0.06) (a) Bertmain (0.01) (a) Bromophos-athyl (0.01) (a) Captar (0.06) (a) Chlornephos (0.05) (a) Chlornephos (0.05) (b) DDD, o,p^-(0.01) (c) Colornephos (0.05) (c) DDD, o,p^-(0.01) (c) DDD, o,p^-(0.01) (c) DDD, o,p^-(0.01) (c) DDD, o,p^-(0.01) (c) DDD, o,p^-(0.01) (c) DDD, o,p^-(0.01) (c) DD, o,p^-(0.01) (c) DD, o,p^-(0.01) (c) Dehloroberzophenone p.p' (0.02) (c) Dehloroberzophenone (0.01) (c) Eventoria (0.05) (c) Fenpropathin (0.05)	actionitification)           COQ* mg/kg)           (a) Actionitien (0.05)           (a) Bitmax (0.05)           (a) Chlordnane. alpha (0.01)           (a) Chlordnane. alpha (0.01)           (a) Chlordnane. alpha (0.01)           (a) Chlordnation (0.02)           (b) DDD, p.p <sup>1</sup> (0.01)           (a) DDD, p.p <sup>1</sup> (0.01)           (b) Edifienphos (0.02)           (a) Dieldin (Sum) ()           (a) Fenchlorphos (0.02)           (a) Fulcythrinate (0.05)	<ul> <li>(a) Aldrin (0.0)</li> <li>(a) Bifenônin ()</li> <li>(a) Bifenônin ()</li> <li>(a) Carbopher</li> <li>(a) Chlordane</li> <li>(a) Chlordane</li> <li>(a) Chlordane</li> <li>(a) Chlordane</li> <li>(b) Chlobeni</li> <li>(a) DE, s.p.<sup>1</sup></li> <li>(a) DE, s.p. ()</li> <li>(a) Distochora</li> <li>(a) Distochora</li> <li>(a) Fenchlorpi</li> <li>(a) Fenchlorpi</li> <li>(a) Fenchlorpi</li> <li>(a) Flumetmilir</li> </ul>	1) (0.01) (0.01) nathion (0.05) , gamme (0.01) (0.01) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.01) n (0.01) n (0.01) n (0.01) n (0.01) n (0.05) (0.05) (0.05)	<ul> <li>(a) Ametryne (0.07)</li> <li>(a) Biphenyl (0.01)</li> <li>(b) Sutafenaci (0.01)</li> <li>(c) Carbophenothi (0.05)</li> <li>(a) Chlordenapyr (1.00)</li> <li>(c) Chlozolinate (0.00)</li> <li>(c) Fenchlorphoet (0.00)</li> <li>(c) Fenchlorphoet (0.00)</li> <li>(c) Fenchlorphoet (0.00)</li> <li>(c) Chlozolinate (0.00)</li> &lt;</ul>	() () (0,01) (0,01) (0,01) (0,02) mma-) (0,01) (0,02) () () () () () () () () () (	<ul> <li>(a) Aramite (0.04)</li> <li>(a) Bromfervinfos (0.02)</li> <li>(a) Cadusafos (0.02)</li> <li>(a) Carboxin (0.06)</li> <li>(a) Chlordeslonil (0.01)</li> <li>(a) Chlordeslonil (0.01)</li> <li>(a) Chlordeslonil (0.05)</li> <li>(a) Cypermethnin (0.05)</li> <li>(a) DDT (Sum) (1</li> <li>(a) Dichlofiuanid (0.02)</li> <li>(a) Dichlofiuanid (0.02)</li> <li>(a) Dickbenzofos (0.02)</li> <li>(a) Dickbenzofos (0.02)</li> <li>(a) Endosuffan, bata- (0.05)</li> <li>(a) Erdiazele (0.02)</li> <li>(a) Fenñutinin (0.01)</li> <li>(a) Fenñutinin (0.01)</li> <li>(a) Fenñutinin (0.01)</li> <li>(a) Fennuerate &amp; Eufenvalenstei sum of RR,SS,RE,SR) (1)</li> <li>(a) Fluquinconazole (0.02)</li> </ul>
The content of total 24-methylenecycloa Amount of total GC- ist of screened r SUS1A ) 2-Phenylphenol (0.01) ) Arazine (0.02) Bromsphae (0.01) ) Chlorbenside (0.06) ) Chlorbenside (0.06) ) Chlorbenside (0.05) ) Chlorbenside (0.01) ) Chlorbenside (0.05) ) Chlorbenside (0.02) ) Chlorbenside (0.05) ) Dicholorbenzophenome o.p <sup>1</sup> (0.02) ) Ennitrothion (0.05) Endosulfan, sulfat- (0.02) ) Ethindis (0.02) ) Fenitrathion (0.02) ) Huvilinate-tau (0.02) ) Hopschlor epoxide trans. (0.01)	rtanol, and citrostadienol). eutables is 0,492 mg/100 g nolecules (* = limit of Pesticide Screening(GC) (l (a) Acetochlor (0.06) (b) Benfluraln (0.01) (c) Capter (0.06) (c) Chloroprice-methy (0.01) (c) Chloroprice-methy (0.01) (c) Chloroprice-methy (0.01) (c) Chloroprice-methy (0.01) (c) DDD, p,b^- (0.01) (c) Deledin (0.05) (c) Fenctos (0.02) (c) Fluchloralin (0.05) (c) Fenctos (0.02) (c) HCH, delta- (0.01)	uantification)           LOQ* mg/kg)           (a) Actonifien (0.05)           (a) Bitranox (0.05)           (a) Bitranox (0.05)           (a) Bitranox (0.05)           (a) Chordonex alpha (0.01)           (a) Chlordonex (0.02)           (b) DDD, p.p <sup>2</sup> (0.01)           (a) DDD, p.p <sup>2</sup> (0.01)           (a) DDG (0.05)           (a) Dieldrin (Sum) (1)           (a) Elefonghous (0.02)           (b) Fenchlorphos (0.02)           (c) Fernson (0.02)           (a) Flucythrinate (0.05)           (a) Flucythrinate (0.05)           (a) Formothion (0.05)           (a) ACH, epsilon- (0.01)	<ul> <li>(a) Aldrin (0,0)</li> <li>(a) Bifenthinn ()</li> <li>(a) Sallachlor ()</li> <li>(a) Carbopher</li> <li>(a) Chlorabae</li> <li>(a) Chlorabae</li> <li>(a) Chlorabae</li> <li>(b) DbE a,p<sup>1</sup>-</li> <li>(a) Dichlabeni</li> <li>(b) Dichlabeni</li> <li>(a) Einachlar</li> <li>(a) Flumenthir</li> <li>(a) HcB (0,01)</li> <li>(a) HcB (0,01)</li> </ul>	1) (0.01) (0.01) (0.01) (0.05) (0.01) (0.05) (0.01) (0.01) (0.05) (0.01) (0.01) (0.02) (0.01) (0.02) (0.01) (0.01) (0.02) (0.01) (0	<ul> <li>(a) Ametryne (0.02</li> <li>(b) Biphenyl (0.01)</li> <li>(c) Sutafenaci (0.1</li> <li>(c) Carbophenothi (0.05)</li> <li>(a) Chlorspropyld</li> <li>(c) Chlozolmate (0</li> <li>(c) Chlozolmate (1</li> <li>(c) Chlozolmate (2</li> <li>(c) Chlozolmate (3</li> <li>(c) Chlozolmate (1</li> <li>(c) Chlozolmate (2</li> <li>(c) Keptachlor (5</li> <li>(c) Keptachlor (5</li> </ul>	() )1) on-methyl ).05) (0.01) (0.02) mma-) (0.01) 1) (0.02) ) 5) one-(0.05) oxan (0.01) Exformaterate R (somers) 0.01) indan) (0.01) m) (0.01) m) (0.01)	<ul> <li>(a) Aramite (0.04)</li> <li>(a) Bromfervinfos (0.02)</li> <li>(a) Caduados (0.02)</li> <li>(a) Caduados (0.02)</li> <li>(a) Caduados (0.05)</li> <li>(a) Chlordenson (0.05)</li> <li>(a) Chlorate (0.05)</li> <li>(a) Curtomate (0.05)</li> <li>(a) Curtomate (0.05)</li> <li>(a) DDT (Sum) ()</li> <li>(a) Dictolicitaria (0.02)</li> <li>(a) Dictolicitaria (0.02)</li> <li>(a) Dictolicitaria (0.02)</li> <li>(a) Eridiazale (0.02)</li> <li>(a) Eridiazale (0.02)</li> <li>(a) Fenyalerate &amp; Exfernalerate aum of RR,SS,R6,SR) ()</li> <li>(a) HCH, alpha-(0.01)</li> <li>(a) HCH, alpha-(0.01)</li> <li>(b) HCH, alpha-(0.01)</li> </ul>
The content of total 24-methylenecycloa Amount of total GC- ist of screened r SUS1A ) 2-Phenylphenol (0.01) ) Arazine (0.02) Bromphae (0.01) ) Chlorbenside (0.06) ) Chlorbenside (0.06) ) Chlorbenside (0.05) ) Chlorbenside (0.05) ) Chlorbenside (0.01) ) Chlorbenside (0.02) ) Chlorbenside (0.02) ) Chlorbenside (0.02) ) Chlorbenside (0.02) ) Dichlorbeszophenone o.p <sup>1</sup> (0.02) ) Endestigen (0.02) ) Endestigen (0.02) ) Ferivalerate & Eafenvalerate & Eafenvalerate & Eafenvalerate & Eafenvalerate & Eafenvalerate (0.02) ) Houlinter-tau (0.02) ) Houlinter-tau (0.02) ) Houlinter-tau (0.02) ) Maloxson (0.05)	And citrostadienol).           eutables is 0,492 mg/100 g           nolecules (* = limit of           Pesticide Screening(GC) (I           (a) Acetochlor (0.06)           (a) Bertmain (0.01)           (a) Bertmain (0.05)           (a) Chlorane (Sum) ()           (b) Chlorobenzophenone ().05)           (a) DDD, e,p-(0.01)           (b) Dchlorobenzophenone p,p' (0.02)           (a) Dbherylamine (0.02)           (a) Erenzphase (0.05)           (a) Feneropation (0.02)           (a) Fluchloralin (0.05)           (a) Fonofos (0.02)           (a) Kotenphos-mathyl (0.01)           (a) Isofenphos-mathyl (0.01)           (a) Matrino (0.02)	cuantification)           LOQ* mg/kg)           (a) Actoniton (0.05)           (a) Biranov (0.05)           (a) Chordnane, alpina (0.01)           (a) Chlordnane, alpina (0.02)           (a) DbD, p.p <sup>(-1</sup> (0.01))           (a) DbD, p.p <sup>(-1</sup> (0.01))           (a) DbD, p.p <sup>(-1</sup> (0.02))           (b) DbHorves (0.02)           (a) DbHorves (0.02)           (b) Elektories (0.02)           (a) Fenchlorphos (0.02)           (a) Fulcythrinate (0.05)           (a) Flucythrinate (0.05)           (a) Flucythrinate (0.02)           (a) Borothrios (0.02)           (b) Isoprothrios (0.02)           (a) Isoprothrios (0.02)           (b) Isoprothrios (0.02)           (a) Borothrios (0.02)           (b) Isoprothrios (0.02)           (b) Isoprothrios (0.02)           (b) Malathiron (Sum) ()	<ul> <li>(a) Aldrin (0.0</li> <li>(a) Bifenshrin (</li> <li>(a) Earbopher</li> <li>(a) Carbopher</li> <li>(a) Carbopher</li> <li>(a) Chloraneb</li> <li>(a) Chloraneb</li> <li>(a) Chloraneb</li> <li>(b) DEL 0,0<sup>+</sup></li> <li>(a) Dichlobeni</li> <li>(b) Dichoshoi</li> <li>(a) Dichlobeni</li> <li>(b) Dichoshoi</li> <li>(a) Dichlobeni</li> <li>(b) Del 0,0<sup>+</sup></li> <li>(a) Erdesulfar</li> <li>(a) Fenchlorp)</li> <li>(a) Flumatralir</li> <li>(a) HCB (0.01</li> <li>(a) Addresphon</li> <li>(a) Jodfenpho</li> <li>(a) Mezarbarn</li> </ul>	1) (0.01) (0.01) (0.01) (0.05) (0.05) (0.05) (0.05) (0.05) (0.01) (0.05) (0.01) (0.01) hos (sum) () 0.02) r (0.05) (0.01) hos (sum) () 0.02) r (0.05) (0.01) (0.05) (0.01) (0.05) (0.01) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.03) (0.05) (0.01) (0.05) (0.01) (0.05) (0.01) (0.05) (0.01) (0.05) (0.01) (0.05) (0.01) (0.05) (0.01) (0.05) (0.01) (0.05) (0.01) (0.05) (0.01) (0.05) (0.01) (0.05) (0.01) (0.05) (0.05) (0.01) (0.05) (0.05) (0.05) (0.05) (0.05) (0.01) (0.05) (0.05) (0.05) (0.01) (0.05) (0.01) (0.05) (0.01) (0.05) (0.01) (0.05) (0.02) (0.02) (0.02) (0.05) (0.01) (0.02) (0.0	<ul> <li>(a) Ametryne (0.02)</li> <li>(a) Biphenyl (0.01)</li> <li>(b) Carbophenothi (0.05)</li> <li>(c) Chlorfenapyr (1.05)</li> <li>(c) Chlorpropylat</li> <li>(c) Chlorpropylat</li></ul>	() )1) n-methyl ).05) (0.01) .02) mbda-(inol. mma-) (0.01) 1) (0.02) ) 5) shar-(0.05) sixon (0.01) 2.46rvalerata R Isomers) 0.01) indan) (0.01) m) () 0.02) yl (0.01)	<ul> <li>(a) Aramite (0.04)</li> <li>(b) Bromtenvintos (0.02)</li> <li>(a) Cadusafos (0.02)</li> <li>(a) Carboxin (0.05)</li> <li>(a) Chlortenson (0.05)</li> <li>(a) Chlortenson (0.05)</li> <li>(a) Chlortenson (0.05)</li> <li>(a) Crutomate (0.05)</li> <li>(a) Crytomate (0.05)</li> <li>(a) Crytomate (0.05)</li> <li>(a) Crytomate (0.02)</li> <li>(a) Diotol, o.p- (0.02)</li> <li>(a) Endosulfan, bata- (0.05)</li> <li>(a) Fenvalerate &amp; Euferwaleratel, sum of RR, SS, RS, SR (1)</li> <li>(a) Fluquinconazole (0.02)</li> <li>(a) HCH, alpha- (0.01)</li> <li>(b) Heptachlor epoxide cis (0.01)</li> <li>(a) Landm (0.02)</li> <li>(a) Landm (0.02)</li> <li>(a) Kethacriphoe (0.02)</li> </ul>
The content of total 24-methylenecycloa Amount of total GC- ist of screened r SUS1A ) 2-Phenylphenol (0,01) ) 4rratine (0,02) ) Bromophas (0,01) ) Chardsmuthors (0,01) ) Chardsmuthors (0,05) ) Chlorobumbres (0,01) ) Chlorobumbres (0,02) ) Dicoldi, p,0-(0,02) ) Dicoldi, p,0-(0,02) ) Dicoldi, p,0-(0,02) ) Dicoldi, p,0-(0,02) ) Dicoldi, p,0-(0,02) ) Endexathian (0,02) ) Fenivateriate & Estensularate (0,02) ) Hotulante-tau (0,02) ) Malaoxon (0,05) ) Malaoxon (0,05)	rtanol, and citrostadienol). eutables is 0,492 mg/100 g nolecules (* = limit of Pesticide Screening(GC) (I (a) Acetocher (0.06) (a) Bertmann (0.01) (a) Bromophos-athyt (0.01) (b) Chloradane (Sum) (1 (c) DD, c,p^- (0.01) (c) DD, c,p^- (0.01) (c) DD, c,p^- (0.01) (c) Dehloradane (0.05) (c) Fenanciphos (0.02) (c) Fenotos (0.02) (c) HCH, della- (0.01) (c) HCH, della- (0.01) (c) Hoch dellar (0.02) (c) Mathidathion (0.02) (c) Methidathion (0.02)	a)         (a)         Acionific (205)           (a)         Acionific (205)           (a)         Birancoropylate (0.01)           (a)         Birancoropylate (0.01)           (a)         Birancoropylate (0.01)           (a)         Chordnane, alpina (0.02)           (a)         Dobp, pp.= (0.01)           (a)         Delatametrin (0.05)           (a)         Dieldrin (Sum) (1)           (a)         Elefienphae (0.02)           (a)         Flaucythrinate (0.05)           (a)         Flaucythrinate (0.05)           (a)         Flaucythrinate (0.05)           (a)         Flaucythrinate (0.05)           (a)         Flaucythrinate (0.02)           (a)         Flaucythrinate (0.02)           (a)         Spatine (0.02)           (a)         Spatine (0.02)           (a)         Isoporotrise (0.02	<ul> <li>(a) Aldrin (0.0)</li> <li>(a) Bifenöhnin (</li> <li>(a) Bifenöhnin (</li> <li>(a) Carbopher</li> <li>(a) Chloraneb</li> <li>(a) Chloraneb</li> <li>(a) Chloraneb</li> <li>(a) Chloraneb</li> <li>(a) Chloraneb</li> <li>(a) Chloranelia</li> <li>(b) DE, spirit</li> <li>(a) Dieholabeni</li> <li>(a) Dieholabeni</li> <li>(a) Eindösuffar</li> <li>(a) Fenchlorpi</li> <li>(a) Fenchlorpi</li> <li>(a) Fenchlorpi</li> <li>(a) Flumetralin</li> <li>(a) Hagtachlor</li> <li>(a) Iszofos (0</li> <li>(a) Mesarbarn</li> </ul>	1) (0.01) (0.01) (0.01) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.01) (0.05) (0.05) (0.01) (0.05) (0.01) (0.02) (0.04) tachlorophenylsul	<ul> <li>(a) Ametryne (0.0)</li> <li>(a) Biphenyl (0.01)</li> <li>(b) Sutafenaci (0.1)</li> <li>(c) Chlorfenapyr (1.1)</li> <li>(c) Chlorpropylet</li> <li>(a) Chlorpropylet</li> <li>(a) Chlorpropylet</li> <li>(a) Dib, p.p<sup>1-</sup> (0.0)</li> <li>(c) Chlorofenthion, Iar Cyhalothrin, Iar Cyhalothrin, Iar Cyhalothrin, Iar Chalotherthion</li> <li>(a) Dichofenthion</li> <li>(a) Erdion (0.02)</li> <li>(a) Fenvalerate &amp; (Sum of RS&amp;S) (0.02)</li> <li>(a) Fluotrimazole (</li> <li>(a) Heptachior (SS)</li> <li>(a) Biocarbonbos (</li> <li>(a) Mepronil (0.01)</li> <li>(a) Metribuzin (0.0</li> </ul>	() () (),05) (0,01) (0,01) (0,01) (0,02) () () () () () () () () () (	<ul> <li>(a) Aramite (0.04)</li> <li>(b) Bromfervinfos (0.02)</li> <li>(a) Carboxin (0.06)</li> <li>(a) Carboxin (0.06)</li> <li>(a) Chlorfenson (0.05)</li> <li>(b) Chlordhelonii (0.01)</li> <li>(a) Crufomate (0.05)</li> <li>(a) Crufomate (0.05)</li> <li>(a) DDT (Sum) ()</li> <li>(b) Dichfelfusnia (0.02)</li> <li>(a) Dichfelfusnia (0.02)</li> <li>(a) Dicofol. o.p- (0.02)</li> <li>(a) Dioxabenzofos (0.02)</li> <li>(a) Dioxabenzofos (0.02)</li> <li>(a) Eirofauele (0.02)</li> <li>(a) Fenyalerate &amp; Exferivalerate sum of RR, SS, RS, SR) ()</li> <li>(a) Fluquinconazole (0.02)</li> <li>(a) Higha-(0.01)</li> <li>(a) Higha-(0.01)</li> <li>(b) Highachlor (0.02)</li> <li>(a) Methacriphos (0.02)</li> <li>(a) Methacriphos (0.02)</li> <li>(a) Mevinphos (0.02)</li> </ul>
The content of total           24-methylenecycloa           Amount of total GC-           ist of screened r           SUS1A           1           2-Phenylphenol (0.01)           Arratine (0.02)           Bromophae (0.01)           0	rtanol, and citrostadienol). eutables is 0,492 mg/100 g nolecules (* = limit of Pesticide Screening(GC) (I (a) Acetochicr (0.06) (a) Bertmain (0.01) (a) Bermophos-athyl (0.01) (a) Chlornephos (0.05) (a) Chlornephos (0.05) (b) Chlornephos (0.05) (c) Chlornephos (0.05) (c) Chlornephos (0.05) (c) Chlornephos (0.05) (c) DD, p,b-(0.01) (c) Dehloroberzophenone p,p' (0.02) (c) Dehloroberzophenone p,p' (c) D2 (c) Dehloroberzophenone p,p' (c) D2 (c) Dehloroberzophenone (0.01) (c) Fenoros (0.02) (c) Fenoros (0.02) (c) Horth data-(0.01) (c) Heptenophos (0.02) (c) Horth data-(0.02) (c) Malatrion (0.02) (c) N-Desethyl-primiphos-methyl (0.01)	Actorification)           COQ* mg/kg)           (a) Actorifica (0.55)           (a) Biranox (0.55)           (a) Chlorobenzilate (0.01)           (a) Chlorobenzilate (0.01)           (a) Chlorobenzilate (0.01)           (a) Chlorobenzilate (0.02)           (a) DDD, p.p <sup>1-</sup> (0.01)           (a) DDD, p.p <sup>1-</sup> (0.01)           (a) Diblory (0.02)           (a) Diblory (0.02)           (a) Diblory (0.05)           (a) Diblory (0.05)           (a) Fenchloryhos (0.02)           (a) Fully thinate (0.05)           (a) Flucythrinate (0.05)           (a) Flucythrinate (0.05)           (a) Flucythrinate (0.02)           (a) Roberfos (0.02)           (a) Isoprothiolane (0.02)           (a) Isoprothiolane (0.02)           (b) Isoberfos (0.02)           (c) Isoprothiolane (0.02)           (a) Isoprothiolane (0.02)           (a) Malathion (Sum) ()           (a) Nitrepyrin (0.01)	<ul> <li>(a) Aldrin (0.0)</li> <li>(a) Bifenshrin ()</li> <li>(a) Bifenshrin ()</li> <li>(a) Carbopher</li> <li>(a) Carbopher</li> <li>(a) Chlordane</li> <li>(a) Chlordane</li> <li>(a) Chlordane</li> <li>(b) Chloseni</li> <li>(a) DE, a,b<sup>1</sup></li> <li>(a) DE, a,b<sup>1</sup></li> <li>(a) DE, a,b<sup>1</sup></li> <li>(a) DE, a,b<sup>1</sup></li> <li>(b) Edicaro (0)</li> <li>(a) Edicarblor</li> <li>(a) Fenchlorpi</li> <li>(a) Fenchlorpi</li> <li>(a) Fenchlorpi</li> <li>(a) Fenchlorpi</li> <li>(a) Flumatmilir</li> <li>(a) HCB (0.01</li> <li>(a) HcB (0.01</li> <li>(a) Mezantam</li> <li>(a) Mezantam</li> <li>(a) Mezantam</li> <li>(a) Mezantam</li> <li>(a) Mezantam</li> <li>(b) Jodfenpho</li> <li>(a) Nitrofen (0)</li> </ul>	1) (0.01) (0.01) (0.01) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.01) (0.05) (0.05) (0.01) (0.05) (0.05) (0.01) (0.01) (0.01) (0.02) (0.04) ntechlorophenylsul (0.02)	<ul> <li>(a) Ametryne (0.0)</li> <li>(b) Biphenyl (0.01)</li> <li>(c) Biphenyl (0.01)</li> <li>(c) Butafenaci (0.0)</li> <li>(c) Chlordenapyr (1.0)</li> <li>(c) Chloropropylat</li> <li>(c) Chloropropylat</li> <li>(c) Chlorolinate (0.1)</li> <li>(c) Metribuszin (0.0)</li> <li>(c) Nitrothal-isoppor</li> </ul>	7) 11) 12) 13) 15) 16(0,01) 10(0,01) 11(0,02) 13) 10(0,02) 15) 15) 16(0,05) 17) 16(0,05) 17) 18) 18) 18) 18) 18) 18) 18) 18	<ul> <li>(a) Aramite (0.04)</li> <li>(b) Bromfervinfos (0.02)</li> <li>(a) Caduados (0.02)</li> <li>(a) Carboxin (0.06)</li> <li>(a) Chlordenson (0.05)</li> <li>(a) Chlordenson (0.02)</li> <li>(a) Dichleduaria (0.02)</li> <li>(a) Dicofol. o.p'- (0.02)</li> <li>(a) Endosuberzofos (0.02)</li> <li>(a) Endosuberzofos (0.02)</li> <li>(a) Fendutrin (0.01)</li> <li>(a) Fendutrin (0.01)</li> <li>(a) Fluquinconazole (0.02)</li> <li>(a) HCH, alpha-(0.01)</li> <li>(bachin (0.02)</li> <li>(a) Landin (0.02)</li> <li>(a) Methamphos (0.02)</li> <li>(a) Catachlorodpropyl ether: (5-421) (0.05)</li> </ul>
The content of total 24-methylenecycloa           Amount of total GC-           List of screened r           SUS1A           a) 2-Phenydphenol (0.01)           a) Atrazine (0.02)           b) Bromiphae (0.01)           b) Chlorbenside (0.06)           c) Chlorbenside (0.06)           c) Chlorbenside (0.06)           c) Chlorbenside (0.06)           c) Chlorbenside (0.07)           c) Chlorbenside (0.08)           c) Chlorbenside (0.07)           c) Chlorbenside (0.02)           c) Dicolo, p.p' (0.02)           c) Dicolo, p.p' (0.02)           b) Ecoloni, p.p' (0.02)           b) Ecoloni (0.02)           c) Ethrmis (0.02)           b) Ethrmis (0.02)           b) Forwalerate & Estensularate (0.02)           b) Hothenet au (0.02)           b) Hothenet au (0.02)           b) Hothenet (0.05)           b) Hothenet (0.05)           b) Malexer (0.05)           b) Malexer (0.01)           b) Malexer (0.01)           b) Malexer (0.01)	And citrostadienol).           eutables is 0,492 mg/100 g           nolecules (* = limit of           Pesticide Screening(GC) (I           (a) Acetochlor (0.06)           (a) Bermophos-athyl (0.01)           (a) Bermophos-athyl (0.01)           (a) Chlordane (Sum) ()           (a) Chlordane (Sum) ()           (a) Chlordane (Sum) ()           (a) Chlorane (Sum) ()           (a) DDD, e,p-(0.01)           (b) DD, e,p-(0.01)           (a) DD, e,p-(0.01)           (b) Dichlorobenzophenone p,p'           (0.02)           (a) Dichlorobenzophenone (0.05)           (a) Feneropation (0.02)           (a) Feneropation (0.05)           (a) Feneropation (0.05)           (a) Feneropation (0.05)           (a) Feneropation (0.02)           (a) Isofenphos-methyl (0.01)           (a) Mathidathion (0.02)           (a) Methidathion (0.02)           (a) Methidathion (0.02)           (a) Methidathion (0.02)	Actonitin (Const)           LOQ* mg/kg)           (a) Actonitin (0.05)           (a) Biranov (0.05)           (a) Chordnane, alpina (0.01)           (a) Chlordnane, alpina (0.02)           (b) Dolp, pp <sup>-(1</sup> (0.01))           (a) Dolp, pp <sup>-(1</sup> (0.01))           (a) Dolp, pp <sup>-(1</sup> (0.02)           (b) Dolphone (0.02)           (a) Flucythminate (0.05)           (a) Flucythminate (0.05)           (a) Flucythminate (0.02)           (a) Flucythminate (0.02)           (a) Isoprothilon (0.02)           (a) Boprothilon (0.02)           (a) Mathion (Sum) ()           (a) Mathion (Sum) ()           (a) Mathion (Sum) ()           (a) Nitrepyrin (0.01)           (a) Nychlerdane (0.02)	<ul> <li>(a) Aldrin (0.0</li> <li>(a) Bifenshrin (</li> <li>(a) Earbopher</li> <li>(a) Carbopher</li> <li>(a) Carbopher</li> <li>(a) Chloraneb</li> <li>(a) Chloraneb</li> <li>(a) Chloraneb</li> <li>(a) Chlorane (</li> <li>(b) Chlobeni</li> <li>(a) Dichlobeni</li> <li>(a) Dichlobeni</li> <li>(a) Dichlobeni</li> <li>(b) Dichoran (0</li> <li>(a) Dichlobeni</li> <li>(b) Dichoran (0</li> <li>(a) Ednalfurali</li> <li>(a) Fenchlorpi</li> <li>(b) Hepfachlori</li> <li>(a) Jodferphon</li> <li>(a) Mestynbergi</li> <li>(b) Nitrofen (0</li> <li>(a) Oxyfluorfer</li> </ul>	1) (0.01) (0.01) (0.01) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.01) (0.01) (0.01) (0.01) (0.01) (0.05) (0.01) (0.05) (0.01) (0.05) (0.01) (0.05) (0.01) (0.05) (0.01) (0.05) (0.01) (0.05) (0.01) (0.05) (0.01) (0.02) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.03) (0.04) (0.05) (0	<ul> <li>(a) Ametryne (0.02)</li> <li>(a) Biphenyl (0.01)</li> <li>(b) Carbophenothi (0.05)</li> <li>(c) Chlorfenapyr (1.05)</li> <li>(c) Chlorpropylat</li> <li>(c) Chlorpropylat</li></ul>	() )1) n-methyl ).05) (0.01) .02) mbda-(inol. mma-) (0.01) 1) (0.02) ) ) ) ) ) ) ) ) ) ) ) ) )	<ul> <li>(a) Aramite (0.04)</li> <li>(b) Eromferivinfos (0.02)</li> <li>(a) Cadusafos (0.02)</li> <li>(a) Carboxin (0.05)</li> <li>(a) Chlorfenson (0.05)</li> <li>(a) Chlorfenson (0.05)</li> <li>(a) Chlorfesteloni (0.01)</li> <li>(a) Crutomate (0.05)</li> <li>(a) Cypermethnin (0.05)</li> <li>(a) Cypermethnin (0.02)</li> <li>(a) Diotol, o.p- (0.02)</li> <li>(a) Diotol, o.p- (0.02)</li> <li>(a) Diotol, o.p- (0.02)</li> <li>(a) Dioxabenzofos (0.02)</li> <li>(a) Eindosulfan, bata- (0.05)</li> <li>(a) Eridiczele (0.02)</li> <li>(a) Fenvalerate &amp; Euferwaleratel, sum of RR, SS, RS, SR ()</li> <li>(a) Fluquinconazole (0.02)</li> <li>(a) HCH, alpha- (0.01)</li> <li>(a) Hothacriptos (0.02)</li> <li>(a) HCH, alpha- (0.02)</li> <li>(a) Mevinphos (0.02)</li> <li>(a) Mevinphos (0.02)</li> <li>(a) Octachlorodipropyl sither: (S-421) (0.05)</li> <li>(a) Paratition (0.01)</li> </ul>
The content of total 24-methylenecycloa Amount of total GC- List of screened r SUS1A a) 2-Phanylphenol (0,01) a) Arratine (0,02) b) Bromophas (0,01) a) Chlorebundle (0,06) c) Chlorebundle (0,06) a) Chlorebundle (0,06) c) Chlorebundle (0,02) c) Horstellatetau (0,02) c) Horstellatetau (0,02) c) Horstellatetau (0,02) c) Horstellatetau (0,02) c) Horstellatetau (0,02) c) Malacxon (0,05) c) Malacxon (0,05) c) Churace (0,01) c) Cofuriace (0,01) c) C) C) C) C) C) C) C) C) c) C)	And citrostadienol).           eutables is 0,492 mg/100 g           nolecules (* = limit of           Pesticide Screening(GC) (I           (a) Acetocher (0.06)           (a) Bertmophos-athyl (0.01)           (a) Bromophos-athyl (0.01)           (a) Chirdene (Sum) (I           (b) DD, c.p-(0.01)           (a) DD, c.p-(0.01)           (a) DD, c.p-(0.01)           (b) Dehropherspethenone p.p'           (b) Dehropherspethenone (D.05)           (a) Eendors (0.02)           (a) Fenclos (0.02)           (a) Fenclos (0.02)           (a) Schenphos-methyl (0.01)           (b) HCH, della- (0.02)           (a) Schenphos-methyl (0.01)           (b) Hepsethylenthylocs-methyl (0.01)           (a) Mathidathion (0.02)           (a	cuantification)           LOQ* mg/kg)           (a) Acionifen (0.05)           (a) Biranox (0.05)           (a) Biranox (0.05)           (a) Biranox (0.05)           (a) Biranox (0.05)           (a) Chordman. alpina (0.01)           (a) Chordman.alpina (0.01)           (a) Chordmatrin (0.02)           (a) Delta matrin (0.05)           (b) Dicharoxa (0.02)           (a) Dichloroxa (0.02)           (a) Fenchlorphae (0.02)           (a) Fenchlorphae (0.02)           (a) Fenson (0.02)           (a) Flucythrinate (0.05)           (a) Flucythrinate (0.05)           (a) Flucythrinate (0.02)           (a) Matathion (Sum) ()           (a) Inspectric (0.02)           (a) Matathion (0.03)           (a) Nitrepyrin (0.01)           (a) Nitrepyrin (0.01)           (a) Nitrepyrin (0.01)           (a) Nitrepyrin (0.01)           (b) Oxychlorana (0.02)           (a) Nitrepyrin (0.01)	<ul> <li>(a) Aldrin (0.0)</li> <li>(a) Bifenöhnin (</li> <li>(a) Bifenöhnin (</li> <li>(a) Carbopher</li> <li>(a) Carbopher</li> <li>(a) Chloraneb</li> <li>(a) Chloraneb</li> <li>(a) Chloraneb</li> <li>(a) Chloraneb</li> <li>(a) Chloraneb</li> <li>(a) Dicholabeni</li> <li>(a) Dicholabeni</li> <li>(a) Dicholabeni</li> <li>(a) Echoladira</li> <li>(a) Fenchlorpi</li> <li>(a) Austrolation</li> <li>(b) Austrolation</li> <li>(c) Austrolation</li> <li>(c) Austrolation</li> <li>(c) Austrolation</li> <li>(c) Austrolation</li> <li>(c) Aydfuorfer</li> <li>(c) Apartachlar</li> </ul>	1) (0.01) (0.01) (0.01) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.01) (0.05) (0.01) (0.02) (0.04) stachlorophenylsul (0.02) (0.03) (0.03) (0.05) (0.01) (0.02) (0.01) (0.02) (0.02) (0.01) (0.02) (0.02) (0.01) (0.02) (0.01) (0.02) (0.01) (0.02) (0.01) (0.02) (0.01) (0.02) (0.02) (0.01) (0.02)	<ul> <li>(a) Ametryne (0.0)</li> <li>(b) Biphenyl (0.01)</li> <li>(c) Biutafenaci (0.0)</li> <li>(c) Chlorfenapyr (1.0)</li> <li>(c) Chlorpropylet</li> <li>(c) Chlorpropylet</li> <li>(c) Chlorpropylet</li> <li>(c) Chlorpropylet</li> <li>(c) Chlorolinate (0.0)</li> <li>(c) Finvalerate &amp; Sum of RS&amp;S (0.02)</li> <li>(c) Fluotrimazole (1.0)</li> <li>(c) Hoptenhorolinate (0.0)</li> <li>(c) Kressxim-metti</li> <li>(c) Metribuzin (0.0)</li> <li>(c) Nitrothal-isoprop</li> <li>(c) Pet SIS (0.0)</li> <li>(c) Pet SIS (0.0)</li> </ul>	() () (),05) (0,01) (0,01) (0,01) (0,02) () (),01) () (),01) (),01)	<ul> <li>(a) Aramite (0.04)</li> <li>(b) Bromfervinfos (0.02)</li> <li>(a) Caduados (0.02)</li> <li>(a) Carboxin (0.06)</li> <li>(a) Chloffenson (0.05)</li> <li>(a) Chloffusnia (0.05)</li> <li>(a) Chloffusnia (0.02)</li> <li>(a) Dichloffusnia (0.02)</li> <li>(a) Dichloffusnia (0.02)</li> <li>(a) Dichloffusnia (0.02)</li> <li>(a) Dicklevel (0.02)</li> <li>(a) Dicklevel (0.02)</li> <li>(a) Erdosuffen, beta- (0.05)</li> <li>(b) Erdosuffen, beta- (0.05)</li> <li>(a) Fenyalerate &amp; Erfernvalerated aum of RR,SS,R6,SR1)</li> <li>(a) Fluquinconazole (0.02)</li> <li>(a) HcH, alpha- (0.01)</li> <li>(b) Hoptachlor epoxide cis (0.01)</li> <li>(a) HcH, alpha- (0.02)</li> <li>(a) Methamphos (0.02)</li> <li>(a) Methamphos (0.02)</li> <li>(a) Cotachlorodpropyl ether: (S-421) (0.05)</li> <li>(b) PCB 180 (0.01)</li> <li>(b) PCB 180 (0.01)</li> </ul>
24-methylenecycloa Amount of total GC- List of screened r SUS1A a) 2-Pneny(phenol (0,01) a) Arrazine (0,02) b) Bromophas (0,01) a) Capterswiphos (0,06) c) Chiofenwiphos (0,06) a) Chiofenyinfos (-ethyl) (0,01) a) Cyphenothrin (0,05) b) DDT, 0,07 a) Cophenothrin (0,05) b) DDT, 0,07 b) Chiofen, p.g-(0,02) a) Discathion (0,05) b) Endosulfer, sulfet-(0,02) a) Fenirathion (0,02) b) Fenirathion (0,02) a) Fenirathion (0,02) b) HCH, bate-fau (0,02) b) Mathemidophos (0,01) b) Parathion-mathyl (0,04)	rtanol, and citrostadienol). eutables is 0,492 mg/100 g nolecules (* = limit of Pesticide Screening(GC) (l (a) Acetochlor (0.06) (a) Banfluralin (0.01) (a) Bornochos-eithyl (0.01) (b) Capter (0.06) (c) Chloroynfos-methyl (0.01) (c) Capter (0.06) (c) Chloroynfos-methyl (0.01) (c) Capter (0.06) (c) Chloroynfos-methyl (0.01) (c) Cyanofenphos (0.05) (c) DDD, c, p, - (0.01) (c) DD, c, p, - (0.01) (c) DD, c, p, - (0.01) (c) DD, c, p, - (0.02) (c) DD, c, p, - (0.02) (c) DD, c, p, - (0.02) (c) D, c, p, - (0, -	Image: Second	<ul> <li>(a) Aldrin (0,0)</li> <li>(a) Bilenthrin ()</li> <li>(a) Salachler ()</li> <li>(a) Carbopher</li> <li>(a) Chlortoneb</li> <li>(a) Chlortoneb</li> <li>(a) Chlortoneb</li> <li>(a) Dichlobani ()</li> <li>(a) Enchlorpi ()</li> <li>(a) Fenchlorpi ()</li> <li>(a) Hegfachlor ()</li> <li>(a) Jodfenpho</li> <li>(a) Mezarbani ()</li> <li>(a) Nitrofen ()</li> <li>(a) Oxyfluorfer ()</li> <li>(a) Oxyfluorfer ()</li> <li>(a) Cystlac ()</li> </ul>	1) (0.01) (0.01) (0.01) (0.01) (0.05) (0.04) (0.04) (0.02) (0.05) (0.04) (0.02) (0.05) (0.04) (0.02) (0.05) (0.04) (0.02) (0.05) (0.04) (0.02) (0.05) (0.04) (0.02) (0.05) (0.04) (0.02) (0.05) (0.04) (0.02) (0.05) (0.04) (0.02) (0.05) (0.05) (0.04) (0.05) (0.05) (0.05) (0.05) (0.04) (0.02) (0.05) (0	<ul> <li>(a) Ametryne (0.02)</li> <li>(a) Biphenyl (0.01)</li> <li>(a) Biphenyl (0.01)</li> <li>(a) Carbophenohl (0.05)</li> <li>(a) Chloropropylat</li> <li>(a) Chlozolinate (0 Cyhalothin, ga</li> <li>(a) Dickofenthion</li> <li>(a) Dickofenthion</li> <li>(a) Dickofenthion</li> <li>(a) Dickolfenthion</li> <li>(a) Dickolfenthion</li> <li>(a) Ethion (0.02)</li> <li>(a) Fenvalerate &amp; (sum of RSAS (0.02)</li> <li>(a) HCH gammel(L</li> <li>(a) HCH gammel(L</li> <li>(a) Heptachlor (5u</li> <li>(a) Laocarbophos (</li> <li>(a) Kressxim-metti</li> <li>(a) Meproni (0.01)</li> <li>(a) Kressxim-metti</li> <li>(a) Merbaul (0.01)</li> <li>(a) Nitrothal-Isopro</li> <li>(a) Pacloburazol (</li> <li>(a) Pac Ist 33 (0.01)</li> </ul>	() )1) on-methyl )05) mbd-(nol. mma-) (0.01) 1) (0.02) ) 5) star (0.01) Exformaterate R (somers) 0.01) indan) (0.01) 0.02) yl (0.01) 4) pyl (0.01) 0.01) 1; zzene (0.01) (0.04)	<ul> <li>(a) Aramite (0.04)</li> <li>(b) Bromferventos (0.02)</li> <li>(a) Caduados (0.02)</li> <li>(a) Caduados (0.05)</li> <li>(a) Chlorothalonii (0.05)</li> <li>(a) Chlorothalonii (0.01)</li> <li>(a) Crutomate (0.05)</li> <li>(a) Cypermethnin (0.05)</li> <li>(a) DDT (Sum) ()</li> <li>(a) Dichlefluanid (0.02)</li> <li>(a) Dichlefluanid (0.02)</li> <li>(a) Dicksbenzofos (0.02)</li> <li>(a) Eridiszele (0.02)</li> <li>(a) Eridiszele (0.02)</li> <li>(a) Eridiszele (0.02)</li> <li>(a) Fanyalenate &amp; Eufenvalenstej aum of RR,SS,R6,SR) ()</li> <li>(a) Fluquinconazole (0.02)</li> <li>(a) Hothariphos (0.02)</li> <li>(a) Hetplachlor eposide cis (0.01)</li> <li>(a) Landin (0.02)</li> <li>(a) Methariphos (0.02)</li> <li>(a) Methariphos (0.02)</li> <li>(a) Octachlorodipropyl ether. (S-421) (0.05)</li> <li>(a) PcB 180 (0.01)</li> </ul>

