Delphic HSE Solutions Ltd

Cosmetic Product Safety Assessment

BS674 Bondi Sands Eye Spy Vitamin C Eye Cream

PRODUCT DETAILS

Type of Product: Eye Contour Care (Ficheux et al.) | Leave On

Physical Form: Liquid, Cream

Client: Bondi Sands Pty Ltd.
Suite 11, 574 Plummer Street,
Port Melbourne, Victoria
Australia 3207

Product Reference
FORMULA CODE : NBC12198E

PHYSICAL / CHEMICAL CHARACTERISTICS

Appearance:	Golden yellow shimmer smooth cream	**Viscosity:**	42,000 cPs
Odour:	Characteristic	**Water Solubility:**	Not Provided
Melting Point:	Not Provided	**Log Kow:**	Not Provided
pH:	5.0 - 5.5	**Particle Size:**	Not Provided
Specific Gravity:	Not Provided		

The physical-chemical data supplied for review suggests it would be unlikely to significantly contribute to the toxicological profile of the product under normal conditions of use.

MICROBIOLOGICAL SPECIFICATIONS

TVC: ≤100 cfu/g (Under 3, Eye Area, Mucous Membrane)
≤1000 cfu/g (All other products)

Specific Pathogens: Absent in test sample

Yeasts & Moulds: ≤10 cfu/g

Based on the documentation provided for review this product meets the recommended microbiological specifications, where

Total aerobic plate count < 100 cfu/ml

Manufacturer/responsible person must ensure that all batches are produced in line with these requirements.

Product underwent a 28-day challenge test in accordance with British Pharmacopoeia 2018 to determine the efficacy of its preservative system.

At the completion of testing the product was considered to fulfil the relevant criteria for an item of this nature, and can be considered to be adequately preserved.

PRODUCT PACKAGING & STABILITY

Product Stability: Overall, this product showed fairly stable results over the 12 weeks duration. The slight oil layer present across all temperature samples was not significant and would not be noticed when dispensing product from packaging. if concerned a shake before use statement can be added to pacaging to disperse oil within emulsion. The product also observed slight viscosity reduction in the 5C and 40C samples. This reduction in viscosity does not affect product dispensary and specifications are still within range.

Packaging Material: Cap: PP; Cap sheath: PP; Inner Layer- LDPE; Second Layer - Adhesive; Mid. Layer- EVOH; Fourth Layer- Adhesive; Outer Layer 20% PCR HDPE / LDPE; Tube Head/Shoulder: LLDPE

Details on the grades of material used in packaging manufacture have not been supplied for review, however materials of this nature have a generally good history of safe use. The manufacturer/responsible person must ensure that suitable grades of packaging material are used, and that they will not interact with the product in such a way as to pose a toxicological or microbiological risk to consumers.

Compatibility Testing: A 4-week compatibility test was carried out at 5°C, 25°C and 40°C. Any changes in appearance, colour, aroma/fragrance and general items were observed. No significant changes were noted during the course of testing. Overall, the product passed the compatibility testing. There is no packaging issues observed over 4 weeks. There was no separation of carrot oil and micas observed in this product after squeezing it out of the orifice of the tube.

Product Durability: Shelf life: 12 months; PAO: 6 months

FORMULATION OVERVIEW

The formulation below provides an overview of the composition, however the quantitative details have been redacted from the assessment and are held in confidence by Delphic HSE Solutions Ltd.

For information concerning the formulation of this product, please refer any enquiries to the manufacturer.

Ingredients	CAS Number
Aqua	7732-18-5
Glycerin	56-81-5; 8013-25-0
Caprylic/Capric Glycerides	85409-09-2; 73398-61-5
Cyclopentasiloxane	541-02-6
Vitis Vinifera (Grape) Seed Oil	84929-27-1; 8024-22-4; 85594-37-2
Polyacrylamide	38193-60-1; 9003-05-8
Cyclohexasiloxane	69430-24-6; 540-97-6
Dimethicone	9016-00-6; 9006-65-9; 63148-62-9; 141-62-8
Mica (CI 77019)	12001-26-2
Sodium Citrate	6132-04-3; 68-04-2
C13-14 Isoparaffin	246538-79-4; 64365-06-6; 64742-47-8 (generic)
Sodium Ascorbyl Phosphate	66170-10-3
Phenoxyethanol	56257-90-0; 37220-49-8; 122-99-6
CI 77891 (Titanium Dioxide)	1317-80-2 (Rutile); 13463-67-7; 1317-70-0 (Anatase)
Glycine Soja (Soybean) Oil	8001-22-7
Benzyl Alcohol	100-51-6; 1336-27-2; 185532-71-2
Laureth-7	68439-50-9; 3055-97-8; 9002-92-0
Citric Acid	77-92-9; 5949-29-1 (Citric Acid Monohydrate)
CI 77491 (Red / Brown Iron Oxide) (Pigment red 101)	1345-25-1 ; 1309-37-1; 1317-61-9 ; 1345-27-3; 52357-70-7 ; 90452-21-4; 1332-37-2
Daucus Carota Sativa (Carrot) Root Extract	84929-61-3
Terminalia Ferdinandiana Fruit Extract	1176234-54-0
Hydrogenated Starch Hydrolysate	68425-17-2
CI 75130 (Food Orange 5)	7235-40-7; 116-32-5
Propanediol	504-63-2; 26264-14-2
Erythritol	149-32-6; 7541-59-5
Tocopherol	1406-18-4; 10191-41-0; 1406-66-2; 2074-53-5; 59-02-9; 148-03-8; 119-13-1; 54-28-4
Coffea Arabica Seed Extract	84650-00-0
Lecithin	8030-76-0; 8002-43-5
Tin Oxide (CI 77861)	18282-10-5; 1332-29-2
Hibiscus Sabdariffa Fruit Extract	-
Sodium Benzoate	532-32-1
Aphanizomenon Flos-Aquae Extract	-
Potassium Sorbate	590-00-1; 24634-61-5; 24634-61-5
Helianthus Annuus (Sunflower) Seed Oil	8001-21-6; 164250-88-8

IMPURITIES & TRACE MATERIALS

Compositional information on traces and impurities have been redacted from this assessment and are held in confidence by Delphic HSE Solutions.

Where necessary, for legal or safety reasons, the presence of any materials of concern is discussed in page 4 of this report.

For information concerning the formulation of this product, please refer any enquiries to the manufacturer.

EXPOSURE SCENARIO

Intended Consumer:	Adult Males & Females (16+)
Single Exposure:	480 mg | 2 x per Day
Retention Factor:	1

Exposure to Neat Product:

Body Site(s):	Eye Area; Fingertips
Surface Area:	33 cm^2
Exposure Level:	29.091 mg/cm^2
Exposure Time:	Left on

Minimum Expected Body Weight	60kg
Diluted in use:	No
Retained Exposure:	16.000 mg/kg/day

Exposure to Diluted Product: Product Not Diluted in Use

Manufacturers Instructions for Use

Keep out of direct sunlight or other sources of strong light.
Product to be stored between 5 - 28 degrees.
Discontinue use if irritation occurs.
Subtle variations in appearance and texture of this product in no way affect its integrity.

Information on Previous Sales / Complaints

Details of previous sales and complaints data has not been supplied for review. This assessment is, therefore, completed on the assumption that no previous health-related complaints have been reported by consumers. If this is incorrect the manufacturer/responsible person must notify Delphic HSE of all such reported complaints so that the assessment can be updated.

Going forward the manufacturer/responsible person must ensure that details of any concerns or complaints relating to consumer safety and adverse health effects are provided to Delphic HSE so that the safety assessment can be updated accordingly.

Information on User Trials / Product Testing

The finished product has been tested for its heavy metal content (ALS CoA reference no: FS2163485) with the results obtaind as follow: Arsenic < 5ppm, Cadmium < 5ppm, Lead < 20ppm, Mercury < 1ppm.

Specific exposures to the product and its ingredients have been reviewed as part of the safety assessment, however the quantitative information on composition and ingredient exposure, along with information relating to traces and impurities, have been redacted from this Safety Assessment for confidentiality reasons.

For information concerning the formulation of this product, please refer any enquiries to the manufacturer.

Product Review

A formulation of eye cream intended for use by adults, for distribution to EU, UK, US, Australia, New Zealand, Canada, South Africa and Israel.

No Observed Adverse Effect Levels (NOAELs), or other suitable Points of Departure (PoD) were not available for review for some of the materials. For those materials where a Margin of Safety (MoS) was not derived this is due to either a history of safe use at similar levels in cosmetic products related to the product under review, lack of biological activity or for a reason explained in the individual ingredient toxicological summary in Annex II. For those substances where suitable PoDs were available, the resultant MoS are above the typical recommended values (see Preface to Annexes).

A number of materials have recommended safe levels in percentage terms, as established by bodies such as the Scientific Committee on Consumer Safety (SCCS) or Cosmetic Ingredients Review (CIR) expert panel, or legal limits that are described in percentage terms. All such materials are present at or below the recommended safe levels or legal maximums, as indicated by the relevant entries in Annex II.

This product contains Cyclopentasiloxane (D5), which is currently restricted to a maximum of 0.1% in wash-off Cosmetic Products under EU REACH Regulations (1907/2006, as amended). Although not currently restricted in other Cosmetic Products, the ECHAs RAC (Risk Assessment Committee) & SEAC (Socio-Economic Analysis Committee) have issued a joint opinion indicating that the material should be restricted to 0.1% in all Cosmetic Products. Legislation to that effect is currently being drafted, and is expected to be published in the upcoming months. The legal compliance of this product will, therefore, require careful monitoring going forward and reformulation in line with published enforcement dates may be required.

Cyclopentasiloxane (D5) is present at significant amounts in the formulation. The SCCS have stated in their latest opinion (SCCS/1549/15) that the level of impurity of Cyclotetrasiloxane (D4) should be kept as low as possible (eg. grade of >99% purity should be used). The manufacturer shall ensure these ingredients would meet the required standard.

Product contains Polyacrylamide, manufacturer must make sure that the maximum residual acrylamide content is 0.1 mg/kg.

It should be noticed that the full refining history of C13-14 Isoparaffin must be known and they must be certified as being non-carcinogenic.

Phenoxyethanol, Benzyl Alcohol and Potassium Sorbate are permitted preservative to be used in EU, UK and New Zealand Cosmetic and not prohibited to be used in Australia, US, Canada or Israel cosmetic, and their levels are within the the regulatory limit, thus they are not expected to pose undue health risk to the user.

The he ratio between Acceptable Exposure LeveL (AEL) and Consumer Exposure Level (CEL) of Benzyl Alcohol is lower than the recommended level of 1, that is based on a POD of 1000 µg/cm2 with a SAF of 100, as this ingredient was a well known allergen. However, the EU cosmetic regulation has controlled this chemical at up to 1% as a preservative. Hence, the presence of Benzyl Alcohol at the current concentration is considered low risk. Nevertheless, a precautionary warning such as "Stop using this product if you develop redness or itching" is recommended to protect the sensitive individuals.

The product contains a variety of botanical extracts and oils. Due to their low levels incorporated into this product and the usage nature of the product, it is considered unlikely to pose an undue risk of significant adverse effects to health under normal conditions of use.

The Responsible Person must ensure that all raw materials are of suitably safe EU, UK, US, Australia, New Zealand, Canada, South Africa and Israel cosmetic grade.

Overall, assuming suitable grades of material are used during manufacture and the product is labelled appropriately, this item can be considered safe for the intended use. It would not be expected to pose a significant risk of adverse effects in a majority of individuals and would be expected to provide consumers with the level of safety they might reasonably expect from a product of this nature.

* Some of the ingredients are not listed on some national inventories (see Annex I) and may require further notification prior to exporting the product. It is recommended to first contact the raw material supplier(s), to check the registration process of this ingredient. Eventually, the relevant authorities should be consulted.

Skin Toxicity - Neat Product

Not expected to cause skin irritation following prolonged or repeated use
Exposure to this product is unlikely to result in photo-toxic effects.
Unlikely to cause sensitisation following repeated skin contact.
Unlikely to produce systemic toxicity following skin contact.

Eye Toxicity - Neat Product

May cause slight transient eye irritation.

Oral Toxicity - Neat Product

All materials if swallowed in large amounts have the potential to cause injury.
If incidentally swallowed in small amounts, the formulation as supplied is unlikely to cause any adverse effects.
Not expected to produce systemic toxicity following ingestion. All materials if swallowed in large amounts have the potential to cause injury.

Inhalation Toxicity

It is unlikely that inhalation will be a route of exposure.

Required Safety Labelling

Stop using this product if you develop redness or itching.

Overall Safety & Compliance

Under normal or reasonably foreseeable conditions of use, a product made to this formulation is unlikely to produce an abnormally high number of adverse reactions. Assuming the necessary warnings stated in the safety assessment are included on the product packaging it will give consumers the level of safety they can reasonably expect.

This product complies with the requirements of the EU Cosmetic Regulation (EC) No 1223/2009. The product must be manufactured according to Good Manufacturing Practice.

This product complies with the requirements set out in Regulation 37, Schedule 34 of the Product Safety and Metrology (Amendment) (EU Exit) Regulation 2020. The product must be manufactured according to Good Manufacturing Practice.

The ingredients are legally permitted as per the Federal Food, Drug, and Cosmetic Act (FD&C Act - CFR21) and its amendments. They must comply with the relevant purity standards. The product must be manufactured in accordance with FD&C guidance on Good Manufacturing Practice.

None of the ingredients present in the formulation are listed in the State of California Proposition 65 Inventory.

This product complies with the requirements set out in the Hazardous Substances and New Organisms Act 1996: Cosmetic Products Group Standard 2006. To the best of our knowledge none of the ingredients included in this product are prohibited for use in Cosmetics within New Zealand. Any fragrances used within a Cosmetic Product intended for sale in NZ must comply with IFRA Guidelines.

This product meets the requirements of the Australian Department of Health, Australian Industrial Chemicals Introduction Scheme (AICIS) and the Therapeutic Goods (Excluded Goods) Determination 2018.

It is understood that Israel follow the EU in terms of restrictions on ingredients that are used in Cosmetics. This product complies with the requirements of the EU Cosmetic Regulation (EC) No 1223/2009. The product must be manufactured according to Good Manufacturing Practice.

