

Request for scientific evaluation of “Substantial equivalence” for
Lipofoods’ phytosterol product, intended to be used in specified foods
and under regulation EC 258/97 of the European Parliament

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SUMMARY

Under Regulation EC/258/97 on Novel Foods and Novel Food Ingredients, Archer Daniels Midland (ADM) received the approval of the use of its phytosterol product as Novel Food Ingredient under European Commission Decision 2004/333/CE.

Lipofoods' product is manufactured by Vitae Caps, SA under the brand name of « Vitasterol[®] S80».

Lipofoods' product is extracted from non genetically modified soy bean seeds. It is a mixture of beta-sitosterol, beta-sitostanol, campesterol, stigmasterol and campestanol with a small percentage of minor phytosterol. The certificates of analysis provided demonstrate a composition in sterols in compliance with the commission decision 2004/333/CE.

The manufacturing process of Lipofoods' product is similar to the one described in the ADM Novel Food Application (for sterols from soy bean oil and lesser amount of edible oil).

The sterols are also very little contaminated in term of PCB, PAH, heavy metals, pesticide residues, organic residue and aflatoxins. The purity and composition of the presented phytosterol allows considering the product as safe for human consumption.

The Lipofoods' product is intended to be consumed in a manner identical to the ADM product. The labelling of the product will follow the requirement of the relevant commission regulation (608/2004).

This document provides evidence to confirm that Lipofoods' product is substantially equivalent to ADM Approval 2004/333/CE.

1-INTRODUCTION

The European regulation n° 258/97 on Novel Foods and Novel Food Ingredients sets out rules for authorization of GM food products and other categories of novel foods. Phytosterols and phytosterols esters fall under the scope of the above mentioned regulation and are identified as “novel” food under article 1 ⁽¹⁾.

Phytosterols and phytosterol esters were authorized to be placed on the market for the EU on 24 July 2000 (Commission Decision 2000/500/EC) ⁽²⁾. Since then other applications were deposited who were authorized under the European commission decision 2004/333/CE ⁽³⁾, 2004/334/CE⁽⁴⁾, 2004/335/CE⁽⁵⁾, 2004/336/CE⁽⁶⁾, 2004/845/CE⁽⁷⁾, 2006/58/CE⁽⁸⁾ and 2006/59/CE⁽⁹⁾.

The purpose of the document is the demonstration that Lipofoods’ product is substantially equivalent within the terms of article (3) of the regulation n°258/97⁽¹⁾ to already approved ones and more specifically the Archer Daniels Midland (ADM) (2004/333/CE) ⁽³⁾ one. The Lipofoods’ product fall under the scope of class1.1 as defined in the chapter 4 of the recommendation ⁽¹⁰⁾.

Based on these decisions, Lipofoods applies for a favourable opinion in order to notify its phytosterol as ingredient in the range of product types into which phytosterols may be added, according to decision 2004/333/CE⁽³⁾ and according to the opinion of the Scientific committee of Food expressed the 4th of April⁽¹¹⁾. The opinion of the Food Standards Agency will be used to support notifications to be made either by Lipofoods, on its own name for the benefit of its future customers or to support notifications by its customers.

This application is also based on the relevant SCF opinion on the safety of phytosterols and phytosterols esters ^(11,12,13) in relation to the authorisations that we are claiming substantial equivalence to.

2-ADMINISTRATIVE INFORMATION

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Lipofoods' product is manufactured by Vitae Caps under the brand name of « Vitasterol[®] S80».

3-COMPOSITION

The Lipofoods' phytosterol is isolated from Soy bean oil. The origin is non-genetically modified plant seeds.

According to SCF opinion⁽¹¹⁾, ADM obtain their sterols from by-products of traditional vegetable oil refining. The source is commonly a blend of crude edible oils, consisting largely of soy bean oil and lesser amounts of other edible oils, e.g. corn, rapeseed and palm oil in varying proportions. The seeds are procured from the world oil seed supply and some may be derived from genetically modified (GM) plant varieties.