### Eurofins Tech. Service (Suzhou) Con Ltd

No. 101, Jialingjiang Ra Suzhou 215000 Jiangsu Province, P.R.

e (Suzhov) SDD Benor SND eurofins so bina Phone +86 400 828 5088



a) Silthiofam (0.01) a) Tetradifon (0.02)		Tecnszene (0.02) Tetramethrin (0.02)	<ul><li>(a) Tefluthrin (0.02)</li><li>(a) Tetrasul (0.01)</li></ul>	(a) Terbufos (0.02) (a) Tolyffluanid (0.02)	<ul><li>(a) Tetrachlorvinphos (0.02)</li><li>(a) Triellate (0.02)</li></ul>		
a), Triazamate (0.01) a) Vinclozolin (0.02)		Trichloronat (0.01)	(a) Triflunalin (0.02)	(a) Triticonazole (0.01)	(a) Uniconazole (0.02)		
SIGNATURE		1					
CI	aire Wang	Shir	ne Xie				
Authorized Signatory		Authorize	Authorized Signatory				
EXPLANATORY	NOTE	1.75.1					
LOQ: Limit of Qu	antification	A CNAS	# DAKKS □CMA				
< LOQ: Below Lin	nit of Quantification	🖈 means	the test is subcontract	ted within Eurofins group			
N/A means Not an	V/A means Not applicable			2			
Sum compounds	results are calculated from the re-	esults of each quant	fied compound as se	t by regulation			
The result(s) relat	e(s) only to the item(s) tested an	d is(are) only for inte	mal use by the client	and not for publicly availa	ble as evidence.		
This analytical rep	oort shall not be reproduced exce	pt in full, without wri	tten approval of the la	boratory.			
	Terms and Conditions apply.						
	of Eurofins Technology Service	(Suzhou) Co., Ltd					

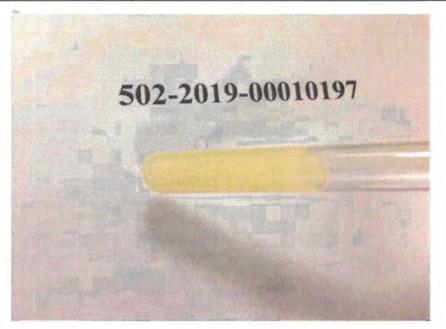
Eurofins Tech. Service (Suzhov) Son Ed No. 101, Jialingjiang Rrag SND Suzhou 215000 Jiangsu Province, P.R. Enina Phone +86 400 828 5088 Fax www.eurofins.cn



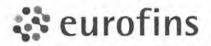


### **Physical inspection**

Sample code	502-2019-00010197			
Sample name	DHA oil			
Color	Light yellow			
Odor	Have the special odor of this product			
Texture Oily liquid				



Eurofins Tech. Service (Suzhou) Service No. 101, Jialingjiang Roser SND Suzhou 215000 Jiangsu Province, P.R. Spina Phone +86 400 828 5088 Fax +86 512 6878 5966 www.eurofins.cn





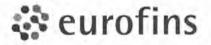
## Analytical Report

Sample Code Certificate No.	502-2019-000 AR-19-SU-01		Report date	21-Ap	r-2019	
*This analytical report replac	es the previous issued analytical rep	port no.: AR-19-SU	-017442-01			
		H	luBei Fuxing	Biotechr	nology CO,.LTD	
		Y	anrong Wu			
	-	N	IO.18 Fuxing	Street,	Chenhu Town,	
		H	lanchuan, Hu	bei, P.R	. China	
-		Fax 0	086 0712-87	41957		
Our reference: Client Sample Code: Sample described as:	502-2019-00010195/ AR-19-3 D18111401J DHA油脂	SU-017442-03				
Sample Packaging:	Sealed metal bottle					
Sample reception date:	20-Feb-2019					
Analysis starting date: Analysis ending date:	20-Feb-2019 19-Apr-2019					
Arrival Temperature (°C)	17.6	Sample W	/eight	600g	*2	
		Results	Unit	LOQ	LOD	
A# SU007 Mercury (A	AS) Method: BS EN 13806:2002	T COULD	onn	200	200	
Mercury (Hg)		<0.005	mg/kg	0.005		
A# SU051 Manganese Manganese (Mn)	e (ICP-MS) Method: BS EN ISO 1	7294-2 2016 mod. <0.1	mg/kg	0.1		
	m (ICP-MS) Method: BS EN ISO					
Molybdenum (Mo) A#SU056 Nickel (ICP)	-MS) Method: BS EN ISO 17294-	<0.03	mg/kg	0.03		
Nickel (Ni)		<0.1	mg/kg	0.1		
	MS) Method: BS EN ISO 17294-2					
Lead (Pb) Arsenic (IC	P-MS) Method: BS EN ISO 17294	<0.05	mg/kg	0.05		
Arsenic (As)		<0.05	mg/kg	0.05		
Chromium (Cr)	(ICP-MS) Method: BS EN ISO 17:	<0.1	mg/kg	0.1		
Cadmium (Cd)	ICP-MS) Method: BS EN ISO 172	94-2 2016 mod. <0.01	mg/kg	0.01		
▲# SU05J Copper (IC Copper (Cu)	P-MS) Method: BS EN ISO 17294	-2 2016 mod. <0.1	mg/kg	0.1		
▲# SU05K Phosphoru Phosphorus (P)	s (ICP-MS) Method: BS EN ISO 1	7294-2 2016 mod. 44.6	mg/kg	5		
SU51B Iron (ICP-C Iron (Fe)	ES) Method: Internal Method ICP	-OES, ICP-OES <0.1	mg/100 g	0.1		
non (r e)		Results	Unit	LOQ	LOD	
# SUS1A Pesticide S	creening(GC) Method: BS EN 123		Unit	LUN		
Screened pesticid		<loq< td=""><td>mg/kg</td><td></td><td></td><td></td></loq<>	mg/kg			
		Results	Unit	LOQ	LOD	



Phone +86 400 828 5088 Fax





	Results	Unit	LOQ	LOD
#SU10Z Cronobacter spp. in 10g Method: IS	O 22964:2017			
Cronobacter spp	Not Detected	/10 g		
	Results	Unit	LOQ	LOD
A# SU20L Protein Method: AOAC 984.13			_	
Protein	<0.1 (k=6.25)	g/100 g	0.1	
SU217 Physical inspection Method: Interna	and the second se	ation		
Physical inspection	see attached			
	document			
A# SU227 Ash Method: AOAC 941.12; AOAC	923.03			
Ash	0.03	g/100 g	0.01	
+# SU372 Cholesterol Method: GB 5009.128-2	2016			
Cholesterol	2305	mg/kg	10	
	Results	Unit	LOQ	LOD
* GFL01 Dioxins and Furans (17 PCDD/F) M	lethod: Internal, GC-MS/MS			
2,3,7,8-TetraCDD	< 0.0310	pg/g		
1,2,3,7,8-PentaCDD	< 0.0408	pg/g		
1,2,3,4,7,8-HexaCDD	< 0.0620	pg/g		
1,2,3,6,7,8-HexaCDD	< 0.0848	pg/g		
1,2,3,7,8,9-HexaCDD	< 0.0799	pg/g		
1,2,3,4,6,7,8-HeptaCDD	< 0.131	pg/g		
OctaCDD	< 0.946			
2,3,7,8-TetraCDF	< 0.0848	pg/g		
1,2,3,7,8-PentaCDF	< 0.0587	pg/g		
2,3,4,7,8-PentaCDF	< 0.0914	pg/g		
		pg/g		
1,2,3,4,7,8-HexaCDF	< 0.0962	pg/g		
1,2,3,6,7,8-HexaCDF	< 0.0881	pg/g		
1,2,3,7,8,9-HexaCDF	< 0.0653	pg/g		
2,3,4,6,7,8-HexaCDF	< 0.0799	pg/g		
1,2,3,4,6,7,8-HeptaCDF	< 0.0914	pg/g		
1,2,3,4,7,8,9-HeptaCDF	< 0.0636	pg/g		
OctaCDF	< 0.196	pg/g		
WHO(2005)-PCDD/F TEQ	Not Detected	pg/g		
(lower-bound)	0.0044			
WHO(2005)-PCDD/F TEQ	0.0841	pg/g		
	0.400	and to		
WHO(2005)-PCDD/F TEQ	0.168	pg/g		
(upper-bound)		11.0	11.00	
	Results	Unit	LOQ	LOD
SF0XA add 1 on to the GC/MS-pesticide scre				00.00-34 : 2010-09, mod.
Tralomethrin	<0.05	mg/kg	0.05	
* FL023 Plant sterols and plant stanols (not er				
Brassicasterol	15	mg/100 g	1	
Cholesterol	210	mg/100 g	1	
Campesterol	15	mg/100 g	1	
Campestanol	1	mg/100 g	1	
Stigmasterol	28	mg/100 g	1	
Unidentified sterols	197	mg/100 g	3	
Sitosterol	68	mg/100 g	.1	
Sitostanol+ delta-5-avenasterol	8	mg/100 g	1	
Delta-5,24-stigmastadienol	10	mg/100 g	4	
Delta-7-stigmastenol	28	mg/100 g	1	
delta-7-Avenasterol	6	mg/100 g	1	
Cycloartenol	3	tigriou g		

Eurofins Tech. Service (Sustants) SND No. 101, Jialingjiang Rg

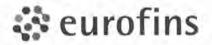
STING SERVI

Suzhou 215000

Suzhou 215000 Jiangsu Province, P.F.

+86 400 828 5088 Phone

Fax



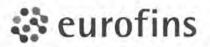
Page 3/7 AR-19-SU-017442-03

	Results	Unit	LOQ LOD	
24-Methylenecycloartanol	3	mg/100 g	1	
Citrostadienol	2	mg/100 g	1	
Total plant sterols + plant stanols	375	mg/100 g	i,	
A JC00V PAH acc. to EU 208/2005 (15+1) Met	nod: Internal, GC-MS			
5-Methylchrysene	<1	µg/kg	1	
Benz(a)anthracene	<0.5	µg/kg	0.5	
Benzo(a)pyrene	<0.5	µg/kg	0.5	
Benzo(b)fluoranthene	<0.5	µg/kg	0.5	
Benzo-(c)-fluorene	<1	µg/kg	1	
Benzo(g,h,i)perylene	<0.5	µg/kg	0.5	
Benzo-(j)-fluoranthen	<0.5	µg/kg	0.5	
Benzo(k)fluoranthene	< 0.5	µg/kg	0,5	
Chrysene	<0.5	µg/kg	0.5	
Cyclopenta(c,d)pyrene	<1	µg/kg	1	
Dibenz(a,h)anthracene	<0.5	µg/kg	0.5	
Dibenzo(a,e)pyrene	<1	µg/kg	1	
Dibenzo(a,h)pyrene	<1	µg/kg	1	
Dibenzo(a,i)pyrene	<1	µg/kg	1	
Dibenzo(a,l)pyrene	<1	µg/kg	1	
Indeno(1,2,3-cd)pyrene	<0.5	µg/kg	0.5	
Sum of all positive identified PAH	Inapplicable	µg/kg		
Sum PAH 4	Inapplicable	µg/kg		
☆ JC0A9 Patulin (oil) Method: Internal, LC-MS/		P3.13		
Patulin	<5	µg/kg	5	
Aflatoxins B1, B2, G1, G2 (fats, oils, lec	ithin, eag powder) Metho			
Aflatoxin B1	<0.1	µg/kg	0,1	
Aflatoxin B2	<0.1	µg/kg	0,1	
Aflatoxin G1	<0.1	µg/kg	0.1	
Aflatoxin G2	<0.1	µg/kg	0.1	
Sum of all positive Aflatoxins	<0.4	µg/kg		
* JJW2Z Sterigmatocystin Method: Internal, LC		Paria		
Sterigmatocystin	<10	µg/kg	10	
★LW0XD Domoic acid, DA Method: In house me		(Par Na		
Amnesic Shellfish Poison, Domoic acid	<3.0	µg/g	3	
Amnesic Shellfish Poison, Domoic Acid	Not Detected	P5/3		
* QA00F Peroxide Value Method: AOCS Cd 8-				
Peroxide value	<0.1	meg/kg	0,1	
* QA001 Acid Value Method: AOCS Cd 3d-63		moding		
Acid value (mg KOH/g)	0.38	mg KOH/g	0.05	
Free fatty acids (as oleic acid)	0.19	%	0.01	
★ QA01L p-Anisidine Value Method: AOCS Cd		10	old l	
p-Anisidine Value	5.7		1	
☆ QA02L Color (Lovibond Scale) Method: AOC				
Color, red scale, 1 inch cell path	0.9			
Color, yellow scale, 1 inch cell path	9			
☆ QA034 Fumonisins (IAC-LC-MSMS) Method:				
Fumonisin (B1+B2+B3)	<30	µg/kg	30	
Fumonisin B1	<10	µg/kg	10	
Fumonisin B2	<10	µg/kg	10	
Fumonisin B3	<10	µg/kg	10	
	and the second sec	Paina	2	
1,1,1-Trichloroethane	<0.2	mg/kg	0.2	
1,1,2-Trichloroethane	<0.2	and the second sec		
1,1,2-110110106018116	-0.2	mg/kg	0.2	

Eurofins Tech. Service (Supervised No. 101, Jialingliang Rose SND Suzhou 215000 Jiangsu Province, P.R.

STING SERVIC

Phone +86 400 828 5088 Fax



	Results	Unit	LOQ	LOD
1,2-Dichloroethane	<0.5	mg/kg	0.5	
1,2-Dimethoxyethane	<1	mg/kg	1	
1-Butanol	<1	mg/kg	1	
2-Hexanone	<1	mg/kg	1	
Acetone	<1	mg/kg	1	
Benzene	<0.1	mg/kg	0.1	
Butyl acetate	<0.5	mg/kg	0.5	
Carbon tetrachloride	<0.5	mg/kg	0.5	
Chlorobenzene	<0.5	mg/kg	0.5	
Chloroform	<0.1	mg/kg	0.1	
Cyclohexane	<0.2	mg/kg	0.2	
Dichloromethane	<0.1	mg/kg	0.1	
Ethanol	<1	mg/kg	1	
Ethyl acetate	<1	mg/kg	1	
Heptane	<0.2	mg/kg	0.2	
Hexane (sum of n-hexane, iso and	<0.5	mg/kg	0.5	
3-methyl pentane)	1.1.2		1.1	
Isopropanol	<1	mg/kg	1	
Methanol	<1	mg/kg	1	
Methyl Ethyl Ketone (MEK)	<0.2	mg/kg	0.2	
Methyl-tert-butylether (MTBE)	<0.2	mg/kg	0,2	
Tetralin	<5	mg/kg	5	
Toluene	<0.2	mg/kg	0.2	
Trichloroethylene	<0.1	mg/kg	0.1	
Xylenes (sum)	<0.2	mg/kg	0.2	
2A052 Polychlorinated Biphenyls (Oils & Fats)			0.2	
PCB 1	<0.01	mg/kg	0.01	
PCB 101	<0.01	mg/kg	0.01	
PCB 104	<0.01	mg/kg	0.01	
PCB 105	<0.01	mg/kg	0.01	
PCB 118	<0.01	mg/kg	0.01	
PCB 126	<0.01	mg/kg	0.01	
PCB 128	<0.01	mg/kg	0.01	
PCB 138	<0.01	mg/kg	0.01	
PCB 153	<0.01	mg/kg	0.01	
PCB 170	<0.01	mg/kg	0.01	
PCB 18	<0.01	mg/kg	0.01	
PCB 180	<0.01		0.01	
PCB 187	<0.01	mg/kg	0.01	
PCB 188	<0.01	mg/kg		
PCB 195	<0.01	mg/kg	0.01	
		mg/kg	0.01	
PCB 201	< 0.01	mg/kg	0.01	
PCB 206	<0.01	mg/kg	0.01	
PCB 209	< 0.01	mg/kg	0.01	
PCB 28	< 0.01	mg/kg	0.01	
PCB 29	< 0.01	mg/kg	0.01	
PCB 44	<0.01	mg/kg	0.01	
PCB 50	< 0.01	mg/kg	0.01	
PCB 52	<0.01	mg/kg	0.01	
PCB 66	< 0.01	mg/kg	0.01	
PCB 77	< 0.01	mg/kg	0.01	
PCB 8	<0.01	mg/kg	0.01	
PCB 87	< 0.01	mg/kg	0.01	

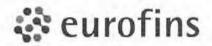
Eurofins Tech. Service (Surger) Service No. 101, Jialingjiang Ross SND

Suzhou 215000

Jiangsu Province, P.F. STING SERVI

+86 400 828 5088 Phone

Fax



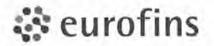
	Results	Unit	LOQ	LOD
Sum Non-Dioxin-Like PCBs	<0.01	mg/kg	0.01	
(28+52+101+138+153+180)				
Total PCB	<0.1	mg/kg	0.1	
CAOMT Ochratoxin A (HPLC-FLD) Meth	nod: AOAC 2000.16			
Ochratoxin A	<1	µg/kg	1	
& QA23L Trans Fatty Acids, relative area %	(GC-FID) Method: AOCS Ce			
Total Trans Fatty Acids	0.15	% of fatty	0.01	
Total Trans Fatty Rolds	0.10	acids	0.01	
total trans fatty acids C18:1	<0.01	% of fatty	0.01	
total bans laty actos o lot i	-0.01	acids	0.01	
total trans fatty acids C18:2 (without	0.15	% of fatty	0.01	
CLA)	0.10	acids	0.01	
total trans fatty acids C18:2 + C18:3	0.15		0.01	
	0.15	% of fatty acids	0.01	
total trans fatty acids C18:3	<0.01		0.04	
total dana latty actus 010.5	-0.01	% of fatty	0.01	
	1 A000 0= 5- 40	acids		
☆ QA282 Free Fatty Acid, as Oleic Methor Free fatty acids as oleis acid		0/	0.01	
Free fatty acids as oleic acid	0.20	%	0.01	
☆ QA328 Insoluble Impurities Method: AO				
Insoluble impurities	<0.01	%	0.01	
* QA513 Toxaphene (GC-MSMS)	Winetes			
Toxaphene Parlar 26	<loq< td=""><td>mg/kg</td><td>0.01</td><td></td></loq<>	mg/kg	0.01	
Toxaphene Parlar 50	<loq< td=""><td>mg/kg</td><td>0.01</td><td></td></loq<>	mg/kg	0.01	
Toxaphene Parlar 62	not analyzable	mg/kg	0.01	
☆ QA560 Sulfallate (Vegedex)				
Sulfallate (Vegedex)	<0.02	mg/kg	0.02	
☆ QA867 Silicon (ICP-AES) Method: AOC	S Ca 17-01			
Silicon (Si)	3.9	mg/kg	1	
CA967 Unsaponifiable Matter (Ethyl ether	ext) Method: AOCS Ca 6b-5	10 Mar 10 Mar		
Unsaponifiable matter	1.58	%	0.05	
* QAA07 Vomitoxin (Deoxynivalenol, DON)	LC-MSMS Method: Food Add			(3) 541-9
Vomitoxin (Deoxynivalenol)	<50	µg/kg	50	101,011 01
CAA19 Zearalenone (LC-MSMS) Metho	17.6			
Zearalenone	<25	a.a.a.a.(a)/a41-a	25	
		ualka		
COD089 Fatty Acids-Omena 6.8.3 % W/M		µg/kg S Co 1-62		
· · · · · · · · · · · · · · · · · · ·	Method: AOCS Ce 2-66 AOCS	S Ce 1-62		
C08:0 Octanoic (Caprylic)	Method: AOCS Ce 2-66 AOCS <0.02	S Ce 1-62 %	0.02	
C08:0 Octanoic (Caprylic) C10:0 Decanoic (Capric)	Method: AOCS Ce 2-66 AOCS <0.02 <0.02	S Ce 1-62 % %	0.02 0.02	
C08:0 Octanoic (Caprylic) C10:0 Decanoic (Capric) C11:0 Undecanoic (Hendecanoic)	Method: AOCS Ce 2-66 AOCS <0.02 <0.02 <0.02 <0.02	S Ce 1-62 % % %	0,02 0,02 0.02	
C08:0 Octanoic (Caprylic) C10:0 Decanoic (Capric) C11:0 Undecanoic (Hendecanoic) C12:0 Dodecanoic (Lauric)	Method: AOCS Ce 2-66 AOCS <0.02 <0.02 <0.02 <0.02 0.04	S Ce 1-62 % % %	0.02 0.02 0.02 0.02	
C08:0 Octanoic (Caprylic) C10:0 Decanoic (Capric) C11:0 Undecanoic (Hendecanoic) C12:0 Dodecanoic (Lauric) C14:0 Tetradecanoic (Myristic)	Method: AOCS Ce 2-66 AOCS <0.02 <0.02 <0.02 0.04 0.46	S Ce 1-62 % % % %	0.02 0.02 0.02 0.02 0.02 0.02	
C08:0 Octanoic (Caprylic) C10:0 Decanoic (Capric) C11:0 Undecanoic (Hendecanoic) C12:0 Dodecanoic (Lauric) C14:0 Tetradecanoic (Myristic) C14:1 Tetradecenoic (Myristoleic)	Method: AOCS Ce 2-66 AOCS <0.02 <0.02 <0.02 0.04 0.46 <0.02	S Ce 1-62 % % % % %	0.02 0.02 0.02 0.02	
C08:0 Octanoic (Caprylic) C10:0 Decanoic (Capric) C11:0 Undecanoic (Hendecanoic) C12:0 Dodecanoic (Lauric) C14:0 Tetradecanoic (Myristic)	Method: AOCS Ce 2-66 AOCS <0.02 <0.02 <0.02 0.04 0.46	S Ce 1-62 % % % %	0.02 0.02 0.02 0.02 0.02 0.02	
C08:0 Octanoic (Caprylic) C10:0 Decanoic (Capric) C11:0 Undecanoic (Hendecanoic) C12:0 Dodecanoic (Lauric) C14:0 Tetradecanoic (Myristic) C14:1 Tetradecenoic (Myristoleic)	Method: AOCS Ce 2-66 AOCS <0.02 <0.02 <0.02 0.04 0.46 <0.02	S Ce 1-62 % % % % %	0.02 0.02 0.02 0.02 0.02 0.02 0.02	
C08:0 Octanoic (Caprylic) C10:0 Decanoic (Capric) C11:0 Undecanoic (Hendecanoic) C12:0 Dodecanoic (Lauric) C14:0 Tetradecanoic (Myristic) C14:1 Tetradecenoic (Myristoleic) C15:0 Pentadecanoic	Method: AOCS Ce 2-66 AOCS <0.02 <0.02 <0.02 0.04 0.46 <0.02 0.80	S Ce 1-62 % % % % % %	0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02	
C08:0 Octanoic (Caprylic) C10:0 Decanoic (Capric) C11:0 Undecanoic (Hendecanoic) C12:0 Dodecanoic (Lauric) C14:0 Tetradecanoic (Myristic) C14:1 Tetradecenoic (Myristoleic) C15:0 Pentadecanoic C15:1 Pentadecenoic	Method: AOCS Ce 2-66 AOCS <0.02 <0.02 <0.02 0.04 0.46 <0.02 0.80 <0.02	S Ce 1-62 % % % % % % %	0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02	
C08:0 Octanoic (Caprylic) C10:0 Decanoic (Capric) C11:0 Undecanoic (Hendecanoic) C12:0 Dodecanoic (Lauric) C14:0 Tetradecanoic (Myristic) C14:1 Tetradecenoic (Myristoleic) C15:0 Pentadecanoic C15:1 Pentadecenoic C16:0 Hexadecanoic (Palmitic)	Method: AOCS Ce 2-66 AOCS <0.02 <0.02 <0.02 0.04 0.46 <0.02 0.80 <0.02 22.30	S Ce 1-62 % % % % % % %	0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02	
C08:0 Octanoic (Caprylic) C10:0 Decanoic (Capric) C11:0 Undecanoic (Hendecanoic) C12:0 Dodecanoic (Lauric) C14:0 Tetradecanoic (Myristic) C14:1 Tetradecenoic (Myristoleic) C15:0 Pentadecanoic C15:1 Pentadecenoic C16:0 Hexadecanoic (Palmitic) C16:1 Hexadecenoic (Palmitoleic)	Method: AOCS Ce 2-66 AOCS <0.02 <0.02 <0.02 0.04 0.46 <0.02 0.80 <0.02 22.30 0.13 <0.02	S Ce 1-62 % % % % % % % % %	0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02	
C08:0 Octanoic (Caprylic) C10:0 Decanoic (Capric) C11:0 Undecanoic (Hendecanoic) C12:0 Dodecanoic (Lauric) C14:0 Tetradecanoic (Myristic) C14:1 Tetradecenoic (Myristoleic) C15:0 Pentadecanoic C15:1 Pentadecenoic C16:0 Hexadecanoic (Palmitic) C16:1 Hexadecenoic (Palmitoleic) C16:2 Hexadecadienoic	Method: AOCS Ce 2-66 AOCS <0.02 <0.02 <0.02 0.04 0.46 <0.02 0.80 <0.02 22.30 0.13 <0.02 <0.02 <0.02	S Ce 1-62 % % % % % % % % %	0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02	
C08:0 Octanoic (Caprylic) C10:0 Decanoic (Capric) C11:0 Undecanoic (Hendecanoic) C12:0 Dodecanoic (Lauric) C14:0 Tetradecanoic (Myristic) C14:1 Tetradecenoic (Myristoleic) C15:0 Pentadecanoic C15:1 Pentadecenoic C16:0 Hexadecanoic (Palmitic) C16:1 Hexadecenoic (Palmitoleic) C16:2 Hexadecadienoic C16:3 Hexadecatrienoic C16:4 Hexadecatetraenoic	Method: AOCS Ce 2-66 AOCS <0.02 <0.02 <0.02 0.04 0.46 <0.02 0.80 <0.02 22.30 0.13 <0.02 <0.02 <0.02 <0.02	S Ce 1-62 % % % % % % % % % %	0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02	
C08:0 Octanoic (Caprylic) C10:0 Decanoic (Capric) C11:0 Undecanoic (Hendecanoic) C12:0 Dodecanoic (Lauric) C14:0 Tetradecanoic (Myristic) C14:1 Tetradecenoic (Myristoleic) C15:0 Pentadecanoic C15:1 Pentadecenoic C16:0 Hexadecanoic (Palmitic) C16:1 Hexadecenoic (Palmitoleic) C16:2 Hexadecatienoic C16:3 Hexadecatrienoic C16:4 Hexadecatetraenoic C17:0 Heptadecanoic (Margaric)	Method: AOCS Ce 2-66 AOCS <0.02 <0.02 <0.02 0.04 0.46 <0.02 0.80 <0.02 22.30 0.13 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 0.99	S Ce 1-62 % % % % % % % % % %	0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02	
C08:0 Octanoic (Caprylic) C10:0 Decanoic (Capric) C11:0 Undecanoic (Hendecanoic) C12:0 Dodecanoic (Lauric) C14:0 Tetradecanoic (Myristic) C14:1 Tetradecenoic (Myristoleic) C15:0 Pentadecanoic C15:1 Pentadecenoic C16:0 Hexadecanoic (Palmitic) C16:1 Hexadecenoic (Palmitoleic) C16:2 Hexadecatienoic C16:3 Hexadecatienoic C16:4 Hexadecatetraenoic C17:0 Heptadecanoic (Margaric) C17:1 Heptadecenoic (Margaroleic)	Method: AOCS Ce 2-66 AOCS <0.02 <0.02 <0.02 0.04 0.46 <0.02 0.80 <0.02 22.30 0.13 <0.02 <0.02 <0.02 <0.02 <0.02 0.99 0.02	S Ce 1-62 % % % % % % % % % % %	0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02	
C08:0 Octanoic (Caprylic) C10:0 Decanoic (Capric) C11:0 Undecanoic (Hendecanoic) C12:0 Dodecanoic (Lauric) C14:0 Tetradecanoic (Myristic) C14:1 Tetradecenoic (Myristoleic) C15:0 Pentadecanoic C15:1 Pentadecenoic C16:0 Hexadecanoic (Palmitic) C16:1 Hexadecenoic (Palmitoleic) C16:2 Hexadecadienoic C16:3 Hexadecatrienoic C16:4 Hexadecatrienoic C16:4 Hexadecateraenoic C17:0 Heptadecanoic (Margaric) C17:1 Heptadecenoic (Margaroleic) C18:0 Octadecanoic (Stearic)	Method: AOCS Ce 2-66 AOCS <0.02 <0.02 <0.02 0.04 0.04 <0.02 0.80 <0.02 22.30 0.13 <0.02 <0.02 <0.02 <0.02 <0.02 <0.02 0.99 0.02 1.25	S Ce 1-62 % % % % % % % % % % % % %	0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02	
C08:0 Octanoic (Caprylic) C10:0 Decanoic (Capric) C11:0 Undecanoic (Hendecanoic) C12:0 Dodecanoic (Lauric) C14:0 Tetradecanoic (Myristic) C14:1 Tetradecenoic (Myristoleic) C15:0 Pentadecanoic C15:1 Pentadecenoic C16:0 Hexadecanoic (Palmitic) C16:1 Hexadecenoic (Palmitoleic) C16:2 Hexadecadienoic C16:3 Hexadecatrienoic C16:4 Hexadecatetraenoic C17:0 Heptadecanoic (Margaric) C17:1 Heptadecenoic (Margaroleic)	Method: AOCS Ce 2-66 AOCS <0.02 <0.02 <0.02 0.04 0.46 <0.02 0.80 <0.02 22.30 0.13 <0.02 <0.02 <0.02 <0.02 <0.02 0.99 0.02	S Ce 1-62 % % % % % % % % % % %	0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02	

Eurofins Tech. Service (Sustan) No. 101, Jialingjiang Rg NSND Suzhou 215000 eurofins 8 Jiangsu Province, P.F na

TING SER

+86 400 828 5088 Phone

Fax



		Results	Unit	LOQ	LOD
C18:2 Octade	cadienoic Omega 6	6.88	%	0.02	
(Linoleic)	and the second				
	catrienoic (Linolenic +	0.91	%	0.02	
isomers)					
C18:3 Octade	catrienoic Omega 3	0.76	%	0.02	
(Alpha Linolen	ic)				
C18:3 Octade	catrienoic Omega 6	0.15	%	0.02	
(Gamma Linol	enic)				
C18:4 Octade	catetraenoic Omega 3	0.11	%	0.02	
(Stearidonic)					
	noic (Arachidic)	0.27	%	0.02	
C20:1 Eicoser	ioic (Gondoic + isomers)	0.06	%	0.02	
C20:2 Eicosad	lienoic Omega 6	0.04	%	0.02	
C20:3 Eicosat	rienoic	0.23	%	0.02	
	rienoic Omega 3	<0.02	%	0.02	
C20:3 Eicosat	rienoic Omega 6	0.23	%	0.02	
C20:4 Eicosat	etraenoic (Arachidonic +	1.09	%	0.02	
isomers)					
	etraenoic Omega 3	0.50	%	0.02	
	etraenoic Omega 6	0.59	%	0.02	
(Arachidonic)					
C20:5 Eicosar	pentaenoic Omega 3	0.23	%	0.02	
C21:5 Heneice	osapentaenoic Omega 3	< 0.02	%	0.02	
C22:0 Docosa	noic (Behenic)	0.16	%	0.02	
C22:1 Docose	noic (Erucic + isomers)	< 0.02	%	0.02	
C22:2 Docosa	dienoic Omega 6	< 0.02	%	0.02	
C22:3 Docosa	trienoic, Omega 3	<0.02	%	0.02	
C22:4 Docosa	tetraenoic Omega 6	0.06	%	0.02	
C22:5 Docosa	pentaenoic	10.96	%	0.02	
C22:5 Docosa	pentaenoic Omega 3	0.06	%	0.02	
C22:5 Docosa	pentaenoic Omega 6	10.90	%	0.02	
C22:6 Docosa	hexaenoic Omega 3	38.78	%	0.02	
C24:0 Tetraco	sanoic (Lignoceric)	0.15	%	0.02	
C24:1 Tetraco	senoic (Nervonic)	<0.02	%	0.02	
Sum of Omega		40.45	%	0.05	
Sum of Omega		18.85	%	0.05	
Total Fat as Tr		93.15	%	0,1	
Total Fatty Aci		89.35	%	0.1	
the second se	saturated Fatty Acids	3.50	%	0.05	
	aturated Fatty Acids	59.40	%	0.05	
Total Saturate		26.44	%	0.05	
	re by Karl Fischer Method: AOCS (				
Moisture, Karl		0.02	%	0.01	
	de screening using LC/MS/MS in fatt				GB L 13.04-5 : 2013-08, mod
Linuron	Contraction of the second second of the second	< 0.01	mg/kg	0.01	and the second second second
Bromacil		< 0.01	mg/kg	0.01	
Pyrethrins		<0.1	mg/kg	0.1	
	Plate Count /ml AOAC 990.12 Me		- anging	and the second s	
Aerobic Plate			of i total		
		10(est)	cfu/ml		
	Mould E <10 >1500 /g (1) PCCG-P A			12	
Moulds		<10	cfu/g		
Yeast		<10	cľu/g		