South Africa follows the general EU Requirements in terms of safety and allowable materials in an industry initiative controlled by the South African Cosmetics Industry Association. As this product complies with the EU Cosmetics Regulation EC No. 1223/2009 , this product is considered acceptable for sale in South Africa. Additional Registration may be required before sale and it is recommended to contact the local authorities before placing the item on the market.

The ingredients are legally permitted according to the Health Canada's List of Prohibited and Restricted Cosmetic Ingredients (The Cosmetic Ingredient "Hotlist") 2005 as amended, and must comply with the regulatory requirements of the Food and Drugs Act, R.S.C. 1985, c.F-27, Cosmetic Regulations (C.R.C., c. 869) as amended, and the Consumer Packaging and Labelling Act. The product must be made in accordance with Canadian Good Manufacturing Practices.

The formulation contains ingredients which are subject to future regulatory controls. The product is currently compliant, however, the situation will need to be monitored going forward to ensure compliance

Toxicological & Regulatory Assessor

Jerry Yu, BSc (Hons), MSc, AMRSB 14 Dec 2021

This report consists of 5 pages plus a Regulatory, Ingredient Data, Allergens & Exposure Annex. It is only valid as the original, complete document.

Preface to Annexes

Annex II - Ingredient Data

Physical/Chemical and Toxicological data presented within these reviews are representative of publicly available data and provided for informational purposes only. Sources of data are identified (typically in brackets) following each data point, and there may be multiple data points for any given toxicological endpoint.

Margins of Safety (MoS) are calculated where suitable data are available, and may related to mg/kg, µg/cm^2 or percentage-based indications of safety.

MoS based on systemic (mg/kg) effects are calculated as 'Point of Departure (PoD)' / 'Systemic Exposure Dose (SED)', where:

PoD = Data point considered to be indicative of a 'safe' level of exposure. This may be an animal-derived No Observed Adverse Effect Level (NOAEL) or a value indicated as being safe to humans. In the case of the latter this would typically be in the form of an ADI (Acceptable Daily Intake) or DNEL (Derived No Effect Level) established by a governmental or scientific committee / body.

SED = (Product Used (mg) x Retention Factor x Concentration of Material in Product x Dermal Absorption) / intended user body weight (kg)

In the absence of material specific data a dermal absorption of 100% is assumed.
Where an animal-derived NOAEL is used as the PoD an MoS greater than 100 is typically considered acceptable for indicating safety to consumers.
For PoD based on established safe levels in humans an MoS of greater than 1 is typically considered as acceptable for indicating safety to consumers.

MoS based on localised (µg/cm^2) effects are calculated as 'Point of Departure (PoD)' / 'Dermal Exposure', where:

PoD = Data point considered to be indicative of a 'safe' level of exposure. This would typically be a µg/cm^2 value identified from either a Local Lymph Node Assay (LLNA) or Human Repeat Insult Patch Test (HRIPT).

Dermal Exposure = (Product Used (µg) x Retention Factor x Concentration of Material in Product) / Surface Area of Application

MoS based on percentage data are calculated as 'Point of Departure PoD' / 'Ingredient Concentration in Product', where:

PoD = Data point considered to be indicative of a 'safe' level of exposure. Typically a percentage identified as safe for use within a leave-on consumer product, as established by legislation or by a governmental or scientific committee / body.

Ingredient Concentration in Product = Concentration of Material in Finished Product x Retention Factor
(As safe levels are typically identified for leave-on products the retention factor is included within the calculation to account for use in rinse-off products)
For PoD based on established safe levels in finished products an MoS of greater than 1 is typically considered as acceptable for indicating safety to consumers.

Retention Factor is an estimation of the amount of product in prolonged contact with the skin under normal conditions of use, and expressed as the decimal form of a percentage. A retention factor of 1 relates to 100% of the product staying in prolonged contact with the skin and is typically used for all leave-on products. All other products have retention factors as determined by typical conditions of use, and these are presented under 'Exposure Scenario'.

Annex III - Allergen Levels

This annex details the total levels of individuals allergens within the finished product, either from direct addition to the product or as part of fragrances and essential oils. Information is provided in both percentage and ug/cm^2 terms.

Indicative Toxicological Data is provided for each allergen where available and may include:

Research Institute for Fragrance Materials No Effect Level (RIFM NEL, indicated as a percentage)
Patch Test Concentration (percentage)
Buehler Test
Guinea Pig Maximisation Test
Human Repeat Insult Patch Test (HRIPT, in either percentage or ug/cm2)
Human Repeat Open Application Test (HROAT, in either percentage or ug/cm2)
Human Maximisation Test (HMT, in either percentage or ug/cm2)

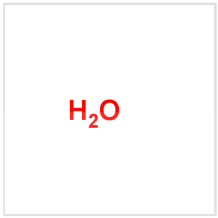
Annex IV - Foreseeable Exposures

This annex details additional exposure scenarios identified during the safety assessment as being reasonably foreseeable under normal conditions of use.

For the purposes of the safety assessment all MoS are calculated based on the intended product use, and any comments or concerns relating particularly to additional exposure scenarios is detailed in the Reasoning or Toxicological & Regulatory Review portions the assessment.

ANNEX I - REGULATORY CONTROLS

Substance: Aqua
CAS: 7732-18-5
Function: Solvent



Regulatory Listings

Europe:

EINECS:	231-791-2
EU GHS Classification:	Unclassified
REACh Annex XVII:	Not Controlled
REACh SVHC:	Not Controlled
EU Cosmetic Regulation:	Not Controlled
EU INCI Name:	Aqua
EN71 Toy Standards:	EN71 - 7 and EN71 - 9 Not Controlled
EU Toy Directive:	Not Controlled
EU Biocides Regulation:	Not Registered for any Biocidal Uses
EU Detergents Regulation:	Not Controlled

United Kingdom

UK Cosmetic Regulation:	Not Controlled
UK Toy Legislation:	Not Controlled

Australia

AICIS Inventory:	Listed
Inventory Obligations:	Not Listed
SUSMP:	Not Listed
Cosmetic Regulation:	Not Controlled
TGA Controls:	POTABLE WATER - Listed as an excipient under Therapeutic Goods (Permissible Ingredients) Determination (No. 1) 2020, Volume 5, entry 4053. PURIFIED WATER - Listed as an excipient under Therapeutic Goods (Permissible Ingredients) Determination (No. 1) 2020, Volume 5, entry 4202.

Canada

DSL:	Listed on the Canadian DSL
WHMIS:	Listed. Not controlled as Hazardous according to WHMIS
Cosmetic Regulation:	Not Controlled
OTC Monographs:	Not Controlled

New Zealand

Cosmetic Regulation:	Not Controlled

South Africa

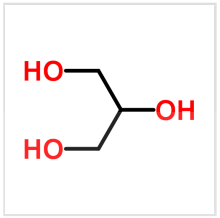
Cosmetic Regulation:	Not Controlled

USA

Chemical Inventory:	Listed as existing; Water
California Prop 65:	Not Listed
Cosmetic Regulation:	Water Not Controlled

ANNEX I - REGULATORY CONTROLS

Substance: Glycerin
CAS: 56-81-5; 8013-25-0
Function: Denaturant; Humectant; Hair Conditioning; Oral Care; Perfuming; Skin Protecting; Viscosity Controlling



Regulatory Listings

Europe:

EINECS:	200-289-5
EU GHS Classification:	Not Classified (self-classification)
REACh Annex XVII:	Not Controlled
REACh SVHC:	Not Controlled
EU Cosmetic Regulation:	Not Controlled
EU INCI Name:	Glycerin
EN71 Toy Standards:	Special additive for liquid adhesives for paper and wood as per EN71-5. Ingredient used in the manufacture of finger paints per EN71 -7. Not listed in EN71-9.
EU Toy Directive:	Not Controlled
EU Biocides Regulation:	Not Registered for any Biocidal Uses
EU Detergents Regulation:	Not Controlled

United Kingdom

UK Cosmetic Regulation:	Not Controlled
UK Toy Legislation:	Not Controlled

Australia

AICIS Inventory:	Listed as 1,2,3-Propanetriol (CAS No. 56-81-5)
Inventory Obligations:	HPV substance identified as low concern to human health by application of expert validated rules
SUSMP:	Not Listed
Cosmetic Regulation:	Not Controlled
TGA Controls:	GLYCEROL - Listed as active ingredient and excipient under Therapeutic Goods (Permissible Ingredients) Determination (No. 1) 2020, Volume 3, entry 2359. When used as an active ingredient, it is only for use in topical medicines for dermal application.

Canada

DSL:	Listed on the Canadian DSL
WHMIS:	Not Listed as Hazardous according to WHMIS
Cosmetic Regulation:	Manufacturers of oral and leave-on products containing glycerin must ensure the raw material used is within the specifications of an accepted pharmacopoeia with respect to diethylene glycol (DEG) impurities (e.g. Glycerin Official Monograph in the most current edition of the USP).
OTC Monographs:	Not Controlled

New Zealand

Cosmetic Regulation:	Not Controlled

South Africa

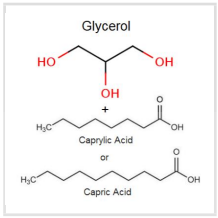
Cosmetic Regulation:	Not Controlled
	Not Controlled

USA

Chemical Inventory:	Listed as existing; 1,2,3-Propanetriol
California Prop 65:	Not listed
Cosmetic Regulation:	Glycerin
	Not Controlled

ANNEX I - REGULATORY CONTROLS

Substance: Caprylic/Capric Glycerides
CAS: 85409-09-2; 73398-61-5
Function: Emollient; Emulsifying; Skin conditioning



Regulatory Listings

Europe:

EINECS:	287-075-5; 277-452-2
EU GHS Classification:	Not classified (self-classified)
REACh Annex XVII:	Not lsited
REACh SVHC:	Not lsited
EU Cosmetic Regulation:	Not controlled
EU INCI Name:	Caprylic/Capric Glycerides

United Kingdom

UK Cosmetic Regulation:	Not controlled

Australia

AICIS Inventory:	Listed
Inventory Obligations:	Not Controlled
SUSMP:	Not Controlled
Cosmetic Regulation:	Not controlled

Canada

DSL:	Listed
WHMIS:	Not listed
Cosmetic Regulation:	Not controlled

New Zealand

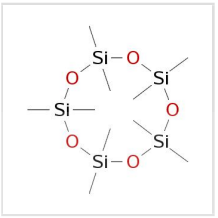
Cosmetic Regulation:	Not controlled

USA

Chemical Inventory:	Listed
California Prop 65:	Not Listed
Cosmetic Regulation:	Caprylic/Capric Glycerides Not controlled

ANNEX I - REGULATORY CONTROLS

Substance: Cyclopentasiloxane
CAS: 541-02-6
Function: Emollient; Hair Conditioning; Skin Conditioning; Solvent



Regulatory Listings

Europe:

EINECS: 208-764-9

EU GHS Classification: Not Classified (self-classified)

REACh Annex XVII: Entry 70: (1) Shall not be placed on the market in wash-off cosmetic products in a concentration equal to or greater than 0,1 % by weight of either substance, after 31 January 2020. (2) For the purposes of this entry, "wash-off cosmetic products" means cosmetic products as defined in Article 2(1)(a) of Regulation (EC) No 1223/2009 that, under normal conditions of use, are washed off with water

REACh SVHC: PBT (Article 57d), vPvB (Article 57e) (added 27/06/2018) (if ≥ 0.1 % w/w D4)

EU Cosmetic Regulation: Not Controlled in cosmetic regulation, but controlled under REACH:
Shall not be placed on the market in wash-off cosmetic products in a concentration equal to or greater than 0,1 % by weight of either substance, after 31 January 2020.
As per CHAs RAC & SEAC's joint opinion (RES-O-0000006700-80-01/F), D4 and D5 should be restricted to 0.1% in all Cosmetic Products in foreseeable future.

EU INCI Name: Cyclopentasiloxane

EN71 Toy Standards: Not listed in EN71 part 7 or 9

EU Toy Directive: Not Controlled

United Kingdom

UK Cosmetic Regulation: Not Controlled in cosmetic regulation, but controlled under REACH:
Shall not be placed on the market in wash-off cosmetic products in a concentration equal to or greater than 0,1 % by weight of either substance, after 31 January 2020.
As per CHAs RAC & SEAC's joint opinion (RES-O-0000006700-80-01/F), D4 and D5 should be restricted to 0.1% in all Cosmetic Products in foreseeable future.

UK Toy Legislation: Not Controlled

Australia

AICIS Inventory: Listed

Inventory Obligations: Not Listed

SUSMP: Not Listed

Cosmetic Regulation: Not controlled

Canada

DSL: Listed

WHMIS: Not Listed as Hazardous according to WHMIS

Cosmetic Regulation: Not Controlled

OTC Monographs: Not Controlled

New Zealand

Cosmetic Regulation: Not controlled

South Africa

Cosmetic Regulation: Not controlled

USA

Chemical Inventory: Listed

California Prop 65: Not listed

Cosmetic Regulation: Cyclopentasiloxane
Not Controlled

ANNEX I - REGULATORY CONTROLS

Substance: Vitis Vinifera (Grape) Seed Oil
CAS: 84929-27-1; 8024-22-4; 85594-37-2
Function: Emollient; Skin conditioning

Regulatory Listings

Europe:

EINECS:	287-896-9; 284-511-6
EU GHS Classification:	Not Classified (self-classified)
REACh Annex XVII:	Not Controlled
REACh SVHC:	Not Controlled
EU Cosmetic Regulation:	Not controlled
EU INCI Name:	Vitis Vinifera Seed Oil

United Kingdom

UK Cosmetic Regulation:	Not controlled

Australia

AICIS Inventory:	Listed
Inventory Obligations:	Not listed
SUSMP:	Not listed
Cosmetic Regulation:	Not controlled

Canada

DSL:	Listed
WHMIS:	Not listed
Cosmetic Regulation:	Not controlled

New Zealand

Cosmetic Regulation:	Not controlled

South Africa

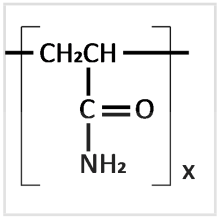
Cosmetic Regulation:	Not controlled

USA

Chemical Inventory:	Not Listed
California Prop 65:	Not listed
Cosmetic Regulation:	Vitis Vinifera (Grape) Seed Oil Not controlled

ANNEX I - REGULATORY CONTROLS

Substance: Polyacrylamide
CAS: 38193-60-1; 9003-05-8
Function: Film Forming; Antistatic; Binding



Regulatory Listings

Europe:

EINECS:	-
EU GHS Classification:	Not Classified (self classified by 406 of 470 notifiers under REACH)
REACh Annex XVII:	Not Controlled
REACh SVHC:	Not Controlled
EU Cosmetic Regulation:	Annex III item 66: Body-care, Leave-on Products: Maximum residual acrylamide content 0.1 mg/kg; Other products Maximum residual acrylamide content 0.5 mg/kg
EU INCI Name:	Polyacrylamide
EN71 Toy Standards:	EN71-5: Special additives for adhesives for paper and wood (Table 7) EN71-9: Migration limit for acrylamide monomers (Table 2D)
EU Toy Directive:	Not Controlled
EU Biocides Regulation:	Not registered for any Biocidal uses
EU Detergents Regulation:	Not controlled

United Kingdom

UK Cosmetic Regulation:	Annex III item 66: Body-care, Leave-on Products: Maximum residual acrylamide content 0.1 mg/kg; Other products Maximum residual acrylamide content 0.5 mg/kg
UK Toy Legislation:	Not Controlled

Australia

AICIS Inventory:	Listed
Inventory Obligations:	Listed
SUSMP:	Listed in Schedule 4 (Prescription Only Medicine, or Prescription Animal Remedy) POLYACRYLAMIDE in preparations for injection or implantation: (a) for tissue augmentation; or (b) for cosmetic use.
Cosmetic Regulation:	Body-care, Leave-on Products: Maximum residual acrylamide content 0.1 mg/kg; Other products Maximum residual acrylamide content 0.5 mg/kg
TGA Controls:	Listed as an excipient under Therapeutic Goods (Permissible Ingredients) Determination (No. 1) 2020, Volume 5, entry 3953. Only for use in topical medicines for dermal application.Acrylamide is a mandatory component of Polyacrylamide. The concentration of Acrylamide in the medicine must be no more than 0.01%.