Lipofoods requirements are stricter than ADM since the seeds used are of natural origin (from non-genetically modified plants). Thus, the source used for Lipofoods' product is comprised within the ones described by ADM, demonstrating de facto the substantial equivalence

The Lipofoods' product is soybean derived sterol with betasitosterol as main component. Specification sheet and analytical results on sterol composition are given in Appendix 1 and 4.

3.1 Manufacturing process

This process is very close to the one described in the SCF Opinion⁽¹¹⁾ on ADM Novel Food Application: *The crude oil, which is obtained by pressing or solvent extraction, undergoes a series of refining processes to remove solvents, lecithins, free fatty acids, colour bodies, off-odours and off-flavours. In one of these steps, the oil is subjected to steam distillation at reduced pressure (deodorisation) and the resulting distillate contains the sterol fraction. From this fraction, fatty acids, lecithins and other compounds are removed by fractional distillation, thanolysis/ transesterification, distillation and crystallisation from a heptane*

solution, and the sterols are further purified by recrystallisation using food grade materials and good manufacturing practices. According to the applicant, the extraction and purification steps are standard methods and similar to the procedures used traditionally by the food industry for the production of plant sterols. Sterol esters are produced from the sterols using food grade vegetable oil-derived fatty acids or triglycerides and applying standard methods for esterification or transesterification commonly used in the fats and oils industry.

Adequate quality control and methods such as cGMP, performed by the supplier warrant the control of the process (See Appendix 3)

3.2. Specifications

3.2.1. Phytosterol profile

The sterol profile is defined in annex 2 of decision 2004/333/CE⁽³⁾ under the following section “Specifications of phytosterols and phytostanols for the addition to foods and food ingredients”.

To be considered as “substantially equivalent”, Lipofoods’ product must meet the same requirements. A comparative evaluation of the EU requirements for ADM⁽³⁾ versus Lipofoods’ specifications is presented here after:

Composition (with GC-FID or equivalent method)	Requirements 2004/333/CE⁽³⁾ ADM	Lipofoods's product Specifications
β- sitosterol (%)	<80	37-48
β- sitostanol (%)	< 15	0-1
campesterol (%)	<40	19-28
campestanol (%)	<5	0-1
Stigmasterol (%)	< 30	20-30
Brassicasterol (%)	<3	0-2
other sterols/stanols (%)	<3	<3

According to the new analytical data defined by the commission decision 2004/333/CE⁽³⁾ the total sterols contain must be superior to 99% only when extracted from sources other than vegetable oil suitable for food: this is not our case, a level of around 95% can be acceptable. The 5 batches presented here below fulfil this recommendation.

In the following table, a compilation of the GC-FID analysis performed on different batches of Lipofoods' product is presented versus approved specifications (the corresponding certificates of analysis are presented in Appendix 4).

Composition	Requirements 2004/333/CE	Batches				
		ST (146-150)	ST (151-153)	ST (154-156)	ST (157-158)	ST (162-165)
β- sitosterol	<80%	44	44	40	42	44
β- sitostanol (%)	<15%	0	0	0	0	0
Campesterol (%)	<40%	24	24	26	25	23.4
Stigmasterol (%)	<30%	26	26	28	26	23.6
Brassicasterol (%)	<3%	1	1	1	1	1
Campestanol (%)	<5%	0	0	0	0	0
Other sterols /stanols (%)	<3%	<3	<3	<3	<3	<3
Total phytosterols	>95%	98	98	98	97	95

Theses analytical results are representative of the quality of the Lipofoods' product. All the data are in compliance with the requirements⁽³⁾ demonstrating the equivalence.

3.2.2. Tocopherols residues

Tocopherol level is stated at not more than 15 mg/g in ADM's product specifications presented in Appendix 5 of this document. No alpha tocopherol was quantified in different batches of Vitae-caps Phytosterols: three different chromatograms representative of current batches of phytosterols are presented in Appendix 6 concomitantly with a chromatogram where 3 tocopherol peaks were identified in order to demonstrate the validity of the used column. In the same chromatographic system, the retention time for alpha tocopherol is between 20 and 25 minutes, when the sterols contained in Lipofoods product have retention times from 27 to 30 min. No tocopherol is detected in the chromatograms of the 3 batches of Lipofoods product analyzed. The Lipofoods product comply with the ADM specification for alpha tocopherol (< 15 mg/g) supporting thus the substantial equivalence between the two products.