Phone +86 400 828 5088 Fax www.eurofins.cn



Salmonella		Not Del	tected /25 ml		
☆ UMM1D Coli	forms /ml AOAC 991.14	Method: AOAC 991.14			
Coliforms			<10 cfu/ml		
COMMENT			and the second second		
24-methylenecycloar	plant sterols and plant sta tanol, and citrostadienol). eutables is 0.875 mg/100 g		plesterol and non-4-desr	nethyl sterols (i.e. cycloai	rtenol,
List of screened m	olecules (* = limit of	quantification)			
	Pesticide Screening(GC) (	Constant and the second second			
(a) 2-Phenylphenol (0.01) (a) Atrazine (0.02) (a) Bromophos (0.01) (a) Ceptafol (0.05)	(a) Acetochior (0.06) (a) Benfuralin (0.01) (a) Bromophoa-sthyl (0.01) (a) Captan (0.05)	(a) Actoriten (0.05) (a) Bremos (0.05) (a) Bremos rouptate (0.01) (a) Ceptar/THPI (Sum calculated as Centan) (1)	<ul> <li>(a) Aldrin (0.01)</li> <li>(a) Bifenthrin (0.01)</li> <li>(a) Butechlor (0.01)</li> <li>(a) Cartophenothion (0.05)</li> </ul>	<ul> <li>(a) Ametryne (0.02)</li> <li>(a) Biphenyl (0.01)</li> <li>(a) Butafensoli (0.01)</li> <li>(a) Carbophenothioh-methyl (0.05)</li> </ul>	(a) Aramite (0,04) (a) Bromferivinfoe (0,02) (a) Cadusalos (0,02) (a) Carboxin (0,05)
<ul> <li>(a) Chlorbenside (0.06)</li> <li>(a) Chlorbenside (0.01)</li> <li>(a) Chlorpyrfos (-ethyl) (0.01)</li> <li>(a) Cyanazine (0.02)</li> </ul>	<ul> <li>(a) Chlomene (Sum) ()</li> <li>(a) Chlomephos (0.05)</li> <li>(a) Chlomyrfae-methyl (0.01)</li> <li>(a) Cysnofenphos (0.05)</li> </ul>	<ul> <li>(a) Chlordane, Alpha (0.01)</li> <li>(a) Chlorobenzilata (0.01)</li> <li>(a) Chlorobenzilata (0.01)</li> <li>(b) Chlorobel-dimetryl (0.01)</li> <li>(b) Cyanophos (0.02)</li> </ul>	<ul> <li>(a) Chlordane, gamma (0.01)</li> <li>(a) Chloroneb (0.01)</li> <li>(a) Chlorthion (0.05)</li> <li>(a) Cyflothing (0.05)</li> </ul>	<ul> <li>(a) Chlorfenapyr (0.05)</li> <li>(a) Chloropropylate (0.01)</li> <li>(a) Chlozofinate (0.02)</li> <li>(a) Cyhalothin, lambda-(incl. Cyhalothin, garima-) (0.01)</li> </ul>	<ul> <li>(a) Chlordenson (0.05)</li> <li>(b) Chlorothalonii (0.01)</li> <li>(a) Crufomate (0.05)</li> <li>(a) Cypermethrin (0.05)</li> </ul>
<ul> <li>(a) Cyphenothim (0.05)</li> <li>(a) DDT, α,ρ~(0.01)</li> <li>(a) Dichlorobenzophenone σ,p<sup>*</sup></li> <li>(0.02)</li> </ul>	<ul> <li>(a) DDD, e,p'- (0.01)</li> <li>(b) DDT, p,p'- (0.01)</li> <li>(a) Cichlorobenzophenone p,p' (0.02)</li> </ul>	<ul> <li>(e) DDD, p.p<sup>2</sup> (0.01)</li> <li>(a) Deltamethrin (0.05)</li> <li>(a) Dichlorves (0.05)</li> </ul>	<ul> <li>(a) DDE, 0,0'- (0.01)</li> <li>(a) Dichlobenii (0.05)</li> <li>(a) Dickoran (0.05)</li> </ul>	(e) DDE, p.p <sup>-</sup> (0.01) (e) Dichlofenthian (0.02) (e) Dicofol (Sum) ()	(a) DDT (Sum) () (a) Dichlofiuanid (0.02) (a) Dicofol, o.p'- (0.02)
(a) Directol, p.p. (0.02) (a) Directol, p.p. (0.02) (a) Endosuffar, sulfat- (0.02) (a) Ethnolog (0.02) (a) Femiltrothion (0.02)	(a) Dieldrin (0.02) (a) Diehenylamme (0.01) (a) Endrin (0.05) (a) Fenanrophas (0.05) (a) Fenanrophatinin (0.02)	(a) Dieldstin (Sum) () (a) Edifemphos (0.02) (a) EPN (0.05) (a) Fenchlorphos (0.02) (a) Fension (0.02)	<ul> <li>(a) Dienechlor (0.05)</li> <li>(a) Endosulfan (Sum) ()</li> <li>(a) Ethalfkrain (0.01)</li> <li>(a) Fenchlorphos (sum) ()</li> <li>(a) Fenthion (0.02)</li> </ul>	<ul> <li>(a) Dinobuton (0.05)</li> <li>(a) Endasulfan, alpha- (0.05)</li> <li>(a) Ethion (0.02)</li> <li>(b) Fenchlarphos oxon (0.01)</li> <li>(c) Fenchlarphos axon (0.01)</li> <li>(c) Fenchlashe &amp; Esfenvalerate</li> <li>(Sum of R6&amp;SR isomers)</li> <li>(0.02)</li> </ul>	<ul> <li>(a) Disxabenzatios (0.02)</li> <li>(a) Endosultan, beta- (0.05)</li> <li>(a) Endiazole (0.02)</li> <li>(a) Fandluthrin (0.01)</li> <li>(a) Fernvalente &amp; Eafenvalenate( aum of RR.SS.RS.SR) ()</li> </ul>
<ul> <li>Fenvalerate 5</li> <li>Esfenvalerate(Sum of RR855 Isomers) (0,02)</li> </ul>	(a) Fluchforain (0.05)	(a) Flucythinete (0.05)	(a) Flumetralin (0.05)	(a) Fluotrimazole (0.01)	(a) Fluquinconazole (0.02)
<ul> <li>(a) Fluvalinate-tau (0.02)</li> <li>(a) HCH, beta- (0.01)</li> <li>(a) Heptachlor epoxide trans         <ul> <li>(0.01)</li> </ul> </li> </ul>	<ul> <li>(a) Fonatos (0.02)</li> <li>(a) HCH, delta- (0.01)</li> <li>(a) Heptenophoe (0.02)</li> </ul>	(a) Formothion (0.05) (a) HCH epsilon- (0.01) (a) Iprobenfos (0.02)	(a) HCB (0.01) (a) Heptachlor (0.01) (a) Isazofoa (0.01)	<ul> <li>(a) HCH gamma(Lindan) (0.01)</li> <li>(a) Heptachlor (Sum) ()</li> <li>(a) Isocarbophos (0.02)</li> </ul>	<ul> <li>(a) HCH, alpha-(0.01)</li> <li>(a) Heptachlor epoxide cis (0.01)</li> <li>(a) Isodrin (0.02)</li> </ul>
<ul> <li>(a) Isolenphos (0,02)</li> <li>(a) Malaoxen (0.05)</li> <li>(b) Methamidophos (0,1)</li> </ul>	<ul> <li>(a) Isofenphos-methyl (0.01)</li> <li>(a) Malathion (0.02)</li> <li>(a) Methidathion (0.02)</li> </ul>	<ul> <li>(a) Isoprothiotane (0.02)</li> <li>(a) Malathion (Sum) ()</li> <li>(a) Methoxychlor (0.02)</li> </ul>	<ul> <li>(a) Jodfenphos (0.02)</li> <li>(a) Necarbam (0.04)</li> <li>(a) Nethyl-Pentachlorophenylsul fide (0.06)</li> </ul>	<ul> <li>(a) Kression-methyl (0,01)</li> <li>(a) Mepronil (0,01)</li> <li>(a) Methibuzin (0.04)</li> </ul>	<ul> <li>(a) Landrin (0.02)</li> <li>(a) Methacriphos (0.02)</li> <li>(a) Mewnphos (0.02)</li> </ul>
#) Minex (0.01)	<ul> <li>(a) N-Desathyl-pinimiphos-methyl (0.01)</li> </ul>	(a) Nitrapyrin (0.01)	(a) Nitrolen (0.02)	(a) Nitrothal-isopropyl (0,01)	<ul> <li>(a) Octachlorodipropyl ether (S-421) (0.05)</li> </ul>
(a) Clurace (0.01) (a) Parathion-restry((0.04) (a) PGB 26 (0.01) (a) Phenkapton (0.05) (a) Phenkapton (0.01) (b) Propani (0.01) (a) Stithidam (0.01) (a) Stithidam (0.01)	(a) Oxadiazon (0.62) (a) PCB 101 (0.01) (a) PCB 25 (0.01) (a) PCB 25 (0.01) (a) Phenothrin (0.01) (a) Promazine (0.01) (a) Promazine (0.01) (a) Tebulanpyrad (0.01) (a) Tebulanpyrad (0.01)	(a) Oxychlordane (0,02)         (a) PCB 116 (0,01)           (a) Petatokrozanilne (0,01)         (a) Petatokrozanilne (0,01)           (a) Petatokrozanilne (0,02)         (a) Protyindone (0,01)           (a) Protyindone (0,02)         (a) Pothiota (0,02)           (a) Pothiotane (0,02)         (a) Tetramotivis (0,02)	<ul> <li>(a) Oxyfluorfen (0.02)</li> <li>(a) POB 138 (0.01)</li> <li>(a) Pentarkforsanisale (0.01)</li> <li>(a) Protentifica (0.01)</li> <li>(a) Protentifica (0.01)</li> <li>(a) Pyrazophos (0.01)</li> <li>(a) Cyratophos (0.01)</li> <li>(a) Teffuttivin (0.02)</li> <li>(b) Teffuttivin (0.02)</li> </ul>	(a) Padobuthazol (0.01) (a) PGB 153 (0.01) (a) Portachlorobenzane (0.01) (a) Portachlorobenzane (0.04) (a) Portachlorobenzation (0.02) (a) Particular (0.02) (a) Tarthullos (0.02) (b) Tarthullos (0.02)	(5-42) (0.05) (a) Partilion (0.01) (a) PCB 180 (0.01) (a) Permetrixn (0.02) (a) Permetrixn (0.02) (b) Prometrixn (0.02) (c) Silaffuction (0.06) (c) Tetrischlorvinphos (0.02) (c) Titliatte (0.02)
(a) Triszamate (0.01)	(0,06) (a) Triazophos (0.02)	(a) Trichloronat (0.01)	ua) "Triffuralin (0.02)	(s) Triticonazole (0.01)	(a) Uniconazole (0.02)

Ally Dong	Cialle Wang	Jack ne
Authorized Signatory	Authorized Signatory	Authorized Signatory
EXPLANATORY NOTE		
LOQ: Limit of Quantification		
< LOQ: Below Limit of Quantification	a means the test is subcontracted	within Eurofins group
N/A means Not applicable	means the test is subcontracted	outside Eurofins group
Sum compounds results are calculated from the	results of each quantified compound as set by	regulation
The result(s) relate(s) only to the item(s) tested a	and is(are) only for internal use by the client and	d not for publicly available as evidence.
This analytical report shall not be reproduced ex	cept in full, without written approval of the labor	atory.
Eurofins General Terms and Conditions apply.		
For and on behalf of Eurofins Technology Servic	e (Suzhou) Co., Ltd	

END OF REPORT



Phone +86 400 828 5088 Fax www.eurofins.cn



194	i hysical inspection
Sample code	502-2019-00010195
Sample name	DHA oil
Color	Light yellow
Odor	Have the special odor of this product
Texture	Oily liquid

## **Physical inspection**



1.8

Eurofina Tech, Service (Sueta) Shine No. 101, Jielingjiang Rose SND Suzhou 215000 Jiangsu Province, P.F. Sina Phone +86 400 828 5088 Fax +86 512 6878 5966 www.eurofins.cn



### Analytical Report

Sample Code Certificate No.

502-2019-00010194 PR-19-SU-000048-01 Report date 25-Mar-2019

HuBei Fuxing Biotechnology CO,.LTD Yanrong Wu NO.18 Fuxing Street, Chenhu Town, Hanchuan, Hubei, P.R. China Fax 0086 0712-8741957

	ax 0086 0712-87	41957	
Our reference:       502-2019-00010194/       PR-19-SU-000048-0         Client Sample Code:       D18122601J         Sample described as:       DHA油脂         Sample Packaging:       Sealed metal bottle         Sample reception date:       20-Feb-2019         Analysis starting date:       20-Feb-2019         Analysis ending date:       22-Mar-2019	1		
Arrival Temperature (°C) 17.6 San	nple Weight	600g	*2
Resul	ts Unit	LOQ	LOD
SU007 Mercury (AAS) Method: BS EN 13806:2002	10.00		
Mercury (Hg) <0.00		0.005	
SU051 Manganese (ICP-MS) Method: BS EN ISO 17294-2 2016			
Manganese (Mn) <0.		0.1	
SU055 Molybdenum (ICP-MS) Method: BS EN ISO 17294-2 2010	and the second se		
Molybdenum (Mo) <0.0	3 mg/kg	0.03	
SU056 Nickel (ICP-MS) Method: BS EN ISO 17294-2 2016 mod. Nickel (Ni) <0.	1 mallic		
	1 mg/kg	0.1	
SU05D Lead (ICP-MS) Method: BS EN ISO 17294-2 2016 mod. Lead (Pb) <0.0	5 mg/kg	0.05	
SU05E Arsenic (ICP-MS) Method: BS EN ISO 17294-2 2016 mod		0.05	
Arsenic (As)		0.05	
SU05F Chromium (ICP-MS) Method: BS EN ISO 17294-2 2016 n		0.05	
Chromium (Cr) Method. BS EN ISO 17294-2 2016 1 Chromium (Cr) <0.		0.1	
SU05G Cadmium (ICP-MS) Method: BS EN ISO 17294-2 2016 m		0.1	
Cadmium (Cd) <0.0		0.01	
SU05J Copper (ICP-MS) Method: BS EN ISO 17294-2 2016 mod		14.4 I	
Copper (Cu) <0.		0.1	
SU05K Phosphorus (ICP-MS) Method: BS EN ISO 17294-2 2016			
Phosphorus (P) 39.		5	
SU51B Iron (ICP-OES) Method: Internal Method ICP-OES, ICP-O			
Iron (Fe) <0.		0.1	
Resul	s Unit	LOQ	LOD
SUS1A Pesticide Screening(GC) Method: BS EN 12393:2013			
Screened pesticides <lo< td=""><td>Q mg/kg</td><td></td><td></td></lo<>	Q mg/kg		
Resul	s Unit	LOQ	LOD
SU10Z Cronobacter spp. in 10g Method: ISO 22964:2017			
Cronobacter spp Not Detecte	d /10 g		
Resul		LOQ	LOD

Eurofins Tech. Service (Suzhou) Control No. 101, Jialingjiang Rose, SND Suzhou 215000 Jiangsu Province, P.F. Gina

STING SERV

Phone +86 400 828 5088

Fax



	Results	Unit	LOQ	LOD
Protein	<0.1 (k=6.25)	g/100 g	0.1	
SU217 Physical inspection Method: Internal Me	thod, Organoleptic evalu	ation		
Physical inspection	see attached			
	document			
SU227 Ash Method: AOAC 941.12; AOAC 923.				
Ash	0.05	g/100 g	0.01	
SU372 Cholesterol Method: GB 5009.128-2016				
Cholesterol	1200	mg/kg	10	
	Results	Unit	LOQ	LOD
SF0XA add 1 on to the GC/MS-pesticide screening		) Method: § 64	LFGBL	00.00-34 : 2010-09, mod.
Tralomethrin	< 0.05	mg/kg	0.05	
FL023 Plant sterols and plant stanols (not enriched)	ed) Method: NMKL 19	8:2014		
Brassicasterol	10	mg/100 g	1	
Cholesterol	114	mg/100 g	1	
Campesterol	5	mg/100 g	1	
Campestanol	1	mg/100 g	1	
Stigmasterol	10	mg/100 g	1	
Unidentified sterols	116	mg/100 g	1	
Sitosterol	23	mg/100 g	1	
Sitostanol+ delta-5-avenasterol	6	mg/100 g	1	
Delta-5,24-stigmastadienol	3	mg/100 g	1	
Delta-7-stigmastenol	13	mg/100 g	1	
delta-7-Avenasterol	1	mg/100 g	1	
Cycloartenol	2	mg/100 g	4	
24-Methylenecycloartanol	3	mg/100 g	1	
Citrostadienol	1	mg/100 g	1	
Total plant sterols + plant stanols	188	mg/100 g	1	
☆ JC00V PAH acc. to EU 208/2005 (15+1) Metho				
5-Methylchrysene	<1	µg/kg	1	
Benz(a)anthracene	<0.5	µg/kg	0.5	
Benzo(a)pyrene	<0.5	µg/kg	0.5	
Benzo(b)fluoranthene	<0.5	µg/kg	0.5	
Benzo-(c)-fluorene	<1	µg/kg	1	
Benzo(g,h,i)perylene	<0.5	µg/kg	0.5	
Benzo-(j)-fluoranthen	0.6	µg/kg	0.5	
Benzo(k)fluoranthene	<0.5	µg/kg	0.5	
Chrysene	<0.5	µg/kg	0.5	
Cyclopenta(c,d)pyrene	<1	µg/kg	1	
Dibenz(a,h)anthracene	<0.5		0.5	
Dibenzo(a,e)pyrene	<0.5	µg/kg		
	<1	µg/kg	1	
Dibenzo(a,h)pyrene		µg/kg	1	
Dibenzo(a,i)pyrene	<1	µg/kg	1	
Dibenzo(a,l)pyrene	<1	µg/kg	1	
Indeno(1,2,3-cd)pyrene	<0.5	µg/kg	0.5	
Sum of all positive identified PAH	0.6	µg/kg		
Sum PAH 4	Inapplicable	µg/kg		
A JC0A9 Patulin (oil) Method: Internal, LC-MS/MS			÷	
Patulin	<5	µg/kg	5	
Aflatoxins B1, B2, G1, G2 (fats, oils, lecith				on EN 14123
Aflatoxin B1	<0.1	µg/kg	0.1	
Aflatoxin B2	<0.1	hð\kð	0.1	
Aflatoxin G1	<0.1	µg/kg	0.1	
Aflatoxin G2	<0.1	µg/kg	0.1	

Eurofins Tech. Service (Suzhou) Contact d SND

eurofins a

ESTING SERVIC

No. 101, Jialingjiang Roa

Suzhou 215000

Jiangsu Province, P.F

+86 400 828 5088 Phone Fax www.eurofins.cn



	Results	Unit	LOQ	LOD
Sum of all positive Aflatoxins	<0.4	µg/kg		
Sterigmatocystin Method: Internal, LC-MS/MS				
Sterigmatocystin	<10	µg/kg	10	
LW0XD Domoic acid, DA Method: In house method (21				
	ot Detected			
Amnesic Shellfish Poison, Domoic acid	<3.0	hð/ð	3	
A QA00F Peroxide Value Method: AOCS Cd 8-53				
Peroxide value	1.1	meq/kg	0.1	
Acid Value Method: AOCS Cd 3d-63	10.00			
Acid value (mg KOH/g)	0.38	mg KOH/g	0.05	
Free fatty acids (as oleic acid)	0.19	%	0.01	
☆ QA01L p-Anisidine Value Method: AOCS Cd 18-90	4.5			
p-Anisidine Value	2.8		4	
Color (Lovibond Scale) Method: AOCS Cc 13e				
Color, red scale, 1 inch cell path	0.9			
Color, yellow scale, 1 inch cell path	9			
☆ QA034 Fumonisins (IAC-LC-MSMS) Method: JAOAC, Fumonisin (B1+B2+B3)	92 (2), 496. <b>&lt;30</b>	tio/ko	30	
Fumonisin B1	<10	µg/kg µg/kg	10	
Fumonisin B2	<10	µg/kg µg/kg	10	
Fumonisin B2	<10	µg/kg µg/kg	10	
QA04E Residual Solvents (GC-MS) Method: AOCS Co		havea	10	
1,1,1-Trichloroethane	<0.2	mg/kg	0.2	
1,1,2-Trichloroethane	<0.2	mg/kg	0.2	
1,2-Dichloroethane	<0.5	mg/kg	0.5	
1,2-Dimethoxyethane	<1	mg/kg	1	
1-Butanol	<1	mg/kg	1	
2-Hexanone	<1	mg/kg	1	
Acetone	<1	mg/kg	1	
Benzene	<0.1	mg/kg	0.1	
Butyl acetate	<0.5	mg/kg	0.5	
Carbon tetrachloride	<0.5	mg/kg	0.5	
Chlorobenzene	<0.5	mg/kg	0,5	
Chloroform	<0.1	mg/kg	0.1	
Cyclohexane	<0.2	mg/kg	0.2	
Dichloromethane	<0.1	mg/kg	0,1	
Ethanol	<1	mg/kg	1	
Ethyl acetate	<1	mg/kg	1	
Heptane	<0.2	mg/kg	0.2	
Hexane (sum of n-hexane, iso and	<0.5	mg/kg	0.5	
3-methyl pentane)			1.1	
Isopropanol	<1	mg/kg	1	
Methanol	<1	mg/kg	1	
Methyl Ethyl Ketone (MEK)	<0.2	mg/kg	0.2	
Methyl-tert-butylether (MTBE)	<0.2	mg/kg	0.2	
Tetralin	<5	mg/kg	5	
Toluene	<0.2	mg/kg	0.2	
Trichloroethylene	<0.1	mg/kg	0.1	
Xylenes (sum)	<0.2	mg/kg	0.2	
	: ASU L00.00-34			
PCB 1	<0.01	mg/kg	0.01	
PCB 101	< 0.01	mg/kg	0.01	
PCB 104	<0.01	mg/kg	0.01	
PCB 105	<0.01	mg/kg	0.01	

Eurofins Tech. Service (Suzhou) Co. H

Phone +86 400 828 5088

Suzhou 215000

Jiangsu Province, P.F

No. 101, Jialingjiang Road, SND eurofins ESTING SERVIN



	Results	Unit	LOQ	LOD
PCB 118	<0.01	mg/kg	0.01	
PCB 126	<0.01	mg/kg	0.01	
PCB 128	<0.01	mg/kg	0.01	
PCB 138	< 0.01	mg/kg	0.01	
PCB 153	< 0.01	mg/kg	0.01	
PCB 170	<0.01	mg/kg	0.01	
PCB 18	<0.01	mg/kg	0.01	
PCB 180	<0.01	mg/kg	0.01	
PCB 187	< 0.01	mg/kg	0.01	
PCB 188	< 0.01	mg/kg	0.01	
PCB 195	< 0.01	mg/kg	0.01	
PCB 201	< 0.01	mg/kg	0.01	
PCB 206	<0.01	mg/kg	0.01	
PCB 209	< 0.01	mg/kg	0.01	
PCB 28	<0.01	mg/kg	0.01	
PCB 29	<0.01	mg/kg	0.01	
PCB 44	<0.01	mg/kg	0.01	
PCB 50	< 0.01	mg/kg	0.01	
PCB 52	< 0.01	mg/kg	0.01	
PCB 66	<0.01	mg/kg	0.01	
PCB 77	< 0.01	mg/kg	0.01	
PCB 8	< 0.01	mg/kg	0.01	
PCB 87	<0.01	mg/kg	0.01	
Sum Non-Dioxin-Like PCBs	<0.01	mg/kg	0.01	
(28+52+101+138+153+180)		0.0		
Total PCB	<0.1	mg/kg	0.1	
☆ QA0MT Ochratoxin A (HPLC-FLD) Meth Ochratoxin A	od: AOAC 2000.16	µg/kg	1	
* QA23L Trans Fatty Acids, relative area %	(GC-FID) Method: AOCS Ce			
Total Trans Fatty Acids	<0.01	% of fatty acids	0.01	
total trans fatty acids C18:1	<0.01	% of fatty acids	0.01	
total trans fatty acids C18:2 (without CLA)	<0.01	% of fatty acids	0.01	
total trans fatty acids C18:2 + C18:3	<0.01	% of fatty acids	0.01	
total trans fatty acids C18:3	<0.01	% of fatty	0.01	
A CONTRACTOR OF A CONTRACTOR O		acids	100	
A QA282 Free Fatty Acid, as Oleic Method	d: AOCS Ca 5a-40			
Free fatty acids as oleic acid	0.14	%	0.01	
A QA328 Insoluble Impurities Method: AO				
Insoluble impurities	<0.01	%	0.01	
☆ QA513 Toxaphene (GC-MSMS)				
Toxaphene Parlar 26	<loq< td=""><td>mg/kg</td><td>0.01</td><td></td></loq<>	mg/kg	0.01	
Toxaphene Parlar 50	<loq< td=""><td>mg/kg</td><td>0.01</td><td></td></loq<>	mg/kg	0.01	
Toxaphene Parlar 62	Not Analyzable	mg/kg	0.01	
☆QA560 Sulfallate (Vegedex)				
Sulfallate (Vegedex)	<0.02	mg/kg	0.02	
* QA867 Silicon (ICP-AES) Method: AOC		mana	0.02	
Silicon (Si)	<1 <1	mg/kg		
A 2 YO WERE COMPANY AND A COMPANY AND A REAL PROPERTY AND A REAL PROPERTY.			1	
☆ QA967 Unsaponifiable Matter (Ethyl ether	ext) Method: AUCS Ca 60-53	%	0.05	
Unsaponifiable matter				

Eurofins Tech. Service (Suzhou) Control No. 101, Jialingjiang Road, SND

Suzhou 215000

Jiangsu Province, P.F

Phone +86 400 828 5088 Fax www.eurofins.cn



	Results	Unit	LOQ	LOD
Vomitoxin (Deoxynivalenol)	<50	µg/kg	50	
Zearalenone (LC-MSMS) Method:	Food Addit Contam Part A, 20	013:30(3),541	-9.	
Zearalenone	<25	µg/kg	25	
COD089 Fatty Acids-Omega 6 & 3 %W/W	Method: AOCS Ce 2-66 AOCS	Ce 1-62		
C08:0 Octanoic (Caprylic)	<0.02	%	0.02	
C10:0 Decanoic (Capric)	<0.02	%	0.02	
C11:0 Undecanoic (Hendecanoic)	<0.02	%	0.02	
C12:0 Dodecanoic (Lauric)	0.13	%	0.02	
C14:0 Tetradecanoic (Myristic)	2.59	%	0.02	
C14:1 Tetradecenoic (Myristoleic)	< 0.02	%	0.02	
C15:0 Pentadecanoic	1.32	%	0.02	
C15:1 Pentadecenoic	0.02	%	0.02	
C16:0 Hexadecanoic (Palmitic)	34.82	%	0.02	
C16:1 Hexadecenois (Palmitoleic)	0.28	%	0.02	
C16:2 Hexadecadienoic	<0.02	%	0.02	
C16:3 Hexadecatrienoic	<0.02	%	0.02	
C16:4 Hexadecatetraenoic	<0.02	%	0.02	
C17:0 Heptadecanoic (Margaric)	0.44	%	0.02	
C17:1 Heptadecenoic (Margaroleic)	<0.02	%	0.02	
C18:0 Octadecanoic (Stearic)	1.02	%	0.02	
C18:1 Octadecenoic (Oleic + isomers)	0.44	%	0.02	
C18:2 Octadecadienoic (Linoleic +	0.84	%	0.02	
isomers)	0.04	70	0.02	
C18:2 Octadecadienoic Omega 6	0.78	%	0.02	
(Linoleic)	0.70	10	0.02	
C18:3 Octadecatrienoic (Linolenic +	0.19	%	0.02	
isomers)		10		
C18:3 Octadecatrienoic Omega 3	0.13	%	0.02	
(Alpha Linolenic)		14		
C18:3 Octadecatrienoic Omega 6	0.06	%	0.02	
(Gamma Linolenic)	1200		1115	
C18:4 Octadecatetraenoic Omega 3	0.16	%	0.02	
(Stearidonic)				
C20:0 Eicosanoic (Arachidic)	0.13	%	0.02	
C20:1 Eicosenoic (Gondoic + isomers)	<0.02	%	0.02	
C20:2 Eicosadienoic Omega 6	<0.02	%	0.02	
C20:3 Eicosatrienoic	0.11	%	0.02	
C20:3 Eicosatrienoic Omega 3	<0.02	%	0.02	
C20:3 Eicosatrienoic Omega 6	0.10	%	0.02	
C20:4 Eicosatetraenoic (Arachidonic +	2.24	%	0.02	
isomers)				
C20:4 Eicosatetraenoic Omega 3	0.50	%	0.02	
C20:4 Eicosatetraenoic Omega 6	1.74	%	0.02	
(Arachidonic)				
C20:5 Eicosapentaenoic Omega 3	0.46	%	0.02	
C21:5 Heneicosapentaenoic Omega 3	<0.02	%	0.02	
C22:0 Docosanoic (Behenic)	0.08	%	0.02	
C22:1 Docosenoic (Erucic + isomers)	0.04	%	0.02	
C22:2 Docosadienoic Omega 6	<0.02	%	0.02	
C22:3 Docosatrienoic, Omega 3	<0.02	%	0.02	
C22:4 Docosatetraenoic Omega 6	0.03	%	0.02	
C22:5 Docosapentaenoic	5.10	%	0.02	
C22:5 Docosapentaenoic Omega 3	0.11	%	0.02	
C22:5 Docosapentaenoic Omega 6	4.99	%	0.02	