Canada

DSL:	Listed
WHMIS:	Not Listed as Hazardous according to WHMIS
Cosmetic Regulation:	Not controlled
OTC Monographs:	Not Controlled

New Zealand

Cosmetic Regulation:	Body-care, Leave-on Products: Maximum residual acrylamide content 0.1 mg/kg; Other products Maximum residual acrylamide content 0.5 mg/kg

South Africa

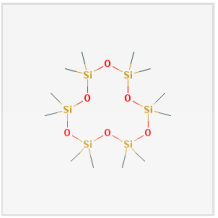
Cosmetic Regulation:	Body-care, Leave-on Products: Maximum residual acrylamide content 0.1 mg/kg; Other products Maximum residual acrylamide content 0.5 mg/kg

USA

Chemical Inventory:	Listed as 9003-05-8 and 38193-60-1
California Prop 65:	Not listed
Cosmetic Regulation:	Polyacrylamide Not controlled

ANNEX I - REGULATORY CONTROLS

Substance: Cyclohexasiloxane
CAS: 69430-24-6; 540-97-6
Function: Emollient; Hair conditioning; Skin conditioning; Solvent



Regulatory Listings

Europe:

EINECS:	208-762-8
EU GHS Classification:	Not Classified (self-classified)
REACh Annex XVII:	Not Controlled
REACh SVHC:	PBT (if ≥ 0.1 % w/w D4); vPvB (if ≥ 0.1 % w/w D5 or D4)
EU Cosmetic Regulation:	Not Controlled
EU INCI Name:	Cyclohexasiloxane
EN71 Toy Standards:	Not listed in EN71 part 7 or 9
EU Toy Directive:	Not Controlled

United Kingdom

UK Cosmetic Regulation:	Not Controlled
UK Toy Legislation:	Not Controlled

Australia

AICIS Inventory:	Listed on AICS
Inventory Obligations:	Not listed as a HPV Substance
SUSMP:	Not Controlled
Cosmetic Regulation:	Not Controlled

Canada

DSL:	Listed
WHMIS:	Not Listed as Hazardous according to WHMIS
Cosmetic Regulation:	Not Controlled
OTC Monographs:	Not Controlled

New Zealand

Cosmetic Regulation:	Not controlled

South Africa

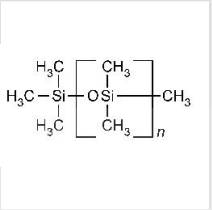
Cosmetic Regulation:	Not controlled

USA

Chemical Inventory:	Listed
California Prop 65:	Not Listed
Cosmetic Regulation:	Cyclohexasiloxane Not Controlled

ANNEX I - REGULATORY CONTROLS

Substance: Dimethicone
CAS: 9016-00-6; 9006-65-9; 63148-62-9; 141-62-8
Function: Antifoaming; Emollient; Skin Conditioning; Skin Protecting



Regulatory Listings

Europe:

EINECS:	-
EU GHS Classification:	Not Classified (self-classified)
REACh Annex XVII:	Not Controlled
REACh SVHC:	Not Controlled
EU Cosmetic Regulation:	Not Controlled
EU INCI Name:	Dimethicone
EN71 Toy Standards:	Not Controlled
EU Toy Directive:	Not Controlled
EU Biocides Regulation:	Not Controlled
EU Detergents Regulation:	Not Controlled

United Kingdom

UK Cosmetic Regulation:	Not Controlled
UK Toy Legislation:	Not Controlled

Australia

AICIS Inventory:	Listed as Siloxanes and silicones, dimethyl
Inventory Obligations:	Listed
SUSMP:	Listed in SUSDP Appendix B (Substances considered not to require control by scheduling)
Cosmetic Regulation:	Not Controlled
TGA Controls:	DIMETICONE 10; DIMETICONE 1000; DIMETHICONE 12500 - Listed as an excipient. DIMETICONE 20; DIMETICONE 50; DIMETICONE 100; DIMETICONE 200; DIMETICONE 360; DIMETICONE 450; DIMETICONE 5000 - Listed as an excipient. Only for use in topical medicines for dermal application. DIMETICONE 5 - Listed as an excipient. Only for use in topical medicines for dermal application. The concentration in the medicine must be no more than 10%. DIMETICONE 6; DIMETICONE 30; DIMETHICONE 4000 - Listed as an excipient. Only for use in topical medicines for dermal application and not to be included in medicines intended for use in the eye. The concentration in the medicine must be no more than 10% (for DIMETICONE 6), 4% (for DIMETICONE 30) and 3% (for DIMETHICONE 4000). DIMETICONE 1.5; DIMETICONE 2 - Listed as an excipient. Only for use in topical medicines for dermal application and not to be included in medicines for use in the eye or on damaged skin. The concentration in the medicine must not be more than 23% (for DIMETICONE 1.5) and 9.602% (for DIMETICONE 2). DIMETICONE 350 - Listed as an excipient. Only for use in topical and oral medicines. When used orally, the maximum daily dose must be no more than

Canada

DSL:	Listed
WHMIS:	Not Listed as Hazardous according to WHMIS
Cosmetic Regulation:	Not Controlled
OTC Monographs:	Not a Drug

New Zealand

Cosmetic Regulation:	Not Controlled

South Africa

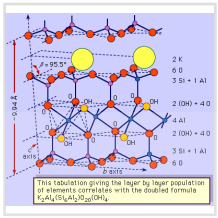
Cosmetic Regulation:	Not controlled

USA

Chemical Inventory:	Listed as 63148-62-9
California Prop 65:	Not listed
Cosmetic Regulation:	Dimethicone Not Controlled Not Controlled

ANNEX I - REGULATORY CONTROLS

Substance: Mica (CI 77019)
CAS: 12001-26-2
Function: Opacifying; Anticaking; Bulking; Cosmetic colouring



Regulatory Listings

Europe:

EINECS:	-
EU GHS Classification:	Not Classified (self-classified)
REACh Annex XVII:	Not Controlled
REACh SVHC:	Not Controlled
EU Cosmetic Regulation:	Not Controlled
EU INCI Name:	Mica
EN71 Toy Standards:	Not Controlled. Not listed in EN71 Parts 7 and 9
EU Toy Directive:	Not Controlled

United Kingdom

UK Cosmetic Regulation:	Not Controlled
UK Toy Legislation:	Not Controlled

Australia

AICIS Inventory:	Listed. Workplace controlled - respirable dust Limit 2.5 mg/m3 8hr TWA
Inventory Obligations:	Chemical identified as low concern to human health by application of expert validated rules under the NICNAS targeted tier I approach
SUSMP:	Not listed
Cosmetic Regulation:	This is controlled as part of the AICS listing. Workplace controlled - respirable dust Limit 2.5 mg/m3 8hr TWA. The concentration of medical OTC products is not to exceed 2.5%. The concentration in dental toothpastes must be no more than 0.5%.

Canada

DSL:	Listed
WHMIS:	Listed - Disclosure required at greater than 1%
Cosmetic Regulation:	Not controlled

New Zealand

Cosmetic Regulation:	Permitted pigment - schedule 6, table 2.

South Africa

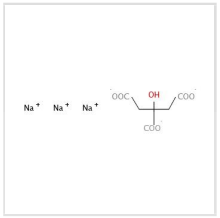
Cosmetic Regulation:	Not controlled

USA

Chemical Inventory:	Exempt: Naturally Occurring Substances in accordance with 40 CFR 710.4(b).
California Prop 65:	Not Listed
Cosmetic Regulation:	Mica Permitted Pigment - Eye Area, Generally (Includes Lipsticks) and External Use [73.2496] N.B. Pearlescent pigments based on coated Mica are NOT allowed in cosmetics in the USA [Letter to BASF Regarding Mica-Based Pearlescent Pigments dated February 5, 2007]

ANNEX I - REGULATORY CONTROLS

Substance: Sodium Citrate
CAS: 6132-04-3; 68-04-2
Function: Buffering; Chelating; Masking



Regulatory Listings

Europe:

EINECS:	200-675-3
EU GHS Classification:	Not Classified (self classified by 694 of 805 notifiers under REACH)
REACh Annex XVII:	Not Controlled
REACh SVHC:	Not Controlled
EU Cosmetic Regulation:	Not Controlled
EU INCI Name:	Sodium Citrate
EN71 Toy Standards:	Not listed in EN71 part 7 or 9. Listed in EN71 part 4 with a maximum amout as 600 g in crystal growing sets.
EU Toy Directive:	Not Controlled
EU Biocides Regulation:	Not Registered for any Biocidal Uses
EU Detergents Regulation:	Not Controlled

United Kingdom

UK Cosmetic Regulation:	Not Controlled
UK Toy Legislation:	Not Controlled

Australia

AICIS Inventory:	Listed under Cas# 68-04-2
Inventory Obligations:	Not Listed
SUSMP:	Not Listed
Cosmetic Regulation:	Not Controlled

Canada

DSL:	Listed
WHMIS:	Not Listed
Cosmetic Regulation:	Not Controlled
OTC Monographs:	Active ingredient for cough/cold - expectorant 21CFR310.545(a)(6)(iii), digestive aid - antacid 21CFR310.545(a)(8)(i), oral health care - tooth desensitizer

New Zealand

Cosmetic Regulation:	Not Controlled

South Africa

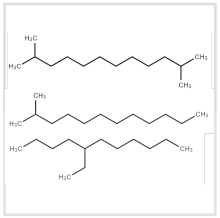
Cosmetic Regulation:	Not Controlled

USA

Chemical Inventory:	Listed as 68-04-2
California Prop 65:	Not listed
Cosmetic Regulation:	Sodium Citrate Not Controlled

ANNEX I - REGULATORY CONTROLS

Substance: C13-14 Isoparaffin
CAS: 246538-79-4; 64365-06-6; 64742-47-8 (generic)
Function: Solvent ; Emollient



Regulatory Listings

Europe:

EINECS:	-
EU GHS Classification:	H304: May be fatal if swallowed and enters airways.
REACh Annex XVII:	Not Listed
REACh SVHC:	Not Listed
EU Cosmetic Regulation:	Annex II/881: Alkanes, C12-26-branched and linear (Cas No 90622-53-0) prohibited, except if the full refining history is known and it can be shown that the substance from which it is produced is not a carcinogen
EU INCI Name:	C13-14 Isoparaffin
EU Biocides Regulation:	Not registered for any Biocidal uses
EU Detergents Regulation:	Not Controlled

United Kingdom

UK Cosmetic Regulation:	Annex II/881: Alkanes, C12-26-branched and linear (Cas No 90622-53-0) prohibited, except if the full refining history is known and it can be shown that the substance from which it is produced is not a carcinogen

Australia

AICIS Inventory:	Listed as Distillates, petroleum, hydrotreated light
Inventory Obligations:	Not Listed
SUSMP:	Not Controlled
Cosmetic Regulation:	Not Controlled
TGA Controls:	Listed excipient under Therapeutic Goods (Permissible Ingredients) Determination (No. 1) 2020, Volume 2, entry 1017. Only for use in topical medicines for dermal application.

Canada

DSL:	Listed under CAS 246538-79-4
WHMIS:	Not Listed as Hazardous according to WHMIS
Cosmetic Regulation:	Not Controlled

New Zealand

Cosmetic Regulation:	Not Controlled

South Africa

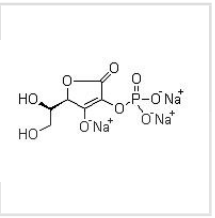
Cosmetic Regulation:	Not Controlled (but history of refining must be known)

USA

Chemical Inventory:	Listed under CAS 246538-79-4
California Prop 65:	Not listed
Cosmetic Regulation:	C13-14 Isoparaffin Not Controlled

ANNEX I - REGULATORY CONTROLS

Substance: Sodium Ascorbyl Phosphate
CAS: 66170-10-3
Function: Antioxidant



Regulatory Listings

Europe:

EINECS:	-
EU GHS Classification:	Not Classified (self-classified)
REACh Annex XVII:	Not Controlled
REACh SVHC:	Not Controlled
EU Cosmetic Regulation:	Not Controlled
EU INCI Name:	Sodium Ascorbyl Phosphate

United Kingdom

UK Cosmetic Regulation:	Not Controlled

Australia

AICIS Inventory:	Listed
Inventory Obligations:	Obligations (Secondary Notifications) to provide information apply. You must tell AICIS within 28 days if the circumstances of your importation or manufacture (introduction) are different to those in the assessment - STD/1010. - if any of the circumstances listed in the subsection of Section 64(2) of Industrial Chemicals (Notification and Assessment) Act 1989 arise. Conditions reported in the assessments are as follows: • imported as a raw cosmetic material for formulation in Australia • 2-5% in specialised skin care products for skin lightening;
SUSMP:	Not Listed
Cosmetic Regulation:	Secondary notification is needed for usage exceeding amounts reported in Assessment STD/1010: • 2-5% in specialised skin care products for skin lightening; • 0.5-2% in cosmetics as an antioxidant.