The absence of tocopherols demonstrates the perfect control of the extraction steps during the manufacturing process showing then a very good separation of the different components of the primary oil.

4-NUTRITIONAL VALUE / METABOLISM

4.1 Anticipated intake

Lipofoods' product will be added to the same products as those already approved in decision 2004/333⁽³⁾. For this reason the daily intake of sterols will not be increased within the European Community population.

4.2 Nutritional information

Two potential nutritional effects are linked to the consumption of phytosterol: reduction in circulating cholesterol and reduction of vitamin and nutrient absorption

4.2.1 Reduction in circulating cholesterol

Phytosterols are widely found in the plant kingdom and are chemically similar to cholesterol.

Phytosterols are present in diets. Typical daily dietary intakes of phytosterols range from 100 to 300 milligrams. It is higher in vegetarians. There are over 40 phytosterols, but beta-sitosterol is the most abundant one, comprising about 50% of dietary phytosterols. The next most abundant phytosterols are campesterol (about 33%) and stigmasterol (about 24 to 26%). Other phytosterols found in the diet include brassicasterol, delta-7-stigmasterol and delta-7-avenasterol.

The consumption of phytosterols was demonstrated to lower blood levels of cholesterol, by inhibiting the absorption of dietary and endogenous produced cholesterol from the small intestine. The maximum phytosterol intake recommended by the SCF⁽¹⁵⁾ is 3 grams per day. This recommendation will be followed by Lipofoods and its customers in the foods and beverages enriched with Lipofoods' product in order to be essentially equivalent to ADM⁽³⁾.

Additionally and accordingly to Commission Regulation 608/2004, Lipofoods and its customers will advise on the labelling of the foods and beverages enriched with Lipofoods' phytosterols that these products are intended exclusively for people who want to lower their blood cholesterol level, that patients on cholesterol lowering medication should only consume

these products under medical supervision, that these products may not be nutritionally appropriate for pregnant and breastfeeding women and children under the age of five years and that the consumption of more than 3 g/day of added plant sterols/plant stanols should be avoided.

The lowering effect of the plant sterols on the blood cholesterol was demonstrated during the last 20 years. Thousands of people were enrolled in clinical trials which showed the efficacy and safety of the preparation based on phytosterols.

Exhaustive results compiled from recent studies are summarized in the following table: It is important to note that no adverse events were collected during the clinical trial, demonstrating thus the safety of the phytosterols.

Food type	Number of subject duration	Diary dose		Reference
500 mL Sterol enriched Milk blend,	71 Healthy subjects 4 weeks for each product	- Placebo 0 g/day; - Lo group 1.2 g/day - Hi group 1.6 g/day	<i>Double blind, cross over placebo controlled study.</i> Substantial reduction of LDL cholesterol and the two treated group: no significant difference between the two administered doses.	Thomsen et al, 2004
300ml/d sterol enriched milk	39 Healthy subjects 12 weeks	- Placebo, - 2.0 g/day plant sterol ester alone or combined with 25 g/day of placebo or spread.	<i>single blind crossover design with 4 phases of 3-week interventions</i> Sterol enriched milk and sterol enriched spread were equally efficacious in lowering total and LDL-cholesterol as compared to placebo by 6-8% and 8-10%, respectively.	Noakes et al 2004
low-fat milk-based beverage	26 Healthy subjects 1 week for each product	Placebo, 2.2 g plant sterol equivalents or 2.2 plant sterol ester equivalent	<i>Double-blind, randomized, crossover study.</i> Both milks containing plant sterols and plant sterol ester reduced beta-carotene and alpha-tocopherol bioavailability and cholesterol absorption in normocholesterolemic men.	Richelle et al, 2004
4 phytosterol ester-enriched low-fat foods: bread, breakfast cereal, milk and yoghurt.	58 Healthy subjects 3 weeks each product	1.6 g/day of phytosterols as sterol esters.	<i>randomized, incomplete crossover, single-blind study</i> Serum total and LDL cholesterol levels were significantly lowered by consumption of phytosterol-enriched foods: milk (8.7 and 15.9%) and yoghurt (5.6 and 8.6%). Serum LDL cholesterol levels fell significantly by 6.5% with bread and 5.4% with cereal. Lipid-adjusted beta-carotene was lowered by 5-10% by sterols in bread and milk, respectively. Plant sterols in low-fat milk were almost three times more effective than in bread and cereal.	Clifton et al, 2004
Orange juice	72 mildly hypercholesterolemic subjects 8 weeks	- placebo orange juice -or plant sterol fortified orange juice (2g/d)	<i>placebo-controlled, double-blind, randomized trial.</i> Sterol supplemented orange juice significantly decreased total (7.2%), LDL (12.4%), and non-high-density lipoprotein (HDL) cholesterol (7.8%) compared with baseline and compared with placebo. Apolipoprotein B levels were significantly decreased (9.5%) with sterol orange juice. There were no significant changes in HDL cholesterol or triglycerides with the sterol orange juice.	Devaraj et al, 2004