Eurofins Tech. Service (Suzhau) 50, Ed No. 101, Jialingjiang Read, SND

Suzhou 215000 Jiangsu Province, P.F

e (Suzhov) Son Ho Resort SND eurofins Son Ho Resort SND

Phone +86 400 828 5088

Fax



		F	Results	Unit	LOQ	LOD	
C22:6 Doc	cosahexaenoic Omega 3		38.30	%	0.02		
C24:0 Tet	racosanoic (Lignoceric)		0.06	%	0.02		
C24:1 Tet	racosenoic (Nervonic)		<0.02	%	0.02		
Sum of Or	mega 3 Isomers		39.67	%	0,05		
Sum of Or	mega 6 Isomers		7.71	%	0.05		
Total Fat a	as Triglycerides		92.76	%	0,1		
Total Fatty	Acids Calc.		88.85	%	0.1		
Total Mon	ounsaturated Fatty Acids	5	0.80	%	0.05		
Total Poly	unsaturated Fatty Acids		47.44	%	0.05		
Total Satu	rated Fatty Acids		40.61	%	0.05		
QD153 M	bisture by Karl Fischer Me	thod: AOCS Ca 2e-84					
Moisture,	Karl Fischer		0.01	%	0.01		
SFFED Pe	esticide screening using LC/	MS/MS in fatty food Sele	ected Paran	neter(s) Me	thod: § 64 LFG	GB L 13.04	-5 : 2013-08, mod.
Linuron		and the second	<0.01	mg/kg	0.01		
Bromacil			< 0.01	mg/kg	0.01		
Pyrethrins			<0.1	mg/kg	0.1		
	east-Mould E <10 >1500 /g (	(1) PCCG-P AOAC 997.	02 Metho		.02		
Moulds			<10	cfu/g			
Yeast			<10	cfu/g			
and a state of the	almonella D Abs Pres /25 ml	AOAC-RI 121501 Ma	and the second	C-RI 121501			
Salmonell		Not De		/25 ml			
			lected	120 111			
	bliforms /ml AOAC 991.14	Method: AOAC 991.14					
Coliforms			<10	cfu/ml			
The content of tota 24-methylenecyclos	I plant sterols and plant star artanol, and citrostadienol). -eutables is 0,491 mg/100 g		olesterol an	d non-4-desr	nethyl sterols	(i.e. cycloar	tenol,
The content of tota 24-methylenecyclo: Amount of total GC	artanol, and citrostadienol). -eutables is 0,491 mg/100 g	J	olesterol an	d non-4-desr	nethyl sterols i	(i.e. cycloar	tenol,
The content of tota 24-methylenecyclos Amount of total GC ist of screened	artanol, and citrostadienol). -eutables is 0,491 mg/100 g molecules (* = limit of	ı. quantification)	olesterol an	d non-4-desr	nethyl sterols (	(i.e. cycloar	tenol,
The content of tota 24-methylenecyclos Amount of total GC ist of screened SUS1A	artanol, and citrostadienol). -eutables is 0,491 mg/100 g	ı. quantification)	(a) Aldrin (0.0		(e) Ametryne (0.0		(a) Aramite (0.04)
The content of total 24-methylenecyclor Amount of total GC ist of screened SUS1A 2-Phenylphenel (0.01) Atrazne (0.02)	-eutables is 0,491 mg/100 g molecules (* = limit of Pesticide Screening(GC) (I (a) Acatochiar (0,06) (a) Benfuralin (0,01)	I. quantification) LOQ* mg/kg) (a) Alconifer (0.05) (a) Biferox (0.05)	(a) Aldrin (0,0 (a) Bifenthrin	11) (0.01)	<ul><li>(a) Ametryna (0.0</li><li>(a) Biphenyl (0.0)</li></ul>	)2) 1)	<ul> <li>(a) Aramite (0.04)</li> <li>(a) Bromfervinfos (0.02)</li> </ul>
The content of tota 24-methylenecyclos Armount of total GC ist of screened SUS1A 2-Phanylphenel (0.01) Atrazine (0.02) Bremephone (0.01)	artanol, and citrostadienol). -eutables is 0,491 mg/100 g molecules (* = limit of Pesticide Screening(GC) (I (a) Acatochior (0,06)	Augustification) LOQ* mg/kg) (a) Acionifer (0.05) (a) Bitenox (0.05) (a) Bitenox (0.05) (a) Bitenopropylate (0.01) (a) Capten/THPI (Sum calculated	(a) Aldrin (0.0	1) (0.01) (0.01)	<ul> <li>(a) Ametryna (0.0</li> <li>(a) Biphenyl (0.0.7)</li> <li>(a) Butafenaci (0</li> <li>(a) Carbophenot</li> </ul>	)2) 1) .01)	(a) Azamite (0.04)
The content of total 24-methylenecyclos Amount of total GC ist of screened SUS1A 2-Phenylphenel (0.01) Atrazine (0.02) Beromophice (0.01) Captafol (0.05) Chlorbenside (0.05)	eutables is 0,491 mg/100 g molecules (* = limit of Pesticide Screening(GC) (l (a) Acatochiar (0,06) (a) Benfluralin (0,01) (a) Capten (0,06) (b) Capten (0,06) (c) Chierdane (Sum) ()	Auguantification) LOQ* mg/kg) (a) Aclonifer (0.05) (a) Bremoropylate (0.01) (a) Bremoropylate (0.01) (a) Captan (1) (a) Chordman, alpha (0.01)	<ul> <li>(a) Aldran (0.0</li> <li>(a) Birfenthinin</li> <li>(a) Butachinin</li> <li>(a) Carbopher</li> <li>(a) Chlordane</li> </ul>	1) (0.01) (0.01) nothion (0.05) , germma (0.01)	<ul> <li>(a) Ametryna (0.0)</li> <li>(a) Biphenyi (0.0)</li> <li>(a) Butafenaci (0)</li> <li>(a) Carbophenoti (0.05)</li> <li>(a) Chlorfenapyr</li> </ul>	)2) 1) .01) ion-methyl (0.05)	<ul> <li>(a) Aramite (0.04)</li> <li>(a) Bromferwinfos (0.02)</li> <li>(a) Cadusatos (0.02)</li> <li>(a) Carboxin (0.05)</li> <li>(a) Chlorfenson (0.05)</li> </ul>
The content of total 24-methylenecyclos Amount of total GC ist of screened SUS1A 2-Phenylphenel (0.01) Atrazne (0.02) Bremophae (0.01) Captafol (0.06) Chiotrenside (0.06) Chiotrenside (0.01) Chiotrynfox (0.01)	eutables is 0,491 mg/100 g molecules (* = limit of Pesticide Screening(GC) (l (a) Acatochir (0,06) (a) Benfluralin (0,01) (a) Bromophae-afriya (0,01) (b) Captan (0,06) (c) Chioragna (Sum) () (c) Chioragna (Sum) ()	A quantification) LOQ* mg/kg) (a) Actonifer (0.05) (a) Brienox (0.05) (a) Brienopropylate (0.01) (a) Cohornopropylate (0.01) (a) Chlordene, alpha (0.01) (a) Chlordene/aled (0.01) (b) Chlorden-dimethy (0.01)	<ul> <li>(a) Aldrin (0,0)</li> <li>(a) Bifenthrin (a) Sutachlor</li> <li>(a) Carbophes</li> <li>(a) Chlordane</li> <li>(a) Chlordane</li> <li>(a) Chlorthion</li> </ul>	1) (0.01) (0.01) nothion (0.05) , gamme (0.01) (0.01) (0.05)	<ul> <li>(a) Ametryne (D.0.</li> <li>(a) Biphenyl (G.0.</li> <li>(a) Butafenaci (0</li> <li>(b) Carbophenoti (0.05)</li> <li>(a) Chlordpropsjä</li> <li>(a) Chlordpropsjä</li> <li>(a) Chloszlinate (a) Chlordpropsjä</li> </ul>	22) 11) 101- 101- 101- 101(0.05) 10(0.01) 0.02)	(a) Aramite (0.04) (a) Bromfervinfos (0.02) (a) Carbosin (0.02) (a) Carbosin (0.05) (a) Chlordenson (0.05) (a) Chlornete (0.05)
The content of tota 24-methylenecyclos Amount of total GC ist of screened SUS1A 2-Phenytphenol (0.01) Arazne (0.02) Choraenside (0.06) Chlorgenide (0.06) Chlorgenide (0.01) Chlorgenide (0.01) Chlorgenide (-0.01) Cyanazne (0.02)	artanol, and citrostadienol). -eutables is 0,491 mg/100 g molecules (* = limit of Pesticide Screening(GC) (l (a) Acatochiar (0,06) (a) Bromophas-atily (0,01) (b) Captan (0,06) (a) Chiermenas (0,05)	I. DQ* mg/kg) (a) Actonifer (0.05) (a) Bitenox (0.05) (a) Bitenox (0.05) (a) Bitenox (1.01) (c) Captar/TPPI (Sum calculated as Captar) () (a) Chiordane, alpha (0.01) (a) Chiordenzilate (0.01)	<ul> <li>(a) Aldrin (0.0</li> <li>(a) Bifenthrin</li> <li>(a) Sutachlor</li> <li>(a) Calordane</li> <li>(a) Chlordane</li> <li>(a) Chloroneb</li> </ul>	1) (0.01) (0.01) nothion (0.05) , gamme (0.01) (0.01) (0.05)	<ul> <li>(a) Ametryna (0.0.</li> <li>(a) Biphenyl (0.0.7)</li> <li>(a) Butheraeci (0.0.5)</li> <li>(a) Chordenapyr</li> <li>(a) Chlordenapyr</li> <li>(a) Chlordenapyr</li> <li>(a) Chlordenthrn, la</li> <li>(b) Chydaldhrn, la</li> </ul>	22) 11) 101- 101- 101- 101(0.05) 10(0.01) 0.02)	(a) Azamite (0.04) (a) Bromferwintos (0.02) (a) Cadusatos (0.02) (a) Carbosh (0.05) (a) Chlortenson (0.05) (a) Chlortenson (0.05) (a) Chlortentialonii (0.01)
The content of total 24-methylenecyclos Amount of total GC ist of screened SUS1A 2-Phenylphenel (0.01) Atrazine (0.02) Bromophae (0.01) Captafel (0.06) Chilorbenside (0.06) Chilorbenside (0.06) Chilorpenside (0.01) Cyphenethrin (0.05)	artanol, and citrostadienol). -eutables is 0,491 mg/100 g molecules (* = limit of Pesticide Screening(GC) (l (a) Acatochir (0,06) (a) Benfuralin (0.01) (a) Benfuralin (0.01) (a) Capten (0.06) (a) Chierdene (Sum) () (a) Chierdene (Sum) () (a) Chierdene (Sum) () (a) Chierdene (Sum) () (b) Chierdene (Sum) () (c) Chierdene (C)	(a) Actonifer (0.05) (a) Actonifer (0.05) (a) Bithrox (0.05) (a) Bithrox (0.05) (a) Bremorpsylate (0.01) (a) Chorobernzilate (0.01) (b) Chorobernzilate (0.01) (c)	<ul> <li>(a) Aldron (0.0)</li> <li>(a) Bifenthrin</li> <li>(a) Sutachlor</li> <li>(a) Carbophes</li> <li>(a) Chlorodane</li> <li>(a) Chlorotane</li> <li>(a) Chlorothion</li> <li>(a) Chlorothion</li> <li>(a) Cyfluthrin</li> <li>(a) DDE, o.p-</li> </ul>	1) (0.01) (0.01) (0.05) , gernine (0.05) , (0.05) (0.05) -(0.01)	<ul> <li>(e) Ametryne (0.0)</li> <li>(a) Biphenyl (0.0)</li> <li>(a) Butafenaci (0)</li> <li>(a) Carbophenoti (0.05)</li> <li>(a) Chlordenapyr</li> <li>(a) Chlordenapyr</li> <li>(a) Chlordenapyr</li> <li>(b) Cyhalothm, la</li> <li>(c) Cyhalothm, la</li> <li>(b) DE, p, r)</li> </ul>	12) () (0.05) ter (0.01) (0.02) embda=(incl. amma-) (0.01) 01)	(a) Aramite (0.04) (a) Bromferwinfoa (0.02) (a) Catubasio (0.02) (a) Catubasio (0.05) (a) Chloretnaloni (0.05) (a) Chloretnaloni (0.05) (a) Cypermethin (0.05) (a) DDT (Sum) ()
The content of tota 24-methylenecyclos Amount of total GC ist of screened SUS1A 2-Phenylphenel (0.01) Atrazne (0.02) Bromophae (0.01) Captafol (0.05) Chiotrenvinghae (0.01) Chiotrenvinghae (0.01) Chiotrenvinghae (0.01) Chiotrenvinghae (0.01) Chiotrenvinghae (0.01) Chiotrenvinghae (0.01) Chiotrenvinghae (0.01) Chiotrenvinghae (0.01) Differobarghemone o.p'	eutables is 0,491 mg/100 g molecules (* = limit of Pesticide Screening(GC) (l (a) Acatecher (0,06) (a) Benfuralin (0,01) (a) Benfuralin (0,01) (a) Capten (0,05) (b) Chiergene (Sum) () (c) Chiergentos-methyl (0,01) (c) Chiergentos-methyl (0,01) (c) Chiergentos-methyl (0,01) (c) DDT, p.p <sup>-</sup> (0,01) (c) DT, p.p <sup>-</sup> (0,01)	A Adonifer (0.05) (a) Actonifer (0.05) (a) Briency (0.05) (a) Briency (0.05) (a) Bramopropylate (0.01) (a) Cohordane, alpha (0.01) (a) Chordenzilate (0.01) (a) Chordenzilate (0.01) (a) Chordenzilate (0.01) (a) Chordenzilate (0.01) (a) Cyatophes (0.02)	<ul> <li>(a) Aldrin (0.0)</li> <li>(a) Birlenthrin</li> <li>(a) Butachlor</li> <li>(a) Carbopher</li> <li>(a) Chloroneb</li> <li>(a) Chloroneb</li> <li>(a) Chloroneb</li> <li>(a) Chloroneb</li> <li>(a) Chloroneb</li> <li>(a) Cyfluthrin</li> <li>(a) Cyfluthrin</li> </ul>	1) (0.01) (0.05) , germma (0.05) (0.05) (0.05) (0.05) -(0.01) (0.05)	<ul> <li>(a) Ametryna (0.0)</li> <li>(a) Biphenyl (0.0)</li> <li>(a) Butafenecil (0</li> <li>(b) Carbophenodt</li> <li>(0.05)</li> <li>(a) Chlordenapyyl</li> <li>(a) Chloropropyla</li> <li>(c) Cyhalothrin, ju</li> <li>Cyhalothrin, ju</li> </ul>	(2) () (0.05) (0.05) (0.05) (0.01) 0.02) (0.01) 01) (0.02)	<ul> <li>(a) Azamite (0.04)</li> <li>(a) Eromfenvinfoa (0.02)</li> <li>(a) Cadusafos (0.02)</li> <li>(a) Carboxin (0.06)</li> <li>(a) Chlortenson(0.05)</li> <li>(a) Chlortenste (0.05)</li> <li>(a) Cruformate (0.05)</li> <li>(a) Crypermethrin (0.05)</li> </ul>
The content of total 24-methylenecyclos Amount of total GC ist of screened SUS1A 2-Phonybhenol (0.01) Atrazne (0.02) Chiofersvinke (0.06) Chiofersvinke (0.06) Chiofersvinke (0.01) Chiofersvinke (0.01) Chiofersvinke (0.02) Cyphenetrin (0.05) DDT, o.p.* (0.01) Dicklorabenzophenone o.p.* (0.02) Dicade, p.p.* (0.02)	artanol, and citrostadienol). -eutables is 0,491 mg/100 g molecules (* = limit of Pesticide Screening(GC) (l (a) Acatochiar (0,06) (a) Bromophanethyl (0.01) (a) Bromophanethyl (0.01) (a) Chlordane (Sum) () (a) Chlordane (Sum) () (a) Chlordane (Sum) () (a) Chlordane (Sum) () (a) Chlordane (Sum) () (b) Chlordane (Sum) () (c) Dichlorobenzophenone p.p' (0.02) (c) Dichlorobenzophenone p.p' (0.02)	quantification)           LOQ* mg/kg)           (a) Actonifer (0.05)           (a) Bifenov (0.05)           (a) Chordnen, alpha (0.01)           (a) Chordnen, alpha (0.01)           (a) Chordnen, alpha (0.01)           (a) Chordnenzilate (0.01)           (a) Chordnenzilate (0.02)           (a) DDD, p.p <sup>-</sup> (0.01)           (a) DDD, p.p <sup>-</sup> (0.01)           (a) Dichlorvos (0.05)           (a) Dieldnin (Sum) ()	<ul> <li>(a) Aldrin (0.0)</li> <li>(a) Bifenthrin</li> <li>(a) Sutschlor</li> <li>(a) Carbopher</li> <li>(a) Chlordnes</li> <li>(a) Chlordnes</li> <li>(a) Chlordnes</li> <li>(a) Chlordnes</li> <li>(a) Chlordnes</li> <li>(a) Chlordnes</li> <li>(a) Dcl. o.p.i</li> <li>(b) Dcl. o.p.i</li> <li>(b) Dcl. o.p.i</li> <li>(b) Dcl. o.p.i</li> <li>(c) Dcl. o.p.i</li> <li>(c)</li></ul>	1) (0.01) (0.01) nothion (0.05) , gamma (0.01) (0.05) (0.05) (0.01) a (0.05) 2.05) r (0.05)	<ul> <li>(a) Ametryna (0.0)</li> <li>(a) Biphenyl (0.0)</li> <li>(a) Carbophenodi (0.05)</li> <li>(a) Chlordenapyr</li> <li>(a) Chlordenapyr</li> <li>(a) Chlozolinate (</li> <li>(c) Abiothrin, g)</li> <li>(a) DDE, p, p' (0.0)</li> <li>(a) Dichdrenthiri</li> <li>(a) Dicofol (Sum)</li> <li>(a) Dinabuton (0.0)</li> </ul>	22) 1) 100-methyl (0.05) 100-20 1	<ul> <li>(a) Aramite (0.04)</li> <li>(a) Bromfenvinfos (0.02)</li> <li>(a) Cadusaños (0.02)</li> <li>(a) Carboshn (0.05)</li> <li>(a) Chlortenson (0.05)</li> <li>(a) Chlortenste (0.05)</li> <li>(a) Chlortenste (0.05)</li> <li>(a) Cypermethrin (0.05)</li> <li>(a) DDT (Surg) ()</li> <li>(a) DDT (Surg) ()</li> <li>(a) Dicotol, o.p<sup>2</sup> (0.02)</li> <li>(a) Diaxaberzefos (0.02)</li> </ul>
The content of total 24-methylenecyclos Amount of total GC ist of screened SUS1A 2-Phenylphenol (0.01) Atrazine (0.02) Beronophoe (0.01) Chlortenvinphoe (0.01) Chlortenvinphoe (0.01) Chlortenvinphoe (0.01) Chlortenvinphoe (0.01) Chlortenvinghoe (0.01) Chlortenvinghoe (0.01) Chlortenvinghoe (0.01) Chlortenvinghoe (0.01) Chlortenvinghoe (0.01) Chlortenvinghoe (0.01) Dichlortenbaphenone o.of (0.02) Dichlortenbaphenone o.of (0.02)	artanol, and citrostadienol). -eutables is 0,491 mg/100 g molecules (* = limit of Pesticide Screening(GC) (l (a) Acatochior (0,06) (a) Benfluralin (0,01) (a) Benfluralin (0,01) (a) Chiornophae-ethyl (0,01) (b) Chiornophae (0,05) (c) DDT, p,p- (0,01) (c) DDT, p,p- (0,01) (c) Dichlorobenzophenone p,p' (c) (c)	(uantification) (a) Aclonifer (0.05) (a) Bitenox (0.05) (a) Bitenox (0.05) (a) Brancopropylate (0.01) (a) Chorobernzilate (0.01) (b) Chorobernzilate (0.01) (c) Chorobernzilate (0.02) (c) Cho	<ul> <li>(a) Aldrin (0.0</li> <li>(a) Bifenthini</li> <li>(a) Sutashlor</li> <li>(a) Carbophei</li> <li>(a) Chlorndane</li> <li>(a) Chlorndane</li> <li>(a) Chlorndini</li> <li>(a) Chlorndini</li> <li>(a) Chlorndini</li> <li>(a) Dictionan (i</li> <li>(a) Dictionan (i</li> </ul>	1) (0.01) (0.01) (0.05) , gamma (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05)	<ul> <li>(a) Ametryne (0.0)</li> <li>(a) Biphenyl (0.0)</li> <li>(a) Butafenaci (0)</li> <li>(a) Carbophenoti (0.05)</li> <li>(a) Chlordenapyr</li> <li>(a) Chlordenapyr</li> <li>(a) Chlozolinata (</li> <li>(a) Cyhalothinn, li Cyhalothinn, g</li> <li>(b) Cyhalothinn, g</li> <li>(b) DE, p, p<sup>-1</sup> (0.)</li> <li>(a) Dichlafenthior</li> <li>(a) Dicofol (Sum)</li> </ul>	22) 1) 100-methyl (0.05) 100-20 1	(a) Aramite (0.04) (a) Bromferwinfos (0.02) (a) Cadusatos (0.02) (a) Cadusatos (0.02) (a) Chlorotralaloni (0.05) (a) Chlorotralaloni (0.05) (a) Crysemethrin (0.05) (a) DDT (Sum) () (a) Dichlafluanid (0.02) (a) Dichlafluanid (0.02) (b) Dictol, o.gr (0.02)
The content of total 24-methylenecyclos Amount of total GC ist of screened SUS1A 2-Prenytpirenel (0.01) Atrazine (0.02) Bromophoe (0.01) Captafor (0.06) Chlortenviphoe (0.01) Cyanazine (0.02) Chlortenviphoe (0.01) Cyanazine (0.02) DDT, a,p <sup>-</sup> (0.01) DDT, a,p <sup>-</sup> (0.02) Dietklorzbenzphenone o.p <sup>2</sup> (0.02) Endoaulian, auflat- (0.02) Emdoaulian, auflat- (0.02)	artanol, and citrostadienol).           -eutables is 0,491 mg/100 g           molecules (* = limit of           Pesticide Screening(GC) (I           (a) Acatochiar (0,06)           (a) Benfluralin (0,01)           (a) Benfluralin (0,01)           (a) Benfluralin (0,05)           (a) Chlordane (Sum) ()           (a) Chlorghos-athyl (0,01)           (a) Chlorghos-athyl (0,01)           (a) Chlorghos-athyl (0,01)           (a) DD, op- (0,01)           (a) DD, op- (0,01)           (a) DD, op- (0,01)           (b) DD, op- (0,01)           (a) DD, op- (0,01)           (a) DD, op- (0,01)           (b) DD, op- (0,01)           (a) DD, op- (0,01)           (b) DD, op- (0,01)           (a) DD, op- (0,01)           (b) DD, op- (0,01)           (a) DD, op- (0,01)           (a) DD, op- (0,01)           (b) DD, op- (0,01)           (a) DD, op- (0,01)           (b) DD, op- (0,01)           (a) DD, op- (0,01)           (b) DD, op- (0,01)           (b) DD, op- (0,01)           (a) DD, op- (0,01)           (b) DD, op- (0,01)           (c) DD, op- (0,01)           (b) DD, op- (0,01)           (c) DD, op- (0,01) <td>quantification)           LOQ* mg/kg)           (a) Actonifier (0.05)           (a) Biranoyopylatis (0.01)           (a) Biranoyopylatis (0.01)           (a) Captan (1/HPI (Sum calculated as Captan) (1)           (a) Chlordena, alpha (0.01)           (a) Chlordenzilate (0.01)           (a) Chlordenzilate (0.01)           (a) DDD, pp<sup>2</sup> (0.01)           (a) DDD, pp<sup>2</sup> (0.01)           (a) DDD, pp<sup>2</sup> (0.01)           (a) Dictariadimethyi (0.05)           (a) Dictariadimethyi (0.05)           (a) Dictariadimethyi (0.05)           (a) Dictariadimethyi (0.02)           (a) Ecifenphos (0.02)           (a) Fenchlorphos (0.02)</td> <td><ul> <li>(a) Aldrin (0.0)</li> <li>(a) Bifenthrin (a) Butachlor (a) Carbopher</li> <li>(a) Carbopher</li> <li>(a) Chlordneis</li> <li>(a) Chlordneis</li> <li>(a) Chlordneis</li> <li>(a) Chlordnion</li> <li>(a) Dichloban (a) Dichloban (a) Dichloban (a) Dichloban (b)</li> <li>(a) Dichosant (b) Dichloban (b) Chlordna (b)</li> <li>(a) Dichosant (b) Dichloban (b)</li> <li>(b) Dichosant (b) Dichloban (b)</li> <li>(c) Dichloban (</li></ul></td> <td>1) (0,01) (0,01) nothion (0,05) (0,0)</td> <td><ul> <li>(a) Ametryna (0.0)</li> <li>(a) Biphenyl (0.0)</li> <li>(a) Butafeneol (0</li> <li>(b) Carbophenoth (0.05)</li> <li>(a) Chlorophopial</li> <li>(a) Chlorophopial</li> <li>(a) Chlotzdintate (</li> <li>(b) Cyhalothrin, g</li> <li>(a) DDE, p.p<sup>+</sup>(0.0)</li> <li>(a) DDE, p.p<sup>+</sup>(0.0)</li> <li>(a) Dichlofenthior</li> <li>(b) Dichlofenthior</li> <li>(b) Dichlof (Sum)</li> <li>(a) Dinbuton (0.02)</li> <li>(a) Erthon (0.02)</li> <li>(a) Fenchlorphos</li> </ul></td> <td>22) 1) 101 101 101 100 105 100 100 100</td> <td><ul> <li>(a) Aramite (0.04)</li> <li>(a) Bromferwinfos (0.02)</li> <li>(a) Carboxin (0.05)</li> <li>(a) Chlordenson (0.05)</li> <li>(a) Chlordensloni (0.01)</li> <li>(a) Cufomate (0.05)</li> <li>(a) Cufomate (0.05)</li> <li>(a) Dichlafluarid (0.02)</li> <li>(a) Dichlafluarid (0.02)</li> <li>(a) Dichlafluarid (0.02)</li> <li>(a) Dicklafluarid (0.02)</li> <li>(a) Endosulfan, beta- (0.05)</li> <li>(a) Eridiszde (0.02)</li> <li>(a) Eridiszde (0.02)</li> <li>(a) Eridiszde (0.02)</li> </ul></td>	quantification)           LOQ* mg/kg)           (a) Actonifier (0.05)           (a) Biranoyopylatis (0.01)           (a) Biranoyopylatis (0.01)           (a) Captan (1/HPI (Sum calculated as Captan) (1)           (a) Chlordena, alpha (0.01)           (a) Chlordenzilate (0.01)           (a) Chlordenzilate (0.01)           (a) DDD, pp <sup>2</sup> (0.01)           (a) DDD, pp <sup>2</sup> (0.01)           (a) DDD, pp <sup>2</sup> (0.01)           (a) Dictariadimethyi (0.05)           (a) Dictariadimethyi (0.05)           (a) Dictariadimethyi (0.05)           (a) Dictariadimethyi (0.02)           (a) Ecifenphos (0.02)           (a) Fenchlorphos (0.02)	<ul> <li>(a) Aldrin (0.0)</li> <li>(a) Bifenthrin (a) Butachlor (a) Carbopher</li> <li>(a) Carbopher</li> <li>(a) Chlordneis</li> <li>(a) Chlordneis</li> <li>(a) Chlordneis</li> <li>(a) Chlordnion</li> <li>(a) Dichloban (a) Dichloban (a) Dichloban (a) Dichloban (b)</li> <li>(a) Dichosant (b) Dichloban (b) Chlordna (b)</li> <li>(a) Dichosant (b) Dichloban (b)</li> <li>(b) Dichosant (b) Dichloban (b)</li> <li>(c) Dichloban (</li></ul>	1) (0,01) (0,01) nothion (0,05) (0,0)	<ul> <li>(a) Ametryna (0.0)</li> <li>(a) Biphenyl (0.0)</li> <li>(a) Butafeneol (0</li> <li>(b) Carbophenoth (0.05)</li> <li>(a) Chlorophopial</li> <li>(a) Chlorophopial</li> <li>(a) Chlotzdintate (</li> <li>(b) Cyhalothrin, g</li> <li>(a) DDE, p.p<sup>+</sup>(0.0)</li> <li>(a) DDE, p.p<sup>+</sup>(0.0)</li> <li>(a) Dichlofenthior</li> <li>(b) Dichlofenthior</li> <li>(b) Dichlof (Sum)</li> <li>(a) Dinbuton (0.02)</li> <li>(a) Erthon (0.02)</li> <li>(a) Fenchlorphos</li> </ul>	22) 1) 101 101 101 100 105 100 100 100	<ul> <li>(a) Aramite (0.04)</li> <li>(a) Bromferwinfos (0.02)</li> <li>(a) Carboxin (0.05)</li> <li>(a) Chlordenson (0.05)</li> <li>(a) Chlordensloni (0.01)</li> <li>(a) Cufomate (0.05)</li> <li>(a) Cufomate (0.05)</li> <li>(a) Dichlafluarid (0.02)</li> <li>(a) Dichlafluarid (0.02)</li> <li>(a) Dichlafluarid (0.02)</li> <li>(a) Dicklafluarid (0.02)</li> <li>(a) Endosulfan, beta- (0.05)</li> <li>(a) Eridiszde (0.02)</li> <li>(a) Eridiszde (0.02)</li> <li>(a) Eridiszde (0.02)</li> </ul>
The content of total 24-methylenecyclos Amount of total GC ist of screened SUS1A 2-Prenytpirenel (0.01) Atrazine (0.02) Bromophoe (0.01) Captafor (0.06) Chlortenviphoe (0.01) Cyanazine (0.02) Chlortenviphoe (0.01) Cyanazine (0.02) DDT, a,p <sup>-</sup> (0.01) DDT, a,p <sup>-</sup> (0.02) Dietklorzbenzphenone o.p <sup>2</sup> (0.02) Endoaulian, auflat- (0.02) Emdoaulian, auflat- (0.02)	artanol, and citrostadienol).           -eutables is 0,491 mg/100 g           molecules (* = limit of           Pesticide Screening(GC) (I           (a) Acatochiar (0,06)           (a) Bromophazethy (0,01)           (a) Bromophazethy (0,01)           (a) Chiernephaz (0,05)           (a) Chiernephaz (0,05)           (a) Chiernephaz (0,05)           (a) Chiernephas (0,05)           (a) Chiernephas (0,05)           (a) DD, o.p <sup>1</sup> - (0,01)           (a) DD, p.p <sup>-</sup> (0,01)           (b) Dichlorobenzophenone p.p <sup>5</sup> (0,02)           (a) Dichlorobenzophenone p.p <sup>5</sup> (0,02)           (b) Diedmine (0,07)           (a) Einderine (0,01)           (a) Einderine (0,01)	Automic           LOQ* mg/kg)           (a) Actonifer (0.05)           (a) Bitency (0.05)           (a) Bitency (0.05)           (a) Bitency (0.05)           (a) Bitency (0.05)           (a) Colordane, alpha (0.01)           (a) Chlordane, alpha (0.01)           (a) DD, p.p <sup>1</sup> (0.01)           (a) DD, p.p <sup>1</sup> (0.01)           (a) DD, p.p <sup>1</sup> (0.01)           (a) Dickfor (Surr) (1)           (a) Edifenphos (0.02)           (a) Edifenphos (0.02)           (a) Edifenphos (0.02)	<ul> <li>(a) Aldrin (0.0)</li> <li>(a) Bifenthrin</li> <li>(a) Sutachlor</li> <li>(a) Carbophei</li> <li>(a) Chloroneb</li> <li>(a) Chloroneb</li> <li>(a) Chloroneb</li> <li>(a) Chloroneb</li> <li>(a) Cyfluthrin</li> <li>(a) DDE, o, p-</li> <li>(a) Dichloban</li> <li>(a) Ethalflural</li> <li>(a) Ethalflural</li> </ul>	1) (0,01) (0,01) nothion (0,05) (0,0)	<ul> <li>(a) Ametryna (0.0)</li> <li>(a) Biphenyl (0.0)</li> <li>(a) Carbophenod (0.05)</li> <li>(a) Chlordenapyr</li> <li>(a) Chlordenapyr</li> <li>(a) Chlozolinate (</li> <li>(a) Cyhalothrn, g</li> <li>(a) DDE, p,p' (0.0)</li> <li>(a) Dichdernthiar</li> <li>(a) Dichdernthiar</li> <li>(a) Dichdernthiar</li> <li>(a) Dichdernthiar (0.02)</li> <li>(a) Endaulfan, a</li> <li>(b) Endaulfan, a</li> <li>(c) Fenchlorphos</li> <li>(a) Fenvalarata &amp;</li> <li>(c) Sind R S&amp;I</li> </ul>	(2) () (0,05) ti (0,07) (0,05) ti (0,07) (0,02) (1) (10,02) (1) (10,02) (1) (10,02) (1) (10,02) (1) (1) (2) (1) (2) (1) (2) (2) (2) (2) (2) (2) (2) (2	<ul> <li>(a) Aramife (0.04)</li> <li>(a) Eromfenvinfos (0.02)</li> <li>(a) Cadusafos (0.02)</li> <li>(a) Carboxin (0.06)</li> <li>(a) Chlortenson (0.05)</li> <li>(a) Chlortentalonii (0.05)</li> <li>(a) Chlortentalonii (0.05)</li> <li>(a) Cypermethrin (0.05)</li> <li>(a) Dichardinaviri (0.02)</li> <li>(a) Dichardinaviri (0.02)</li> <li>(a) Dickabenzofas (0.02)</li> <li>(a) Exclabenzofas (0.02)</li> <li>(a) Exclabenzofas (0.02)</li> <li>(a) Exclabenzofas (0.02)</li> <li>(b) Exclabenzofas (0.02)</li> <li>(a) Exclabenzofas (0.02)</li> </ul>
The content of total 24-methylenecyclos Amount of total GC ist of screened SUS1A 2-Phraytorienel (0.01) 4-Arazne (0.02) Bromophos (0.01) Captafol (0.06) Chlorenyinfos (-ethyl) (0.01) Cyphenothin (0.05) DDT, o.g.* (0.01) DDT, o.g.* (0.01) DDT, o.g.* (0.01) DDT, o.g.* (0.01) DDT, o.g.* (0.01) DDT, o.g.* (0.01) DDT, o.g.* (0.01) DEndoulfan, sulfate (0.02) Emmitos (0.02) Fentantifan, sulfate (0.02)	artanol, and citrostadienol).           -eutables is 0,491 mg/100 g           molecules (* = limit of           Pesticide Screening(GC) (I           (a) Acatochiar (0,06)           (a) Benfluralin (0,01)           (a) Benfluralin (0,01)           (a) Benfluralin (0,05)           (a) Chlordane (Sum) ()           (a) Chlorghos-athyl (0,01)           (a) Chlorghos-athyl (0,01)           (a) Chlorghos-athyl (0,01)           (a) DD, op- (0,01)           (a) DD, op- (0,01)           (a) DD, op- (0,01)           (b) DD, op- (0,01)           (a) DD, op- (0,01)           (a) DD, op- (0,01)           (b) DD, op- (0,01)           (a) DD, op- (0,01)           (b) DD, op- (0,01)           (a) DD, op- (0,01)           (b) DD, op- (0,01)           (a) DD, op- (0,01)           (a) DD, op- (0,01)           (b) DD, op- (0,01)           (a) DD, op- (0,01)           (b) DD, op- (0,01)           (a) DD, op- (0,01)           (b) DD, op- (0,01)           (b) DD, op- (0,01)           (a) DD, op- (0,01)           (b) DD, op- (0,01)           (c) DD, op- (0,01)           (b) DD, op- (0,01)           (c) DD, op- (0,01) <td>quantification)           LOQ* mg/kg)           (a) Actonifier (0.05)           (a) Biranoyopylatis (0.01)           (a) Biranoyopylatis (0.01)           (a) Captan (1/HPI (Sum calculated as Captan) (1)           (a) Chlordena, alpha (0.01)           (a) Chlordenzilate (0.01)           (a) Chlordenzilate (0.01)           (a) DDD, pp<sup>2</sup> (0.01)           (a) DDD, pp<sup>2</sup> (0.01)           (a) DDD, pp<sup>2</sup> (0.01)           (a) Dictain (Sum) (1)           (a) Dictain (Sum) (1)           (a) Ecifenphos (0.02)           (a) Fenchlorphos (0.02)</td> <td><ul> <li>(a) Aldrin (0.0)</li> <li>(a) Bifenthrin (a) Butachlor (a) Carbopher</li> <li>(a) Carbopher</li> <li>(a) Chlordneis</li> <li>(a) Chlordneis</li> <li>(a) Chlordneis</li> <li>(a) Chlordnion</li> <li>(a) Dichloban (a) Dichloban (a) Dichloban (a) Dichloban (b)</li> <li>(a) Dichosant (b) Dichloban (b) Chlordna (b)</li> <li>(a) Dichosant (b) Dichloban (b)</li> <li>(b) Dichosant (b) Dichloban (b)</li> <li>(c) Dichloban (</li></ul></td> <td>1) (0.01) (0.01) (0.01) (0.05)</td> <td><ul> <li>(a) Ametryna (0.0)</li> <li>(a) Biphenyl (0.0)</li> <li>(a) Butafenacii (0.05)</li> <li>(a) Chlordenapyr</li> <li>(a) Chlordenapyr</li> <li>(a) Chlordenapyr</li> <li>(a) Chlorabirthin, Ii</li> <li>Cyhalothin, Ii</li> <li>Cyhalothin, Ii</li> <li>Cyhalothin, Ii</li> <li>Cyhalothin, Ii</li> <li>Cyhalothin, Ii</li> <li>Cyhalothin, Ii</li> <li>Chlorabirthiar</li> <li>(a) Dicholenthiar</li> <li>(a) Dicholenthiar</li> <li>(a) Dicholenthiar</li> <li>(a) Dicholenthiar</li> <li>(a) Eindoaulfan, a</li> <li>(a) Ethion (0.02)</li> <li>(a) Fenchlorphos</li> <li>(b) Fenchlorphos</li> <li>(b) Fenchlorphos</li> </ul></td> <td>22) 1) 1) 100-methyl 100-051 100-050 100-0</td> <td><ul> <li>(a) Azamite (0.04)</li> <li>(a) Bromfenvinfoa (0.02)</li> <li>(a) Cadusafos (0.02)</li> <li>(a) Carboxin (0.06)</li> <li>(a) Chlorfenacor (0.05)</li> <li>(a) Chloretrialenil (0.05)</li> <li>(a) Chloretrialenil (0.05)</li> <li>(a) Cypermethrin (0.05)</li> <li>(a) DDT (Sum) ()</li> <li>(a) Dichlaftuanid (0.02)</li> <li>(a) Dickabenzofos (0.02)</li> <li>(a) Dickabenzofos (0.02)</li> <li>(a) Endosulfan, beta- (0.05)</li> <li>(a) Eridiszde (0.02)</li> <li>(a) Fenduthrin (0.01)</li> <li>(a) Fenduthrate (0.01)</li> </ul></td>	quantification)           LOQ* mg/kg)           (a) Actonifier (0.05)           (a) Biranoyopylatis (0.01)           (a) Biranoyopylatis (0.01)           (a) Captan (1/HPI (Sum calculated as Captan) (1)           (a) Chlordena, alpha (0.01)           (a) Chlordenzilate (0.01)           (a) Chlordenzilate (0.01)           (a) DDD, pp <sup>2</sup> (0.01)           (a) DDD, pp <sup>2</sup> (0.01)           (a) DDD, pp <sup>2</sup> (0.01)           (a) Dictain (Sum) (1)           (a) Dictain (Sum) (1)           (a) Ecifenphos (0.02)           (a) Fenchlorphos (0.02)	<ul> <li>(a) Aldrin (0.0)</li> <li>(a) Bifenthrin (a) Butachlor (a) Carbopher</li> <li>(a) Carbopher</li> <li>(a) Chlordneis</li> <li>(a) Chlordneis</li> <li>(a) Chlordneis</li> <li>(a) Chlordnion</li> <li>(a) Dichloban (a) Dichloban (a) Dichloban (a) Dichloban (b)</li> <li>(a) Dichosant (b) Dichloban (b) Chlordna (b)</li> <li>(a) Dichosant (b) Dichloban (b)</li> <li>(b) Dichosant (b) Dichloban (b)</li> <li>(c) Dichloban (</li></ul>	1) (0.01) (0.01) (0.01) (0.05)	<ul> <li>(a) Ametryna (0.0)</li> <li>(a) Biphenyl (0.0)</li> <li>(a) Butafenacii (0.05)</li> <li>(a) Chlordenapyr</li> <li>(a) Chlordenapyr</li> <li>(a) Chlordenapyr</li> <li>(a) Chlorabirthin, Ii</li> <li>Cyhalothin, Ii</li> <li>Cyhalothin, Ii</li> <li>Cyhalothin, Ii</li> <li>Cyhalothin, Ii</li> <li>Cyhalothin, Ii</li> <li>Cyhalothin, Ii</li> <li>Chlorabirthiar</li> <li>(a) Dicholenthiar</li> <li>(a) Dicholenthiar</li> <li>(a) Dicholenthiar</li> <li>(a) Dicholenthiar</li> <li>(a) Eindoaulfan, a</li> <li>(a) Ethion (0.02)</li> <li>(a) Fenchlorphos</li> <li>(b) Fenchlorphos</li> <li>(b) Fenchlorphos</li> </ul>	22) 1) 1) 100-methyl 100-051 100-050 100-0	<ul> <li>(a) Azamite (0.04)</li> <li>(a) Bromfenvinfoa (0.02)</li> <li>(a) Cadusafos (0.02)</li> <li>(a) Carboxin (0.06)</li> <li>(a) Chlorfenacor (0.05)</li> <li>(a) Chloretrialenil (0.05)</li> <li>(a) Chloretrialenil (0.05)</li> <li>(a) Cypermethrin (0.05)</li> <li>(a) DDT (Sum) ()</li> <li>(a) Dichlaftuanid (0.02)</li> <li>(a) Dickabenzofos (0.02)</li> <li>(a) Dickabenzofos (0.02)</li> <li>(a) Endosulfan, beta- (0.05)</li> <li>(a) Eridiszde (0.02)</li> <li>(a) Fenduthrin (0.01)</li> <li>(a) Fenduthrate (0.01)</li> </ul>
The content of total 24-methylenecyclos Amount of total GC ist of screened SUS1A 2-Phenylphenel (0.01) Alrazine (0.02) Erromophae (0.01) Captafol (0.05) Chiotrenside (0.06) Chiotrenside (0.05) Chiotresside (0.05) Chiotresside (0.02) Cyphenothrin (0.05) DDT, ogr- (0.02) Dichlorobanghenone o.of (0.02) Dichlorobanghenone o.of (0.02) Endoullan, sulfar (0.02) Endoullan, sulfar (0.02) Entorta (0.02)	artanol, and citrostadienol). -eutables is 0,491 mg/100 g molecules (* = limit of Pesticide Screening(GC) (l (e) Acatocher (0,06) (a) Benfluralin (0,01) (a) Eromophae-efitys (0,01) (a) Captan (0,05) (a) Chioryantos-methys (0,01) (b) Captan (0,05) (c) Chioryantos-methys (0,01) (c) Captan (0,05) (c) DDL, o.p <sup>-</sup> (0,01) (c) Dictorbentophenone p.p <sup>+</sup> (0,02) (c) Dictorin (0,02) (c) Fenpropathrin (0,02)	A Actonifer (0.05) (a) Actonifer (0.05) (a) Bitenox (0.05) (a) Bitenox (0.05) (a) Brenopropylate (0.01) (a) Confordene, alpha (0.01) (a) Chlordene, alpha (0.01) (b) Dible (0.02) (c) Dible (0.05) (c) Dieldrin (Sum) (1) (c) Fenchlorphos (0.02) (c) Fenson (0.02) (c) Fenson (0.02)	<ul> <li>(a) Aldrin (0,0)</li> <li>(a) Bifenthrin (a) Sutachlor</li> <li>(a) Carbophes</li> <li>(a) Chlordane</li> <li>(a) Chlordane</li> <li>(a) Chlorthion</li> <li>(a) Chlorthion</li> <li>(a) Dichosni</li> <li>(a) Dichosni</li> <li>(a) Dicloran (1)</li> <li>(a) Dicloran (1)</li> <li>(a) Dicanchlo</li> <li>(a) Ethalffurafi</li> <li>(a) Fenchlorafi</li> <li>(a) Fenthion (a)</li> </ul>	1) (0.01) (0.01) (0.01) (0.05)	<ul> <li>(a) Ametryne (0.0;</li> <li>(a) Biphenyl (0.0;</li> <li>(a) Sutafensol (0</li> <li>(b) Carbophenoti (0.05)</li> <li>(a) Chiorophinate (a) Chioraphinate (a) Chioraphinate (a) Chioraphinate (a) Chiotachinate (a) Cyhalothinn, g</li> <li>(a) DDE, p.p<sup>-</sup> (0.</li> <li>(b) Dichdefenthine (a) Dichdefenthine (a) Dichdefenthine (a) Dichdefenthine (b) Cold (Sum)</li> <li>(a) Dinobuton (0, (a) Endoaulfan, a</li> <li>(b) Ethion (0.02)</li> <li>(a) Fenvalerate &amp; (Sum of RS81 (0.02)</li> </ul>	22) 1) 1) 100-methyl 100-051 100-050 100-0	<ul> <li>(a) Aramite (0.04)</li> <li>(a) Bromferwinfoa (0.02)</li> <li>(a) Carbosin (0.02)</li> <li>(a) Carbosin (0.05)</li> <li>(a) Chloroteaco (0.05)</li> <li>(a) Chlorotealonii (0.01)</li> <li>(a) Cufomale (0.05)</li> <li>(a) DDT (Sum) ()</li> <li>(a) Dichfafluanid (0.02)</li> <li>(a) Dicofd. o.p* (0.02)</li> <li>(a) Eriolaude (0.02)</li> <li>(a) Eriolaude (0.02)</li> <li>(a) Eriolaude (0.02)</li> <li>(a) Eriolaude (0.02)</li> <li>(a) Fernvalerate &amp; Esfanvalerate( sum of RR, SS, RS, SR) ()</li> </ul>
The content of total 24-methylenecyclos Amount of total GC ist of screened SUS1A 2-Phonybhenol (0.01) Atrazne (0.02) Bromophoe (0.01) Capitafi (0.06) Chiofrenviphae (0.01) Chiofrenviphae (0.01) Chiofrenviphae (0.01) Chiofrenviphae (0.01) Ditafo, pp- (0.02) Ditaga, pp- (0.02) Ditaga, pp- (0.02) Ditaga, pp- (0.02) Ditaga, pp- (0.02) Ditaga, pp- (0.02) Einmitos (0.02) Fentivelinia (0.02) Fentivelinia (0.02) Fentivelinia (0.02) Fentivelinia (0.02) Fentivelinia (0.02)	artanol, and citrostadienol). -eutables is 0,491 mg/100 g molecules (* = limit of Pesticide Screening(GC) (l (a) Acatochiar (0,06) (a) Bornopha-ethyl (0.01) (a) Bornopha-ethyl (0.01) (a) Chlordane (Sum) () (a) Chlordane (Sum) () (a) Chlormephas (0.05) (a) Chlorgantos-methyl (0.01) (a) Chlorgantos-methyl (0.01) (b) Chlorbenzophenone p.p' (0.02) (c) Dichlorobenzophenone p.p' (0.02) (c) Dichl	A     A     Constant of the second seco	<ul> <li>(a) Aldrin (0.0)</li> <li>(a) Bifenthrin</li> <li>(a) Sutschlor</li> <li>(a) Carbopher</li> <li>(a) Chlordsne</li> <li>(a) Chlordne</li> <li>(a) Chlordne</li> <li>(a) Chlordne</li> <li>(a) Chlordne</li> <li>(a) Chlordne</li> <li>(a) Chloban</li> <li>(a) Dichoban</li> <li>(a) Dichoban</li> <li>(a) Dichoban</li> <li>(a) Dichoban</li> <li>(a) Dichoban</li> <li>(a) Dichoban</li> <li>(a) Endaulfar</li> <li>(a) Ethalfuraf</li> <li>(a) Fenchlorpi</li> <li>(a) Fenchlorpi</li> <li>(a) Fenchlorpi</li> <li>(a) Fenchlorpi</li> <li>(a) Fenchlorpi</li> <li>(a) Flumstralis</li> <li>(a) HCB (0.01</li> </ul>	1) (0.01) (0.01) (0.05) . gamma (0.01) (0.05) (0.05) (0.05) (0.05) r(0.05) r(0.05) r(0.05) n (Sum) () n (0.01) hos (sum) () 0.02) n (0.05)	<ul> <li>(a) Ametryne (0.0)</li> <li>(a) Biphenyl (0.0)</li> <li>(a) Carbophenodi (0.05)</li> <li>(a) Chlordenapyr</li> <li>(a) Chlozolinate (</li> <li>(a) Cyhalothrin, gi</li> <li>(a) Dicklothrin, gi</li> <li>(a) Dicklothrin, gi</li> <li>(a) Dicklothrin, gi</li> <li>(a) Dicklothrin (0.0)</li> <li>(a) Endoaulfan, a</li> <li>(b) Endoaulfan, a</li> <li>(a) Endoaulfan, a</li> <li>(b) Endoaulfan, a</li> <li>(c) Fenvelorate &amp;</li> <li>(c) Carborne RS&amp; (0.02)</li> <li>(a) Fluotrimazole</li> <li>(a) HCH gamma(</li> </ul>	(2) (1) (0) (0) (0) (0) (0) (0) (0) (0	<ul> <li>(a) Aramite (0.04)</li> <li>(a) Bromfenvinfos (0.02)</li> <li>(a) Cadusatos (0.02)</li> <li>(a) Carboxin (0.05)</li> <li>(a) Chlorfenson (0.05)</li> <li>(a) Chlorfenson (0.05)</li> <li>(a) Chlorfenson (0.05)</li> <li>(a) Cypermethrin (0.05)</li> <li>(a) Cypermethrin (0.05)</li> <li>(a) DDT (Sum) ()</li> <li>(b) DDT (Sum) ()</li> <li>(a) Dichalandi (0.02)</li> <li>(a) Dichalandi (0.02)</li> <li>(a) Dichalandi (0.02)</li> <li>(b) Dicotol, o.p<sup>2</sup> (0.02)</li> <li>(c) Endosulfan, beta- (0.05)</li> <li>(a) Eridiszde (0.02)</li> <li>(a) Fenvalerate &amp; Estanvalerate( sum of RR,SS,RS,SR) ()</li> <li>(a) Fluquinconazole (0.02)</li> <li>(a) HCH, alpha- (0.01)</li> </ul>
The content of total 24-methylenecyclos Amount of total GC ist of screened SUS1A 2-Phenylphenel (0.01) Arazine (0.02) Bremaphos (0.01) Capitalei (0.06) Chiofresiyinka (0.01) Chiofresiyinka (0.01) Chiofresiyinka (0.02) Cyphenethrin (0.05) DDT, o.p. <sup>2</sup> (0.01) Dicklorabanzaphenone o.p <sup>2</sup> (0.02) DDT, o.p. <sup>2</sup> (0.01) Dicklorabanzaphenone o.p <sup>2</sup> (0.02) Einmfos (0.02) Einmfos (0.02)	artanol, and citrostadienol).           -eutables is 0,491 mg/100 g           molecules (* = limit of           Pesticide Screening(GC) (0           (a) Acatochiar (0,06)           (a) Bromophazethyl (0,01)           (a) Bromophazethyl (0,01)           (a) Chloraghos (0,05)           (a) Chloraghos (0,05)           (a) Chloraghos (0,05)           (a) DD, o,p <sup>1</sup> - (0,01)           (b) DD, o,p <sup>2</sup> - (0,01)           (a) Dichlorobarcophenone p.p <sup>2</sup> (b) Deldrin (0,02)           (a) Deldrin (0,02)           (b) Fenamiphos (0,05)           (a) Fenamiphos (0,05)           (b) Chloraghydrauder (0,01)           (c) Dirtight (0,02)           (a) Dirtight (0,02)           (b) Dirtight (0,02)           (c) Fenamiphos (0,05)           (c) Fenamiphos (0,05)           (c) Fenamiphos (0,05)           (c) Flucthoralin (0,05)	Augustification)           LOQ* mg/kg)           (a) Actonifier (0.05)           (a) Bitenox (0.05)           (a) Coloritarity (0.01)           (a) Chlordnan, alpha (0.01)           (a) Chlordnan, alpha (0.01)           (a) Chlordnan, alpha (0.01)           (a) Chlordnan-dimetry (0.01)           (a) Chlordnal-dimetry (0.01)           (a) DDD, p.p <sup>2</sup> (0.01)           (a) DDD, p.p <sup>2</sup> (0.01)           (a) DDD, p.p <sup>2</sup> (0.02)           (a) DDD, p.p <sup>2</sup> (0.02)           (a) Dicklerin (Sum) (1)           (a) Edifienphos (0.02)           (a) Fenchlorphos (0.02)           (a) Fenchlorphos (0.02)           (a) Fenchlorphos (0.02)           (a) Fucythrinate (0.05)	<ul> <li>(a) Aldrin (0.0)</li> <li>(a) Bifenthrin</li> <li>(a) Butashlor</li> <li>(a) Carbophei</li> <li>(a) Chlordane</li> <li>(a) Chlordane</li> <li>(a) Chlordane</li> <li>(a) Chlordane</li> <li>(a) Chlordane</li> <li>(a) DEL o,pi-</li> <li>(a) Dictlobani</li> <li>(a) Ethalfluraf</li> <li>(a) Fenchlorpi</li> <li>(a) Fenchlorpi</li> <li>(a) Flumetralin</li> </ul>	1) (0.01) (0.01) nothion (0.05) , gamma (0.01) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) n (Sum) () 0.02) n (0.05) n (0.05) ) n (0.05)	<ul> <li>(a) Ametryna (0.0)</li> <li>(a) Biphenyl (0.0)</li> <li>(a) Butafenacii (0.05)</li> <li>(a) Chlorfenapyr</li> <li>(a) Chlordenapyr</li> <li>(a) Chlordenthin, Ii</li> <li>Cyhalothin, Ii</li> <li>Chlorderthior</li> <li>(a) Dinblutor (0.0)</li> <li>(a) Endoaufan, a</li> <li>(b) Endoaufan, a</li> <li>(b) Fenchlorphos</li> <li>(a) Fuotrimazole</li> </ul>	(2) (1) (0.05) te (0.01) (0.02) embda-(incl. amma-) (0.01) 01) (0.02) (0.02) (0.02) (0.05) ipha- (0.05) oxon (0.01) Exferivalerate SR Isomers) (0.01) Lindan) (0.01) urn) ()	<ul> <li>(a) Azamite (0.04)</li> <li>(a) Eromferwinfos (0.02)</li> <li>(a) Cadusatos (0.02)</li> <li>(a) Carboxin (0.05)</li> <li>(a) Chlorfensor (0.05)</li> <li>(a) Chloretrialonii (0.05)</li> <li>(a) Chloretrialonii (0.05)</li> <li>(a) Cypermethrin (0.05)</li> <li>(a) DDT (Sum) (1)</li> <li>(a) Dichlaftuanid (0.02)</li> <li>(a) Dickaberzofos (0.02)</li> <li>(a) Dickaberzofos (0.02)</li> <li>(a) Eridiszole (0.02)</li> <li>(a) Ferifultrin (0.01)</li> <li>(a) Ferifultrin (0.01)</li> <li>(a) Ferifultrin (8.01)</li> <li>(a) Ferifultrin (8.01)</li> <li>(a) Ferifultrin (8.01)</li> <li>(b) Ferifultrin (8.01)</li> <li>(c) Ferifultrin (8.01)</li> <li>(c) Ferifultrin (8.01)</li> <li>(c) Ferifultrin (0.01)</li> <li>(c) Ferifultrin (0.01)</li> <li>(c) Ferifultrin (0.02)</li> <li>(c) Ferifultrin (0.01)</li> <li>(c) Ferifultrin (0.01)</li> <li>(c) Ferifultrin (0.01)</li> <li>(c) Ferifultrin (0.01)</li> <li>(c) Ferifultrin (0.02)</li> </ul>