Canada

DSL:	Not listed
WHMIS:	Not listed
Cosmetic Regulation:	Not controlled

New Zealand

Cosmetic Regulation:	Not controlled

South Africa

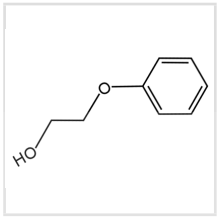
Cosmetic Regulation:	Not controlled

USA

Chemical Inventory:	Not listed in the Publicly accessible section of the TSCA Inventory under CAS 66170-10-3
California Prop 65:	Not listed
Cosmetic Regulation:	Sodium Ascorbyl Phosphate Not Controlled

ANNEX I - REGULATORY CONTROLS

Substance: Phenoxyethanol
CAS: 56257-90-0; 37220-49-8; 122-99-6
Function: Preservative



Regulatory Listings

Europe:

EINECS:	204-589-7
EU GHS Classification:	H302 (Acute tox. 4); H319 (harmonised classification)
REACh Annex XVII:	Not Controlled
REACh SVHC:	Not Controlled
EU Cosmetic Regulation:	Approved Preservative - Annex V/29 - Maximum 1% all Products (French Authority ANSM recommends Max 0.4% & not permitted in nappy area products. SCCS still considers 1% safe)
EU INCI Name:	Phenoxyethanol
EN71 Toy Standards:	EN71-5: Permitted in Embedding Sets, Adhesives, paints, lacquers, varnishes, thinners and cleaning agents (solvents) supplied or recommended in model sets ; EN71-7 Annex B Item 23: Approved Preservative, 1% in finger paints.
EU Toy Directive:	Not controlled
EU Biocides Regulation:	PT01, 02, 04 (Approval in progress) PT03 (Not approved) PT06,13 (Cancelled application)
EU Detergents Regulation:	Preservation agents shall be labelled, irrespective of their concentration

United Kingdom

UK Cosmetic Regulation:	Approved Preservative - Annex V/29 - Maximum 1% all Products (French Authority ANSM recommends Max 0.4% & not permitted in nappy area products. SCCS still considers 1% safe)
UK Toy Legislation:	Not controlled

Australia

AICIS Inventory:	Listed
Inventory Obligations:	Not Controlled
SUSMP:	Schedule 6 (Poison): 2-PHENOXYETHANOL except: (a) in cosmetic preparations containing 1 per cent or less of 2-phenoxyethanol; or (b) in other preparations containing 15 per cent or less of 2-phenoxyethanol.
Cosmetic Regulation:	Not controlled under Cosmetic Legislation if used at or below 1%, see AUS SUSMP. Schedule 6, Appendix E, Part 2; Appendix F, Part 3
TGA Controls:	Listed as PHENOXYETHANOL - Permissible excipient. Only for use in topical medicines for dermal application. The concentration of phenoxyethanol in the preparation must not exceed 15%.

Canada

DSL:	Listed
WHMIS:	Listed - D2B - Toxic Material Causing Other Toxic Effects - Eye irritation in animals
Cosmetic Regulation:	Not Controlled
OTC Monographs:	Not Controlled

New Zealand

Cosmetic Regulation:	Approved Preservative - Maximum 1% all Product

South Africa

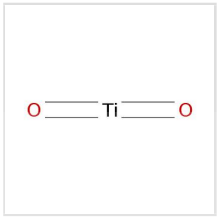
Cosmetic Regulation:	Controlled as per EU cosmetic regulation: Approved Preservative - Maximum 1% all Products as per EU

USA

Chemical Inventory:	Listed as 122-99-6
California Prop 65:	Not Listed
Cosmetic Regulation:	Phenoxyethanol Not Controlled

ANNEX I - REGULATORY CONTROLS

Substance: CI 77891 (Titanium Dioxide)
CAS: 1317-80-2 (Rutile); 13463-67-7; 1317-70-0 (Anatase)
Function: Cosmetic colorant; Opacifying; UV Absorber; UV filter



Regulatory Listings

Europe:

EINECS: 236-675-5; 215-280-1; 215-282-2

EU GHS Classification: Not Classified (self-classification, non-inhalable format)
H351 (harmonised classification, Index no. 022-006-00-2, in powder form containing 1 % or more of particles with aerodynamic diameter ≤ 10 µm)
Note 10: For mixtures, the classification as a carcinogen would apply when the mixture itself is in powder form and contains 1% or more of Titanium dioxide which is in the form of or incorporated in particles with aerodynamic diameter ≤ 10 µm.
For liquid mixtures containing 1 % or more of Titanium dioxide particles with aerodynamic diameter equal to or below 10 µm: EUH211
For solid mixtures containing 1% or more of titanium dioxide: EUH212

REACh Annex XVII: Not Controlled

REACh SVHC: Not Controlled

EU Cosmetic Regulation: Permitted pigment: Annex IV Item 143 - All products. Purity criteria as set out in Commission Directive 231/2012/EC (E 171). Titanium dioxide in powder form containing 1% or more of particles with aerodynamic diameter ≤ 10 µm, to be used in compliance with Annex III Item 321*; (For use as permitted UV agent please refer to Annex VI Item 27 of the regulation.)
Restriction*: Annex III Item 321. Titanium dioxide in powder form containing 1% or more of particles with aerodynamic diameter ≤ 10 µm: (a) face products in loose powder form (Only in the pigmentary form) - Max. 25%; (b) hair aerosol spray products (Only in the pigmentary form) - Max. 1.4% for general consumers, and 1.1% for professional use; (c) other products - Not to be used in applications that may lead to exposure of the end-user's lungs by inhalation. * Updates shall apply from 1st October 2021

EU INCI Name: CI 77891

EN71 Toy Standards: EN71-7: Listed as a permitted pigment. Not listed in EN71 Part 9

EU Toy Directive: Not controlled

United Kingdom

UK Cosmetic Regulation: Permitted pigment: Annex IV Item 143 - All products. Purity criteria as set out in Commission Directive 231/2012/EC (E 171). Titanium dioxide in powder form containing 1% or more of particles with aerodynamic diameter ≤ 10 µm, to be used in compliance with Annex III Item 321*; (For use as permitted UV agent please refer to Annex VI Item 27 of the regulation.)
Restriction*: Annex III Item 321. Titanium dioxide in powder form containing 1% or more of particles with aerodynamic diameter ≤ 10 µm: (a) face products in loose powder form (Only in the pigmentary form) - Max. 25%; (b) hair aerosol spray products (Only in the pigmentary form) - Max. 1.4% for general consumers, and 1.1% for professional use; (c) other products - Not to be used in applications that may lead to exposure of the end-user's lungs by inhalation. * Updates shall apply from 1st October 2021

UK Toy Legislation: Not controlled

Australia

AICIS Inventory: Listed. Considered a HPVC

Inventory Obligations: IMAP - Tier II - Human Health available

SUSMP: Not Listed

Cosmetic Regulation: Not Controlled

TGA Controls: Listed as an active, homoeopathic and excipient under Therapeutic and Goods (Permissible Ingredients).

For over the counter: Titanium dioxide is for oral and dermal use. Conditions applying to dermal use, the concentration of the ingredient is not to exceed 25% and is not to be used in topical products intended for use in the eye

For listed medicine: For use as an active ingredient only in sunscreens for dermal application. The concentration in sunscreens must be no more than 25%. For use as an excipient only as a colour and only in medicines limited to oral and topical routes of administration. Not to be included in medicines intended for use in the eye. When used in primary sunscreen products, the following warning statements are required on the label: - (AVOID) 'Avoid prolonged exposure in the sun' (or words to this effect); and -

Canada

DSL: Listed

WHMIS: Listed - D2A - Poisonous and infectious material - Other effects - Very toxic ; Disclosure on MSDS required at 0.1%

Cosmetic Regulation: Not controlled

New Zealand

Cosmetic Regulation: Schedule 6 - Permitted colourant for all products
Schedule 8, Entry 27 - Permitted UV Agent - Max 25%

South Africa

Cosmetic Regulation: Permitted pigment: All products. Purity criteria as set out in Commission Directive 231/2012/EC (E 171);
Permitted UV Agent - Max 25%. (as per EU)

USA

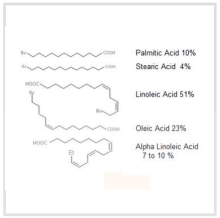
Chemical Inventory: Listed in TSCA, Titanium oxide (TiO2). Listed as a polymer colouring agent for Food contact CFR 21.178

California Prop 65: Titanium dioxide (airborne, unbound particles of respirable size (10 to 100 micrometer diameter)

Cosmetic Regulation: Titanium Dioxide
Permitted Pigment - Eye Area, Generally (Includes Lipsticks) and External Use [73.2575] Use in sunscreens at up to 25% [352.10].

ANNEX I - REGULATORY CONTROLS

Substance: Glycine Soja (Soybean) Oil
CAS: 8001-22-7
Function: Emollient; Perfuming; Skin Conditioning



Regulatory Listings

Europe:

EINECS:	232-274-4
EU GHS Classification:	Not Classified (self-classification)
REACh Annex XVII:	Not Controlled
REACh SVHC:	Not Controlled
EU Cosmetic Regulation:	Not Controlled
EU INCI Name:	Glycine Soja Oil
EN71 Toy Standards:	Not Controlled
EU Toy Directive:	Not Controlled

United Kingdom

UK Cosmetic Regulation:	Not Controlled
UK Toy Legislation:	Not Controlled

Australia

AICIS Inventory:	Listed
Inventory Obligations:	Listed
SUSMP:	Not Listed
Cosmetic Regulation:	Not Controlled

Canada

DSL:	Listed
WHMIS:	Not Listed
Cosmetic Regulation:	Not Controlled

New Zealand

Cosmetic Regulation:	Not controlled

South Africa

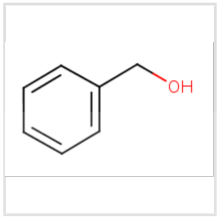
Cosmetic Regulation:	Not controlled

USA

Chemical Inventory:	Listed
California Prop 65:	Not listed
Cosmetic Regulation:	Glycine Soja (Soybean) Oil Not Controlled

ANNEX I - REGULATORY CONTROLS

Substance: Benzyl Alcohol
CAS: 100-51-6; 1336-27-2; 185532-71-2
Function: Perfuming; Preservative; Solvent; Viscosity controlling



Regulatory Listings

Europe:

EINECS:	202-859-9
EU GHS Classification:	Harmonised classification: H302 (Harmful if swallowed) H332 (Harmful if inhaled)
REACh Annex XVII:	Not controlled
REACh SVHC:	Not controlled
EU Cosmetic Regulation:	Annex V,34 - Maximum authorised concentration of 1% as a preservative in cosmetics Annex III, 45 - (a) Solvent; (b) Fragrance/ aromatic compositions/ their raw materials. For purposes other than inhibiting the development of microorganisms in the product. This purpose has to be apparent from the presentation of the product. Annex III, 45: Must be labelled if present as a Flavour or fragrance ingredient present at 0,001 % in leave-on products and 0,01 % in rinse-off products
EU INCI Name:	Benzyl Alcohol
EN71 Toy Standards:	Not controlled
EU Toy Directive:	Benzyl Alcohol is on the list of prohibited allergenic fragrances unless such presence is technically unavoidable under good manufacturing practice and does not exceed 100 mg/kg. However, it is allowed for use in olfactory board games, cosmetic kits and gustative games when properly labelled.

United Kingdom

UK Cosmetic Regulation:	Annex V,34 - Maximum authorised concentration of 1% as a preservative in cosmetics Annex III, 45 - (a) Solvent; (b) Fragrance/ aromatic compositions/ their raw materials. For purposes other than inhibiting the development of microorganisms in the product. This purpose has to be apparent from the presentation of the product. Annex III, 45: Must be labelled if present as a Flavour or fragrance ingredient present at 0,001 % in leave-on products and 0,01 % in rinse-off products
UK Toy Legislation:	Benzyl Alcohol is on the list of prohibited allergenic fragrances unless such presence is technically unavoidable under good manufacturing practice and does not exceed 100 mg/kg. However, it is allowed for use in olfactory board games, cosmetic kits and gustative games when properly labelled.

Australia

AICIS Inventory:	Listed on High Volume Industrial Chemicals List (HVICL) and as a health, phys-chem and/or ecotox hazard, according to NOHSC
Inventory Obligations:	Not Listed
SUSMP:	Not listed
Cosmetic Regulation:	Not controlled
TGA Controls:	BENZYL ALCOHOL - Listed as an active ingredient and excipient under Therapeutic Goods (Permissible Ingredients) Determination (No. 1) 2020, Volume 2, entry 794. When used as an active ingredient: a) permitted for use only in medicated throat lozenges; and b) when the maximum recommended daily dose of the medicine provides more than 300mg, the following warning statement must be included on

Canada

DSL:	Listed
WHMIS:	Warning: Combustible liquid (H227), Harmful if swallowed (H302), Causes serious eye irritation (H319)
Cosmetic Regulation:	Not controlled

New Zealand

Cosmetic Regulation:	Schedule 7: 1% max

South Africa

Cosmetic Regulation:	Maximum authorised concentration of 1% as a preservative in cosmetics (as per EU)

USA

Chemical Inventory:	Listed (100-51-6)
California Prop 65:	Not listed
Cosmetic Regulation:	Benzyl Alcohol Not controlled

ANNEX I - REGULATORY CONTROLS

Substance: Laureth-7
CAS: 68439-50-9; 3055-97-8; 9002-92-0
Function: Surfactant; Emulsifying

Regulatory Listings

Europe:

EINECS:	221-283-9 / 500-213-3 / 500-002-6
EU GHS Classification:	H315, H319, H335 (Self-classified by notifier under ECHA)
REACh Annex XVII:	Not Controlled
REACh SVHC:	Not Controlled
EU Cosmetic Regulation:	Not Controlled
EU INCI Name:	Laureth-7
EN71 Toy Standards:	Not listed in EN71 Part 7 or 9
EU Toy Directive:	Not Controlled
EU Biocides Regulation:	Not registered for any Biocidal uses
EU Detergents Regulation:	Must comply with Surfactant Biodegradation Requirements

United Kingdom

UK Cosmetic Regulation:	Not Controlled
UK Toy Legislation:	Not Controlled

Australia

AICIS Inventory:	Listed
Inventory Obligations:	Not Listed
SUSMP:	Not Listed
Cosmetic Regulation:	Not Controlled
TGA Controls:	Listed as en excipient under Therapeutic Goods (Permissible Ingredients) Determination (No. 1) 2020, Volume 4, entry 2921. Only for use in topical medicines for dermal application.