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Margarine containing sterol	42 healthy subjects	30 g/day in 2 servings	<i>Randomized double-shielded trial</i> The subjects consuming margarine with sterols showed a significant (11%) decrease in LDL-C ($P < .001$). After the consumption of margarine with sterols, the adhesion and aggregation time of blood platelets was significantly prolonged after collagen-epinephrine activation.	Kozłowska-Wojciechowska et al, 2003
Phytosterol-enriched margarines	85 subjects with type 2 diabetes mellitus 12 weeks	2 x 10 g/day of spread with or without 8 % phytosterol-esters.	<i>Randomized, placebo-controlled, double-blind clinical trial in two parallel groups.</i> After 4 weeks, total and LDL cholesterol were significantly reduced in the phytosterol group by 5.2 % and 6.8 %, respectively, compared to baseline ($p < 0.05$). After 8 and 12 weeks, these reductions became smaller and were not significant any more compared to baseline or between the groups, but a repeated measurement analysis demonstrated a significant difference for both variables between the two groups (each $p < 0.05$). HDL cholesterol was significantly increased in the phytosterol group compared to the placebo group after 8 and 12 weeks demonstrating the difficult maintenance under free-living conditions over time.	Lee et al, 2003
polyunsaturated spread	50 Healthy subjects total of 11 weeks	25 g of poly unsaturated spread with or without 2 g of plant sterols for 4 weeks, crossing over in the last 4 weeks to the alternate spread.	<i>Parallel butter phase followed by double-blind, randomized, cross-over polyunsaturated spread phases</i> Replacing butter with a standard polyunsaturated fat spread reduced mean plasma total cholesterol concentrations by 4.6% and low-density lipoprotein cholesterol by 5.5%. Replacing butter with a polyunsaturated spread containing plant sterols reduced plasma total cholesterol by 8.9% and low density lipoprotein cholesterol by 12.3%. Plasma high density lipoprotein cholesterol concentration was the same on the three diets.	Cleghorn et al, 2003
spreads enriched with plant sterols	42 healthy subjects 8 weeks	Sterol content of the enriched spread 8.3%. Intake of 25 g/day	<i>randomized double-blind placebo-controlled cross-over study</i> Serum total and LDL-cholesterol concentrations lowered by 7% and 10%, respectively, with the plant sterol-enriched compared to the control spread. Serum HDL-cholesterol concentration did not significantly differ between the two spreads. Apolipoprotein B concentrations lowered by 8% with the plant sterol-enriched spread.	Temme et al, 2002