The content of total 24-methylenecyclos Amount of total GC ist of screened SUS1A 2-Phenylphenel (0.01) Atrazine (0.02) Beronophos (0.01) Chlortenside (0.06) Chlortenside (0.06) Chlortenside (0.06) Chlortenside (0.06) Chlortenside (0.06) Chlortenside (0.06) Chlortenside (0.05) Chlortenside (0.05) Diction (0.02) Cyphenothin (0.05) Diction (0.02) Cyphenothin (0.02) Einmos (0.02) Einmos (0.02) Einmos (0.02) Fenturbien (0.02) Fenturbien (0.02) Fenturbien (0.02) Fenturbien (0.02) Fenturbien (0.02) Fenturbien (0.02) Fluvillenze-tau (0.02) Howlerate & Esfenvalerate(Sum of R&SS isomers) (0.02) Fluvillenze-tau (0.02) Howlerate & CHCh, beta (0.01) Heptachlor epoxide trans (0.01)	artanol, and citrostadienol).           -eutables is 0,491 mg/100 g           molecules (* = limit of           Pesticide Screening(GC) (I           (a) Acatochiar (0,06)           (a) Bromophazethyl (0,01)           (a) Bromophazethyl (0,01)           (a) Chiernephae (0,05)           (a) DD, o,p <sup>1</sup> - (0,01)           (b) DD, o,p <sup>2</sup> - (0,01)           (a) DD, p,p <sup>-</sup> (0,01)           (b) DD, p,p <sup>-</sup> (0,01)           (a) Dichlorobenzophenone p,p <sup>2</sup> (b) Dichlorobenzophenone p,p <sup>2</sup> (c) Diedrin (0,02)           (a) Erentriphos (0,02)           (a) Feneringhos (0,02)           (a) Functionalin (0,05)           (a) Fenores (0,02)           (a) Functionalin (0,05)           (a) Fenores (0,02)           (b) Hoptenophos (0,02)           (a) Isofenphos-methyl (0,01)	Actionification)           LOQ* mg/kg)           (a) Bienox (0.55)           (a) Colordine, alpha (0.01)           (a) Chlordine, alpha (0.02)           (a) DD, p.p <sup>1</sup> - (0.01)           (a) DD, p.p <sup>1</sup> - (0.01)           (a) DD, p.p <sup>1</sup> - (0.01)           (a) Edifanphas (0.02)           (a) Edifanphas (0.02)           (a) Edifanphas (0.02)           (a) Fension (0.02)           (a) Fension (0.02)           (a) Fullythinate (0.05)           (a) Formothion (0.05)           (a) Formothion (0.05)           (a) HCH, maylon- (0.01)           (a) probenfoc (0.02)           (a) Isoprothiolane (0.02)	<ul> <li>(a) Aldrin (0.0)</li> <li>(a) Bifenthrin</li> <li>(a) Butashlar</li> <li>(a) Carbophei</li> <li>(a) Chlordane</li> <li>(a) Chlordane</li> <li>(a) Chlordane</li> <li>(a) Chlordane</li> <li>(a) Chlordane</li> <li>(a) DEL o, pi-</li> <li>(a) Dichlobani</li> <li>(a) Dichoshani</li> <li>(a) Dichoshani</li> <li>(a) Dichoshani</li> <li>(a) Dichoshani</li> <li>(a) Dichoshani</li> <li>(a) Fenchlorpi</li> <li>(a) Fenchlorpi</li> <li>(a) Fenchlorpi</li> <li>(a) Fenchlorpi</li> <li>(a) Flumetralin</li> <li>(a) HCB (0.01</li> <li>(a) HCB (0.01</li> <li>(b) Heptachlo</li> <li>(a) Isazofos (i</li> </ul>	1) (0.01) (0.01) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.02)	<ul> <li>(a) Ametryna (0.0)</li> <li>(a) Biphenyl (0.0)</li> <li>(a) Butafenacii (0.05)</li> <li>(a) Chlorfenapyr</li> <li>(a) Chlorfenapyr</li> <li>(a) Chlordenthin, Ii</li> <li>Cyhalothin, Ii</li> <li>Chlordenthior</li> <li>(a) Dinbuton (0.02)</li> <li>(a) Fenchlorphos</li> <li>(a) Fenchlorphos</li> <li>(a) Fenchlorphos</li> <li>(a) Fenchlorphos</li> <li>(a) Fuotimazole</li> <li>(b) HCH gammaia</li> <li>(a) HCH gammaia</li> <li>(a) Hacasabolior (5)</li> <li>(a) Iaocarbophos</li> <li>(a) Kresoxim-met</li> </ul>	(2) (1) (0.1) (0.05) (0.05) (0.05) (0.01) (0.01) (0.02) (1) (0.02) (0.01) Extensionaria (0.01) Extensionaria (0.01) Lindan) (0.01) (0.02) hyl (0.01)	<ul> <li>(a) Azamite (0.04)</li> <li>(b) Bromfenvinfoa (0.02)</li> <li>(a) Cadusafos (0.02)</li> <li>(a) Carboxin (0.06)</li> <li>(a) Chlorfenacin (0.05)</li> <li>(a) Chloretrialenii (0.05)</li> <li>(a) Chloretrialenii (0.05)</li> <li>(a) Cypermethrin (0.05)</li> <li>(a) DDT (Sum) ()</li> <li>(a) Dichlaftuanid (0.02)</li> <li>(a) Dickaberizofos (0.02)</li> <li>(a) Dickaberizofos (0.02)</li> <li>(a) Dickaberizofos (0.02)</li> <li>(a) Endosulfan, beta- (0.05)</li> <li>(b) Erbidiazole (0.02)</li> <li>(a) Fenfluthrin (0.01)</li> <li>(a) Fenfluthrin (0.01)</li> <li>(a) Fenfluthrin (0.01)</li> <li>(a) Fluquinconszole (0.02)</li> <li>(b) HCH, alpha- (0.01)</li> <li>(c) Heptachfor epoxida cis (0.01)</li> <li>(a) Isodrin (0.02)</li> </ul>
The content of total 24-methylenecyclos Amount of total GC ist of screened SUS1A 2-Phenytphenol (0.01) 2-phenytphenol (0.01) Capital (0.05) 0-horenvinphac (0.01) Chlorgwrifac (-8tryl) (0.01) Cyphenothin (0.05) 0-horenvinphac (0.01) DDT, o.g.* (0.01) DEntolariban auffat: (0.02) Fentrothion (0.02) Fentrothion (0.02) Fentrothion (0.02) Fentrothion (0.02) Hord, beta- (0.02) Hord, beta- (0.01) Heptachice peovide trans (0.01) Isolenphas (0.02)	artanol, and citrostadienol).           -eutables is 0,491 mg/100 g           molecules (* = limit of           Pesticide Screening(GC) (I           (a) Acatochiar (0,06)           (a) Brontophas-athyl (0,01)           (a) Brontophas-athyl (0,01)           (a) Chlordane (Sum) ()           (a) DD, p,C- (0,01)           (a) DD, p,C- (0,01)           (a) DD, p,C- (0,01)           (a) DD, p,C- (0,01)           (b) DD, p,C- (0,01)           (c) DD, p,F- (0,01)           (b) DD, p,F- (0,01)           (c) DD, p,F- (0,01)           (b) Endmin (0,02)           (c) Endmin (0,05)           (a) Fenamiphas (0,05)           <	action         action           LOQ* mg/kg)         (a) Action ifon (0.05)           (a) Bifenov (0.05)         (a) Bifenov (0.05)           (a) Bifenov (0.05)         (a) Bifenov (0.05)           (a) Bifenov (0.05)         (a) Bifenov (0.07)           (a) Chordane, alpha (0.01)         (a) Chordane, alpha (0.01)           (a) Chordane, alpha (0.02)         (a) Chordane, alpha (0.02)           (a) Chordane, alpha (0.02)         (a) Chordane, alpha (0.02)           (a) Dib, p.p <sup>-</sup> (0.01)         (a) Chordane (0.02)           (a) Dib, p.p <sup>-</sup> (0.01)         (a) Ethorves (0.05)           (a) Dib, p.p <sup>-</sup> (0.01)         (a) Ethorves (0.02)           (a) Fanchorphos (0.02)         (a) Fanchorphos (0.02)           (a) Fanchorphos (0.02)         (a) Fanchorphos (0.02)           (a) Flucythrinate (0.05)         (a) Fucythrinate (0.05)           (a) Formothion (0.02)         (a) Formothion (0.02)           (a) Isoprothios (0.02)         (a) Isoprothios (0.02)           (a) Malathion (Sum) ()         (b) Stathion (Sum) ()	<ul> <li>(a) Aldrin (0.0)</li> <li>(a) Bifenthrin</li> <li>(a) Sutschlor</li> <li>(a) Carbopher</li> <li>(a) Chlordsne</li> <li>(a) Chlordsne</li> <li>(a) Chlordne</li> <li>(a) Chlordne</li> <li>(a) Chlordne</li> <li>(a) Chlordne</li> <li>(a) Chlordne</li> <li>(a) Dele o.p<sup>1</sup></li> <li>(a) Etadliural</li> <li>(a) Etadliural</li> <li>(a) Fenchlorpi</li> <li>(a) Hestachlor</li> <li>(a) Mesarbar</li> </ul>	1) (0.01) (0.01) (0.05) . gamma (0.01) (0.05) (0.05) (0.05) (0.05) (0.05) r(0.05) r(0.05) hos (sum) () 0.02) n (0.05) ) r (0.05) ) r (0.05) ) (0.05) ) (0.05) ) (0.05) ) (0.05) ) (0.05) ) (0.05) ) (0.05) ) (0.05) (0.02) (0.05) (0.05) (0.02) (0.02) (0.05) (0.05) (0.02) (0.02) (0.05) (0.05) (0.05) (0.02) (0.02) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.02) (0.05)	<ul> <li>(a) Ametryne (0.0)</li> <li>(a) Biphenyl (0.0)</li> <li>(a) Carbophenodi (0.05)</li> <li>(a) Chlordrenapyr</li> <li>(a) Chlordrenapyr</li> <li>(a) Chlozolinate (</li> <li>(a) Cyhalothrin, gi</li> <li>(b) DDE, p, p' (0.0)</li> <li>(a) Dichdorthriur</li> <li>(a) Erdioaulfan, a</li> <li>(b) Erdioaulfan, a</li> <li>(c) Fenchlorphos</li> <li>(a) Fenchlorphos</li> <li>(a) Fenchlorphos</li> <li>(a) Fenchlorphos</li> <li>(b) Fenchlorphos</li> <li>(c) C2)</li> <li>(a) Fluotrimazole</li> <li>(a) HcH gammai</li> <li>(a) Krasoxim-met</li> <li>(a) Krasoxim-met</li> </ul>	(2) (1) (0.05) (0.05) (1) (0.05) (1) (1) (1) (1) (1) (1) (1) (1	<ul> <li>(a) Aramite (0.04)</li> <li>(a) Bromferwinfos (0.02)</li> <li>(a) Cadusafos (0.02)</li> <li>(a) Carboxin (0.05)</li> <li>(a) Chlorfenson (0.05)</li> <li>(a) Chlorfenson (0.05)</li> <li>(a) Chlorfenson (0.05)</li> <li>(a) Cypermethin (0.05)</li> <li>(a) Cypermethin (0.05)</li> <li>(a) Cypermethin (0.02)</li> <li>(a) Dichalandi (0.02)</li> <li>(b) Endosulfan, beta- (0.05)</li> <li>(c) Erdiosulfan, beta- (0.05)</li> <li>(a) Fenvalerate &amp; Estanvalerate( sum of RR,SS,RS,R) ()</li> <li>(a) Fluquinconazole (0.02)</li> <li>(a) HCH, alpha- (0.01)</li> <li>(b) Isodrin (0.02)</li> <li>(a) Landrin (0.02)</li> <li>(a) Landrin (0.02)</li> <li>(b) Metacriphos (0.02)</li> </ul>
The content of total 24-methylenecyclos Amount of total GC ist of screened SUS1A 2-Phenylphenel (0.01) Arazane (0.02) Bremaphoa (0.01) Capital (0.06) Chiofres/infox (0.01) Chiofres/infox (0.02) Chiofres/infox (0.02) DDT, o.p <sup>2</sup> (0.01) DDT, o.p <sup>2</sup> (0.01) DDT, o.p <sup>2</sup> (0.01) Dictarbanzaphenone o.p <sup>2</sup> (0.02) DDT, o.p <sup>2</sup> (0.01) Dictarbanzaphenone o.p <sup>2</sup> (0.02) Endoulfan, sulfate (0.02) Eindrakino (0.05) Endoulfan, sulfate (0.02) Eindrakino (0.02) Fentirothian (0.02) Fentirothian (0.02) Fentirothian (0.02) Finanalia sulfate (0.02) Eindrakino (0.05) Hicklinete-teau (0.02) Hicklinete-teau (0.02) Hicklinete-teau (0.02) Hicklinete-teau (0.02) Hicklinete-teau (0.02) Hicklinete-teau (0.02) Hicklinete-teau (0.02) Maleaxen (0.05) Methamidophos (0.1)	artanol, and citrostadienol). -eutables is 0,491 mg/100 g molecules (* = limit of Pesticide Screening(GC) (l (a) Acatochiar (0,06) (b) Bernifuralin (0,01) (a) Bromophasentity (0,01) (b) Celeran (0,06) (c) Chiardane (Sum) () (c) Chiardan	actionification)           LOQ* mg/kg)           (a) Actonifier (0.05)           (a) Bifencov (0.05)           (a) Bifencov (0.05)           (a) Bifencov (0.05)           (a) Bifencov (0.05)           (a) Diportion (Sum calculated as Captan (1)           (a) Chlorobenzilate (0.01)           (a) Chlorobenzilate (0.01)           (a) Chlorobenzilate (0.01)           (a) Dib, p.p <sup>-</sup> (0.02)           (a) Dichoros (0.02)           (a) Dieldrin (Sum) (1)           (a) Elvi (0.05)           (a) Floros (0.02)           (a) Floros (0.05)           (b) Costinicane (0.05)           (c) Floros (0.05)           (a) Floros (0.02)           (a) Floros (0.05)           (b) Costinicane (0.02)           (c) Floros (0.05)           (c) Floros (0.05) <tr< td=""><td><ul> <li>(e) Aldrn (0.0)</li> <li>(a) Bifenthrin</li> <li>(a) Sutachlor</li> <li>(a) Carbophei</li> <li>(a) Carbophei</li> <li>(a) Chlordneb</li> <li>(a) Chlordneb</li> <li>(a) Chlordneb</li> <li>(a) Chlordneb</li> <li>(a) Chlordneb</li> <li>(a) DDE, o, pi</li> <li>(a) Dichloban</li> <li>(a) Dichloban</li> <li>(a) Dichloban</li> <li>(a) Ethalfluraf</li> <li>(a) Fenchlorpi</li> <li>(a) Fenchlorpi</li> <li>(a) Fenchlorpi</li> <li>(a) Fundertalii</li> <li>(a) Heptacho</li> <li>(a) Heptacho</li> <li>(a) Methyl-Fe</li> <li>(b) Addienpho</li> <li>(a) Addienpho</li> <li>(a) Jodfenpho</li> <li>(a) Jodfenpho</li> <li>(a) Jodfenpho</li> <li>(a) Jodfenpho</li> <li>(b) Addienpho</li> <li>(b) Addienpho</li> <li>(c) Addienpho</li> <li>(c)</li></ul></td><td>1) (0.01) (0.01) (0.05) (0.05) (0.05) (0.05) (0.05) r(0.05) r(0.05) r(0.05) r(0.05) n(Sum)() 0.02) n(0.05) ) r(0.04) ) r(0.04) ) r(0.04) ) r(0.04) ) r(0.04) ) r(0.04) ) r(0.04) ) r(0.04) ) r(0.04) ) r(0.04) ) r(0.04) ) r(0.04) r(0.04) ) r(0.04) r(0.04) r(0.04) r(0.04) r(0.04) r(0.04) r(0.04) r(0.04) r(0.04) r(0.04) r(0.04) r(0.04) r(0.05) r(0.04) r(0.04) r(0.04) r(0.05) r(0.04) r(0.04) r(0.05) r(0.04) r(0.04) r(0.04) r(0.05) r(0.04) r(0.04) r(0.05) r(0.04) r(0.04) r(0.05) r(0.04) r(0.05) r(0.04) r(0.04) r(0.05) r(0.04) r(0.04) r(0.05) r(0.04) r(0.04) r(0.04) r(0.04) r(0.04) r(0.04) r(0.04) r(0.04) r(0.04) r(0.05) r(0.04) r(0.04) r(0.04) r(0.05) r(0.04) r(0.04) r(0.04) r(0.04) r(0.04) r(0.04) r(0.04) r(0.05) r(0.04) r(0.04) r(0.05) r(0.05) r(0.05) r(0.04) r(0.05) r(0.05) r(0.04) r(0.05) r(0.</td><td><ul> <li>(a) Ametryna (D.C.</li> <li>(a) Biphenyl (Q.O)</li> <li>(a) Butafenacii (Q.G.)</li> <li>(a) Chlordenapyr</li> <li>(a) Chlordenapyr</li> <li>(a) Chlorapropyla</li> <li>(a) Chlozolinata (G.G.)</li> <li>(a) Chlozolinata (G.G.)</li> <li>(b) Chlofenthir, g</li> <li>(a) DDE, p, p' (O.</li> <li>(b) Chlofenthir</li> <li>(a) DDE, p, p' (O.</li> <li>(b) Chlofenthir</li> <li>(a) Dinobuton (Q.</li> <li>(a) Endoaulfan, a</li> <li>(b) Fenchlorphos</li> <li>(a) Fenchlorphos</li> <li>(a) Fenchlorphos</li> <li>(a) Fenchlorphos</li> <li>(a) Fenchlorphos</li> <li>(a) Fenchlorphos</li> <li>(b) Fenchlorphos</li> <li>(c) Call acoustrophos</li> <li>(a) Hobachlor (S.</li> <li>(a) Isocatrophos</li> <li>(a) Resoltophos</li> <li>(a) Mepronil (Q.O)</li> <li>(a) Metribuzin (Q.</li> </ul></td><td>(2) (1) (1) (0.05) (0.05) (0.05) (0.02) (1) (0.02) (1) (0.02) (1) (0.02) (1) (0.05) (0.05) (0.05) (0.05) (0.01) Extenvalerate SR Isomers) (0.01) Lindan) (0.01) (0.02) hyt (0.01) (1) (2) (2) (2) (2) (3) (3) (3) (4) (3) (4) (4) (5) (5) (5) (5) (6) (7) (7) (7) (7) (7) (7) (7) (7</td><td><ul> <li>(a) Aramife (0.04)</li> <li>(a) Bromfenvinfos (0.02)</li> <li>(a) Cadusafos (0.02)</li> <li>(a) Carboxin (0.05)</li> <li>(a) Chlortenson (0.05)</li> <li>(a) Chlortenson (0.05)</li> <li>(a) Chlortenste (0.05)</li> <li>(a) Culoratialexi (0.05)</li> <li>(a) Culoratialexi (0.05)</li> <li>(a) Dichathaunid (0.02)</li> <li>(a) Erdiosulfan, beta- (0.05)</li> <li>(b) Erdiosulfan, beta- (0.05)</li> <li>(c) Fernularate &amp; Estanvalarate( sum of RR,SS,R5,SR) ()</li> <li>(a) Fluquinconszole (0.02)</li> <li>(b) Hoptachfor epoxida cia (0.01)</li> <li>(c) Hoptachfor epoxida cia (0.01)</li> <li>(a) Landm (0.02)</li> <li>(a) Methacnphos (0.02)</li> <li>(a) Mexinphos (0.02)</li> </ul></td></tr<>	<ul> <li>(e) Aldrn (0.0)</li> <li>(a) Bifenthrin</li> <li>(a) Sutachlor</li> <li>(a) Carbophei</li> <li>(a) Carbophei</li> <li>(a) Chlordneb</li> <li>(a) Chlordneb</li> <li>(a) Chlordneb</li> <li>(a) Chlordneb</li> <li>(a) Chlordneb</li> <li>(a) DDE, o, pi</li> <li>(a) Dichloban</li> <li>(a) Dichloban</li> <li>(a) Dichloban</li> <li>(a) Ethalfluraf</li> <li>(a) Fenchlorpi</li> <li>(a) Fenchlorpi</li> <li>(a) Fenchlorpi</li> <li>(a) Fundertalii</li> <li>(a) Heptacho</li> <li>(a) Heptacho</li> <li>(a) Methyl-Fe</li> <li>(b) Addienpho</li> <li>(a) Addienpho</li> <li>(a) Jodfenpho</li> <li>(a) Jodfenpho</li> <li>(a) Jodfenpho</li> <li>(a) Jodfenpho</li> <li>(b) Addienpho</li> <li>(b) Addienpho</li> <li>(c) Addienpho</li> <li>(c)</li></ul>	1) (0.01) (0.01) (0.05) (0.05) (0.05) (0.05) (0.05) r(0.05) r(0.05) r(0.05) r(0.05) n(Sum)() 0.02) n(0.05) ) r(0.04) ) r(0.04) ) r(0.04) ) r(0.04) ) r(0.04) ) r(0.04) ) r(0.04) ) r(0.04) ) r(0.04) ) r(0.04) ) r(0.04) ) r(0.04) r(0.04) ) r(0.04) r(0.04) r(0.04) r(0.04) r(0.04) r(0.04) r(0.04) r(0.04) r(0.04) r(0.04) r(0.04) r(0.04) r(0.05) r(0.04) r(0.04) r(0.04) r(0.05) r(0.04) r(0.04) r(0.05) r(0.04) r(0.04) r(0.04) r(0.05) r(0.04) r(0.04) r(0.05) r(0.04) r(0.04) r(0.05) r(0.04) r(0.05) r(0.04) r(0.04) r(0.05) r(0.04) r(0.04) r(0.05) r(0.04) r(0.04) r(0.04) r(0.04) r(0.04) r(0.04) r(0.04) r(0.04) r(0.04) r(0.05) r(0.04) r(0.04) r(0.04) r(0.05) r(0.04) r(0.04) r(0.04) r(0.04) r(0.04) r(0.04) r(0.04) r(0.05) r(0.04) r(0.04) r(0.05) r(0.05) r(0.05) r(0.04) r(0.05) r(0.05) r(0.04) r(0.05) r(0.	<ul> <li>(a) Ametryna (D.C.</li> <li>(a) Biphenyl (Q.O)</li> <li>(a) Butafenacii (Q.G.)</li> <li>(a) Chlordenapyr</li> <li>(a) Chlordenapyr</li> <li>(a) Chlorapropyla</li> <li>(a) Chlozolinata (G.G.)</li> <li>(a) Chlozolinata (G.G.)</li> <li>(b) Chlofenthir, g</li> <li>(a) DDE, p, p' (O.</li> <li>(b) Chlofenthir</li> <li>(a) DDE, p, p' (O.</li> <li>(b) Chlofenthir</li> <li>(a) Dinobuton (Q.</li> <li>(a) Endoaulfan, a</li> <li>(b) Fenchlorphos</li> <li>(a) Fenchlorphos</li> <li>(a) Fenchlorphos</li> <li>(a) Fenchlorphos</li> <li>(a) Fenchlorphos</li> <li>(a) Fenchlorphos</li> <li>(b) Fenchlorphos</li> <li>(c) Call acoustrophos</li> <li>(a) Hobachlor (S.</li> <li>(a) Isocatrophos</li> <li>(a) Resoltophos</li> <li>(a) Mepronil (Q.O)</li> <li>(a) Metribuzin (Q.</li> </ul>	(2) (1) (1) (0.05) (0.05) (0.05) (0.02) (1) (0.02) (1) (0.02) (1) (0.02) (1) (0.05) (0.05) (0.05) (0.05) (0.01) Extenvalerate SR Isomers) (0.01) Lindan) (0.01) (0.02) hyt (0.01) (1) (2) (2) (2) (2) (3) (3) (3) (4) (3) (4) (4) (5) (5) (5) (5) (6) (7) (7) (7) (7) (7) (7) (7) (7	<ul> <li>(a) Aramife (0.04)</li> <li>(a) Bromfenvinfos (0.02)</li> <li>(a) Cadusafos (0.02)</li> <li>(a) Carboxin (0.05)</li> <li>(a) Chlortenson (0.05)</li> <li>(a) Chlortenson (0.05)</li> <li>(a) Chlortenste (0.05)</li> <li>(a) Culoratialexi (0.05)</li> <li>(a) Culoratialexi (0.05)</li> <li>(a) Dichathaunid (0.02)</li> <li>(a) Erdiosulfan, beta- (0.05)</li> <li>(b) Erdiosulfan, beta- (0.05)</li> <li>(c) Fernularate &amp; Estanvalarate( sum of RR,SS,R5,SR) ()</li> <li>(a) Fluquinconszole (0.02)</li> <li>(b) Hoptachfor epoxida cia (0.01)</li> <li>(c) Hoptachfor epoxida cia (0.01)</li> <li>(a) Landm (0.02)</li> <li>(a) Methacnphos (0.02)</li> <li>(a) Mexinphos (0.02)</li> </ul>
The content of total 24-methylenecyclos Amount of total GC ist of screened SUS1A 2-Phanylphenel (0.01) 4-Parazne (0.02) Bromophos (0.01) Captacio (0.06) 0-Horterwinhos (0.01) 0-Horterwinhos (0.01) 0-Horterwinhos (0.01) 0-Chorterwinhos (0.01) 0-Dictor (0.02) 0-Dit o, o, P. (0.02) Dicafol, p.p. (0.02) Dicafol, p.p. (0.02) Dicafol, p.p. (0.02) Dicafol, p.p. (0.02) Dicafol, p.p. (0.02) Einmitos (0.02) Fantualita, sulfate (0.02) Einmitos (0.02) Fantualitate (Sum of R8&SS Samores) (0.02) HCH, beta- (0.01) Horte av (0.02) Horter (0.05) Melhamidophos (0.1)	artanol, and citrostadienol).           -eutables is 0,491 mg/100 g           molecules (* = limit of           Pesticide Screening(GC) (0           (a) Acatochiar (0,06)           (a) Bromophazethyl (0,01)           (a) Bromophazethyl (0,01)           (a) Chiernephae (0,05)           (a) DD, o,p <sup>1</sup> - (0,01)           (b) DD, p,p <sup>-</sup> (0,01)           (a) DD, p,p <sup>-</sup> (0,01)           (b) DD, p,p <sup>-</sup> (0,01)           (a) DD, p,p <sup>-</sup> (0,01)           (b) DD, p,p <sup>-</sup> (0,01)           (a) DD, p,p <sup>-</sup> (0,01)           (b) DD, p,p <sup>-</sup> (0,01)           (a) DD, p,p <sup>-</sup> (0,01)           (b) DD, p,p <sup>-</sup> (0,01)           (a) DD, p,p <sup>-</sup> (0,01)           (b) DD, p,p <sup>-</sup> (0,01)           (a) Endmine (0,02)           (b) DD, p,p <sup>-</sup> (0,01)           (a) Endmine (0,02)           (b) Denorbergenergenthrin (0,02)           (a) Fenergrepathrin (0,02)           (a) Functionalin (0,02)           (a) Fenergrepathrone (0,02)           (a) Isofenphos-methyl (0,01)           (a) Mediation (0,02)	Adomification)           LOQ* mg/kg)           (a) Bitenox (0.55)           (a) Chordman, alpha (0.01)           (a) DD, p.p <sup>1</sup> - (0.01)           (a) DD, p.p <sup>1</sup> - (0.01)           (a) DD, p.p <sup>1</sup> - (0.01)           (a) Edifenphos (0.02)           (a) Edifenphos (0.02)           (a) Edifenphos (0.02)           (a) Fenson (0.02)           (a) Fenson (0.02)           (a) Formothion (0.05)           (a) Formothion (0.05)           (a) Formothion (0.02)           (a) Isoprotholane (0.02)           (a) Isoprothiolane (0.02)           (a) Isoprothiolane (0.02)           (a) Mathion (Sum) (           (b) Methoxychlor (0.02)           (a) Nitrapyrin (0.01)	<ul> <li>(a) Aldrin (0.0)</li> <li>(a) Bifenthrin</li> <li>(a) Sutschlor</li> <li>(a) Carbophei</li> <li>(a) Chlordane</li> <li>(a) Chlordane</li> <li>(a) Chlordane</li> <li>(a) Chlordane</li> <li>(a) Chlordane</li> <li>(a) DEL, o, pi-</li> <li>(a) Dichlobani</li> <li>(a) Dichobani</li> <li>(a) Dichobani</li> <li>(a) Dichobani</li> <li>(a) Dichobani</li> <li>(a) Dichobani</li> <li>(a) Fenchlorpi</li> <li>(a) Fenchlorpi</li> <li>(a) Fenchlorpi</li> <li>(a) Fenchlorpi</li> <li>(a) Flumetralin</li> <li>(a) HCB (0.01</li> <li>(a) Jodfenpho</li> <li>(a) Mecarbam</li> </ul>	1) (0.01) (0.01) (0.05) , germma (0.01) (0.05) (0.01) (0.01) (0.02) (0.03) (0.04) (0.04) (0.04) (0.04) (0.04) (0.04) (0.04) (0.04) (0.04) (0.02) (0.04) (0.04) (0.05) (0.04) (0.04) (0.04) (0.05) (0.04) (0.04) (0.05) (0.04) (0.04) (0.05) (0.04) (0.04) (0.05) (0.04) (0.04) (0.05) (0.04) (0.04) (0.05) (0.04) (0.05) (0.04) (0.04) (0.05) (0.04) (0.05) (0.04) (0.04) (0.05) (0.05) (0.04) (0.04) (0.05) (0.05) (0.04) (0.05) (	<ul> <li>(a) Ametryna (D.C.</li> <li>(a) Bijshenyl (D.C)</li> <li>(a) Butafenacii (D.C)</li> <li>(a) Chlordenapyr</li> <li>(a) Chlordenapyr</li> <li>(a) Chlordenapyr</li> <li>(a) Chlorablattinn, I</li> <li>Cyhalothrin, I</li> <li>Cyhalothrin, I</li> <li>Cyhalothrin, I</li> <li>Cyhalothrin, I</li> <li>Cyhalothrin, I</li> <li>(a) Dinbulon (O. 2)</li> <li>(a) Dinbulon (O. 2)</li> <li>(a) Fenchlorphos</li> <li>(a) Hotzimazole</li> <li>(a) Hotzimazole</li> <li>(a) Heptachlor (S</li> <li>(a) Isocarbophos</li> <li>(a) Kresoxim-met</li> <li>(a) Mepronil (O.0)</li> <li>(a) NitrothaHisopr</li> </ul>	(2) (1) (0.1) (0.05) (0.05) (16 (0.01) (0.02) (17 (0.02) (17 (0.02) (17 (0.02) (17 (0.02) (17 (0.01)) Externvelerate SR faomera) (0.01) Lindan) (0.01) Lindan) (0.01) (0.02) hyl (0.01) (17 (0.01) (17 (0.01)) (17 (0.01) (17 (0.01)) (17 (0.01))	<ul> <li>(a) Azamite (0.04)</li> <li>(a) Eromfenvinfos (0.02)</li> <li>(a) Cadusafos (0.02)</li> <li>(a) Carbosin (0.05)</li> <li>(a) Chlorfenatori (0.05)</li> <li>(a) Chlorethalonii (0.05)</li> <li>(a) Chlorethalonii (0.05)</li> <li>(a) Cypermethrin (0.05)</li> <li>(a) Dichardinalosi (0.02)</li> <li>(a) Dichardinalosi (0.02)</li> <li>(a) Dichardinalosi (0.02)</li> <li>(a) Dichardina (0.01)</li> <li>(a) Dichardina (0.01)</li> <li>(a) Dichardina (0.01)</li> <li>(a) Echidiazote (0.02)</li> <li>(a) Fentluthrin (0.01)</li> <li>(a) Fentluthrin (0.01)</li> <li>(a) Fentluthrin (0.01)</li> <li>(a) Fentluthrin (0.01)</li> <li>(b) Fentluthrin (0.01)</li> <li>(c) Fentluthrin (0.02)</li> <li>(a) HCH, alpha- (0.01)</li> <li>(b) Heptachfor epoxida cis (0.01)</li> <li>(a) Isodarin (0.02)</li> <li>(a) Methaorphos (0.02)</li> <li>(b) Methaorphos (0.02)</li> <li>(c) Actahorodipropyl ether (54-21) (0.05)</li> </ul>
The content of total 24-methylenecyclos Armount of total GC ist of screened SUS1A 2-Phenylphenol (0.01) Arrazme (0.02) Bernophoe (0.01) Chlortenvinphoe (0.01) Chlortenvinphoe (0.01) Chlortenvinphoe (0.01) Chlortenvinghoe (0.01) Chlortenvinghoe (0.01) Chlortenvinghoe (0.01) Chlortenvinghoe (0.01) Chlortenvinghoe (0.01) DDT, op- (0.02) Dichlorupbonghenone o.pt (0.02) Dichlorupbonghenone o.pt (0.02) Dichlorupbonghenone o.pt (0.02) Dichlorupbonghenone o.pt (0.02) Dichlorupbonghenone o.pt (0.02) Dichlorupbonghenone o.pt (0.02) Fantvalerate & Esterwalerate(Sum of RR&SS Isomers) (0.02) Fluvalinate-sau (0.02) Fluvalinate-sau (0.02) Fluvalinate-sau (0.02) Fluvalinate-sau (0.02) Malaxon (0.05) Mathamidophos (0.1) Mirex (0.01) Parathion-methyl (0.04)	artanol, and citrostadienol).           -eutables is 0,491 mg/100 g           molecules (* = limit of           Pesticide Screening(GC) (I           (a) Acatochiar (0,06)           (a) Exetochiar (0,06)           (a) Exetochiar (0,06)           (a) Exetochiar (0,06)           (a) Chiargen(asamethyl (0,01)           (a) DD, o,p <sup>-</sup> (0,02)           (b) DD, o,p <sup>-</sup> (0,02)           (a) DD, o,p <sup>-</sup> (0,02)           (b) Dichlorobenzophenone p.p <sup>+</sup> (0,02)           (b) Dichlorobenzophenone p.p <sup>+</sup> (0,02)           (b) Dichlorobenzophenone p.p <sup>+</sup> (0,02)           (b) Dichlorobenzophenone (0,01)           (a) Feenpropathrin (0,02)           (b) Feenpropathrin (0,02)           (a) Feenpropathrin (0,02)           (a) Fonofos (0,02)           (b) Isofenphos-methyl (0,01)           (a) Methidathion (0,02)           (a) Methidathion (0,02)           (a) Molecular (0,02)           (a) Molecular (0,02)           (b) Chadatzen (0,02)           (a) Molecular (0,02)           (b) Chadatzen (0,02)<	Jube         Actonification)           LOQ* mg/kg)         (a) Actonifier (0.05)           (a) Bitnov (0.05)         (a) Bitnov (0.05)           (a) Bitnov (0.05)         (a) Bitnov (0.05)           (a) Bitnov (0.05)         (a) Ditnov (0.05)           (a) Cohordine, alpha (0.01)         (a) Chlordne, alpha (0.01)           (a) Chlordne, alpha (0.01)         (a) Chlordne, alpha (0.01)           (a) Chlordne, alpha (0.02)         (a) Chlordne, alpha (0.01)           (a) Chlordne, alpha (0.02)         (a) Chlordne, alpha (0.02)           (a) Chlordne, alpha (0.02)         (a) Chlordne, alpha (0.02)           (a) DD, p.p <sup>-</sup> (0.01)         (a) DD, p.p <sup>-</sup> (0.01)           (a) DD, p.p <sup>-</sup> (0.01)         (a) Dichlordnes (0.02)           (a) DD, p.p <sup>-</sup> (0.01)         (a) Edifapphas (0.02)           (a) DD, p.p <sup>-</sup> (0.01)         (a) Edifaphas (0.02)           (a) Edifaphas (0.02)         (a) Edifaphas (0.02)           (a) Fenson (0.02)         (a) Fenson (0.02)           (a) Flucythrinate (0.05)         (a) Iprobanfos (0.02)           (a) Iprobanfos (0.02)         (a) Iprobanfos (0.02)           (a) Isoprothiolane (0.02)         (a) Methoxychior (0.02)           (a) Methoxychior (0.01)         (a) Methoxychior (0.02)           (a) Methoxychior (0.01)         (a) Oxychiordane (0.02) <td><ul> <li>(a) Aldrin (0,0)</li> <li>(a) Bifenthrin</li> <li>(a) Butashlor</li> <li>(a) Carbophes</li> <li>(a) Carbophes</li> <li>(a) Chlordane</li> <li>(a) Chlordane</li> <li>(a) Chlordane</li> <li>(a) Chlordane</li> <li>(a) Chlordane</li> <li>(a) DEL o,pi-</li> <li>(a) Dictobani</li> <li>(a) Dictobani</li> <li>(a) Dictobani</li> <li>(a) Dictobani</li> <li>(a) Dictobani</li> <li>(a) Endolufa</li> <li>(a) Fenchlorpi</li> <li>(a) Alegataba</li> <li>(b) Statistica (0,00)</li> <li>(a) Oxyfluorffe</li> <li>(a) PCE 138 (0)</li> </ul></td> <td>1) (0.01) (0.01) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.01) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02)</td> <td><ul> <li>(a) Ametryna (0.0)</li> <li>(a) Biphenyl (0.0)</li> <li>(a) Butafenacii (0.05)</li> <li>(a) Chlorfenapyr</li> <li>(a) Chlorfenapyr</li> <li>(a) Chlordenapyr</li> <li>(a) Chlordenthin, Ii</li> <li>Cyhalothnin, Ii</li> <li>Chlordenthior</li> <li>(a) Dinbluton (0.02)</li> <li>(a) Enchalothan ea</li> <li>Ertion (0.02)</li> <li>(a) Fenchlorphos</li> <li>(a) HCH gammaid</li> <li>(b) HCH gammaid</li> <li>(a) HCH gammaid</li> <li>(a) HCH gammaid</li> <li>(a) HCH gammaid</li> <li>(b) HCH gammaid</li> <li>(a) Mepronil (0.0)</li> <li>(a) Metribuzin (0.</li> <li>(a) Nitrothal-isopr</li> <li>(b) Paclobutas (53 (0.0)</li> </ul></td> <td>(2) (1) (0.1) (0.05) (0.05) (0.05) (0.01) (0.02) (1) (0.02) (1) (0.02) (1) (0.01) Exferivefarte SR faomers) (0.01) Lindan) (0.01) (0.02) hyl (0.01) (1) oxpyl (0.01) (2) (2) (2) (2) (2) (2) (3) (3) (4) (2) (4) (5) (2) (4) (5) (5) (6) (7) (7) (7) (7) (7) (7) (7) (7</td> <td><ul> <li>(a) Aramite (0.04)</li> <li>(b) Bromfenvinfos (0.02)</li> <li>(a) Cadusafos (0.02)</li> <li>(a) Carboxin (0.06)</li> <li>(a) Chlorfenaloni (0.05)</li> <li>(a) Chlorfenaloni (0.05)</li> <li>(a) Chlorfenaloni (0.05)</li> <li>(a) Cypermethrin (0.05)</li> <li>(a) Dir (Sum) ()</li> <li>(b) Dir (Sum) ()</li> <li>(a) Dir (Sum) ()</li> <li>(b) Dir (Sum) ()</li> <li>(b) Dir (Sum) ()</li> <li>(c) Dir (Sum) (C) (2)</li> <li>(c) Pertrubrim ()</li> <li>(c) Pertrubrim ()</li> <li>(c) Pertrubrim ()</li> <li>(c) Pertrubrim ()</li> <li>(c) Dir ()</li> <li>(c) Di</li></ul></td>	<ul> <li>(a) Aldrin (0,0)</li> <li>(a) Bifenthrin</li> <li>(a) Butashlor</li> <li>(a) Carbophes</li> <li>(a) Carbophes</li> <li>(a) Chlordane</li> <li>(a) Chlordane</li> <li>(a) Chlordane</li> <li>(a) Chlordane</li> <li>(a) Chlordane</li> <li>(a) DEL o,pi-</li> <li>(a) Dictobani</li> <li>(a) Dictobani</li> <li>(a) Dictobani</li> <li>(a) Dictobani</li> <li>(a) Dictobani</li> <li>(a) Endolufa</li> <li>(a) Fenchlorpi</li> <li>(a) Alegataba</li> <li>(b) Statistica (0,00)</li> <li>(a) Oxyfluorffe</li> <li>(a) PCE 138 (0)</li> </ul>	1) (0.01) (0.01) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.01) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02)	<ul> <li>(a) Ametryna (0.0)</li> <li>(a) Biphenyl (0.0)</li> <li>(a) Butafenacii (0.05)</li> <li>(a) Chlorfenapyr</li> <li>(a) Chlorfenapyr</li> <li>(a) Chlordenapyr</li> <li>(a) Chlordenthin, Ii</li> <li>Cyhalothnin, Ii</li> <li>Chlordenthior</li> <li>(a) Dinbluton (0.02)</li> <li>(a) Enchalothan ea</li> <li>Ertion (0.02)</li> <li>(a) Fenchlorphos</li> <li>(a) HCH gammaid</li> <li>(b) HCH gammaid</li> <li>(a) HCH gammaid</li> <li>(a) HCH gammaid</li> <li>(a) HCH gammaid</li> <li>(b) HCH gammaid</li> <li>(a) Mepronil (0.0)</li> <li>(a) Metribuzin (0.</li> <li>(a) Nitrothal-isopr</li> <li>(b) Paclobutas (53 (0.0)</li> </ul>	(2) (1) (0.1) (0.05) (0.05) (0.05) (0.01) (0.02) (1) (0.02) (1) (0.02) (1) (0.01) Exferivefarte SR faomers) (0.01) Lindan) (0.01) (0.02) hyl (0.01) (1) oxpyl (0.01) (2) (2) (2) (2) (2) (2) (3) (3) (4) (2) (4) (5) (2) (4) (5) (5) (6) (7) (7) (7) (7) (7) (7) (7) (7	<ul> <li>(a) Aramite (0.04)</li> <li>(b) Bromfenvinfos (0.02)</li> <li>(a) Cadusafos (0.02)</li> <li>(a) Carboxin (0.06)</li> <li>(a) Chlorfenaloni (0.05)</li> <li>(a) Chlorfenaloni (0.05)</li> <li>(a) Chlorfenaloni (0.05)</li> <li>(a) Cypermethrin (0.05)</li> <li>(a) Dir (Sum) ()</li> <li>(b) Dir (Sum) ()</li> <li>(a) Dir (Sum) ()</li> <li>(b) Dir (Sum) ()</li> <li>(b) Dir (Sum) ()</li> <li>(c) Dir (Sum) (C) (2)</li> <li>(c) Pertrubrim ()</li> <li>(c) Pertrubrim ()</li> <li>(c) Pertrubrim ()</li> <li>(c) Pertrubrim ()</li> <li>(c) Dir ()</li> <li>(c) Di</li></ul>
The content of total 24-methylenecyclosi Armount of total GC ist of screened SUS1A 2-Phraytpienel (0.01) Armane (0.02) Bromophos (0.01) Capital (0.06) 0 Chioreshide (0.02) 0 Cyptenothin (0.05) 0 Dit. o.2- (0.01) 0 Dit. o.2- (0.01) 0 Dit. o.2- (0.01) 0 Endoullian auflate (0.02) Emmina (0.02) Fenitrothion (0.02) Fenitrothion (0.02) Fenitrothion (0.02) R8&55 Isomers) (0.02) R8&55 Isomers) (0.02) Hoth, beta-(0.01) Isofenphos (0.02) Malaxan (0.05) Malaxan (0.05) Mathamidophos (0.1) Parathion-methyl (0.04) PCB 28 (001)	artanol, and citrostadienol).           -eutables is 0,491 mg/100 g           molecules (* = limit of           Pesticide Screening(GC) (0           (a) Acatochiar (0,06)           (a) Exetochiar (0,06)           (a) Chlordene (Sum) ()           (b) Chlordene (0,05)           (a) DDD, o.p <sup>1</sup> - (0,01)           (b) DD, p.p <sup>2</sup> - (0,01)           (a) DD, p.p <sup>2</sup> - (0,01)           (b) DD, p.p <sup>2</sup> - (0,01)           (c) DD, p.p <sup>2</sup> - (0,01)           (a) Feneropathrin (0,02)           (a) Functos (0,02)           (a) Functos (0,02)           (a) Extencophos - methyl (0,01)           (b) He	actionalization           (a) Actonifier (0.05)           (a) Bifenov (0.05)           (a) Diportional actional actionactetee actionactional actional actional actional actional actionac	<ul> <li>(e) Aldrin (0.0)</li> <li>(a) Bifenthrin</li> <li>(a) Sutachlor</li> <li>(a) Carbophei</li> <li>(a) Chordneb</li> <li>(a) Chlordneb</li> <li>(a) Chlordneb</li> <li>(a) Chlordneb</li> <li>(a) Chlordneb</li> <li>(a) Chlordneb</li> <li>(a) DDE, o.p.i</li> <li>(a) Dichloban</li> <li>(a) Dichloban</li> <li>(a) Dichloban</li> <li>(a) Ethalfluraf</li> <li>(a) Fenchlorpi</li> <li>(a) Fenchlorpi</li> <li>(a) Fenchlorpi</li> <li>(a) Fumetralii</li> <li>(a) Humetralii</li> <li>(a) Heptachlo</li> <li>(a) Addression</li> <li>(a) Heptachlo</li> <li>(a) Heptachlo</li> <li>(a) Addression</li> <li>(a) Methyl-Pee</li> <li>fide (0.06)</li> <li>(a) Nitrofen (0</li> <li>(a) Oxyfluorfe</li> <li>(a) Oxyfluorfe</li> <li>(a) Oxyfluorfe</li> <li>(a) Chartachlo</li> </ul>	1) (0.01) (0.01) (0.05) (0.05) (0.05) (0.05) (0.05) r(0.05) r(0.05) r(0.05) r(0.05) r(0.05) n (Sum) () 0.02) n (0.05) ) r(0.04) rtachlorophenylsul (.02) ) r(0.01) ) r(0.02) ) r(0.01) ) r(0.02) ) r(0.02) ) r(0.01) ) r(0.02) ) r(0.01) ) r(0.02) (0.01) ) r(0.02) (0.01) ) r(0.02) (0.01) ) r(0.02) (0.01) ) r(0.02) (0.01) ) r(0.02) (0.01) ) r(0.02) (0.01) ) r(0.02) (0.01) ) r(0.02) (0.01) ) r(0.02) (0.01) ) r(0.02) (0.01) ) r(0.02) (0.01) ) r(0.02) (0.01) (0.01) (0.01) (0.02) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.01) (0.02) (0.01	<ul> <li>(a) Ametryna (D.C.</li> <li>(a) Biphenyl (Q.O)</li> <li>(a) Butafensoli (Q.O)</li> <li>(a) Chlordenapyr</li> <li>(a) Chlordenapyr</li> <li>(a) Chlorapropyla</li> <li>(b) Chlorapropyla</li> <li>(a) Chlorapropyla</li> <li>(b) Chlorapropyla</li> <li>(a) Chlorapropyla</li> <li>(b) Chlorapropyla</li> <li>(b) Chlorapropyla</li> <li>(c) Chlorapropyla</li> <li>(a) Dinobuton (Q.</li> <li>(a) Endoaulfan, a</li> <li>(b) Endolafenthior</li> <li>(a) Endoaulfan, a</li> <li>(b) Fenchlorphos</li> <li>(a) Fenvalarate 8</li> <li>(b) Collocation (Q.C)</li> <li>(a) Hoptachlor (S.</li> <li>(a) Isocathophan</li> <li>(a) Metribuzin (Q.C)</li> <li>(a) Nitrothal-isopin</li> <li>(a) PCB 153 (0.0)</li> <li>(b) PCB 153 (0.0)</li> </ul>	(2) (1) (1) (0.05) (0.05) (0.05) (0.02) (1) (0.02) (1) (0.02) (1) (0.02) (1) (0.02) (1) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.01) (0.02) (0.01) (0.02) (0.01) (0.01) (0.02) (0.01) (0.01) (0.02) (0.01) (0.01) (0.02) (0.01) (0.02) (0.01) (0.02) (0.01) (0.02) (0.01) (0.02) (0.01) (0.02) (0.01) (0.02) (0.01) (0.02) (0.02) (0.01) (0.02) (0.02) (0.01) (0.02) (0.01) (0.02) (0.01) (0.02) (0.01)	<ul> <li>(a) Aramife (0.04)</li> <li>(a) Bromfenvinfos (0.02)</li> <li>(a) Cadusafos (0.02)</li> <li>(a) Carboxin (0.05)</li> <li>(a) Chlortenson (0.05)</li> <li>(a) Chlortenson (0.05)</li> <li>(a) Chlortenson (0.05)</li> <li>(a) Chlortenson (0.05)</li> <li>(a) Cypermethrin (0.05)</li> <li>(a) Cypermethrin (0.05)</li> <li>(a) Dichardinaunid (0.02)</li> <li>(b) Erdösülfan, beta- (0.05)</li> <li>(c) Erdösülfan, beta- (0.05)</li> <li>(c) Fernularenta &amp; Esfanvalarente( sum of RR, SS, RS, SR) ()</li> <li>(a) Fluquinconszole (0.02)</li> <li>(a) HcH, sipha- (0.01)</li> <li>(b) Haptachfor epoxida cia (0.01)</li> <li>(c) Aethorodipropyl ether (54/2) (0.05)</li> <li>(a) Parathion (0.01)</li> <li>(b) PCB 180 (0.01)</li> <li>(c) PCB 180 (0.01)</li> <li>(c) Permatinn (0.02)</li> </ul>
24-methylenecyclos Amount of total GC ist of screened SUS1A 2-Phenylphenol (0.01) Arazna (0.02) 9 Bromophos (0.01) 0 Capterol (0.06) 1 Chortervinphos (0.01) 1 Chortervinphos (0.01) 1 Chortervinphos (0.05) 1 Chortervinphos (0.05) 1 Chortervinphos (0.01) 1 Chortervinphos (0.05) 2 Chortervinphos (0.01) 1 Chortervinphos (0.02) 1 Chortervinphos (0.02) 1 Dicottion (0.05) 1 Dicottion (0.05) 1 Dicottion (0.05) 1 Endosultan sulfat- (0.02) 1 Eindras (0.02) 1 Fenitrothion (0.02) 1 Hort, beta (0.01) 1 Hort, beta (0.01) 1 Marex (0.01) 2 Mares (0.01) 1 Parathion-methyl (0.04)	artanol, and citrostadienol).           -eutables is 0,491 mg/100 g           molecules (* = limit of           Pesticide Screening(GC) (I           (a) Acatochiar (0,06)           (a) Exetochiar (0,06)           (a) Exetochiar (0,06)           (a) Exetochiar (0,06)           (a) Chiargen(asamethyl (0,01)           (a) DD, o,p <sup>-</sup> (0,02)           (b) DD, o,p <sup>-</sup> (0,02)           (a) DD, o,p <sup>-</sup> (0,02)           (b) Dichlorobenzophenone p.p <sup>+</sup> (0,02)           (b) Dichlorobenzophenone p.p <sup>+</sup> (0,02)           (b) Dichlorobenzophenone p.p <sup>+</sup> (0,02)           (b) Dichlorobenzophenone (0,01)           (a) Feenpropathrin (0,02)           (b) Feenpropathrin (0,02)           (a) Feenpropathrin (0,02)           (a) Fonofos (0,02)           (b) Isofenphos-methyl (0,01)           (a) Methidathion (0,02)           (a) Methidathion (0,02)           (a) Molecular (0,02)           (a) Molecular (0,02)           (b) Chadatzen (0,02)           (a) Molecular (0,02)           (b) Chadatzen (0,02)<	Jube         Actonification)           LOQ* mg/kg)         (a) Actonifier (0.05)           (a) Bitnox (0.05)         (a) Bitnox (0.05)           (a) Bitnox (0.05)         (a) Bitnox (0.05)           (a) Bitnox (0.05)         (a) Ditnox (0.05)           (a) Cabar/THP (Sum calculated as Captan) ()         (a) Chlordnane, alpha (0.01)           (a) Chlordnane, alpha (0.01)         (a) Chlordnane, alpha (0.01)           (a) Chlordnane, alpha (0.02)         (a) Chlordnane, alpha (0.01)           (a) Chlordnane, alpha (0.02)         (a) Chlordnane, alpha (0.02)           (a) Chlordnane, alpha (0.02)         (a) Chlordnane, alpha (0.02)           (a) Chlordnane, alpha (0.02)         (a) DD, p.p <sup>-</sup> (0.01)           (a) DD, p.p <sup>-</sup> (0.01)         (a) Dichlornos (0.02)           (a) DD, p.p <sup>-</sup> (0.01)         (a) Echlornos (0.02)           (a) Echlornos (0.02)         (a) Echlornos (0.02)           (a) Fenenhlorphos (0.02)         (a) Fenenhlorphos (0.02)           (a) Flucythrinate (0.05)         (a) Fenenhlorphos (0.02)           (a) Flucythrinate (0.05)         (a) Iprobanfos (0.02)           (a) Isoprothiolane (0.02)         (a) Maisthion (Sum) (1)           (a) Methoxychler (0.02)         (a) Mitrapyrin (0.01)           (a) Oxychlordare (0.02)         (a) Nitrapyrin (0.01)	<ul> <li>(a) Aldrin (0,0)</li> <li>(a) Bifenthrin</li> <li>(a) Butashlor</li> <li>(a) Carbophes</li> <li>(a) Carbophes</li> <li>(a) Chlordane</li> <li>(a) Chlordane</li> <li>(a) Chlordane</li> <li>(a) Chlordane</li> <li>(a) Chlordane</li> <li>(a) DEL o,pi-</li> <li>(a) Dictobani</li> <li>(a) Dictobani</li> <li>(a) Dictobani</li> <li>(a) Dictobani</li> <li>(a) Dictobani</li> <li>(a) Endolufa</li> <li>(a) Fenchlorpi</li> <li>(a) Alegataba</li> <li>(b) Statistica (0,00)</li> <li>(a) Oxyfluorffe</li> <li>(a) PCE 138 (0)</li> </ul>	1) (0.01) (0.01) (0.05) , germma (0.01) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.05) (0.02) (0.04) ntachlorophenytsul (0.02) (0.01) (0.02) (0.01) (0.02) (0.01) (0.02) (0.01) (0.02) (0.01) (0.02) (0.01) (0.02) (0.01) (0.02) (0.01) (0.02) (0.01) (0.02) (0.01) (0.02) (0.01) (0.02) (0.01) (0.02) (0.01) (0.02) (0.01) (0.02) (0.01) (0.02) (0.01) (0.02) (0.01) (0.02) (0.01) (0.02) (0.01) (0.02) (0.01) (0.02) (0.01) (0.01) (0.02) (0.01) (0.01) (0.02) (0.01) (0.02) (0.01) (0.02) (0.01) (0.02) (0.01) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.02) (0.01) (0.02) (0.02) (0.01	<ul> <li>(a) Ametryna (0.0)</li> <li>(a) Biphenyl (0.0)</li> <li>(a) Butafenacii (0.05)</li> <li>(a) Chlorfenapyr</li> <li>(a) Chlorfenapyr</li> <li>(a) Chlordenapyr</li> <li>(a) Chlordenthin, Ii</li> <li>Cyhalothnin, Ii</li> <li>Chlordenthior</li> <li>(a) Dinbluton (0.02)</li> <li>(a) Enchalothan ea</li> <li>Ertion (0.02)</li> <li>(a) Fenchlorphos</li> <li>(a) HCH gammaid</li> <li>(b) HCH gammaid</li> <li>(a) HCH gammaid</li> <li>(a) HCH gammaid</li> <li>(a) HCH gammaid</li> <li>(b) HCH gammaid</li> <li>(a) Mepronil (0.0)</li> <li>(a) Metribuzin (0.</li> <li>(a) Nitrothal-isopr</li> <li>(b) Paclobutas (53 (0.0)</li> </ul>	(2) (1) (0.1) (0.05) (10.05) (10.05) (10.05) (10.05) (10.01) (10.02) (10.02) (10.02) (10.02) (10.02) (10.01) (10.01) (10.01) (10.02) hyl (10.01) (10.02) (10.01) (10.01) (10.02) (10.02) (10.01) (10.01) (10.01) (10.02) (10.01) (10.01) (10.01) (10.01) (10.01) (10.01) (10.01) (10.01) (10.01) (10.01) (10.01) (10.01) (10.01) (10.01) (10.01) (10.02) (10.01) (10.01) (10.01) (10.01) (10.01) (10.01) (10.01) (10.01) (10.01) (10.02) (10.02) (10.01) (	<ul> <li>(a) Aramite (0.04)</li> <li>(b) Bromfenvinfos (0.02)</li> <li>(a) Cadusafos (0.02)</li> <li>(a) Carboxin (0.06)</li> <li>(a) Chlorfenaloni (0.05)</li> <li>(a) Chlorfenaloni (0.05)</li> <li>(a) Chlorfenaloni (0.05)</li> <li>(a) Cypermethrin (0.05)</li> <li>(a) Dir (Sum) ()</li> <li>(b) Dir (Sum) ()</li> <li>(a) Dir (Sum) ()</li> <li>(b) Dir (Sum) ()</li> <li>(b) Dir (Sum) ()</li> <li>(c) Dir (Sum) (C) (2)</li> <li>(c) Pertrubrim ()</li> <li>(c) Pertrubrim ()</li> <li>(c) Pertrubrim ()</li> <li>(c) Pertrubrim ()</li> <li>(c) Dir ()</li> <li>(c) Di</li></ul>