Canada

DSL:	Listed under CAS 3055-97-8
WHMIS:	Not Listed as Hazardous according to WHMIS
Cosmetic Regulation:	Not Controlled
OTC Monographs:	Not Controlled

New Zealand

Cosmetic Regulation:	Not Controlled

South Africa

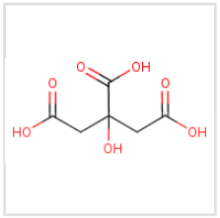
Cosmetic Regulation:	Not controlled

USA

Chemical Inventory:	Listed under CAS 3055-97-8
California Prop 65:	Not listed
Cosmetic Regulation:	Laureth-7 Not Controlled Not Controlled

ANNEX I - REGULATORY CONTROLS

Substance: Citric Acid
CAS: 77-92-9; 5949-29-1 (Citric Acid Monohydrate)
Function: Buffering; Chelating; Masking



Regulatory Listings

Europe:

EINECS:	201-069-1
EU GHS Classification:	H319 (self-classification)
REACh Annex XVII:	Not Controlled
REACh SVHC:	Not Controlled
EU Cosmetic Regulation:	Not Controlled
EU INCI Name:	Citric Acid
EN71 Toy Standards:	EN71-4: Maximum per set for chemistry sets: 20g . GHS07. Warning; 50g for crystal growing sets; 100g for CO2 generating experimental sets
EU Toy Directive:	Not controlled
EU Biocides Regulation:	Listed as allowed in product type 1 Phased out for PT 2 and 3 (25/10/2009)
EU Detergents Regulation:	Not controlled

United Kingdom

UK Cosmetic Regulation:	Not Controlled
UK Toy Legislation:	Not controlled

Australia

AICIS Inventory:	Listed as 1,2,3-Propanetricarboxylic acid, 2-hydroxy-, monohydrate
Inventory Obligations:	Not Controlled. IMAP tier II assessment available.
SUSMP:	Not Listed/Not Controlled
Cosmetic Regulation:	Not Controlled
TGA Controls:	CITRIC ACID - Listed as an active ingredient and excipient under Therapeutic Goods (Permissible Ingredients) Determination (No. 2) 2020. Where intended for topical use, sponsors should consider the impact of excipients on the sensitivity of the skin to sunlight and should ensure the finished product is safe for its intended purpose. When used as an active ingredient in preparations for topical use, the medicine requires the following warning statements on the medicine label: - (SENS) 'Application to skin may increase sensitivity to sunlight.' (or words to that effect) - (SUNPRO) 'Wear protective clothing, hats and eyewear when exposed to the sun.' (or words to that effect) - (IRRIT) 'If irritation develops, discontinue use.' - (SKTEST) 'If you have sensitive skin, test this product on a small area of skin before applying it to a large area.'

Canada

DSL:	Listed
WHMIS:	Listed - E Corrosive Material
Cosmetic Regulation:	a) All skin products containing AHAs at concentrations equal to or greater than 3%; b) Products intended for consumer use: Manufacturer must provide Health Canada with pH levels: 10% with a pH equal to or greater than 3.5; c) Products for professional use: Between 10% and 30% or a pH between 3.0 to 3.5; d) Products intended to be diluted in bath water may contain levels of citric acid exceeding 10%. a) Use only as directed.", "Avoid contact with the eyes." "If irritation persists, discontinue use and consult a physician.", "It is recommended that prior to exposure to the sun, users cover areas where AHAs have been applied with sunscreen.", "Contact of the product with the skin must be of limited frequency or duration."
OTC Monographs:	Not Controlled

New Zealand

Cosmetic Regulation:	Not Controlled

South Africa

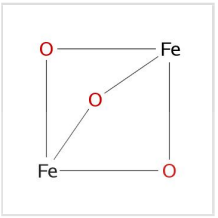
Cosmetic Regulation:	Not controlled

USA

Chemical Inventory:	Listed as existing: 1,2,3-Propanetricarboxylic acid, 2-hydroxy-
California Prop 65:	Not listed
Cosmetic Regulation:	Citric Acid Not Controlled

ANNEX I - REGULATORY CONTROLS

Substance: CI 77491 (Red / Brown Iron Oxide) (Pigment red 101)
CAS: 1345-25-1 ; 1309-37-1; 1317-61-9 ; 1345-27-3; 52357-70-7 ; 90452-21-4; 1332-37-2
Function: Pigment, Cosmetic Colourant



Regulatory Listings

Europe:

EINECS:	215-168-2 / 215-277-5 / 215-722-3 / 257-870-1 / 215-721-8
EU GHS Classification:	Not Classified
REACh Annex XVII:	Not Controlled
REACh SVHC:	Not Controlled
EU Cosmetic Regulation:	Permitted pigment: Annex IV item 135 - All Products (Must Comply with E 172 (2) Criteria)
EU INCI Name:	CI 77491
EN71 Toy Standards:	Listed in EN71-7.Not listed in EN71 Part 9
EU Toy Directive:	Not controlled

United Kingdom

UK Cosmetic Regulation:	Permitted pigment: Annex IV item 135 - All Products (Must Comply with E 172 (2) Criteria)
UK Toy Legislation:	Not controlled

Australia

AICIS Inventory:	Listed
Inventory Obligations:	Listed on HVICL
SUSMP:	For treatment of animals - Listed in Schedule 6 (Poison); For treatment of animals and garden preparations - Listed in Schedule 5 (Caution); For pharmacy medicine, prescription only medicine and prescription animal remedy - Listed in Schedules 2 and 4 (see respective schedules for details)
Cosmetic Regulation:	Not Controlled

Canada

DSL:	Listed
WHMIS:	Uncontrolled product according to WHMIS classification criteria, disclosure required at 1% or greater
Cosmetic Regulation:	Not Controlled

New Zealand

Cosmetic Regulation:	Permitted Pigment - All Products (purity criteria: E172)

USA

Chemical Inventory:	Listed
California Prop 65:	Not Listed
Cosmetic Regulation:	Iron Oxides Permitted Pigment - Eye Area, Generally & External Use [73.2250]

ANNEX I - REGULATORY CONTROLS

Substance: Daucus Carota Sativa (Carrot) Root Extract
CAS: 84929-61-3
Function: Skin conditioning

Regulatory Listings

Europe:

EINECS:	284-545-1
EU GHS Classification:	Not officially classified (Self classified as H304, H315, H317, H318, H412)
REACh Annex XVII:	Not controlled
REACh SVHC:	Not controlled
EU Cosmetic Regulation:	Not controlled
EU INCI Name:	Daucus Carota Sativa Root Extract

United Kingdom

UK Cosmetic Regulation:	Not controlled

Australia

AICIS Inventory:	Listed
Inventory Obligations:	Not listed
SUSMP:	Not listed
Cosmetic Regulation:	Not controlled

Canada

DSL:	Listed
WHMIS:	Not listed
Cosmetic Regulation:	Not controlled

New Zealand

Cosmetic Regulation:	Not Controlled

South Africa

Cosmetic Regulation:	Not Controlled

USA

Chemical Inventory:	Natural extract not listed
California Prop 65:	Not listed
Cosmetic Regulation:	Daucus Carota Sativa (Carrot) Root Extract Not controlled

ANNEX I - REGULATORY CONTROLS

Substance: Terminalia Ferdinandiana Fruit Extract
CAS: 1176234-54-0
Function: Anti-oxidant; Bleaching

No Structure Available

Regulatory Listings

Europe:

EINECS: 928-962-5
EU GHS Classification: Not Classified (self-classified, 1 notifier)

REACh Annex XVII: Not Controlled

REACh SVHC: Not Controlled

EU Cosmetic Regulation: Not Controlled
EU INCI Name: Terminalia Ferdinandiana Fruit Extract

United Kingdom
UK Cosmetic Regulation: Not Controlled

Australia
AICIS Inventory: Listed as Plum extract
Inventory Obligations: Not Listed
SUSMP: Not Listed
Cosmetic Regulation: Not Controlled

Canada
DSL: Not Listed
WHMIS: Not Listed
Cosmetic Regulation: Not Listed

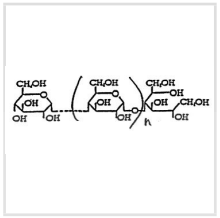
New Zealand
Cosmetic Regulation: Not controlled

South Africa
Cosmetic Regulation: Not controlled

USA
Chemical Inventory: Not Listed
California Prop 65: Not Listed
Cosmetic Regulation: Terminalia Ferdinandiana Fruit Extract
Not Controlled

ANNEX I - REGULATORY CONTROLS

Substance: Hydrogenated Starch Hydrolysate
CAS: 68425-17-2
Function: Humectant



Regulatory Listings

Europe:

EINECS: 270-337-8
EU GHS Classification: Not Classified (Self-classified)

REACh Annex XVII: Not Controlled

REACh SVHC: Not Controlled

EU Cosmetic Regulation: Not Controlled
EU INCI Name: Hydrogenated Starch Hydrolysate

United Kingdom
UK Cosmetic Regulation: Not Controlled

Australia
AICIS Inventory: Listed
Inventory Obligations: Not Listed
SUSMP: Not Controlled
Cosmetic Regulation: Not Controlled

Canada
DSL: Listed
WHMIS: Not Listed as Hazardous According to WHMIS
Cosmetic Regulation: Not Controlled

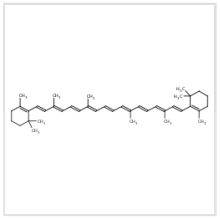
New Zealand
Cosmetic Regulation: Not Controlled

South Africa
Cosmetic Regulation: Not controlled

USA
Chemical Inventory: Listed
California Prop 65: Not listed
Cosmetic Regulation: Hydrogenated Starch Hydrolysate
Not Controlled

ANNEX I - REGULATORY CONTROLS

Substance: CI 75130 (Food Orange 5)
CAS: 7235-40-7; 116-32-5
Function: Cosmetic colorant



Regulatory Listings

Europe:

EINECS:	230-636-6
EU GHS Classification:	Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008
REACh Annex XVII:	Not controlled
REACh SVHC:	Not controlled
EU Cosmetic Regulation:	Permitted pigment: Annex IV item 111; Purity criteria as set out in Commission Directive 95/ 45/EC (E 160a)
EU INCI Name:	CI 75130

United Kingdom

UK Cosmetic Regulation:	Permitted pigment: Annex IV item 111; Purity criteria as set out in Commission Directive 95/ 45/EC (E 160a)

Australia

AICIS Inventory:	Not Listed
Inventory Obligations:	Not Listed
SUSMP:	Not Listed
Cosmetic Regulation:	Not Controlled
	Not Controlled

Canada

DSL:	listed
WHMIS:	Not listed
Cosmetic Regulation:	Not controlled

New Zealand

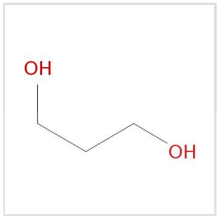
Cosmetic Regulation:	Not Controlled

USA

Chemical Inventory:	listed
California Prop 65:	Not Listed
Cosmetic Regulation:	β-Carotene
	Permitted Pigment - The color additive β-carotene may be safely used in coloring cosmetics generally, including cosmetics intended for use in the eye area. §73.2095

ANNEX I - REGULATORY CONTROLS

Substance: Propanediol
CAS: 504-63-2; 26264-14-2
Function: Viscosity Controlling; Solvent



Regulatory Listings

Europe:

EINECS:	207-997-3
EU GHS Classification:	Not Classified (Self-classified, 336 out of 361 notifiers) H315 (Self-classified, 25 out of 361 notifiers).
REACh Annex XVII:	Not Controlled
REACh SVHC:	Not Controlled
EU Cosmetic Regulation:	Not Controlled
EU INCI Name:	Propanediol
EN71 Toy Standards:	Not listed in EN71 part 7 or 9
EU Toy Directive:	Not Controlled

United Kingdom

UK Cosmetic Regulation:	Not Controlled
UK Toy Legislation:	Not Controlled

Australia

AICIS Inventory:	Listed
Inventory Obligations:	Listed
SUSMP:	Not listed
Cosmetic Regulation:	Not controlled

Canada

DSL:	Listed, 1,3-Propanediol
WHMIS:	Not Listed as Hazardous According to WHMIS
Cosmetic Regulation:	Not controlled

New Zealand

Cosmetic Regulation:	Not controlled

South Africa

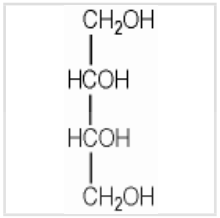
Cosmetic Regulation:	Not controlled

USA

Chemical Inventory:	Listed, 1,3-Propanediol
California Prop 65:	Not listed
Cosmetic Regulation:	Propanediol Not controlled

ANNEX I - REGULATORY CONTROLS

Substance: Erythritol
CAS: 149-32-6; 7541-59-5
Function: Humactant; Moisturising; Skin conditioning



Regulatory Listings

Europe:

EINECS:	205-737-3 ; 231-418-3
EU GHS Classification:	Not classified
REACh Annex XVII:	Not listed
REACh SVHC:	Not listed
EU Cosmetic Regulation:	Not controlled
EU INCI Name:	Erythritol
EN71 Toy Standards:	Not Listed in EN71 Part 7 or 9
EU Toy Directive:	Not Controlled

United Kingdom

UK Cosmetic Regulation:	Not controlled
UK Toy Legislation:	Not Controlled

Australia

AICIS Inventory:	Listed
Inventory Obligations:	Not Listed
SUSMP:	Not listed
Cosmetic Regulation:	Not Controlled