4.2.2 Reduction of vitamin and nutrient absorption

The metabolism of ingested phytosterols and their influence on the fat soluble vitamin absorption had been investigated, especially, vitamins A, D, E, K and beta carotenes. The SCF adopted an opinion in 2002 upon “the long term effects on the intake of elevated levels of phytosterols from multiple dietary sources, with particular attention to beta carotenes”⁽²⁵⁾. The efficiency of absorption of such compound varies depending on the product. It is around 40% for the cholesterol, vitamin D, E, K, between 50 and 70% for the retinol when the beta carotene absorption can range between 10 and 90%. The bioavailability of carotenoids can be affected by the meal contents of dietary fiber and fat, the food matrix, the cooking procedure and cholesterol-lowering medication. The latter has been reported to reduce the levels of circulating beta-carotene by 30 to 40%. Beta-carotene being a source of a vitamin A, it is important not to lower its intake especially in the case of people with diets with poor intake of animal products. But it is accepted that doses up to 10 mg/day of beta-carotene from fruits and vegetable can confer health benefits.

Accordingly to Commission Regulation 608/2004, Lipofoods and its customer will advice on the labelling that the foods or beverages enriched with Lipofoods' product are to be used as a part of a balanced and varied diet, including regular consumption of fruit and vegetables to help maintain carotenoid levels.

5-INTENDED USE

The intended use of Lipofoods' product is claimed in accordance with the food applications covered by decisions 2004/333/CE ⁽³⁾.

That is to say:

- Yellow fat spreads as defined by Council Regulation (EC) No 2991/94 ⁽¹⁴⁾, excluding cooking and frying fats and spreads based on butter or other animal fat.
- Salad dressings including mayonnaise
- Milk type products such as semi skimmed and skimmed milk type products, possibly with the addition of fruits and/or cereals, fermented milk type products such as yoghurt, soya drinks, and cheese type products (fat content ≤ 12 g per 100 g), where the milk fat and/or protein has been partly or fully replaced by vegetable fat or protein.

The presentation of the food products with added Lipofoods' phytosterols will comply with article 2 of the here cited decision ⁽³⁾.

The products will be presented in such a manner that they can be easily divided into portions that contain either a maximum of 3 g (in case of one portion a day) or a maximum of 1 g (in case of three portions a day) of added phytosterols/phytostanols.

The amount of phytosterol added to a container of beverage will not exceed 3 g.

6-LEVEL OF UNDESIRABLE SUBSTANCES

6.1 Chemical contaminants

A special focus must be brought on the high purity of the product. The raw material supplier realized several studies on the phytosterols in order to demonstrate that the low levels of contaminants are in compliance with European Regulations.

Very few data on contaminants were included in the Decision in relation with ADM application⁽¹¹⁾ so certificates were obtained from ADM and presented in Appendix 7 (PAH, Dioxins). The comparison of analytical results for Lipofoods' product and ADM certificates allow to demonstrate the Substantial Equivalence.

Analyses performed on the Lipofoods' product demonstrated the purity of the material in relation to the presence of PAH's (Appendix 8), dioxin (Appendix 9), herbicides and pesticides (Appendix 10), heavy metals (Appendix 11), organic solvents (appendix 12), and aflatoxins (Appendix 13).

Important contaminants are more specifically discussed here below.

PAH (polycyclic aromatic hydrocarbons) (see Appendix 8)

- Benzo (a) pyrene

The level of Benzo (a) pyren is under 1 µg/kg as mentioned in the SCF opinions and complies with the requirement of the SCF report of June 1993 about smoke flavouring ⁽²⁶⁾ and with the maximum level of 2 µg/kg stated in the Commission Regulation (EC) No 208/2005 of 4 February 2005 ⁽²⁷⁾

- Benzo (a) anthracene. (See Appendix 8)

The benzoanthracene levels are also inferior to 0.27 µg/kg and comply with the requirement of the SCF report of June 1993 about smoke flavouring ⁽²⁶⁾ and with the maximum level of 2 µg/kg stated in the Commission Regulation (EC) No 208/2005 of 4 February 2005 ⁽²⁷⁾

ADM states that their product presents levels typically under 2ppb (Appendix 7) corresponding to 2 µg/kg that is to say that their product comply with the above cited

reference. Vitae-caps product also comply with this requirements, allowing so the sustaining the substantial equivalence between the two products.