### Eurofins Tech. Service (Suzhou) Con Etd

No. 101, Jialingjiang Read, SND Suzhou 215000 Jiangsu Province, P.R. Caina



Phone +86 400 828 5088

Fax



a) Silthiofam (0.01) a) Tetradifon (0.02)	(a) Tetrahydrophthalimide (THPI) (	e) Tecnazene (0.02) a) Tetramethrin (0.02)	(a) Tefluthon (0.02) (a) Tetrasul (0.01)	<ul><li>(a) Terbufos (0.02)</li><li>(a) Tolylfluanid (0.02)</li></ul>	<ul><li>(a) Tetrachlorvinphos (0.02)</li><li>(a) Triallate (0.02)</li></ul>
a) Triazamate (0.01) a) Vinstozolin (0.02)	(0.06) (a) Triazophos (0.02) (	a) Trichloronat (0.01)	(a) Trifluralin (0.02)	(a) Triticonazole (0.01)	(a) Uniconazole (0.02)
SIGNATURE		-			
		-			
Cla	ire Wang	S	nine Xie		
Authoriz	zed Signatory	Authori	zed Signatory		
EXPLANATORY N	OTE				
LOQ: Limit of Qua	ntification	A CNA	S # DAKKS DCMA		
< LOQ: Below Limi	t of Quantification	🖈 mear	ns the test is subcontract	cted within Eurofins group	
N/A means Not app	plicable	• mear	s the test is subcontrac	ted outside Eurofins group	)
Sum compounds r	esults are calculated from the	results of each qua	ntified compound as se	et by regulation	
The result(s) relate	(s) only to the item(s) tested a	nd is(are) only for in	ternal use by the client	t and not for publicly availa	ble as evidence.
This analytical repo	ort shall not be reproduced exc	ept in full, without w	vritten approval of the la	aboratory.	
	erms and Conditions apply.				
Eurofins General T	onno ana oonomono oppiji				



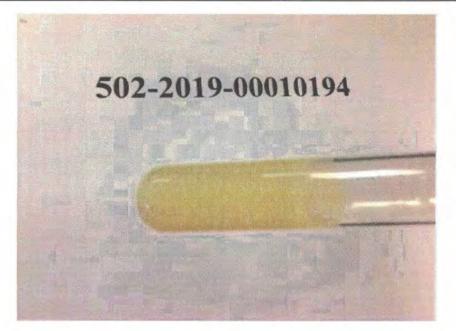
Phone +86 400 828 5088 Fax www.eurofins.cn





Physi	ical	inst	pect	ion
J		a new rest		

Sample code	502-2019-00010194					
Sample name	DHA oil					
Color	Light yellow					
Odor	Have the special odor of this product					
Texture	Oily liquid					



Eurofins Tech. Service (Suzhou) Control No. 101, Jialingjiang Resci SND Suzhou 215000 Jiangsu Province, P.P. Sina Phone +86 400 828 5088 Fax +86 512 6878 5966 www.eurofins.cn





中国认可 检测 TESTING CNASL3788

### Analytical Report

Sample Code Certificate No.	502-2019-00010196 AR-19-SU-017438-03		ort date	19-Api	r-2019	
*This analytical report replaces the pr	evious issued analytical report no.: AR-			Biotechr	nology CO,.LTD	
		Yanro	ng Wu			
		NO.18	B Fuxing	Street, (	Chenhu Town,	
		Hanch	uan, Hu	bei, P.R	. China	
	F	ax 0086 0	0712-87	41957		
Client Sample Code:       D18         Sample described as:       DH/         Sample Packaging:       Sea         Sample reception date:       20-1         Analysis starting date:       20-1         Analysis ending date:       19-7	-2019-00010196/ AR-19-SU-017438-0 i122701J A油脂 led metal bottle Feb-2019 Feb-2019 Apr-2019	03				
Arrival Temperature (°C) 17.0	5 Sar	mple Weight		600g	1*2	
	Resu	ilts U	nit	LOQ	LOD	
Mercury (Hg)	ethod: BS EN 13806:2002 <0.00 S) Method: BS EN ISO 17294-2 2016		ng/kg	0.005		
Manganese (Mn) A# SU055 Molybdenum (ICP-N	<0 IS) Method: BS EN ISO 17294-2 201		ng/kg	0.1		
	<0.0 Nethod: BS EN ISO 17294-2 2016 mod.	L.	ng/kg	0.03		
	<0 ethod: BS EN ISO 17294-2 2016 mod.		ng/kg	0.1		
Lead (Pb) •# SU05E Arsenic (ICP-MS) Arsenic (As)	<0.0 Method: BS EN ISO 17294-2 2016 mo <0.0	d.	ng/kg	0.05		
the second se	<ul> <li>Method: BS EN ISO 17294-2 2016</li> <li>&lt;0</li> </ul>	mod.	ng/kg ng/kg	0.05		
	Method: BS EN ISO 17294-2 2016 m	nod.	ng/kg	0.01		
•# SU05J Copper (ICP-MS) Copper (Cu)	Method: BS EN ISO 17294-2 2016 mot <0		ng/kg	0.1		
Phosphorus (P)	S) Method: BS EN ISO 17294-2 2016 22	.4 n	ng/kg	5		
SU51B Iron (ICP-OES) Me Iron (Fe)	ethod: Internal Method ICP-OES, ICP-C <0	).1 n	ng/100 g	0.1		
	Resul	lts U	nit	LOQ	LOD	
#SUS1A Pesticide Screening Screened pesticides	(GC) Method: BS EN 12393:2013 <lo< td=""><td>Q n</td><td>ng/kg</td><td></td><td></td><td></td></lo<>	Q n	ng/kg			
	Resu	lts U	nit	LOQ	LOD	

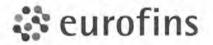
Eurofins Tech. Service (Super)Service No. 101, Jialingjiang Reversion Suzhou 215000 Jiangsu Province, P.F.

STING SERVI

Phone +86 400 828 5088 Fax

www.eurofins.cn

DAKKS Deutsche Akkreditierungsstelle D-PL-14292-01-00



	Results	Unit	LOQ	LOD
# SU10Z Cronobacter spp. in 10g Method: ISO				
Cronobacter spp	Not Detected	/10 g		
	Results	Unit	LOQ	LOD
A# SU20L Protein Method: AOAC 984.13				
Protein	<0.1 (k=6.25)	g/100 g	0.1	
SU217 Physical inspection Method: Internal M		uation		
Physical inspection	see attached			
	document			
Ash Method: AOAC 941.12; AOAC 92		and the second		
Ash	0.03	g/100 g	0.01	
A# SU372 Cholesterol Method: GB 5009.128-20				
Cholesterol	4748	mg/kg	10	
	Results	Unit	LOQ	LOD
	hod: Internal, GC-MS/MS			
2,3,7,8-TetraCDD	< 0.0299	pg/g		
1,2,3,7,8-PentaCDD	< 0.0393	pg/g		
1,2,3,4,7,8-HexaCDD	< 0.0597	pg/g		
1,2,3,6,7,8-HexaCDD	< 0.0818	pg/g		
1,2,3,7,8,9-HexaCDD	< 0.0770	pg/g		
1,2,3,4,6,7,8-HeptaCDD	< 0.126	pg/g		
OctaCDD	< 0.912	pg/g		
2,3,7,8-TetraCDF	< 0.0818	pg/g		
1,2,3,7,8-PentaCDF	< 0.0566	pg/g		
2,3,4,7,8-PentaCDF	< 0.0881	pg/g		
1,2,3,4,7,8-HexaCDF	< 0.0928	pg/g		
1,2,3,6,7,8-HexaCDF	< 0.0849	pg/g		
1,2,3,7,8,9-HexaCDF	< 0.0629	pg/g		
2,3,4,6,7,8-HexaCDF	< 0.0770	pg/g		
1,2,3,4,6,7,8-HeptaCDF	< 0.0881	pg/g		
1,2,3,4,7,8,9-HeptaCDF OctaCDF	< 0.0613	pg/g		
WHO(2005)-PCDD/F TEQ	< 0.189 Not Detected	pg/g		
(lower-bound)	Not Detected	pg/g		
WHO(2005)-PCDD/F TEQ	0.0811	pala		
(medium-bound)	0.0011	pg/g		
WHO(2005)-PCDD/F TEQ	0.162	pg/g		
(upper-bound)	0.102	para		
A THE PARTY OF A DOWNER	Results	Unit	LOQ	LOD
SF0XA add 1 on to the GC/MS-pesticide screer	· to optice			00.00-34 : 2010-09. mod.
Tralomethrin	<0.05	mg/kg	0.05	Anima Pari Paris Ani IliAni
+ FL023 Plant sterols and plant stanols (not enric			10.0	
Brassicasterol	22	mg/100 g	4	
Cholesterol	356	mg/100 g	4	
Campesterol	9	mg/100 g	1	
Campestanol	5	mg/100 g	1	
Stigmasterol	40	mg/100 g	1	
Unidentified sterols	235	mg/100 g	1	
Sitosterol	66	mg/100 g	1	
Sitostanol+ delta-5-avenasterol	6	mg/100 g	4	
Delta-5,24-stigmastadienol	10	mg/100 g	à	
Delta-7-stigmastenol	31	mg/100 g	1	
delta-7-Avenasterol	5	mg/100 g	1	

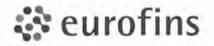
Eurofins Tech. Service (Sustan) Service No. 101, Jialingjiang Ross SND

Suzhou 215000

Jiangsu Province, P.F. ESTING SERVI

Phone +86 400 828 5088

Fax



Page 3/7 AR-19-SU-017438-03

	Results	Unit	LOQ	LOD
24-Methylenecycloartanol	1	mg/100 g	4	
Citrostadienol	1	mg/100 g	4	
Total plant sterols + plant stanols	428	mg/100 g	†	
☆ JC00V PAH acc. to EU 208/2005 (15+1) Method	d: Internal, GC-MS			
5-Methylchrysene	<1	µg/kg	1	
Benz(a)anthracene	<0.5	µg/kg	0.5	
Benzo(a)pyrene	0.8	µg/kg	0.5	
Benzo(b)fluoranthene	<0.5	µg/kg	0.5	
Benzo-(c)-fluorene	1.6	µg/kg	1	
Benzo(g,h,i)perylene	<0,5	µg/kg	0.5	
Benzo-(j)-fluoranthen	<0.5	µg/kg	0.5	
Benzo(k)fluoranthene	<0.5	µg/kg	0.5	
Chrysene	0.7	µg/kg	0.5	
Cyclopenta(c,d)pyrene	<1	µg/kg	1	
Dibenz(a,h)anthracene	<0.5	µg/kg	0.5	
Dibenzo(a,e)pyrene	<1	µg/kg	1	
Dibenzo(a,h)pyrene	<1	µg/kg	1	
Dibenzo(a,i)pyrene	<1	µg/kg	3	
Dibenzo(a,I)pyrene	<1	µg/kg	1	
Indeno(1,2,3-cd)pyrene	<0.5	µg/kg	0.5	
Sum of all positive identified PAH	3.1	µg/kg	0.0	
Sum PAH 4	1.5	µg/kg		
		havea		
Patulin Patulin	<5	µg/kg	5	
☆ JCAF2 Aflatoxins B1, B2, G1, G2 (fats, oils, lecith)				on EN 14122
Aflatoxin B1	<0.1	ug/kg	0,1	011 EN 14125
Aflatoxin B2	<0.1	µg/kg	0,1	
Aflatoxin G1	<0.1	hðykð	0.1	
Aflatoxin G2	<0.1	µg/kg	0.1	
Sum of all positive Aflatoxins	<0.4	µg/kg	0.1	
☆ JJW2Z Sterigmatocystin Method: Internal, LC-M	S/MS			
Sterigmatocystin	<10	hð\kð	10	
LW0XD Domoic acid, DA Method: In house method	and the second se			
Amnesic Shellfish Poison, Domoic acid	<3.0	hð/ð	3	
Amnesic Shellfish Poison, Domoic Acid Amnesic Shellfish	Not Detected			
Peroxide value	<0.1	meg/kg	0.1	
Acid Value Method: AOCS Cd 3d-63			201	
Acid value (mg KOH/g)	0.60	mg KOH/g	0.05	
Free fatty acids (as oleic acid)	0.30	%	0.01	
☆QA01L p-Anisidine Value Method: AOCS Cd 18-		10	0.01	
p-Anisidine Value	20.3		.i	
QA02L Color (Lovibond Scale) Method: AOCS C				
Color, red scale, 1 inch cell path	2.2			
Color, yellow scale, 1 inch cell path	22			
☆ QA034 Fumonisins (IAC-LC-MSMS) Method: JA				
Fumonisin (B1+B2+B3)	<30 <30 ×30	µg/kg	30	
Fumonisin B1	<10		10	
Fumonisin B2	<10	µg/kg		
		µg/kg	10	
Fumonisin B3	<10	µg/kg	10	
☆QA04E Residual Solvents (GC-MS) Method: AO		man Barr	0.0	
1,1,1-Trichloroethane	<0.2	mg/kg	0.2	
1,1,2-Trichloroethane	<0.2	mg/kg	0.2	

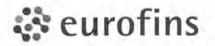
Eurofins Tech, Service (Supervision) No. 101, Jialingjiang Roman SND Suzhou 215000 Jiangsu Province, P.F.