Canada

DSL:	Listed
WHMIS:	Not listed
Cosmetic Regulation:	Not Controlled

New Zealand

Cosmetic Regulation:	Not Controlled

South Africa

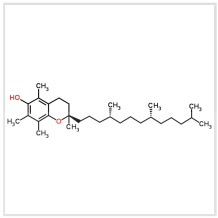
Cosmetic Regulation:	Not controlled

USA

Chemical Inventory:	Listed
California Prop 65:	Not listed
Cosmetic Regulation:	Erythritol Not Controlled

ANNEX I - REGULATORY CONTROLS

Substance: Tocopherol
CAS: 1406-18-4; 10191-41-0; 1406-66-2; 2074-53-5; 59-02-9; 148-03-8; 119-13-1; 54-28-4
Function: Skin Conditioning; Antioxidant; Masking



Regulatory Listings

Europe:

EINECS:	200-201-5; 240-747-1; 233-466-0; 204-299-0; 215-798-8; -; 218-197-9; 200-412-2
EU GHS Classification:	Self-classified by REACH registrants: Not Classified (CAS No. 54-28-4; 59-02-9; 119-13-1; 1406-18-4; 1406-66-2) H302 - Harmful if swallowed (CAS No. 148-03-8, 1 notifier) H317 - May cause an allergic skin reaction Cat 1B (CAS No. 2074-53-5; 10191-41-0)
REACh Annex XVII:	Not Controlled
REACh SVHC:	Not Controlled
EU Cosmetic Regulation:	Not Controlled
EU INCI Name:	Tocopherol
EN71 Toy Standards:	Not listed in EN71 Part 7 & 9
EU Toy Directive:	Not Controlled

United Kingdom

UK Cosmetic Regulation:	Not Controlled
UK Toy Legislation:	Not Controlled

Australia

AICIS Inventory:	Listed
Inventory Obligations:	Not Listed
SUSMP:	Not listed
Cosmetic Regulation:	Not Controlled
TGA Controls:	Listed as TOCOPHEROL: Permissible excipient Permitted for use only in combination with other permitted ingredients as a flavour or a fragrance. If used in a flavour the total flavour concentration in a medicine must be no more than 5%. If used in a fragrance the total fragrance concentration in a medicine must be no more 1%.

Canada

DSL:	Listed on the Canadian DSL Inventory.
WHMIS:	Not listed
Cosmetic Regulation:	Not Controlled

New Zealand

Cosmetic Regulation:	Not Controlled

South Africa

Cosmetic Regulation:	Not controlled

USA

Chemical Inventory:	Listed as 10191-41-0, 59-02-9, 148-03-8, 119-13-1 and 54-28-4
California Prop 65:	Not listed
Cosmetic Regulation:	Tocopherol Not Controlled

ANNEX I - REGULATORY CONTROLS

Substance: Coffea Arabica Seed Extract
CAS: 84650-00-0
Function: Masking; Skin conditioning

Regulatory Listings

Europe:

EINECS: 283-481-1
EU GHS Classification: H226: Flammable liquid and vapour (self-classified)

REACh Annex XVII: Not Controlled

REACh SVHC: Not Controlled

EU Cosmetic Regulation: Not Controlled
EU INCI Name: Coffea Arabica Seed Extract

United Kingdom
UK Cosmetic Regulation: Not Controlled

Australia
AICIS Inventory: Listed
Inventory Obligations: Not Listed
SUSMP: Not Listed
Cosmetic Regulation: Not controlled

Canada
DSL: Listed
WHMIS: Not Listed
Cosmetic Regulation: Not controlled

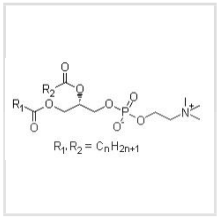
New Zealand
Cosmetic Regulation: Not controlled

South Africa
Cosmetic Regulation: Not Controlled

USA
Chemical Inventory: Not listed (Natural material)
California Prop 65: Not listed
Cosmetic Regulation: Coffea Arabica (Coffee) Seed Extract
Not Controlled

ANNEX I - REGULATORY CONTROLS

Substance: Lecithin
CAS: 8030-76-0; 8002-43-5
Function: Antistatic; Emollient; Emulsifying; Skin conditioning



Regulatory Listings

Europe:

EINECS: 232-307-2; 310-129-7; 297-639-2

EU GHS Classification: Not Classified (self-classified, 2063 notifiers, CAS No. 8002-43-5, Lecithins)
Not Classified (self-classified, 542 notifiers, CAS No. 8030-76-0, Lecithins, soybean)
Not Classified (self-classified, 36 notifiers, CAS No. 93685-90-6, Lecithins, egg yolk)

REACh Annex XVII: Not Controlled

REACh SVHC: Not Controlled

EU Cosmetic Regulation: Not Controlled
EU INCI Name: Lecithin

United Kingdom
UK Cosmetic Regulation: Not Controlled

Australia
AICIS Inventory: Listed
Inventory Obligations: Not listed
SUSMP: Not listed
Cosmetic Regulation: Not Controlled
TGA Controls: Listed under Therapeutic Goods (Listing) Notice 2000 (No. 1)

Canada
DSL: Listed
WHMIS: Not Listed as Hazardous according to WHMIS
Cosmetic Regulation: Not Controlled

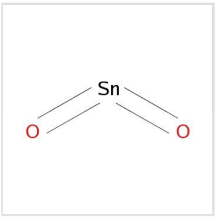
New Zealand
Cosmetic Regulation: Not Controlled

South Africa
Cosmetic Regulation: Not controlled

USA
Chemical Inventory: Listed
California Prop 65: Not listed
Cosmetic Regulation: Lecithin
Not Controlled

ANNEX I - REGULATORY CONTROLS

Substance: Tin Oxide (CI 77861)
CAS: 18282-10-5; 1332-29-2
Function: Abrasive; Opacifying; Viscosity Controlling; Bulking



Regulatory Listings

Europe:

EINECS:	242-159-0
EU GHS Classification:	Not Classified (Self classified by 281 notifiers)
REACh Annex XVII:	Not Controlled
REACh SVHC:	Not Controlled
EU Cosmetic Regulation:	Not controlled
EU INCI Name:	Tin Oxide
EN71 Toy Standards:	Not listed in EN71 part 7 or 9
EU Toy Directive:	Not controlled. Tin Migration limit: 15000 mg/kg in dry, brittle, powder-like or pliable toy material; 3750 mg/kg in liquid or sticky toy material; 180000 mg/kg in scraped-off toy material.

United Kingdom

UK Cosmetic Regulation:	Not controlled
UK Toy Legislation:	Not controlled. Tin Migration limit: 15000 mg/kg in dry, brittle, powder-like or pliable toy material; 3750 mg/kg in liquid or sticky toy material; 180000 mg/kg in scraped-off toy material.

Australia

AICIS Inventory:	Listed- a WHO Concise International Chemical Assessment Document (CICAD) is available for this chemical.
Inventory Obligations:	Not Listed
SUSMP:	Not Listed
Cosmetic Regulation:	Not Controlled

Canada

DSL:	Listed
WHMIS:	Not Listed
Cosmetic Regulation:	Not Controlled

New Zealand

Cosmetic Regulation:	Not controlled

South Africa

Cosmetic Regulation:	Not controlled

USA

Chemical Inventory:	Listed
California Prop 65:	Not Listed
Cosmetic Regulation:	Tin Oxide Not a FD&C listed colour (considered a Bulking Agent)

ANNEX I - REGULATORY CONTROLS

Substance: Hibiscus Sabdariffa Fruit Extract
CAS: -
Function: Skin Conditioning

Regulatory Listings

Europe:

EINECS:	283-920-7
EU GHS Classification:	Not Classified (Self-classified, 37 notifiers) H315, H319 (Self-classified, 28 notifiers)
REACh Annex XVII:	Not Controlled
REACh SVHC:	Not Controlled
EU Cosmetic Regulation:	Not Controlled
EU INCI Name:	Hibiscus Sabdariffa Fruit Extract

United Kingdom

UK Cosmetic Regulation:	Not Controlled

Australia

AICIS Inventory:	Listed
Inventory Obligations:	Not Listed
SUSMP:	Not Controlled
Cosmetic Regulation:	Not controlled

Canada

DSL:	Not listedNot controlled
WHMIS:	Not Listed as Hazardous According to WHMIS
Cosmetic Regulation:	Not controlled

New Zealand

Cosmetic Regulation:	Not Controlled

South Africa

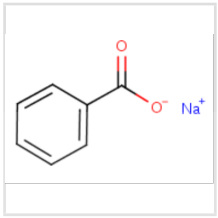
Cosmetic Regulation:	Not Controlled

USA

Chemical Inventory:	Not listed according to the EPA Search Engine
California Prop 65:	Not listed
Cosmetic Regulation:	Hibiscus Sabdariffa Fruit Extract Not controlled

ANNEX I - REGULATORY CONTROLS

Substance: Sodium Benzoate
CAS: 532-32-1
Function: Anticorrosive; Masking; Preservative



Regulatory Listings

Europe:

EINECS: 208-534-8

EU GHS Classification: H319 (2A) (self-classified, 39 notifiers with registration dossier data support)
H319 (self-classified, 981 notifiers)
Not Classified (self-classified, 1829 notifiers)

REACh Annex XVII: Not Controlled

REACh SVHC: Not Controlled

EU Cosmetic Regulation: Permitted Preservative - Annex V/1 - Rinse-off products, except oral care products: 2.5% (acid) ; Oral care products: 1.7% (acid) ; Leave-on products: 0.5% (acid). As sodium = 16% of the MW, the maximum % by weight of sodium benzoate is Rinse-off - 2.9%, Oral Care - 1.97% and leave-on - 0.59%

EU INCI Name: Sodium Benzoate

EN71 Toy Standards: Permitted preservative in EN71-7, max. concentration at 0.5% (as acid)
Not Listed in EN71-9

EU Toy Directive: Not Controlled

EU Biocides Regulation: No longer a permitted biocide. Product groups 1, 2, 6 (Phased out on 25/10/2009) Phase out for Product group 11 and 20 by 1/11/2011.

EU Detergents Regulation: Preservation agents shall be labelled, irrespective of their concentration

United Kingdom

UK Cosmetic Regulation: Permitted Preservative - Annex V/1 - Rinse-off products, except oral care products: 2.5% (acid) ; Oral care products: 1.7% (acid) ; Leave-on products: 0.5% (acid). As sodium = 16% of the MW, the maximum % by weight of sodium benzoate is Rinse-off - 2.9%, Oral Care - 1.97% and leave-on - 0.59%

UK Toy Legislation: Not Controlled

Australia

AICIS Inventory: Listed as Benzoic acid, sodium salt

Inventory Obligations: No specific regulatory controls/obligations under the Australian Inventory

SUSMP: Not Listed/Not Controlled

Cosmetic Regulation: Not Controlled

TGA Controls: SODIUM BENZOATE - Listed as an excipient under Therapeutic Goods (Permissible Ingredients) Determination (No. 2) 2020.
Medicines containing benzoates require the following warning statement on the medicine label:
- (TBNZO8) 'Contains benzoates' (or words to this effect) if the medicine contains two or more benzoate sources or 'Contains [insert the approved name of benzoate used]' (or words to this effect) if product contains one benzoate source.
When for oral or sublingual use and the total amount of sodium from all ingredients in the maximum daily dose is more than 120 mg, the medicine requires the following warning statement on the medicine label:
- (SODIUM) 'The recommended daily dose of this medicine contains [state quantity and units] of sodium (or words to that effect).'

Canada

DSL: Listed

WHMIS: Not Listed as Hazardous according to WHMIS

Cosmetic Regulation: Not Controlled

New Zealand

Cosmetic Regulation: Permitted Preservative - Rinse-off products, except oral care products: 2.5% (acid) ; Oral care products: 1.7% (acid) ; Leave-on products: 0.5% (acid). As sodium = 16% of the MW, the maximum % by weight of sodium benzoate is Rinse-off - 2.9%, Oral Care - 1.97% and leave-on - 0.59%.

South Africa

Cosmetic Regulation: Controlled per EU: Permitted Preservative - Annex V/1 - Rinse-off products, except oral care products: 2.5% (acid) ; Oral care products: 1.7% (acid) ; Leave-on products: 0.5% (acid). As sodium = 16% of the MW, the maximum % by weight of sodium benzoate is Rinse-off - 2.9%, Oral Care - 1.97% and leave-on - 0.59%

USA

Chemical Inventory: Listed as existing: Benzoic acid, sodium salt (1:1)

California Prop 65: Not listed

Cosmetic Regulation: Sodium Benzoate
Not Controlled

ANNEX I - REGULATORY CONTROLS

Substance: Aphanizomenon Flos-Aquae Extract
CAS: -
Function: Humectant; Skin Conditioning

No Structure Available

Regulatory Listings

Europe:
EINECS: -
EU GHS Classification: Unclassified

REACh Annex XVII: Not Listed

REACh SVHC: Not Listed

EU Cosmetic Regulation: Not Controlled
EU INCI Name: Aphanizomenon Flos-Aquae Extract

United Kingdom
UK Cosmetic Regulation: Not Controlled

Australia
AICIS Inventory: Not Listed
Inventory Obligations: Not Listed
SUSMP: Not Controlled
Cosmetic Regulation: Not Controlled

Canada
DSL: Not Listed
WHMIS: Not Listed
Cosmetic Regulation: Not on the hotlist

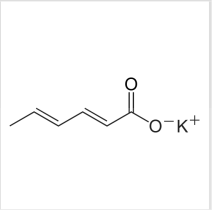
New Zealand
Cosmetic Regulation: Not Controlled

South Africa
Cosmetic Regulation: Not Controlled

USA
Chemical Inventory: Not Listed
California Prop 65: Not Listed
Cosmetic Regulation: Aphanizomenon Flos-Aquae Extract
Not Controlled

ANNEX I - REGULATORY CONTROLS

Substance: Potassium Sorbate
CAS: 590-00-1; 24634-61-5; 24634-61-5
Function: Preservative



Regulatory Listings

Europe:

EINECS:	246-376-1
EU GHS Classification:	H319 (Harmonised classification)
REACh Annex XVII:	Not Controlled
REACh SVHC:	Not Controlled
EU Cosmetic Regulation:	Permitted Preservative - Annex V/4 - Max 0.6% (acid) for all products, translates to roughly 0.8% as Potassium Sorbate is roughly 74.6% Sorbic Acid. (Applies to all Hexa-2,4-dienoic acid and its salts, such as Calcium Sorbate, Potassium Sorbate, Sodium Sorbate, Sorbic Acid, Tea-Sorbate)
EU INCI Name:	Potassium Sorbate
EN71 Toy Standards:	Permitted preservative in Finger Paints under EN71-7. Max. concentration in finger paints 0.6% as acid. Not controlled by EN71-9.
EU Toy Directive:	Not controlled
EU Biocides Regulation:	Not registered for PT1, PT2, PT3, PT4, PT5 Biocide users ((Phased out on 25/10/2009). Registered for PT6, PT7, PT8, PT9, PT10.
EU Detergents Regulation:	preservation agents shall be listed, irrespective of their concentration, using where possible the common nomenclature established under Article 8

United Kingdom

UK Cosmetic Regulation:	Permitted Preservative - Annex V/4 - Max 0.6% (acid) for all products, translates to roughly 0.8% as Potassium Sorbate is roughly 74.6% Sorbic Acid. (Applies to all Hexa-2,4-dienoic acid and its salts, such as Calcium Sorbate, Potassium Sorbate, Sodium Sorbate, Sorbic Acid, Tea-Sorbate)
UK Toy Legislation:	Not controlled

Australia

AICIS Inventory:	Listed as 2,4-Hexadienoic acid, potassium salt, (E,E)-
Inventory Obligations:	No specific regulatory controls/obligations under the Australian Inventory
SUSMP:	Appendix B, Part 3 in SUSMP 15 - Appendix B: Substances considered not to require control by scheduling
Cosmetic Regulation:	Not controlled

Canada

DSL:	Listed
WHMIS:	Not Listed as Hazardous according to WHMIS
Cosmetic Regulation:	Not Controlled

New Zealand

Cosmetic Regulation:	Permitted Preservative - Max 0.6% (acid) All Products

South Africa

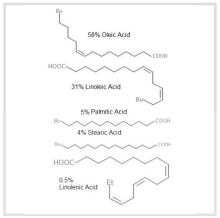
Cosmetic Regulation:	Controlled as per EU (Permitted Preservative - Annex V/4 - Max 0.6% (acid) All Products)

USA

Chemical Inventory:	Listed as existing: 2,4-Hexadienoic acid, potassium salt (1:1), (2E,4E)-(24634-61-5 & 590-00-1)
California Prop 65:	Not listed
Cosmetic Regulation:	Potassium Sorbate Not Controlled

ANNEX I - REGULATORY CONTROLS

Substance: Helianthus Annuus (Sunflower) Seed Oil
CAS: 8001-21-6; 164250-88-8
Function: Emollient ; Skin Conditioning; Masking



Regulatory Listings

Europe:
EINECS: 232-273-9
EU GHS Classification: Not classified (Self classified by 1565 of 1565 notifiers under REACH)

REACh Annex XVII: Not Controlled

REACh SVHC: Not Controlled

EU Cosmetic Regulation: Not Controlled
EU INCI Name: Helianthus Annuus Seed Oil

United Kingdom
UK Cosmetic Regulation: Not Controlled

Australia
AICIS Inventory: Listed
Inventory Obligations: Not listed
SUSMP: Not listed
Cosmetic Regulation: Not controlled

Canada
DSL: Listed
WHMIS: Not listed
Cosmetic Regulation: Not controlled

New Zealand
Cosmetic Regulation: Not controlled

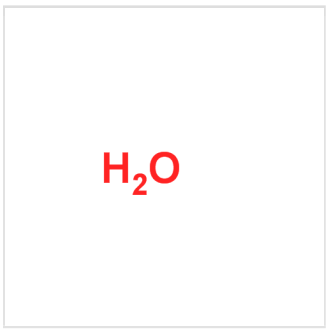
South Africa
Cosmetic Regulation: Not controlled

USA
Chemical Inventory: Listed (8001-21-6)
California Prop 65: Not listed
Cosmetic Regulation: Helianthus Annuus (Sunflower) Seed Oil
Not controlled

ANNEX II - INGREDIENT DATA

Substance: Aqua
CAS: 7732-18-5
Function: Solvent

Chemical Structure



Physical/Chemical Characteristics

Boiling Point	100°C
Appearance	Clear colourless liquid
Flammability	Not flammable
Flash Point	not flammable
Molecular Mass	18
Melting Point	0°C
Odour	none
pH	7
Specific Gravity	1

Toxicological Summary

The below information is a summary of the toxicological profile for this raw material, including a description of general hazards associated with the material as well as discussion of the most critical studies relating to the overall safety in use of this substance/mixture in consumer products. Details of the available toxicological data can be found overleaf.

Overall Toxicity Review:

A ubiquitous chemical substance that is the basis for all known forms of life. Use in consumer products is not expected to result in any Acute or Chronic Toxicity following typical exposures.

Margin(s) of Safety

An MoS for this material has been determined in accordance with the criteria outlined in the Annex Preface, however information pertaining to it has been redacted from the report in order to preserve the confidential nature of the quantitative formulation. Any concerns relating to the MoS are discussed on page 4 of the review under 'Toxicological & Regulatory Assessment'

ANNEX II - INGREDIENT DATA

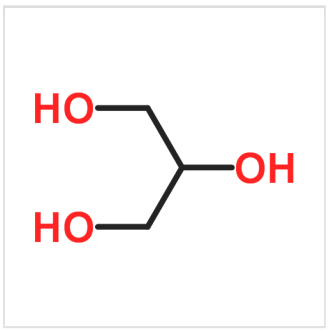
Aqua

Details on specific toxicological studies related to endpoints of concern are not available for Aqua, please see the previous page for a justification of safety based on history of use &/or weight of evidence.

ANNEX II - INGREDIENT DATA

Substance: Glycerin
CAS: 56-81-5; 8013-25-0
Function: Denaturant; Humectant; Hair Conditioning; Oral Care; Perfuming; Skin Protecting;

Chemical Structure



Physical/Chemical Characteristics

Appearance	Colourless syrup
Boiling Point	290°C
Explosive	Non-explosive
Flammability	400C
Flash Point	177°C (Open Cup)
Log Kow	1.76
Molecular Mass	92.11
Melting Point	18.2°C
Odour	Sweet

Toxicological Summary

The below information is a summary of the toxicological profile for this raw material, including a description of general hazards associated with the material as well as discussion of the most critical studies relating to the overall safety in use of this substance/mixture in consumer products. Details of the available toxicological data can be found overleaf.

Overall Toxicity Review:

Glycerin is a trihydroxy sugar alcohol that is commonly used as a solvent, emollient, as well as cosmetic functions of denaturant, hair conditioning, humectant, oral care, perfuming, skin protecting and viscosity controlling (SDA, 1990). Glycerin constitutes around 10% of the Fat found in a typical Human Diet and is readily metabolised on ingestion, and has generally recognised as safe (GRAS) status in the US. (FDA, 21CFR§182.1320).

Test results in rabbits shows the substance has minimal irritancy properties in both the skin and eye. Clinical evaluations have also concluded the substance has no dermal irritation and sensitising potentials. The compound's structure does not contain conjugated double bonds, therefore, it will not absorb UV light which is a prerequisite for phototoxicity.

When given orally at 20% in the diet over 2 years showed no adverse effects in rats. Has a high Oral LD50 (>10g/kg in Rats). However ingestion of large amounts of this material can cause an osmotic effect in the gastrointestinal tract leading to dehydration, nausea and headaches. Glycerine has also been determined to be non-toxic via dermal application (LD50 >10g/kg in Rabbits) and inhalation of saturated vapours (4h LC50 >2.75 mg/L).

Systemic toxicity via ingestion is considered, and moreover, a no-observed-adverse-effect-level (NOAEL) of 8000-10000 mg/kg bw was determined based on the absence of treatment-related effects in rats from the 2-year diet study. The lower of these values of 8000 mg/kg bw is conservatively chosen as the point of departure.

A NOAEC of 167mg/m3 was reported from a nose-only aerosol exposure 90-day repeated dose toxicity study in rats; this was due to local lung irritation effects seen at higher concentrations.

Glycerine was not mutagenic in an Ames assay, and a 2 year dietary study in rats found no increase in the rates of tumour formation compared to control animals. There was no effect noted on growth, fertility and reproductive performance in rats through two generations, and no developmental toxicity of offspring was observed.

As dermal absorption is dependent on the molecular properties, concentration, exposure time and vehicle simultaneously, in the absence of relevant experimental data it is difficult to assess an exact value. If not stated otherwise within the risk assessment, we assume 100% dermal absorption, however it must be noted that for the majority of compounds, even low molecular weight, lipophilic compounds, dermal absorption is expected to be significantly lower than 100%.

Given the low toxicity profile of this substance, and the fact it is a constituent of a typical human diet, its use in Consumer Products is not expected to produce significant localised or systemic toxicity. The Cosmetic Ingredients Review (CIR Expert Panel on glycerine reports that glycerine is used in leave-on products at up to 79.2% and in baby products in the range of 0.23-21% (CIR, 2019).

Margin(s) of Safety

An MoS for this material has been determined in accordance with the criteria outlined in the Annex Preface, however information pertaining to it has been redacted from the report in order to preserve the confidential nature of the quantitative formulation. Any concerns relating to the MoS are discussed on page 4 of the review under 'Toxicological & Regulatory Assessment'

ANNEX II - INGREDIENT DATA

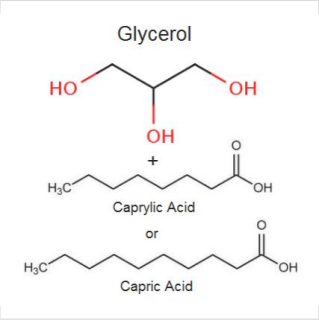
Glycerin

Acute Toxicity Acute Toxicity, Lethality [Other]		LD50 = 27.2g/kg
Rat	Oral, Gavage	
Acute Toxicity Acute Toxicity, Non-Lethal [Other]		TDLo oral 1428mg/kg Behavioural: headache Gastrointestinal: nausea or vomiting
Human	Oral, NOS	
Acute Toxicity Acute Toxicity, Lethality [Other]		LD50 = 56.75g/kg [Occlusive bandage in contact with skin for 4 days.]
Guinea Pig	Dermal	
Acute Toxicity Acute Toxicity, Lethality [Other]		A calculated 4 hour LC50 value based on nominal concentration would be >2.75 mg/L The L(Ct)50 for Glycerine was 4655 mg minute/litre.
Rat	Inhalation	
Carcinogenicity Carcinogenicity studies [Other]		Non-carcinogenic Doses: 5, 10 and 20% in diet (males: 2000, 4000 and 8000 mg/kg bw/day; females: 2500, 5000 and 10000 mg/kg bw/day) [Dietary exposure over 2 years.]
Rat	Oral, Feed	
Eye Irritation In vivo Eye Irritation [Other]		Glycerin was considered to be non irritating in 19 laboratories and of questionable irritation in one laboratory.
Rabbit	Instillation	
Genotoxicity Bacterial reverse mutation test (Ames) [OECD 471]		Negative with and without metabolic activation [S. typhimurium TA1535, TA1537, TA98, TA100. Up to 10,000µg/plate.]
Bacteria	In vitro exposure	
Repeated Dose Chronic Toxicity Studies in Rodents [OECD 452]		NOAEL = 8000-10,000 mg/kg bw/day Doses:5, 10, 20% in diet (males 2000, 4000 and 8000 mg/kg bw, females 2500, 5000 and 10000 mg/kg bw); 2-year exposure.
Rat	Oral, Feed	
Repeated Dose 90-day Inhalation Toxicity Study [OECD 413]		The NOAEC was 167 mg/m3 based on local irritant effects on the upper respiratory tract, from a viscous liquid aerosol generator by nose-only exposure.
Rat	Inhalation	
Repeated Dose Repeat Dose Dermal Toxicity Study [Other]		There were no effects noted in rabbits dosed 8 hours/day, 5 days/week for 45 weeks with dose levels as high as 4.0 ml/kg.
Rabbit	Dermal	
Reproductive Toxicity Two-Generation Reproduction Toxicity [OECD 416]		Glycerin was administered by oral gavage to groups of male and female rats through two generations. There was no effect noted on growth, fertility and reproductive performance through two generations at a dose level of ~2000 mg/kg/day.
Rat	Oral, Gavage	
Reproductive Toxicity Prenatal Development Toxicity Study [OECD 414]		No Effects Up To 1,310 mg/kg/day (highest tested dose) [Dosing on days 6 to 15 of gestation.]
Rat	Oral, Gavage	
Skin Irritation In vivo skin irritation [Other]		Glycerin was considered to be non irritating to the skin in rabbit irritation studies in 14 testing laboratories.
Rabbit	Dermal	
Skin Irritation In vivo skin irritation [Other]		The dermal irritation potential was examined in 33 humans, 30 female and 3 male. Under the conditions of the study, Glycerine USP (25% concentration) exhibited no clinical irritation when tested in humans.
Human	Dermal	
Skin Sensitisation Repeat Insult Patch Test (RIPT) [Other]		In a study of 420 patients with eczema, 419 showed no irritation or sensitization when tested with a 50% solution in water. A result from one patient was questionable.
Human	Dermal	

ANNEX II - INGREDIENT DATA

Substance: Caprylic/Capric Glycerides
CAS: 85409-09-2; 73398-61-5
Function: Emollient; Emulsifying; Skin conditioning

Chemical Structure



Physical/Chemical Characteristics

Appearance	Clear to yellow Liquid
Flash Point	260°C
Melting Point	-5°C
Odour	Characteristic, bland, fatty oil
Specific Gravity	0.949
Viscosity	25 cps @ 25°C

Toxicological Summary

The below information is a summary of the toxicological profile for this raw material, including a description of general hazards associated with the material as well as discussion of the most critical studies relating to the overall safety in use of this substance/mixture in consumer products. Details of the available toxicological data can be found overleaf.

Overall Toxicity Review:

A mix of medium-chain fatty acids (Caprylic and capric) reacted with glycerol to give mono, di and tri glycerides.

Available data shows the material to be non-irritating to skin and eyes, and there was no evidence of significant allergenic potential under HRIPT conditions.