- Other products:

Other PAH(s) classified as priority pollutants by the US environmental Protection agency are all under acceptable levels.

- Dioxins

According to the rule 2375/2201, the total amount of dioxin must be less than 0.75 pg/g expressed as toxicity equivalents. The batches analyzed comply with this requirement (see Appendix 9)

ADM states that the results of analysis performed on their product demonstrated levels below 0.5 ppt (Appendix 7) corresponding to 0.5 pg/g. The similarity of the results (0,18 pg/g) obtained for Vitae caps product and ADM allow supporting the substantial equivalence.

Herbicides and Pesticides

The possible contaminants such as, organochloride and organophosphorus were analyzed and were under the detection limits allowing levels inferior to pharmacopea limits for such product family (see Appendix 10).

6.2 Heavy Metals

Heavy metals were evaluated in one batch and the sum is under 10 ppm. (See Appendix 11). This value is similar to the one presented by ADM according the already cited SCF Opinion⁽¹¹⁾ and the technical summary presented in Appendix 5 of this document (10 ppm). Thus a specific determination was performed for Cadmium, Arsenic, Mercury and Lead: all the obtained values are under 0.1 ppm that is inferior to the maxima accepted value (determined in Annex 1, Section 3 of the Commission Regulation (EC) No 466/2001 of 8 March 2001 setting maximum levels for certain contaminants in foodstuffs³¹).

6.3 Organic Solvents

The obtained value for the solvent used during the manufacturing process (methanol and acetone) are under 10 ppm that is similar to the values presented by ADM in SCF Opinion⁽¹¹⁾. (See Appendix 12). These values comply with Council Directives 88/344/EEC⁽²⁸⁾ and 92/115/EEC⁽²⁹⁾ and Directive 94/52 EC⁽³⁰⁾ on the approximation of the laws of the Member States on extraction solvents used in the production of foodstuffs and food ingredients.

6.4 Biological Contaminants

Aflatoxins are toxic metabolites produced by certain fungi in/on foods and feeds. Aflatoxins have received greater attention than any other mycotoxins because of their demonstrated potent carcinogenic effect in susceptible laboratory animals and their acute toxicological effects in humans. As it is realized that absolute safety is never achieved, many countries have attempted to limit exposure to aflatoxins by imposing regulatory limits on commodities intended for use as food and feed⁽³¹⁾.

The obtained value (See Appendix 13) complies with the maximum level of 4 ppm stated for “cereal product intended for direct human consumption or use as an ingredient in foodstuffs”⁽³¹⁾.

6.5 Microbiological contamination

The microbiological quality contamination is one of the specifications of the product and was stated at less than 100 CFU/ without any pathogenic organism. Several batches were analyzed and demonstrated satisfactory results showing the good control of the whole process (See appendix 15).

This high microbiological quality ensures that the incorporation of Lipofoods’ product in further manufacturing process is safe.

7-OTHER RELEVANT DATA

7.1 Labelling

The labelling of the product will be done in accordance with the commission regulation 608/2004 of 31 march 2004 concerning the labelling of food with added phytosterols⁽³²⁾ and more specifically to article 2 of this regulation.

The importance of the consumer information is focused within this regulation, in order to avoid excessive intake of additional phytosterols /phytostanols and inform the consumer that the product is intended exclusively for people who want to lower their plasmatic cholesterol level. It is also important to inform consumers that the product may not be nutritionally appropriate for pregnant and breastfeeding women and children under the age of five years and that the consumption of more than 3 g/day of added plant sterols/plant stanols should be avoided.

7.2 Toxicological assessment

The SCF stated on the safety of phytosterols esters as novel food ingredient, especially for yellow fat enriched spread (SCF, 2000)⁽¹⁵⁾ and other products (SCF, 2002)⁽²⁵⁾.

Thus, the Scientific Committee on Food, in its opinion for “an application from Multibene for Approval of plant-sterol enriched foods”⁽¹³⁾ that “*The available toxicological data on phytosterol esters are considered relevant for the evaluation of free sterols*”.