5

ESTING SERVIS

Phone +86 400 828 5088

Fax



Page 4/7 AR-19-SU-017438-03

	Results	Unit	LOQ	LOD
1,2-Dichloroethane	<0.5	mg/kg	0.5	
1,2-Dimethoxyethane	<1	mg/kg	t	
1-Butanol	<1	mg/kg	t	
2-Hexanone	<1	mg/kg	t	
Acetone	<1	mg/kg	4	
Benzene	<0,1	mg/kg	0.1	
Butyl acetate	<0,5	mg/kg	0.5	
Carbon tetrachloride	<0.5	mg/kg	0.5	
Chlorobenzene	<0.5	mg/kg	0.5	
Chloroform	<0.1	mg/kg	0.1	
Cyclohexane	<0.2	mg/kg	0.2	
Dichloromethane	<0.1	mg/kg	0.1	
Ethanol	<1	mg/kg	1	
Ethyl acetate	<1	mg/kg	1	
Heptane	<0.2	mg/kg	0.2	
Hexane (sum of n-hexane, iso and	<0.5	mg/kg	0.5	
3-methyl pentane)		10.3.03		
Isopropanol	<1	mg/kg	1	
Methanol	<1	mg/kg	1	
Methyl Ethyl Ketone (MEK)	<0.2	mg/kg	0.2	
Methyl-tert-butylether (MTBE)	<0.2	mg/kg	0,2	
Tetralin	<5	mg/kg	5	
Toluene	<0.2	mg/kg	0.2	
Trichloroethylene	<0.1	mg/kg	0.1	
Xylenes (sum)	<0.2	mg/kg	0.2	
	Method: ASU L00.00-34			
PCB 1	<0.01	mg/kg	0.01	
PCB 101	< 0.01	mg/kg	0.01	
PCB 104	<0.01	mg/kg	0.01	
PCB 105	< 0.01	mg/kg	0.01	
PCB 118	<0.01	mg/kg	0.01	
PCB 126	< 0.01	mg/kg	0.01	
PCB 128	<0.01	mg/kg	0.01	
PCB 138	<0.01	mg/kg	0.01	
PCB 153	<0.01	mg/kg	0.01	
PCB 170	<0.01	mg/kg	0.01	
PCB 18	<0.01	mg/kg	0.01	
PCB 180	<0.01		0.01	
PCB 187	<0.01	mg/kg	0.01	
PCB 188	<0.01	mg/kg	0.01	
PCB 195	<0.01	mg/kg	0.01	
PCB 201	<0.01	mg/kg mg/kg	0.01	
PCB 206	<0.01	mg/kg	0.01	
PCB 209	<0.01			
PCB 28	<0.01	mg/kg	0.01	
PCB 20 PCB 29	<0.01	mg/kg	0.01	
PCB 29 PCB 44	<0.01	mg/kg		
		mg/kg	0.01	
PCB 50	< 0.01	mg/kg	0.01	
PCB 52	< 0.01	mg/kg	0.01	
PCB 66	< 0.01	mg/kg	0.01	
PCB 77	< 0.01	mg/kg	0.01	
PCB 8	< 0.01	mg/kg	0.01	
PCB 87	< 0.01	mg/kg	0.01	

Eurofins Tech. Service (Sustan) No. 101, Jialingjiang Rg

Suzhou 215000

SISND Jiangsu Province, P.R. 5 STING SERV

+86 400 828 5088 Phone

Fax



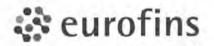
	Results	Unit	LOQ LOD
Sum Non-Dioxin-Like PCBs	<0.01	mg/kg	0.01
(28+52+101+138+153+180)			
Total PCB	<0.1	mg/kg	0.1
* QA0MT Ochratoxin A (HPLC-FLD) Method: AOA			
Ochratoxin A	<1	µg/kg	1
* QA23L Trans Fatty Acids, relative area % (GC-FIL	<li>Method: AOCS Ce</li>	1f-96	
Total Trans Fatty Acids	<0.01	% of fatty	0.01
		acids	
total trans fatty acids C18:1	<0.01	% of fatty	0.01
		acids	A 6-1
total trans fatty acids C18:2 (without	<0.01	% of fatty	0.01
CLA)	-0.01	acids	
total trans fatty acids C18:2 + C18:3	<0.01	% of fatty acids	0.01
total trans fatty acids C18:3	<0.01		0.01
total trails latty acids C 10.5	-0.01	% of fatty acids	0.01
☆ QA282 Free Fatty Acid, as Oleic Method: AOCS	Ca 5a-40	8005	
Free fatty acids as oleic acid	0.30	%	0.01
✿ QA328 Insoluble Impurities Method: AOCS Ca 3		10	0.01
Insoluble impurities	<0.01	%	0.01
☆QA513 Toxaphene (GC-MSMS)	50.01	/9	w.o.t
Toxaphene Parlar 26	<loq< td=""><td>mg/kg</td><td>0.01</td></loq<>	mg/kg	0.01
Toxaphene Parlar 50	<loq< td=""><td>mg/kg</td><td>0.01</td></loq<>	mg/kg	0.01
Toxaphene Parlar 62	Not Analyzable	mg/kg	0.01
* QA560 Sulfallate (Vegedex)	Not Analyzable	mg/kg	0.01
Sulfallate (Vegedex)	<0.02	mg/kg	0.02
* QA867 Silicon (ICP-AES) Method: AOCS Ca 17		mging	0.02
Silicon (Si)	45	mg/kg	1
* QA967 Unsaponifiable Matter (Ethyl ether ext) M			,
Unsaponifiable matter	1.95	1%	0.05
★ QAA07 Vomitoxin (Deoxynivalenol, DON) LC-MSN			
Vomitoxin (Deoxynivalenol)	<50	µg/kg	50
* QAA19 Zearalenone (LC-MSMS) Method: Food	and a set of the set	in etter	
Zearalenone	<25	µg/kg	25
A QD089 Fatty Acids-Omega 6 & 3 %W/W Method			
C08:0 Octanoic (Caprylic)	<0.02	%	0.02
C10:0 Decanoic (Capric)	<0.02	%	0.02
C11:0 Undecanoic (Hendecanoic)	<0.02	%	0.02
C12:0 Dodecanoic (Lauric)	0.05	%	0.02
C14:0 Tetradecanoic (Myristic)	0.43	%	0.02
C14:1 Tetradecenoic (Myristoleic)	<0.02	%	0.02
C15:0 Pentadecanoic	1.13	%	0.02
C15:1 Pentadecenoic	<0.02	%	0.02
C16:0 Hexadecanoic (Palmitic)	21.67	%	0.02
C16:1 Hexadecenoic (Palmitoleic)	0.13	%	0.02
C16:2 Hexadecadienoic	<0.02	%	0.02
C16:3 Hexadecatrienoic	<0.02	%	
C16:4 Hexadecatetraenoic	<0.02	%	0.02
C17:0 Heptadecanoic (Margaric)	1.53		
C17:1 Heptadecenoic (Margaroleic)	<0.02	%	0.02
C18:0 Octadecanoic (Stearic)	1.13	%	0.02
C18:1 Octadecenoic (Oleic + isomers)	1.13	%	0.02
C18:2 Octadecadienoic (Linoleic +	2.50	%	0.02

Eurofins Tech. Service (Surtan) Service Suzhou 215000 Suzhou 215000 Jiangsu Province, P.R.

ESTING SERVIC

+86 400 828 5088 Phone

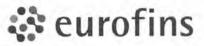
Fax



	Results	Unit	LOQ LOD
C18:2 Octadecadienoic Omega 6	2.45	%	0.02
(Linoleic)			
C18:3 Octadecatrienoic (Linolenic +	0.53	₽%₀	0.02
isomers)			
C18:3 Octadecatrienoic Omega 3	0.36	%	0.02
(Alpha Linolenic)			
C18:3 Octadecatrienoic Omega 6	0.17	%	0.02
(Gamma Linolenic)			
C18:4 Octadecatetraenoic Omega 3	0.13	%	0.02
(Stearidonic)		-	
C20:0 Eicosanoic (Arachidic)	0.24	%	0.02
C20:1 Eicosenoic (Gondoic + isomers)		%	0.02
C20:2 Eicosadienoic Omega 6	0.02	%	0.02
C20:3 Eicosatrienoic	0.21	%	0.02
C20:3 Eicosatrienoic Omega 3	<0.02	%	0.02
C20:3 Eicosatrienoic Omega 6	0.21	%	0.02
C20:4 Eicosatetraenoic (Arachidonic +	0.65	%	0.02
isomers)			
C20:4 Eicosatetraenoic Omega 3	0.55	%	0.02
C20:4 Eicosatetraenoic Omega 6	0.09	%	0.02
(Arachidonic)			
C20:5 Eicosapentaenoic Omega 3	0.33	%	0.02
C21:5 Heneicosapentaenoic Omega 3	<0.02	%	0.02
C22:0 Docosanoic (Behenic)	0.13	%	0.02
C22:1 Docosenoic (Erucic + isomers)	<0.02	%	0.02
C22:2 Docosadienoic Omega 6	< 0.02	%	0.02
C22:3 Docosatrienoic, Omega 3	<0.02	%	0.02
C22:4 Docosatetraenoic Omega 6	0.05	%	0.02
C22:5 Docosapentaenoic	11.80	%	0.02
C22:5 Docosapentaenoic Omega 3	0.15	%	0.02
C22:5 Docosapentaenoic Omega 6	11.65	%	0.02
C22:6 Docosahexaenoic Omega 3	43.48	%	0.02
C24:0 Tetracosanoic (Lignoceric)	0.07	%	0.02
C24:1 Tetracosenoic (Nervonic)	< 0.02	%	0.02
Sum of Omega 3 Isomers	45.00	%	0.05
Sum of Omega 6 Isomers	14.65	%	0.05
Total Fat as Triglycerides	91.07	1/0	0.1
Total Fatty Acids Calc.	87.38	1%	0.1
Total Monounsaturated Fatty Acids	1.26	%	0.05
Total Polyunsaturated Fatty Acids	59.72	%	0.05
Total Saturated Fatty Acids	26.41	%	0.05
QD153 Moisture by Karl Fischer Method:		10	
Moisture, Karl Fischer	0.02	%	0.01
			nod: § 64 LFGB L 13.04-5 : 2013-08, mod.
Linuron	<0.01	mg/kg	0.01
Bromacil	< 0.01	mg/kg	0.01
Pyrethrins	<0.1	mg/kg	0.1
UM5Y6 Aerobic Plate Count /ml AOAC 990		ana	
Aerobic Plate Count	10(est)	cfu/ml	
	A CONTRACTOR OF		
UMBYM Yeast-Mould E <10 >1500 /g (1) PC			12
Moulds Yeast	<10	cfu/g	
TASSI	<10	cfu/g	

## Eurofins Tech. Service (Supervised No. 101, Jialingjiang Ross SND Suzhou 215000 Jiangsu Province, P.F.

Phone +86 400 828 5088 Fax www.eurofins.cn



		F	Results	Unit	LOQ	LOD	
Salmonella		Not De	tected	/25 ml			
	forms /ml AOAC 991.14	Method: AOAC 991.14	193.6				
Coliforms		the second second second	<10	cfu/ml			
COMMENT							State
24-methylenecycloa	plant sterols and plant sta tanol, and citrostadienol). eutables is 1,071 mg/100 (		olesterol an	d non-4-desm	nethyl sterols (	i.e. cycloar	rtenol,
	nolecules (* = limit of						
	Pesticide Screening(GC) (						
2-Phenytphenol (0.01) Atrazine (0.02) Bromophos (0.01) Capta(ol (0.06)	(a) Acatachiar (0.05) (a) Benfuralin (0.01) (a) Bromophos-sthyl (0.01) (a) Capter (0.05)	<ul> <li>(a) Acionifen (0.05)</li> <li>(a) Bifenox (0.05)</li> <li>(a) Broimopropylate (0.01)</li> <li>(a) Captan/THPI (Sum calculated</li> </ul>	<ul> <li>(a) Aldrin (0.0</li> <li>(a) Bifenthini</li> <li>(a) Butachlor</li> <li>(a) Carbophel</li> </ul>	0.01)	<ul> <li>(a) Ametryns (0.0)</li> <li>(a) Biphenyl (0.01)</li> <li>(a) Butstensol (0.</li> <li>(a) Carbophenolh</li> </ul>	) 01)	(a) Anamite (0.04) (a) Bromfenvinfoa (0.02) (a) Cadusafos (0.02) (e) Carbosin (0.06)
Chlorbenside (0.05) Chlorfenvinphos (0.01) Chlorpyrfos (-ethyl) (0.01) Cyanazina (0.02)	<ul> <li>(a) Chlordana (Sum) ()</li> <li>(a) Chlorrhephos (0.05)</li> <li>(a) Chlorpyrifoa-methyl (0.01)</li> <li>(a) Cysnofenphos (0.05)</li> </ul>	as Ceptan) () (a) Chlordane, alpha (0.01) (a) Chlordbenzilata (0.01) (a) Chlordbenzilata (0.01) (b) Cyanophos (0.02)	<ul><li>(a) Chlordane</li><li>(a) Chloronab</li><li>(a) Chlorthion</li><li>(a) Cyfluthon</li></ul>	(0.05)	(0.05) (a) Chlorfenapyr (0.05) (a) Chloropropylate (0.01) (a) Chlozofinate (0.02) (a) Cyhalothm, lambda-(incl. Cyhalothm, gemma-) (0.01)		<ul> <li>(a) Chlorfanson (0.05)</li> <li>(a) Chlorothalonil (0.01)</li> <li>(a) Crufomate (0.05)</li> <li>(a) Cypermethin (0.05)</li> </ul>
Cyphenothm (0.05) DDT, b,p'- (0.01) Dichlorobenzophenone G,p'	<ul> <li>(a) DDD, o,p'~ (0,01)</li> <li>(a) DDT, p,p'~ (0,01)</li> <li>(a) Dictiorobanizaphenone p,p'</li> <li>(b) Dictional (0,02)</li> </ul>	<ul> <li>(a) DDD, p.p'- (0.011</li> <li>(a) Deltamatrin (0.05)</li> <li>(a) Dichlorvos (0.05)</li> </ul>	(a) DDE, o,p'- (a) Dichloben (a) Dicloran (0	(0.05)	Cyhelothrin, ga (ii) DDE, p.p (0.0 (ii) Dichlafenthion (ii) Dicofol (Sum)	(0,02)	(a) DDT (Gum) () (a) Dichloffuanid (0.02) (a) Dicefel, e,p'- (0.02)
(0.02) Dicefol, p.p <sup>-</sup> (0.02) Dioxethion (0.05) Endosulfan, suitrel- (0.02) Etrimfos (0.02) Fenitrathion (0.02)	(0.02) (a) Dieldm (0.02) (a) Diphenylamine (0.01) (a) Enstin (0.05) (a) Fenamushos (0.05) (a) Fenprepatrin (0.02)	(a) Dieldrin (Sum) (), (a) Ediferphos (0.02) (a) EPN (0.05) (a) Fenchlorphos (0.02) (a) Fencelor (0.02)	<ul> <li>(a) Dienochlo</li> <li>(a) Endosulfa</li> <li>(b) Ethelflural</li> <li>(a) Penchlorpi</li> <li>(c) Ferithion (</li> </ul>	1 (Sum) () n (0.01) 1as (sum) ()	<ul> <li>(a) Dinobuton (0.0</li> <li>(a) Endosulfan, al</li> <li>(a) Ethion (0.02)</li> <li>(a) Fenchlorphos</li> <li>(a) Fanvalerate &amp; (Sum of RS&amp;S)</li> </ul>	pha- (0.05) oxon (0.01) Esfenvalerate	<ul> <li>(a) Dioxabenzolos (0.02)</li> <li>(a) Endoaulifen, beta-(0.05)</li> <li>(a) Eindiazole (0.02)</li> <li>(a) Fanfluthini (0.01)</li> <li>(a) Fenvolerate &amp; Eufenvalerate sum of RR.SS.RS.SR) ()</li> </ul>
Ferwalerate & Estenvalerate(Sum of RR&SS (somers) (0.02)	(a) Fluchlaralin (0.05)	(a) Flucythrinate (0,05)	(a) Flumatralia	(0.05)	(0.02) (a) Fluotrimazole		(a) Fluquinconazole (0.02)
Huvelinate-tau (0.02) Fluvelinate-tau (0.02) HCH, beta- (0.01) Heptachlor epoxide trans (0.01)	<ul> <li>(a) Fonofos (0.02)</li> <li>(a) HCH, dalta- (0.01)</li> <li>(a) Heptenophos (0.02)</li> </ul>	<ul> <li>(a) Formothion (0.05)</li> <li>(a) HCH, apsilon- (0.01)</li> <li>(a) Iprobentos (0.02)</li> </ul>	<ul> <li>(a) HCB (0.01</li> <li>(a) Heptachio</li> <li>(a) Isazofos (i</li> </ul>	(0.01)	<ul> <li>(a) HCH gamma(l)</li> <li>(a) Heptachlor (Sc</li> <li>(a) Isocarbophoe</li> </ul>	() (90	<ul> <li>(a) HGH, alpha- (0.01)</li> <li>(a) Heptachlor aponide cis (0.01)</li> <li>(a) Isodnin (0.02)</li> </ul>
Isolenphos (0.02) Malaoxon (0.05) Methamidophos (0.1)	<ul> <li>(a) Isdfanphos-matinyl (0.01)</li> <li>(a) Malathion (0.02)</li> <li>(a) Methidathion (0.02)</li> </ul>	<ul> <li>(a) Isoprothiolane (0.02)</li> <li>(a) Malathion (Sum) ()</li> <li>(a) Methoxychlor (0.02)</li> </ul>			<ul> <li>(a) Kresovim-mel?</li> <li>(b) Mepronil (0.01)</li> <li>(a) Metribuzin (0.01)</li> </ul>	)	<ul> <li>(a) Landrin (0.02)</li> <li>(a) Methiscriphos (0.02)</li> <li>(a) Metvinphos (0,02)</li> </ul>
Mirex (0.01)	(a) N-Desethyl-pinimiphos-methyl (0.01)	(a) Nitrapyrin (0.01)	fide (0.06) (a) Nitroferr (0	02)	(a) Nitrothal-isopre	opyl (0.01)	(a) Octachlorodipropyl ether
Ofurace (0.01) Parathion-methyl (0.04) PCB 28 (0.01) Phenkapton (0.05) Propani (0.01) Pyrifenox (0.04) Sitthiofam (0.01) Tetradifon (0.02)	(a) Oktadiazon (0.02) (a) PCB 101 (0.01) (a) PCB 52 (0.01) (a) PCB 52 (0.01) (a) Pitrimphos-ethyl (0.01) (a) Pripasine (0.01) (a) Probasine (0.01) (a) Tebulsenyyrad (0.01) (b) Tebulsenyyrad (0.01)	(e) Oxychlordane (0.02) (a) PCB 118 (0.01) (a) Pentachoroanilme (0.01) (a) Penachoroanilme (0.01) (a) Prosymidane (0.02) (a) Prostymidane (0.02) (a) Catinaghras (0.01) (a) Tearamethin (0.02)	<ul> <li>(a) Dxyfluorfe</li> <li>(a) PCB 138 (</li> <li>(a) Pentachlor</li> <li>(a) Phorale (0</li> <li>(a) Profenofox</li> <li>(a) Pyrazopho</li> <li>(a) Tefluthrin (</li> <li>(a) Tefluthrin (</li> </ul>	0.01) transale (0.01) (0.01) s (0.01) s (0.01) s (0.01) D.02)	<ul> <li>(a) Paclobutnazol</li> <li>(a) PCB 153 (0.01</li> <li>(a) Pentachloroba</li> <li>(a) Phospharmdor</li> <li>(a) Phospharmdor</li> <li>(a) Ponduralin (0.00</li> <li>(a) Pyndalyt (0.06</li> <li>(b) Quizaloftop-P-q</li> <li>(a) Tolytifuanid (0.</li> </ul>	) nzene (0.01) (0.04) 2) http://(0.01)	(S-421) (0.05) (a) Permittion (0.01) (a) Permittion (0.02) (a) Permethrum (0.02) (a) Promethrum (0.02) (a) Promethrum (0.02) (a) Sillefluorfem (0.06) (a) Tathrachtorninphos (0.02) (a) Tathrachtorninphos (0.02)
Triazamate (0.01) Vinelozofin (0.02)	(0.06) (a) Triazophos (0.02)	(a) Trichloronat (0.01)	(a) Trifluralin (		(a) Trittonazole (		(a) Uniconazole (0.02)
SIGNATURE	r Dong	Claire	Wang			Jac	k He
Authorized Signatory		Authorized Signatory		Authorized Signatory			
	ification of Quantification	☆ means t ◎ means th e results of each quantifi	ne test is su ied compo	ubcontracted bcontracted of und as set by	1	ns group	as evidence.

END OF REPORT



Phone +86 400 828 5088 Fax www.eurofins.cn



## **Physical inspection**

Sample code	502-2019-00010196
Sample name	DHA oil
Color	Bright yellow
Odor	Have the special odor of this product
Texture	Oily liquid

502-2019-00010196



2.0

Phone +86 400 826 5088 Fax +86 512 6878 5966 www.eurofins.cn

Appendix B,

No: 2019027

中国典型培养物保藏中心

China Center for Type Culture Collection (CCTCC)

# **Test report**

April 3,2019

China Center for Type Culture Collection (CCTCC)

第1页共6页

## **Test report**

Sample origin: HuBei Fuxing Biotechnology CO., LTD

Sample name:	Slant spawn	Samples number	: <u>1 strains</u>
Inspection time: _	March, 2019	Detection typ:	Consignation testing
Appraiser: Mingji	n Sun	Person in charge:	Fang Peng

Hubei Fuxing Biotechnology Co., Ltd. commissioned a typical Chinese Culture Preservation Center to identify the isolated strains. The samples submitted for the slant are 1 strains, and the strain number is DHF.

### Test item:

1. Determination of morphological characteristics of microbial strains;

2. Comparison with reference of 18S and rRNA gene sequences of microorganisms;

3. According to the above results, the classification status of microbial strains was preliminarily determined.

**NOTE:** The identification results only for samples; without consent, shall not be used for identification of the name of commercial publicity.

China Center for Type Culture Collection (CCTCC)

Attachment I: strain identification report -- Morphological characteristics of microbial strains

1.DHF (Algae)

**Detection result:** 

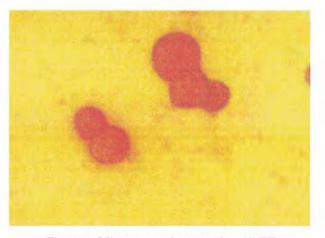


Figure 1. Microscope photographs of DHF

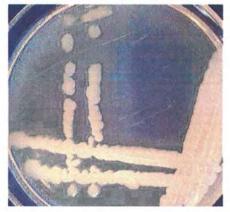


Figure 2. DHF Flat colony positive observation photograph



图 3. DHF Observations of flat colonies on the reverse side

### Morphological character:

As can be seen from Fig. 1, globular vegetative cells undergo two mitotic propagation,

which is an important morphological feature of Schizochytrium.

Appendix II : Strain identification report - Determination and analysis of

**18SrRNA** sequences of microbial strains

### 1) DHF 18SrRNA sequence:

GTGTCGCCCTTTCCGCAGGTTCACCTACGGAAACCTTGTTACGACTTCACC TTCCTCTAAACAATAAGATTCACCCGAGTTCTGCCTCTGTCCAAAAATCAAT CCAAACAGAAACATCCCATGGTTTCATCGGACCGTTCAATCGGTAGGTGCG ACGGGCGGTGTGTACAAAGGGCAGGGACGTATTCAATGCAAGCTGATGAC TTGCGTTTACTAGGAATTCCTCGTTGGAGATTAATAATTGCAAAAATCTAGC CCCAGCACGATGAGCGTTCCAAGGATTAGCCAGGCCTTCCGACCAAGCAC TCAATTCCAAAAATGAAATTAAAAACCCGATGAACCCATCAGTGTAGCGCGC GTGCGGCCCAGAACATCTAAGGGCATCACAGACCTGTTATTGCCTCGAACT TCCTGCCCGTAAACCGGACATGTCCCTCTAAGAAGTAAAAACGCACTATGT AACCAGACAAATCACTCCACCAACTAAGAACGGCCATGCACCACCACCA GTAAGTTTTCCCGTGTTGAGTCAAATTAAGCCGCAGGCTCCACTCCTGGTG GTGCCCTTCCGTCAATTCCTTTAAGTTTCAGCCTTGCGACCATACTCCCCCC GGAACCCAAAGACTTTGATTTCTCATGTGCTGCTGCTGAGGCCCATAGAAT AAAGCACCCAACAATCGCAAGTCGGCATCGTTTACGGTCTAGACTACGATG GTATCTAATCATCTTCGATCCCCAGACTTTCGTTCTTGATTAATGAAAACATG CTTGGTAAATGCCTTCGCTCTAGTTCGTCTTTCGGAAATCCAAGAATTTCAC CTCTAGCTCCTAAATACGAATACCCCCCAACTGTTCCTATTAACCATTACTCAG GCGTGCAAACCAACAAAATAGCACCCAAGTCCTATCTTATCATCCCATAATA AACATACCGGTCATACGACCTGCTTGGAACACTCTGCTTTGATTACAGTGA AAGATTTCTCCCCTATAAAGAAAAGAAAAAGATGGCCAAGGCAACACAGA CAATCAATCCCCATTCAGGGAAAGCACCGGTCGCCCATGCCAGAAATTCAA CTACGAGCTTTTTAACCGCAACAACTTTAGCATATGCTTCTGGAGCTGGAAT TACCGCGGCTGCTGGCACCAGACTTGCCCTCCAGTTGATCCTCGATGAGGG TTTTACATTGCTCTCATTCCGATAGCAAAACGCATACACGCTTCGCATCGATA TTTCTCGTCACTACCTCGTGGAGTCCACAGTGGGTAATTTACGCGCCTGCTG CTATCCTTGGATATGGTAGCCGTCTCTCAGGCTCCCTCTCCGGAGTCGAGCC CTAACTCTCCGTCACCCGTTATAGTCACCGTAGTCCAATACACTACCGTCGA CAACTGATGGGGCAGAAACTCAAACGATTCATCGACTAAAATAGTCAATCT GCTCAATTATCATGATTCACCAATAAAATCGGCTTCAATCTAATAAGTGCAG

CCCCATACAGGGCTCTGACAGCATGTATTATTTCCAGAATTACTGCAGGTAT CCACATAAAAGAAACTACCGAAGAAATTATTACTGATATAATGAGCCGTTCG CAGTCTCACAGTACAATCGCTTATACTTACACATGCATGGCTTAATCTTTGA GACAAGCATATGACTACAAGGGCGACAC

Accession	Description	Max score	Total score	Query cover	E value	Ident
JX847360.1	Schizochytrium sp. LY-2012 isolate PKU#Mn4 18S ribosomal RNA gene, partial sequence	3133	3133	94%	0	99%
JX847367.1	Schizochytrium sp. LY-2012 isolate PKU#Mn15 18S ribosomal RNA gene, partial sequence	3129	3129	94%	0	99%
HM042908.2	Schizochytrium limacinum isolate OUC168 18S ribosomal RNA gene, partial sequence	3129	3129	94%	0	99%
KF500513.1	Schizochytrium sp. SW1 18S ribosomal RNA gene, partial sequence	3121	3121	95%	0	99%
HM042909.2	Schizochytrium limacinum isolate OUC169 18S ribosomal RNA gene, partial sequence	3110	3110	94%	0	99%
HM042911.2	Schizochytrium limacinum isolate OUC175 18S ribosomal RNA gene, partial sequence	3105	3105	94%	0	99%
HM042912.2	Schizochytrium limacinum isolate OUC191 18S ribosomal RNA gene, partial sequence	3097	3097	94%	0	99%
HM042906.2	Schizochytrium limacinum isolate OUC109 18S ribosomal RNA gene, partial sequence	3094	3094	94%	0	99%

### 2) DHF 18SrRNA sequencing, BLAST results: :

### **Conclusion:**

According to the above test results, the 1 strains were identified as:

Strain DHF: Schizochytrium sp. (裂殖壶菌属)



**NOTE :** The identification results only for samples; without consent, shall not be used for identification of the name of commercial publicity.

Appendix C.

# **TOXICOLOGY STUDY REPORT**

Title of Study	Mutagenicity Study of DHA			
Study Number	M2019-T002			
Entrustment Company	NutraSource, Inc.			
Address of Entrustment Company	NutraSource, Inc. 6309 Morning Dew Ct, Clarksville, MD 21029			
Contact Person	Susan Cho, Ph.D.			
Contact Tel. and E-mail	+1-410-531-3336 (O) +1-301-875-6454 (C)			
Primary Test Facility	School of Life Sciences, Yantai University			
Address of Research Institute	30, Qingquan RD, Laishan District, Yantai, China			
Contact Person	Yonglin Gao			
Contact Tel. and E-mail	86-15854569558; gylbill@163.com; gaoyonglin@ytu.edu.cn.			
Study Director	Yonglin Gao			
Study Participants	Yonglin Gao Operator			
	Meina Wang, Bing Han Test products management			
Study Start and End Dates	Mar. 2019			

# CONTENTS

Al	ostract2
1	Study design
2	Materials and methods
3	Statisitical analysis
4	Results4
5	Conclusion

# List of Tables

Table 1:	The positive control for study
Table 2:	Bacterial mutation assay results (- S9)
Table 3:	Bacterial mutation assay results (+ S9)

### **Mutagenicity Study of DHA**

#### ABSTRACT

As a part of a safety evaluation, we evaluated the potential mutagenicity of DHA using a bacterial reverse mutation assay. Five strains of *Salmonella typhimurium* (TA97, TA98, TA100, TA102, and TA1535) were treated with DHA at concentrations of 0 (solvent control), 100, 50, 15, and 12.5  $\mu$ l/plate in the presence and absence of an exogenous metabolic activation system (S9) by the plate incorporation method. 4-Nitroquinoline (4-NQ), sodium azide (NaN<sub>3</sub>), and mitomycin (MMC) were used as the positive controls in conditions without S9 mix. 2-Aminofluorene (2-AF), 1,8-dihydroxyanthraquinone (1,8-DT), and cyclophosphamide (CTX) were used as the positive controls in conditions with S9 mix. All plates were incubated at 37 °C for 72 h, and the number of revertant colonies was counted. No increase in revertant frequencies was found at any test doses (100, 50, 15, and 12.5  $\mu$ l/plate) in any of the tester strains with or without S9 compared to those in the vehicle control cultures. The positive control chemicals for each tester strain induced obvious increases in the number of revertant colonies compared to the vehicle control. The data indicated that DHA, up to 100  $\mu$ l/plate (the maximum concentration), was non-mutagenic under the conditions used in this test.

Keywords: DHA; Bacterial reverse mutation assay

#### 1. Study design

As a part of a safety evaluation, we evaluated the potential mutagenicity of DHA using a bacterial reverse mutation assay. The study was performed in accordance with FDA Redbook 2000: chapter IV.C.1.a Bacterial Reverse Mutation Test. The study was performed in accordance with Good Laboratory Practices (GLP) regulations.

### 2. Materials and methods

Five strains of *Salmonella typhimurium* (TA97, TA98, TA100, TA102, and TA1535) were treated using the plate incorporation method. We selected the concentrations for the test based on a preliminary study, and the results indicated that DHA did not show any antibacterial activity up to the maximum concentration, 100  $\mu$ l/plate. TA97, TA98, TA100, TA102, and TA1535 were treated with DHA at concentrations of 0 (solvent control), 100, 50, 15, and 12.5  $\mu$ l/plate in the presence and absence of an exogenous metabolic activation system (S9) by the plate incorporation method. We prepared triplicate plates for each concentration.

4-Nitroquinoline (4-NQ), sodium azide (NaN<sub>3</sub>), and mitomycin (MMC) were used as the positive controls in conditions without S9 mix (Table 1). 2-Aminofluorene (2-AF), 1,8-dihydroxyanthraquinone (1,8-DT), and cyclophosphamide (CTX) were used as the positive controls in conditions with S9 mix (Table 1). All plates were incubated at 37 °C for 72 h, and the number of revertant colonies was counted.

Salmonella typhimurium	S9	Dose (µg/plate)
TA97	-S9	4-NQ (2.0)
1.007	+\$9	2-AF (60.0)
74.00	-S9	4-NQ (2.0)
TA98	+\$9	2-AF (60.0)
	-S9	NaN3 (1.5)
TA100	+\$9	2-AF (60.0)
T1 102	-S9	MMC (1.0)
TA102	+89	1,8-DT (50)
T1 1 53 5	-S9	NaN3 (1.5)
TA1535	+\$9	CTX (200.0)

Table 1 The positive control for study

We declared the test substance mutagenic if the number of revertant colonies in the test dose was more than twofold than that in the control, or if the number of revertant colonies increased in a dose-dependent manner compared to the control in at least one strain with or without the metabolic activation system. The validity of the study was confirmed by more than twofold increase in the number of revertant colonies in the positive control plates compared to the control.

#### 3. Statistical analysis

We used SPSS 11.5 software for Windows to perform all analyses. One-way ANOVA with Dunnet's post-hoc test was used to compare the treatment and control group data. A P-value less than 0.05 was considered statistically significant.

#### 4. Results

The mutagenicity of DHA in bacteria was evaluated up to a maximum dose of 100  $\mu$ l/plate using the plate incorporation method (Table 2, 3). We found no increase in revertant frequencies at any test doses in any of the tester strains with or without S9 compared to those in the vehicle control cultures. The positive control chemicals for each tester strain induced obvious increases in the number of revertant colonies compared to the vehicle control. The data indicated that DHA was non-mutagenic under the conditions used in this test.

Group	Dose	Mean revertant colony counts per plate				
Group	Dose	TA97	TA98	TA100	TA102	TA1535
Vehicle control	- 1 <del></del>	148.33±11.68	18.00±2.65	135.67±17.16	255.33±10.26	15.00±4.58
DHA	100 µl/Plate	139.67±9.87	18.67±6.03	129.33±3.51	224.00±32.05	12.00±3.00
	50 µl/Plate	149.67±12.22	15.67±1.53	114.67±26.31	206.67±28.22	16.67±1.53
	25 µl /Plate	130.33±6.03	18.33±2.52	105.00±20.66	227.00±53.69	10.33±2.52
	12.5 µl /Plate	132.33±7.23	14.00±1.00	115.00±7.00	213.33±41.68	13.67±3.06
4-NQ	2.0 µg /Plate	1145.67±135.98**	1870.67±166.49**	-	-	-
NaN <sub>3</sub>	1.5 µg /Plate	-	-	344.33±84.67**	-	346.33±87.51*
MMC	1.0 µg /Plate	-		_	1267.67±309.82**	-

Table 2 Bacterial mutation assay results (- S9) \*

Abbreviations: 4-NQ = 4-nitroquinoline; DAM = daunomycin; NaN<sub>3</sub> = sodium azide; MMC = Mitomycin.

<sup>a</sup> Values are the mean of triplicate plates. \*\* P<0.01, compared with vehicle control.

6

C	Deer	Mean revertant colony counts per plate				
Group	Dose	<b>TA97</b>	<b>TA98</b>	TA100	TA102	TA1535
Vehicle control	-	133.33±22.19	19.33±4.73	118.67±6.66	205.33±30.57	10.67±2.31
DHA	100 µl/Plate	133.00±19.31	14.67±2.08	119.00±13.75	186.00±29.46	9.33±2.52
	50 µl/Plate	160.00±11.53	23.33±1.15	116.33±15.04	206.00±13.23	14.00±3.00
	25 µl /Plate	140.00±11.53	16.00±3.61	107.33±21.20	202.67±19.35	11.33±3.21
	12.5 µl /Plate	147.33±15.28	15.33±0.58	101.67±20.01	265.33±41.00	10.67±0.58
2-AF	60.0 µg /Plate	1081.00±174.58**	1841.33±257.07**	1242.33±350.41**	-	-
1,8-DT	50.0 µg /Plate	_	-	-	524.00±125.30 **	_
CTX	200.0 µg /Plate		<u></u>	e.	Æ	191.67±120.80*

Table 3 Bacterial mutation assay results (+ S9) <sup>a</sup>

Abbreviations: 2-AF = 2-aminofluorene; 1,8-DT = 1,8-dihydroxyanthraquinone; CTX = cyclophosphamide.

<sup>a</sup> Values are the mean of triplicate plates.

\*\* P<0.01, compared with vehicle control.

## 5. Conclusion

Under our test conditions, a reverse mutation assay using five strains of *Salmonella typhimurium* (TA97, TA98, TA100, TA102, and TA1535), DHA (100, 50, 15, and 12.5  $\mu$ l/plate, respectively) did not increase the number of revertant colonies in any tester strains regardless of metabolic activation by S9 mix. The data indicated that DHA was non-mutagenic under the conditions used in this test.

Appendix D.

# **TOXICOLOGY STUDY REPORT**

Title of Study	Oral Acute Toxicity Study of DHA in Rats				
Study Number	A2019-T002				
Entrustment Company	NutraSource, Inc.				
Address of Entrustment Company	NutraSource, Inc. 6309 Morning Dew Ct, Clarksville, MI y 21029				
Contact PersonContact Person	Susan Cho, Ph.D., and Albert W. Lee				
Contact Tel. and E-mail	+1-410-531-3336 (O) +1-301-875-6454 (C)				
Primary Test Facility	School of Life Sciences, Yantai University				
Address of Research Institute	30, Qingquan RD, Laishan District, Yantai, China				
Contact Person	Yonglin Gao				
Contact Tel. and E-mail	86-15854569558; gylbill@163.com; gaoyonglin@ytu.edu.cn.				
Study Director	Yonglin Gao				
Study Participants	Yonglin Gao, Shuqin Qu, Yiran Wang				
Study Start and End Dates	Feb. 2019-Mar. 2019				

## Contents

A	ostract
1	Study design
2	Animals
3	Teatment
4	Observations and clinical tests
5	Organ weights, gross necropsy, and histopathological examinations
6	Statisitical analysis
7	Results
7	.1 General clinical signs and mortality6
7	2 Food consumption
7	3.3 The organ/body weight ratio (the organ coefficient)
8	Conclusion

## List of Tables and Figures

Table 1: E:	xperimental design of a 14-day rat acute toxicity study
Tables 2,3:	Body weight change of male/female rats during a 14-day study
Figures 1,2:	Body weight change of male/female rats during a 14-day study
Tables 4,5:	Food consumption of male/female rats during a 14-day study9
Figures 3,4:	Food consumption of male/female rats during a I4-day study 10
Tables 6,7:	The organ coefficient of male/female rats after a 14-day study 11
Figures 5,6:	The organ coefficient of male/female rats after a 14-day study 12

Oral Acute Toxicity Study of DHA in Rats

## ABSTRACT

Docosahexaenoic acid (DHA), a 22-carbon fatty acid containing six double bonds, is a

member of the omega-3 family of essential fatty acids. The aim of this study was to evaluate the acute toxicity of DHA after oral administration in rats. The test substances were administered to young rats by oral gavage at doses of 0 (control), 1.0 ml/kg body weight (BW), 2.0 ml/kg BW, and 4.0 ml/kg BW (5 males and 5 females per group). Animals were observed for 14 days to monitor changes in clinical signs (i.e., changes in eyes, mucous membranes, or behavior patterns; loss of fur or scabbing), body weight, and clinical signs, as well as food consumption. At the end of the study, animals were sacrificed, and major organs (such as liver, kidneys, spleen, heart, and lungs) were examined macroscopically and microscopically if needed. No animal died during the 14-day observation period, and no clinical signs of abnormality were observed at any dose level. Furthermore, no significant differences in mean body weight, food consumption, and organ weights were found among the four test and control groups. No treatment-related abnormalities were observed in the macroscopic examinations. In summary, the acute oral LD50 for DHA was above 4.0 ml/kg BW (the maximum dose volume) in both male and female rats.

Key words: DHA; Acute Toxicity Study; Rat

1. Study design

The study was performed in accordance with the Food and Drug Administration (FDA) Redbook 2000: chapter IV.C.3.a Short-Term Toxicity Studies with Rodents. DHA was administered by oral gavage to rats (0, 1.0 ml/kg BW, 2.0 ml/kg BW, and 4.0 ml/kg BW; 5 males and 5 females for each group) and observed for 14 days. Clinical signs, body weight, food consumption, and death rates were observed. On day 15, all surviving animals were sacrificed and organs were weighed, including lungs, heart, kidneys, liver, and spleens. The study was performed in accordance with Good Laboratory Practices (GLP) regulations.

#### 2. Animals

Sprague-Dawley rats, 6 weeks of age, were housed in cages under hygienic conditions and placed in a controlled environment with a 12-h light/dark cycle at 23±3 °C and 40-60% humidity. Animals were allowed a commercial standard rat cube diet and water *ad libitum*. All procedures involving the use of laboratory animals were in accordance with the Guidelines of the Animal Care.

#### 3. Treatment

Based on stratified randomization by body weights taken before treatment, rats were divided into five groups (each group of 10 rats consisted of 5 male and 5 female rats): control, 1.0 ml/kg BW, 2.0 ml/kg BW, and 4.0 ml/kg BW DHA (orally administered dose by gavage). Group assignments are outlined in Table 1.

Groups	Test substance	Number of animals	
1	0 (Control)	10 (♀:5+♂:5)	
2	1.0 ml/kg BW DHA	10 (♀:5+♂:5)	
3	2.0 ml/kg BW DHA	10 (♀:5+♂:5)	
4	4.0 ml/kg BW DHA	10 (♀:5+♂:5)	

Table 1. Experimental design of a 14-day rat acute toxicity study.

Abbreviations: BW = Body weight; DHA = Docosahexaenoic acid.

#### 4. Observations and clinical tests

All animals were observed twice daily for clinical signs of toxicity, mortality, and morbidity. The body weight of each rat was measured pre-test, weekly thereafter, and at sacrifice. Food consumption also was noted.

#### 5. Organ weights, gross necropsy, and histopathological examinations

At the end of treatment, all surviving animals were fasted overnight. The body weight and the main organ weights, including liver, kidneys, spleen, heart, and lungs, were measured. Moreover, the coefficient was reported as the organ/body weight ratio. These tissues were examined, and gross lesions were examined microscopically. If treatment-related effects were noted in certain tissues, they were examined microscopically.

#### 6. Statistical analysis

We used SPSS 11.5 software for Windows to perform all analyses. One-way ANOVA with Dunnet's post-hoc test was used to compare the test and control group data. A P-value less than 0.05 was considered statistically significant.

7. Results

#### 7.1 General clinical signs and mortality

All rats survived to the end of the experiment and appeared healthy throughout the study period. No obvious abnormal clinical signs (i.e., changes in eyes, mucous membranes, or behavior patterns; loss of fur or scabbing) were observed in all groups. As shown in Tables 2,3 and Figures 1,2, there were no significant differences in body weight between the DHA treated groups and the control group.

#### 7.2 Food consumption

In the experiment, food consumption was studied in rats during the 14-day study. The results showed that all data were within historic controls obtained in our facility. There were also no significant differences in food consumption (Tables 4,5; Figures 3,4) between the DHA treated groups and the control group.

#### 7.3 The organ/body weight ratio (the organ coefficient)

The organ/body weight ratios (the organ coefficient) are shown in Tables 6,7 and Figures 5,6. No consistent, statistically significant, or dose-dependent adverse effects were observed in all groups. On macroscopic examination, there are no treatment-related effects noted in these tissues.

## 8. Conclusion

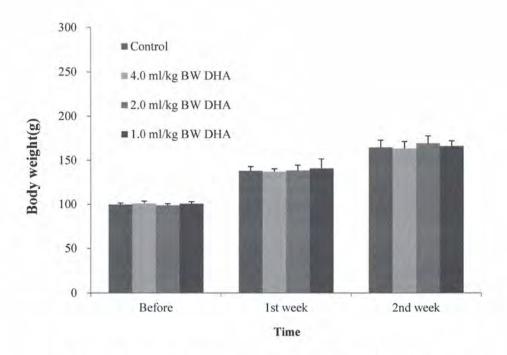
Under our test conditions, the acute oral  $LD_{50}$  for DHA was above 4.0 ml/kg BW (the maximum dose volume) in both male and female rats.

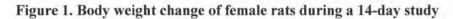
Groups	Test substance	Before	1 <sup>st</sup> week	2 <sup>nd</sup> week
1	0 (Control)	99.60±1.82	138.00±4.85	164.60±8.17
2	1.0 ml/kg BW DHA	$100.60 \pm 2.41$	140.80±10.76	166.20±5.85
3	2.0 ml/kg BW DHA	98.80±1.79	138.40±6.02	169.20±8.41
4	4.0 ml/kg BW DHA	100.80±2.77	137.00±3.32	163.40±7.92

Table 2. Body weight change of female rats during a 14-day study (g)

Groups	Test substance	Before	1 <sup>st</sup> week	2 <sup>nd</sup> week
1	0 (Control)	104.80±3.77	148.20±4.66	204.00±4.95

2	1.0 ml/kg BW DHA	$103.00 \pm 4.30$	150.20±7.26	206.60±8.29
3	2.0 ml/kg BW DHA	102.60±3.97	151.40±9.48	$210.60 \pm 7.80$
4	4.0 ml/kg BW DHA	103.80±3.27	149.60±6.11	203.20±5.81





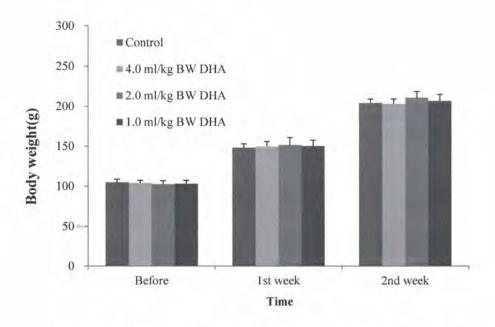


Figure 2. Body weight change of male rats during a 14-day study

Table 4. Food	consumption of	f female rats during	a 14-day stud	ly (g/100 g BW/day)

Groups	Test substance	1 <sup>st</sup> week	2 <sup>nd</sup> week
1	0 (Control)	11.98±1.02	11.30±1.08
2	1.0 ml/kg BW DHA	12.12±1.90	11.52±1.72
3	2.0 ml/kg BW DHA	12.12±1.57	$11.82 \pm 0.66$
4	4.0 ml/kg BW DHA	12.30±1.78	12.01±0.79

Groups	Test substance	1 <sup>st</sup> week	2 <sup>nd</sup> week
1	0 (Control)	11.76±1.36	11.36±0.50
2	1.0 ml/kg BW DHA	11.79±1.09	11.19±0.84
3	2.0 ml/kg BW DHA	11.71±1.26	10.87±0.66
4	4.0 ml/kg BW DHA	12.04±1.79	11.13±1.14

Table 5. Food consumption of male rats during a 14-day study (g/100 g BW/day)

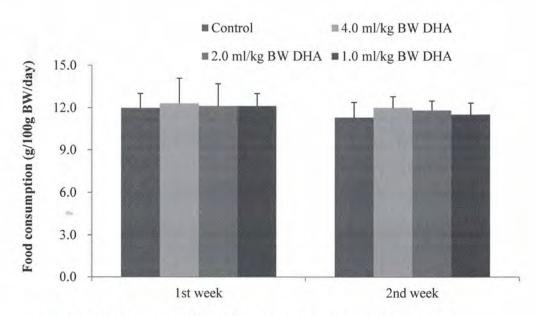
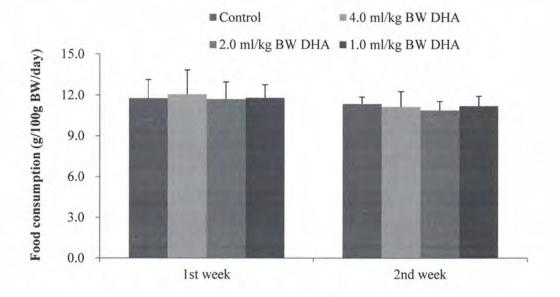


Figure 3. Food consumption of female rats during a 14-day study



**Figure 4. Food consumption of male rats during a 14-day study** Abbreviations: BW = Body weight; DHA = Docosahexaenoic acid.

	0 (Control)	1.0 ml/kg BW	2.0 ml/kg BW	4.0 ml/kg BW
	0 (Control)	DHA	DHA	DHA
Heart	0.42±0.04	$0.44 \pm 0.07$	0.37±0.06	$0.42 \pm 0.06$
Liver	3.79±0.52	3.69±0.26	3.83±0.33	3.56±0.21
Spleen	0.29±0.03	$0.31 \pm 0.05$	$0.30 \pm 0.04$	$0.28 \pm 0.05$
Lung	0.61±0.04	$0.61\!\pm\!0.02$	$0.61 \pm 0.05$	0.60±0.06
Kidney	0.93±0.08	0.98±0.09	$0.95 \pm 0.07$	$0.95 \pm 0.09$

Table 6. The organ coefficient of female rats after a 14-day study (% BW).

	0 (Control)	1.0 ml/kg BW	2.0 ml/kg BW	4.0 ml/kg BW
	o (control)	DHA	DHA	DHA
Heart	0.39±0.03	$0.40 \pm 0.03$	$0.40 \pm 0.05$	$0.41 \pm 0.03$
Liver	3.47±0.11	3.52±0.25	3.51±0.17	3.58±0.22
Spleen	0.34±0.09	$0.31 \pm 0.02$	$0.32 \pm 0.05$	$0.32 \pm 0.02$
Lung	0.49±0.05	$0.46 \pm 0.05$	$0.45 \pm 0.04$	$0.47 \pm 0.04$
Kidney	0.95±0.04	$0.92 \pm 0.08$	$0.90 \pm 0.06$	$0.97 \pm 0.02$

Table 7. The organ coefficient of male rats after a 14-day study (% BW).

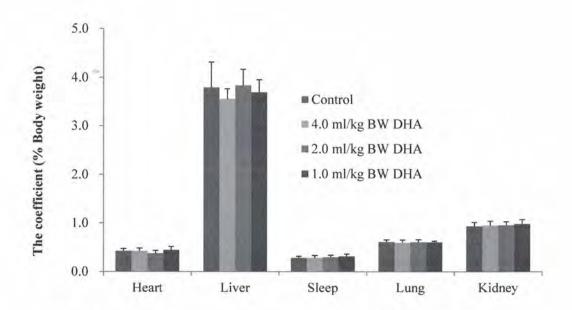


Figure 5. The organ coefficient of female rats after a 14-day study

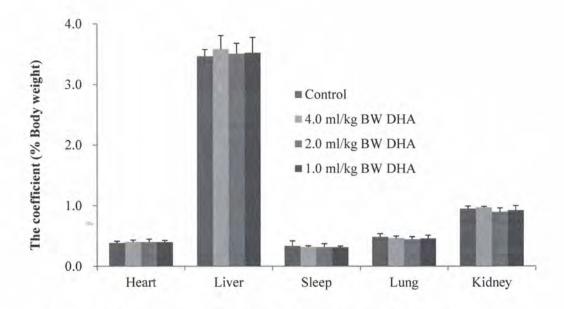


Figure 6. The organ coefficient of male rats after a 14-day study

Thank you. On behalf of Hubei Fuxing Biotechnology, we request that FDA ceases to evaluate the notice. Thank you.

Sincerely, Susan Cho NutraSource

#### Sent from Yahoo Mail for iPhone

On Tuesday, August 20, 2019, 10:40 AM, Morissette, Rachel <Rachel.Morissette@fda.hhs.gov> wrote:

Dear Dr. Cho,

After reviewing Hubei Fuxing BioTechnology's GRAS Notice GRN 000860, our review team has identified a large number of errors and discrepancies throughout all sections of the notice. A broad description of these errors includes:

Incorrect references and citations to both GRNs and the literature

Inaccurate or missing information on the intended use, identify, manufacturing, specifications, and exposure

Inaccurate descriptions of presented studies

Incorrect reporting of NOAEL values

Incorrect or inconsistent unit usage

Typos throughout the notice impacting the notice's readability

Due to the poor quality of this submission, we strongly recommend that Hubei Fuxing BioTechnology requests that we cease our evaluation of GRN 000860. After Hubei Fuxing BioTechnology requests that we cease to evaluate its notice, we will provide a detailed list of the deficiencies identified in GRN 000860. If Hubei Fuxing BioTechnology chooses not to request that we cease our evaluation of GRN 000860, then we will issue a no basis letter for this GRAS notice. Please provide your response within 10 business days.

Sincerely,

## Rachel Morissette, Ph.D.

Regulatory Review Scientist

Division of Food Ingredients Office of Food Additive Safety Center for Food Safety and Applied Nutrition U.S. Food and Drug Administration rachel.morissette@fda.hhs.gov





From:	Morissette, Rachel
To:	Susan S Cho
Bcc:	Wafula, Denis; Honigfort, Mical
Subject:	follow-up with list of deficiencies for GRN 000860
Date:	Wednesday, August 21, 2019 2:30:00 PM
Attachments:	08-21-19 GRN000860 Questions for Notifier.pdf
	image013.png
	image024.png
	image035.png

Dear Dr. Cho,

Please see attached a list of the deficiencies we identified for GRN 000860 for your information. No response to these questions is required as we have ceased to evaluate this notice at your request. Dr. Susan Carlson (Division Director, OFAS/Division of Food Ingredients (DFI)) and Dr. Mical Honigfort (Branch Chief, Regulatory Review Branch, DFI) will be reaching out to you in the near future for a follow-up meeting. Please review these deficiencies in preparation for this meeting.

In the meantime, I will be preparing the Cease-to-Evaluate letter and will send that to you as soon as possible.

Sincerely,

Rachel

Rachel Morissette, Ph.D. Regulatory Review Scientist

Division of Food Ingredients Office of Food Additive Safety Center for Food Safety and Applied Nutrition U.S. Food and Drug Administration rachel.morissette@fda.hhs.gov





From: Susan S Cho <susanscho1@yahoo.com>
Sent: Tuesday, August 20, 2019 12:35 PM
To: Morissette, Rachel <Rachel.Morissette@fda.hhs.gov>
Subject: Re: information regarding GRN 000860 - response requested

Dear Dr. Morissette,

We would appreciate it if you would provide a detailed list of deficiencies. Thank you

Sincerely,

Susan On Tuesday, August 20, 2019, 11:31:34 AM EDT, Morissette, Rachel <<u>Rachel.Morissette@fda.hhs.gov</u>> wrote: Thank you.

## Rachel

\_\_\_\_\_

Rachel Morissette, Ph.D. Regulatory Review Scientist

Division of Food Ingredients Office of Food Additive Safety Center for Food Safety and Applied Nutrition U.S. Food and Drug Administration rachel.morissette@fda.hhs.gov





From: Susan S Cho <<u>susanscho1@yahoo.com</u>>
Sent: Tuesday, August 20, 2019 11:28 AM
To: Morissette, Rachel <<u>Rachel.Morissette@fda.hhs.gov</u>>
Subject: Re: information regarding GRN 000860 - response requested

Thank you. On behalf of Hubei Fuxing Biotechnology, we request that FDA ceases to evaluate the notice.

Thank you.

Sincerely,

Susan Cho

NutraSource

Sent from Yahoo Mail for iPhone

On Tuesday, August 20, 2019, 10:40 AM, Morissette, Rachel <<u>Rachel.Morissette@fda.hhs.gov</u>> wrote:

Dear Dr. Cho,

After reviewing Hubei Fuxing BioTechnology's GRAS Notice GRN 000860, our review team has identified a large number of errors and discrepancies throughout all sections of the notice. A broad description of these errors includes:

Incorrect references and citations to both GRNs and the literature

Inaccurate or missing information on the intended use, identify, manufacturing, specifications, and exposure

Inaccurate descriptions of presented studies

Incorrect reporting of NOAEL values

Incorrect or inconsistent unit usage

Typos throughout the notice impacting the notice's readability

Due to the poor quality of this submission, we strongly recommend that Hubei Fuxing BioTechnology requests that we cease our evaluation of GRN 000860. After Hubei Fuxing BioTechnology requests that we cease to evaluate its notice, we will provide a detailed list of the deficiencies identified in GRN 000860. If Hubei Fuxing BioTechnology chooses not to request that we cease our evaluation of GRN 000860, then we will issue a no basis letter for this GRAS notice.

Please provide your response within 10 business days.

Sincerely,

Rachel Morissette, Ph.D. Regulatory Review Scientist

Division of Food Ingredients Office of Food Additive Safety Center for Food Safety and Applied Nutrition U.S. Food and Drug Administration rachel.morissette@fda.hhs.gov





August 21, 2019

Dear Dr. Cho,

After reviewing Hubei Fuxing BioTechnology, Co., Ltd. (Hubei Fuxing)'s GRAS Notice GRN 000860 for the intended use of algal oil (≥36% docosahexaenoic acid) from *Schizochytrium* sp. strain DHF (algal oil (≥36% DHA)), we noted the following deficiencies.

## General:

- The intended use in the notice describes algal oil (≥36% DHA) as a "nutritional food ingredient." As health claims or benefits are not considered in a safety evaluation of a GRAS notice, we would not refer to an ingredient as "nutritional". Please provide a statement removing the term "nutritional" from the intended use.
- 2. The notice refers to two different date ranges for the literature search that was conducted. Please clarify when an updated literate search was conducted.
- 3. While Hubei Fuxing incorporates into the notice data and information from seven prior GRAS notices, the notice also references 11 other prior GRAS notices non-specifically. It is unclear how all of these prior notices support the safe use of Hubei Fuxing's product or what specific data and information is being referred to in these prior notices. Please revise the safety narrative in Part 6 to specifically indicate how the prior GRAS notices support the safe use of the ingredient, or else remove reference to extraneous notices in a revised narrative.
- 4. Hubei Fuxing states the following in the notice:

"The intended use level of DHA-rich oil is similar to or same as all other approved uses for incorporation of DHA in infant formula (GRNs 553, 667, 730, and 776)."

The subject of GRN 000667 is rebaudioside M for use as a general purpose sweetener in foods, other than infant formula and meat and poultry products, and as a table top sweetener. Please clarify how GRN 000667 relates to the current notice.

- 5. On page 6 of the notice, Hubei Fuxing references GRN 000730 in a discussion about DHA. However, the subject of GRN 000730 is ARA-rich oil. Please clarify how this relates to the DHA discussion mentioned in that paragraph.
- 6. Please clarify if the exempt infant formula intended use category is for pre-term infants only.
- 7. Amino acid-based infant formulas are listed in the notice as "non-exempt." However, they are considered exempt infant formulas. Please provide a statement correcting this information.
- 8. Hubei Fuxing mentions an intended use in "hydrolyzed protein based formulas." Please clarify if this refers to partially-hydrolyzed or extensively-hydrolyzed formulas.

If the latter, extensively-hydrolyzed, protein-based infant formulas are considered exempt formulas.

- 9. Are the maximum use levels indicated as consumed or is the algal oil (≥36% DHA) intended for use in infant formulas that are ready-to-use or those that must be reconstituted?
- 10. In Appendix D in Figure 5 on page 14 and Figure 6 on page 15, the word "sleep" is used to designate the organ "spleen" for the %bw or the organs in relation to the amount of DHA. Please clarify.

Chemistry:

- 11. The notice describes algal oil (≥36% DHA) as a "free flowing, yellow oil." Please indicate if this product is intended to impart color and be used as a color additive.
- 12. Please provide a comparison of the fatty acid profile for algal oil (≥36% DHA) to the Food Chemicals Codex specifications for fatty acid composition of DHA algal oil (*Schizochytrium* sp.).
- 13. Hubei Fuxing provides analyses of five non-consecutive lots of algal oil (≥36% DHA) for dioxans, furans, and domoic acid (amnesic shellfish poison) where the methods of analysis are listed as internal methods. Please discuss how these internal methods have been validated.
- 14. In Table 17, Hubei Fuxing compares the levels of sterols/stanals in algal oil ( $\geq$ 36% DHA) to the levels of sterols/stanals in algal oils from GRNs 000553, 000677, and 000776. However, the units in Table 17 are in wt% relative to the algal oil. The units for individual sterols/stanols for the other GRNs are in wt% of total sterols/stanols. Please standardize the units so that the values in Table 17 can be directly compared to the values reported in the referenced GRNs.
- 15. In Table 9, the regulatory status of potassium sulfate is listed under 21 CFR 184.1643. However, the regulation is only for use as a flavoring agent or adjuvant in nonalcoholic beverages. Please provide a scientific rationale for whether there is expected to be residual potassium sulfate in the algal oil (≥36% DHA) final product or provide further regulatory justification for this intended use.
- 16. In Table 9, the regulatory status of corn syrup powder (corn steep liquor) is listed as 21 CFR 184.1033. However, this is the regulation for citric acid. Please provide the regulatory status of your raw material termed "corn syrup powder (corn steep liquor)".
- 17. In Table 9, the regulatory status of malic acid is listed under 21 CFR 184.1069. However, the regulation does not specifically apply to use in infant formula. Please provide a scientific rationale for whether there is expected to be residual malic acid in the algal oil (≥36% DHA) final product or provide further regulatory justification for this intended use.
- 18. In Table 10, the CAS number for activated carbon is shown as 4808-60-7, which is the CAS number for quartz. Please provide the correct CAS number for activated carbon.

- 19. In Table 10, the regulatory status of tocopherols is listed under 21 CFR 184.1890. In this notice, tocopherols are being used as an antioxidant. However, 21 CFR 184.1890 only allows for the use of tocopherols as a preservative in pump cured bacon. Please provide the regulatory status of tocopherols for Hubei Fuxing's intended use as an antioxidant.
- 20. In the manufacturing flow diagram (Figure 2), one of the manufacturing steps is described as "debonging". Please clarify what "debonging" means.
- 21. In Table 12, the specification for *Salmonella* lists the method of analysis as AOAC-RI 121501. However, we were not able to identify this method. Please provide a brief description of the method, how it was validated, and/or an updated reference.
- 22. While there are batch analysis data provided in the notice for *Cronobacter* spp., a specification was not provided in Table 12. Please provide this specification in the table.
- 23. Two of the lots do not meet the specification for acid value of ≤0.5 mg KOH/g (lots D18071101J and D181122701J). Please clarify this discrepancy.
- 24. For conventional foods, Hubei Fuxing does not indicate the populations that its exposure estimates cover in the notice. Please indicate the populations covered by the exposure estimates.
- 25. Hubei Fuxing cites GRN 000137 for the exposure to DHA of 1.4 g/p/d and discusses that FDA has determined that DHA may be used in combination with EPA up to 3 g/p/d. However, Hubei Fuxing does not cite a reference. Please include the reference for the total exposure to DHA and EPA. We note that Hubei Fuxing cites several previous GRNs in the intended use discussion to demonstrate that these uses are substitutional. However, it is unclear whether Hubei Fuxing's exposure estimates are still current.
- 26. Hubei Fuxing states that there are no known self-limiting levels of use for DHA in infant formula and that the ratio of ARA and DHA is expected to be 2:1 to 1:1. The ratio of ARA to DHA is not a self-limiting level of use. Please clarify in the discussion what limits the use of DHA (thereby limiting the use of the algal oil (≥36% DHA)) to a maximum of 0.5 % of total fat in infant formula.

## Toxicology:

- 27. On page 34 (section 6.B.3.), Hubei Fuxing states that rats were administered algal oil "by oral gavage at doses of 0, 1.0, 2.0, or 4.0 mL/kg body weight (bw)". Please provide dose levels in units of mg/kg bw.
- 28. On page 35, Hubei Fuxing states "For DHA-rich algal oils, the NOAELS, established from subchronic toxicity studies, ranged from 3,258 to 5,000 mg/kg bw/day in rats".
  - a. Please note that in the subchronic toxicity study by Fedorova-Dahms et al. (2011a), the NOAEL for males was 3,149 mg/kg bw/day; hence, the correct range is 3,149 to 5,000 mg/kg bw/day. Please verify.

- b. For the above NOAEL range, one of the articles cited is Hammond et al., 2001a. Please note that the test article in this study is DRM (DHA-rich microalgae) and not DHA-rich algal oil. Please verify. (Full reference: Hammond, B. G., Mayhew, D. A., Naylor, M. W., Ruecker, F. A., Mast, R. W., & Sander, W. J. (2001). Safety assessment of DRM from Schizochytrium Sp.: I. Subchronic rat feeding study. Regulatory Toxicology and Pharmacology, 33(2), 192-204.)
- 29. On page 35, Hubei Fuxing states "From developmental toxicity studies, the NOAELs were in the range of 2,000 to 5,000 mg/kg bw/day for rats and 1,800 mg/kg bw/day in NZW rabbits" for DHA-rich algal oil. Please note that the test material for the rabbit study was DRM and not DHA-rich algal oil; hence, this result belongs in 5) and not 3) on page 35 of the GRAS notice. Please verify.
- 30. On page 35, Hubei Fuxing reports NOAEL ranges for 1) subchronic toxicity studies for DHA-rich algal oil, 2) subchronic and/or reproductive studies for DHA-rich algal oil, 3) developmental toxicity studies for DHA-rich algal oil, 4) DHA ethyl ester, and 5) DRM. Please note that in Table 19 Hubei Fuxing presents the following result: Hammond et al., 2001b, reported a maternal NOAEL of 600 mg/kg bw/day (LOAEL of 1,800 mg/kg bw/day).
  - a. Please account for this result in one of the above NOAEL ranges.
  - b. Please note that the test material in this study was DRM and not DHA-rich algal oil that Hubei Fuxing reported. Please verify.
- 31. On page 36 in Table 19, Hubei Fuxing states that in the "acute oral toxicity (gavage)" study by Schmitt et al. (2012a), the duration of administration was 14 days. We note that rats received a single dose and were monitored for 14 days thereafter. Please verify.
- 32. On page 37 in Table 19, Hubei Fuxing states that the duration of the "developmental toxicity of mothers" study (Fedorova-Dahms et al., 2011b) had a duration of 15 days and a NOAEL of 4,260 mg/kg bw/day.
  - a. According to the article (section 2.3.2 Study design), "parental males and females received the experimental diet while housed separately for a 28-day premating period, followed by feeding through a 14-day co-habitation period. Upon determination of pregnancy or following the prescribed 14-day mating period, females were removed to a separate cage and fed through the gestation period of pregnancy and day 22 of lactation." Please state the correct duration of experimental diet administration for the mothers.
  - b. Please note that while Hubei Fuxing states that it provided the NOAEL for this study for the "mothers", the NOAEL that was provided in the notice is actually an average NOAEL for both sexes of the F1 generation (see pages 3314 (Table 3) and 3317 of the article). Please report the correct NOAEL for the mothers (see page 3314 (Table 3) of the article). Additionally, Hubei Fuxing may also report the NOAEL for the fathers (see page 3314 (Table 3)), in which case the duration of administration for the fathers should be reported as well.

- c. Please note that the study for mothers and fathers was a combined subchronic and reproductive toxicity study and not a "developmental toxicity of mothers". Please verify.
- 33. In Table 19, for some studies separate NOAEL values are available for males and females from the referenced publications. For some of these studies, Hubei Fuxing reports the NOAELs for both sexes separately, while for other studies Hubei Fuxing reports an average value of the NOAELs for both sexes, even though the individual value for each sex is available. The fact that the NOAELs for both sexes are averaged for some of the studies is not noted. It is also not clear why the NOAELs are averaged for some studies and why NOAEL values for both sexes are reported separately in others.
  - a. For future reference, please be consistent with reporting results.
  - b. Please state what the male and female NOAELs are for the 90-day study for the F1 generation for the Fedorova-Dahms et al. (2011b) study.
  - c. Please state what the male and female NOAELs are for the 90-day study for the Fedorova-Dahms et al. (2011a) study.
- 34. In Table 19 (DHA-rich oil section) for the Hammond et al. (2001b) study in rabbits, Hubei Fuxing states that it is a "developmental toxicity" study of DHA-rich oil with a duration of administration of 30 days with a maternal NOAEL of 600 mg/kg bw/day and a developmental NOAEL of 1,800 mg/kg bw/day. Additionally, Hubei Fuxing states that "high-dose (1,800) DHA oil and fish oil groups: Fo reduced food consumption and body weight" were the only observations in the study.
  - a. Please note that this study was a combined reproductive and developmental toxicity study. Mothers were treated only for 13 days (GD 6 through GD 18) (page 207 of the article) and not 30 days. Please verify.
  - b. While this rabbit study was in the DHA-rich oil section of the table and not in the DRM section, the test article was the dried powder of the microalgae itself and not the oil extracted from the microalgae. Please verify.
  - c. According to the article, in addition to "reductions in food consumption and body weight gain a slight increase in abortions occurred in the fish oil control and the 1,800 mg/kg bw/day" algal oil group (pages 205 and 216 of the article). On page 214 of the article, the study authors state that "the abortions may also be secondary to the significant dietary disruption in the fish oil and 1800 mg/kg/day DRM groups. Marked and sustained reduction in food consumption during the prenatal period can disrupt normal development and/or maintenance of pregnancy." Moreover, the authors go on stating that "The fact that the fish oil control group experienced an abortion rate similar to the 1800 mg/kg/day DRM group suggests that the presence of higher levels of dietary fat probably contributed to the reductions in food consumption and corresponding abortions in these groups." As all adverse effects should be reported in a safety narrative, please discuss the increase in abortions, which is test-article related.
- 35. In Table 19 (DRM section) for the Hammond et al. (2001b) study in rats, Hubei Fuxing states that the duration of administration was 15 days. Please note that the rats were

administered DRM only on gestation days 6-15 (see page 205 of the article). Please state the correct number of days for which the test article was administered.

- 36. In Table 19 (DHA-rich oil section), Hubei Fuxing summarizes the results of the 13-week Hammond et al. (2001a) study in rats at dose levels of 400, 1,500, and 4,000 mg/kg bw/day. Please note that the test article in this study was dried powder of the microalgae itself (DRM) and not the oil extracted from the microalgae. Consequently, this study belongs in the DRM section of the table and not the DHA-rich oil section. Please verify the identity of the test article.
- 37. In Table 19 (DRM section), Hubei Fuxing summarizes the results of a 13-week singlegeneration reproduction study in rats by Hammond et al. (2001c) at dietary levels of 0.6, 6.0, and 30%.
  - a. Please note that according to the article (page 357) "Fo males were treated for 70 days prior to mating, during mating, and for approximately 3 weeks following mating. Fo females were treated for 2 weeks prior to mating, during mating, and throughout gestation and lactation." In Table 1 of the article (page 358), it is also clearly shown that males were treated for more than 13 weeks (please see Table 1). Please state the correct durations of administration for males and females in units of either days or weeks.
  - b. For this study, Hubei Fuxing states that the NOAEL for DHA for males is 1,500 mg/kg bw/day and for females is 1,800 mg/kg bw/day. According to the article (page 358, beginning of Results section), these values are 1,512 and 1,680 mg/kg bw/day, respectively. Please verify.
  - c. For this study, Hubei Fuxing states that the NOAEL for DRM for males is 17,847 mg/kg bw/day and for females is 21,000 mg/kg bw/day. The correct value for females is 20,669 (please see table 1 on page 358). Please verify.
    - i. We note that for most study results reported in the notice, Hubei Fuxing reports exact NOAEL values, while for others rounded values are provided even when the exact values are available. Please report study results consistently in the notice.

38. In Table 19, Hubei Fuxing discusses studies mentioned in the Schmitt et al. (2001b) article.

- a. Regarding the study with a study design stated as "developmental toxicity (gavage)" with a duration of 20 days:
  - i. According to the article, the "DHA-rich algal oil was administered orally by gavage to pregnant Crl:CD(SD) rats during gestation days 6–19." Please verify and provide the exact number of days for which the test article was administered.
  - ii. For this study, Hubei Fuxing reports a NOAEL of 2,000 mg/kg bw/day. Please clarify if this is the maternal or embryo/fetal development NOAEL or the NOAEL for both.

- b. Regarding the study with a study design stated as "subchronic and reproductive toxicity of first generation (diet)" with a duration of 75-90 days for both sexes:
  - i. According to the article "Fo males and females were exposed for 89–91 and 75–77 consecutive days, respectively." Please verify.
- c. Regarding the study with a study design stated as "developmental and subchronic toxicity of second generation (diet)" with a duration of 106-111 days for both sexes:
  - i. According to the article, "F1 males and females were exposed for 106– 107 and 110–111 consecutive days, respectively." Please verify.
- 39. In Table 19, for the Falk et al. (2017) study, please state whether the NOAEL provided is for maternal toxicity, embryo/fetal development, and/or for paternal or maternal treatment-related reproductive toxicity.
- 40. In Table 19, for the Abril et al. (2003) study, Hubei Fuxing reports a NOAEL of 1,368 mg/kg bw/day for DRM and a NOAEL of approximately 305 mg/kg bw/day for DHA. According to the article (page 79), "Overall study averages for consumption of DRM were 2.680, 1.169, 3.391, and 5.745 kg DRM per pig for treatment groups 1, 2, 3, and 4, respectively. Using the value of DHA content in DRM (22.3% DHA on a dry weight basis), actual intake of DHA in treatment group 1 averaged 598 g DHA per pig over the course of 120 days, a whole-life exposure to DRM. Treatment groups 2, 3, and 4 averaged 261, 756, and 1281 g of DHA per pig, respectively, delivered in the form of DRM during the last 42 days of the study." Please clearly explain where the NOAEL of 1,368 mg/kg bw/day for DRM and a NOAEL of approximately 305 mg/kg bw/day for DHA came from. Please show any calculations, if any.
- 41. Based on the responses to all of the above questions, please correct the reported NOAEL ranges on page 35 a) through e).
- 42. In Part 6 of the notice, for some authors Hubei Fuxing cites more than one paper for the same year. For example: 1) Fedorova-Dahms et al., 2011a and Fedorova-Dahms et al., 2011b, and 2) Hammond et al., 2001a, Hammond et al., 2001b, and Hammond et al., 2001c. In Part 7 of the notice, while Hubei Fuxing provides the full references for all of these articles, Hubei Fuxing does not identify which references are a, b, and c. Please provide the full references for the above articles clearly indicating whether they are a, b, or c.
- 43. On page 41, Hubei Fuxing states that "The studies reviewed in these notifications supported the safe use of DHA in infant formula up to 0.96% of total fatty acids." This statement is also repeated on pages 47 and 49 slightly rephrased. Please provide this level in units of mg DHA/kg bw/day.

Sincerely,

## **Rachel Morissette, Ph.D.**

Regulatory Review Scientist Center for Food Safety and Applied Nutrition Office of Food Additive Safety Division of Food Ingredients