As a substantially equivalence is claimed, the safety doesn't have to be demonstrated because it was already published by the first Novel food Applicants^(2,33,34).

However a brief bibliographical overview of the important points concerning long term safety is performed here below in order to assess the toxicological status of the product.

- The oral absorption of a radiolabelled samples of phytosterol has been demonstrated as very low in rats, thus permitting to consider the systemic effect as very low⁽³⁵⁾.

- Using no-observed-adverse-effect-level (NOAEL) methodology, no sub chronic toxicity was evidenced after daily oral administration for 90 days into rats. This was equivalent to a dose of 4.1 g/kg/day phytosterol⁽³⁶⁾
- No effects were observed on the reproductive system⁽³⁷⁾ and no major abnormalities in growth, food and water consumption, routine haematological and clinical chemistry values, composition of the urine, appearance of the faeces, oestrus cycle length, organ weights and histopathological findings⁽³⁸⁾ The absence of oestrogenic activity was demonstrated⁽³⁹⁾.
- The absence of adverse effects was demonstrated on reproduction and foetus development on one⁽⁴⁰⁾ and two generations⁽⁴¹⁾
- An in vitro mammalian cell gene mutation assay and two in vivo mutagenicity studies, namely rat bone marrow micronucleus and liver unscheduled DNA synthesis assays shows the absence of genotoxicity⁽⁴²⁾

The Material Safety Datasheet is presented in Appendix 14 of this document.

All the precedent studies were performed on animals. The SCF evaluated the data of the first Novel Food Application and concluded that the human consumption of sterols up to 3 grams per day was safe.

To this date, the long term effects of the intakes of phytosterols are not known.

A particular concern must be made on the possible consumption of the product by pregnant women and lactating women and also by young children^(15, 25)

The assessment made by the European Scientific Committee on Food upon ADM⁽¹⁰⁾ consider the product to be safe, and this conclusion can be applied to Lipofoods' product because it is identical in term of specification, quality, purity and daily dose (with a maximum of 3g/day).

8-BIBLIOGRAPHY

- (1) Regulation 258/97 of the European Parliament and of the Council of 27 January 1997 concerning Novel Foods and Novel Food Ingredients. *OJ 43; 14.2.1997*
- (2) Commission Decision 2000/500/EC 24 July 2000 authorizing the placing on the market of "yellow fat spreads with added phytocholesterol esters".
- (3) Decision 2004/333/CE of 31 March 2004 authorizing the placing on the market of yellow fat spreads, salad dressings, milk type products, fermented milk type products, soya drinks and cheese type products with added phytosterols/phytostanols as novel foods or novel food ingredients under Regulation (EC) No 258/97 of the European Parliament and of the Council.
- (4) Decision 2004/334/CE of 31 March 2004 authorizing the placing on the market of yellow fat spreads, milk type products, yoghurt type products, and spicy sauces with added phytosterols/phytostanols as novel foods or novel food ingredients under Regulation (EC) No 258/97 of the European Parliament and of the Council.
- (5) Decision 2004/335/CE of 31 March 2004 authorizing the placing on the market of milk type products and yoghurt type products with added phytosterol esters as novel food ingredients under Regulation (EC) No 258/97 of the European Parliament and of the Council.
- (6) Decision 2004/336/CE of 31 March 2004 authorizing the placing on the market of yellow fat spreads, milk based fruit drinks, yoghurt type products and cheese type products with added phytosterols/phytostanols as novel foods or novel food ingredients under Regulation (EC) No 258/97 of the European Parliament and of the Council.
- (7) Decision 2004/845 of 12 November 2004 authorizing the placing on the market of milk based beverages with added phytosterols/phytos-tanols as novel foods or novel food ingredients under Regulation (EC) No 258/97 of the European Parliament and of the Council

- (8) Decision 2006/58 of 24 January 2006 authorizing the placing on the market of rye bread with added phytosterols/phytostanols as novel foods or novel food ingredients under Regulation (EC) No 258/97 of the European Parliament and of the Council
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