The material displays low acute toxicity, with no evidence of genotoxicty under in vitro conditions. A repeat-dose dietary study identified a NOAEL of 5000mg/kg/day, which is considered a suitable point of depature (PoD) for hazard characterisation purposes.

In the absence of specific data, 100% dermal absorption must be assumed.

Use at typical concentrations within a Consumer Product would not be expected to produce significant localised or systemic toxicity.

Margin(s) of Safety

An MoS for this material has been determined in accordance with the criteria outlined in the Annex Preface, however information pertaining to it has been redacted from the report in order to preserve the confidential nature of the quantitative formulation. Any concerns relating to the MoS are discussed on page 4 of the review under 'Toxicological & Regulatory Assessment'

ANNEX II - INGREDIENT DATA

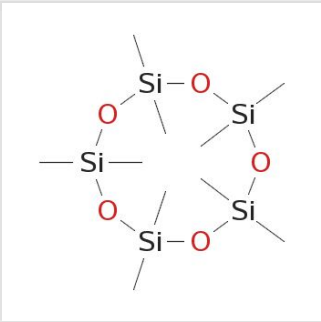
Caprylic/Capric Glycerides

Acute Toxicity		LD50 > 5g/kg
Acute Oral Toxicity, Lethality [OECD 401, OECD 423, OECD 425]		
Mouse	Oral, NOS	
Eye Irritation		Non-irritant (EPA OPP 81-4 (Acute Eye Irritation), Draize Scoring System)
In vivo Eye Irritation [Other]		
Rabbit	Instillation	
Genotoxicity		Non-mutagenic, with and without metabolic activation (EU Method B.13/14 (Mutagenicity - Reverse Mutation Test Using Bacteria). S. typhimurium TA 1535, TA 1537, TA 1538,TA 98 and TA 100. Up to 5,000 µg/plate.)
In vitro genotoxicity assay [Other]		
Bacteria	In vitro exposure	
Repeated Dose		NOAEL = 5,000mg/kg/day (nominal)
90-Day Oral Toxicity Study [OECD 408, OECD 409]		
Rat	Oral, Feed	
Skin Irritation		Non-irritant (EPA OPP 81-5 (Acute Dermal Irritation), Draize Scoring System)
In vivo skin irritation [Other]		
Rabbit	Dermal	
Skin Sensitisation		Non-sensitising (HRIPT, 54 volunteers)
Repeat Insult Patch Test (RIPT) [Other]		
Human	Dermal	

ANNEX II - INGREDIENT DATA

Substance: Cyclopentasiloxane
CAS: 541-02-6
Function: Emollient; Hair Conditioning; Skin Conditioning; Solvent

Chemical Structure



Physical/Chemical Characteristics

Appearance	Colourless liquid
Specific Gravity	0.95
Melting Point	-44°C
Boiling Point	211°C
Viscosity	3.8mm²/s at 25°C
Water Solubility	< 0.05 mg/l
Vapour Pressure	0.015 kPa at 25°C
Flash Point	77°C
Flammability	autoignition at 392°C

Toxicological Summary

The below information is a summary of the toxicological profile for this raw material, including a description of general hazards associated with the material as well as discussion of the most critical studies relating to the overall safety in use of this substance/mixture in consumer products. Details of the available toxicological data can be found overleaf.

Overall Toxicity Review:

A silicone derivative used as an emollient, solvent or skin/hair conditioning agent.

Available data indicate cyclopentasiloxane (D5) is minimally irritating to skin and eyes, and shows no evidence of allergenic potential either in experimental animals or human volunteers. It is important to note, however, that D5 does produce local toxic effects on the lungs, with a no observed adverse effect concentration (NOAEC) of 49 ppm identified by The Scientific Committee on Consumer Safety (SCCS).

The material is reported to be of low acute toxicity via the oral route, though displays toxic effects on the lungs following inhalation. The compound has shown a LD50 larger than 5000 mg/kg bw for the oral route and a LC50 of 8.67 mg/L for the inhalation route of exposure.

Regarding phototoxicity, Siloxanes contain only methyl groups, which have no double bonds and do not absorb ultra violet (UV) light. Consequently, light-induced toxicity is unlikely.

Available repeat dose studies identify a no observed adverse effect level (NOAEL) of 100mg/kg/day for systemic effects following oral exposure, and a NOAEC of 40ppm for systemic effects following inhalation exposure. As investigations have identified the kinetic behaviour of D5 is similar across dermal and inhalation exposures, but dissimilar in respect of dermal and oral exposures, different Points of Departure (PoD) need to be considered depending on finished product usage.

For products where ingestion will be the primary route of exposure (lip and oral products) the NOAEL of 100mg/kg/day is considered as most appropriate. For all other products the NOAEC of 40ppm, from a 2-year combined repeat-dose and carcinogenicity study, is considered most relevant. This equates to a converted systemic NOAEL of 3mg/kg/day, as per the SCCS Opinion on D5.

As a volatile substance the majority of applied cyclopentasiloxane will evaporate from the skin if exposure is not occluded. The available studies on dermal absorption suggest that a maximum of 0.06% will be absorbed from the skin, and this value is therefore utilised in respect of risk assessment where ingestion is not a significant route of exposure. In cases where ingestion is the primary route of exposure, the SCCS indicate that 10% absorption should be considered for risk assessment purposes.

Overall, the use of D5 is topically applied consumer products is considered to be of very low risk in relation to local toxicity (irritation or allergy). However, due to the local toxicity following inhalation usage in spray products should be carefully considered. Calculation of likely exposure in the breathing zone compared to the NOAEC of 49.2 ppm for local effects should be made.

The Cosmetic Ingredient Review (CIR) Expert Panel reported Cyclopentasiloxane was used at 0.0001-93% in 2459 products (With up to 91% in leave-on products), and concluded that it is safe as cosmetic ingredient in the present practices of use and concentration (CIR 2011).

Margin(s) of Safety

An MoS for this material has been determined in accordance with the criteria outlined in the Annex Preface, however information pertaining to it has been redacted from the report in order to preserve the confidential nature of the quantitative formulation. Any concerns relating to the MoS are discussed on page 4 of the review under 'Toxicological & Regulatory Assessment'

ANNEX II - INGREDIENT DATA

Cyclopentasiloxane

Acute Toxicity Acute Inhalation Toxicity, Lethality [OECD 403, OECD 436]		LC50 = 8.67 mg/L [5M + 5F. Whole-body vapour exposure]
Rat	Inhalation	
Acute Toxicity Acute Oral Toxicity, Lethality [OECD 401, OECD 423, OECD 425]		LD50 > 5,000 mg/kg bw, No mortality and adverse effects observed
Rat	Oral, Gavage	
ADME In vitro absorption study [Other]		Dermal Absorption = 0.06% (Mean +1 SD) [Dermatomed abdominal epidermis from human cadaver. Majority of material evaporated and captured in charcoal baskets]
Ex-vivo Tissue	In vitro exposure	
Carcinogenicity Carcinogenicity studies [Other]		NOAEL = 40ppm (converted systemic dose = 3mg/kg bw/day, as per SCCS/1549/15) [24-month combined chronic/oncogenicity study according to EPA OPPTS 870.4300. Uterine endometrial adenocarcinomas reported at highest dose (160ppm)]
Rat	Inhalation	
Eye Irritation In vivo Eye Irritation [Other]		Not irritating [3M + 3F. 24hr instillation exposure without rinsing; 0.1 ml; Conc. undiluted]
Rabbit	Instillation	
Eye Irritation Draize, Standard [OECD 405]		Not irritating [0.1 ml; Conc. undiluted]
Rabbit	Instillation	
Genotoxicity Bacterial reverse mutation test (Ames) [OECD 471]		Non mutagenic, with and without metabolic activation. [S. typhimurium TA1535, TA1537, TA98, TA100 and E. coli WP2 uvrA. Up to 5,000µg/plate.]
Bacteria	In vitro exposure	
Genotoxicity In vivo genotoxicity assay [Other]		No induction of DNA Damage or micronuclei. [Whole body vapour inhalation, 160ppm for 6hrs per day over 7 consecutive days.]
Rat	Inhalation	
Repeated Dose 90-Day Oral Toxicity Study [OECD 408, OECD 409]		NOAEL = 100mg/kg/day
Rat	Oral, Gavage	
Repeated Dose 90-day Inhalation Toxicity Study [OECD 413]		NOAEC = 49.2ppm (0.75 mg/l) - Based on the local toxicity of D5 on the lungs at the two highest doses. Doses: 28.6, 49.2, 87.7 or 233 ppm (0.44, 0.75, 1.33, or 3.53 mg/l) - 6 hours/day; 5 days/week; 13 weeks.
Rat	Inhalation	
Reproductive Toxicity In vivo reproductive toxicity study [Other]		NOAEL = 160 ppm [2-generation study, whole-body vapour exposure at 0ppm, 30ppm, 70ppm or 160 ppm. Male F0 and F1 exposure throughout study and mating, up to the day prior to euthanasia. Female F0 and F1 exposure throughout study and mating up to gestation day 20. Exposure reinitiated on lactation day 5 through to the day prior to euthanasia.]
Rat	Inhalation	
Skin Irritation In vivo skin irritation [Other]		Not irritating [3M + 3F. 24hr occlusive exposure on intact and abraded skin. 0.1 ml. Conc. 100%. No evidence of irritation.]
Rabbit	Dermal	
Skin Irritation In vivo skin irritation [Other]		Mild primary irritant [3 animals. 4hr occlusive exposure on intact skin. 0.4 ml. Conc. 100%]
Rabbit	Dermal	
Skin Sensitisation Local Lymph Node Assay [OECD 429, OECD 442A, OECD 442B]		Non-sensitising (10%, 50% or 100% in acetone/olive oil) [S.I. of 0.7, 0.8 and 0.5 respectively. Material not occluded on application, as a volatile substance the test concentration cannot be considered robust.]
Mouse	Dermal	
Skin Sensitisation Buehler [OECD 406]		Non-sensitising [Induction: 100%; Challenge: 10%, 25%, 50% and 100%]
Guinea Pig	Dermal	
Skin Sensitisation Repeat Insult Patch Test (RIPT) [Other]		Non-sensitising [28M + 22F. 0.05ml of neat test material 3-times per week for 3 weeks (9 applications). No evidence or irritation or sensitisation.]
Human	Dermal	

ANNEX II - INGREDIENT DATA

Substance: Vitis Vinifera (Grape) Seed Oil
CAS: 84929-27-1; 8024-22-4; 85594-37-2
Function: Emollient; Skin conditioning

Chemical Structure

Physical/Chemical Characteristics

Appearance	Clear light yellow liquid
Water Solubility	Practically insoluble

Toxicological Summary

The below information is a summary of the toxicological profile for this raw material, including a description of general hazards associated with the material as well as discussion of the most critical studies relating to the overall safety in use of this substance/mixture in consumer products. Details of the available toxicological data can be found overleaf.

Overall Toxicity Review:

The interest in grape seed oil as a functional food product has increased, especially because of its high levels of hydrophilic constituents, such as phenolic compounds, and lipophilic constituents, such as vitamin E, unsaturated fatty acids (UFAs), and phytosterols. However this material, and Grape products in general, find widespread use in a vast range of consumer products and form a staple of many human diets. As such use in consumer products is not considered to present a risk to health.

Grape seed oil showed antioxidant, anti-inflammatory, cardioprotective, antimicrobial, and anticancer properties, and may interact with cellular and molecular pathways (Garavaglia et al, 2016).

In humans, the effects of grape seed oil consumption on inflammation and insulin resistance were evaluated in overweight/obese women. The subjects (n = 44) were randomly assigned into two groups, grape seed oil (consuming 15% of daily energy from grape seed oil) and sunflower oil (consuming 15% of energy from sunflower oil), through a weight loss diet for eight weeks. Homeostatic model assessment of insulin resistance scores, ultrasensitive C-reactive protein (us-CRP), and TNF-α decreased in the grape seed oil group [Int J Food Sci Nutr. 2013 Sep; 64(6):706-10]. The consumption of up to 45 g/day of grape seed oil seemed to increase HDL-c by 13% and reduce LDL-cholesterol levels by 7% in humans (Nash, 2004).

In Human Repeat Insult Patch Test, up to 90% Vistis Vinifera (Grape) Seed Oil was found not a dermal irritant or sensitizer. The Cosmetic Ingredient Review (CIR) report indicates that it is used in 465 cosmetic products at a range of 0.001-43% (up to 41% in leave on products) and concluded that it is safe in the practice of use and concentration in cosmetics (CIR, 2017).

Although a NOAEL was not available for use the long history of safe use of this material at typical levels in consumer items is not expected to pose an undue risk of significant adverse effects to the majority of individuals.

Margin(s) of Safety

An MoS for this material has been determined in accordance with the criteria outlined in the Annex Preface, however information pertaining to it has been redacted from the report in order to preserve the confidential nature of the quantitative formulation. Any concerns relating to the MoS are discussed on page 4 of the review under 'Toxicological & Regulatory Assessment'

ANNEX II - INGREDIENT DATA

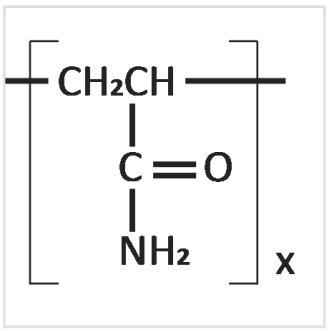
Vitis Vinifera (Grape) Seed Oil

Skin Sensitisation Repeat Insult Patch Test (RIPT) [Other] Human / Dermal	105 subjects: 0.2mL of 39% Vitis Vinifera (Grape) Seed Oil in a preshave lotion: Not a sensitizer.
Skin Sensitisation Repeat Insult Patch Test (RIPT) [Other] Human / Dermal	90% Vitis Vinifera (Grape) Seed Oil in a fragranced oil tested in 105 subjects: Not a dermal irritant or sensitizer

ANNEX II - INGREDIENT DATA

Substance: Polyacrylamide
CAS: 38193-60-1; 9003-05-8
Function: Film Forming; Antistatic; Binding

Chemical Structure



Physical/Chemical Characteristics

Appearance	Off white solid
Flammability	>200 °C
Odour	None
pH	5 - 7(aqueous solution)
Specific Gravity	0.75 - 0.95
Water Solubility	Limited by viscosity

Toxicological Summary

The below information is a summary of the toxicological profile for this raw material, including a description of general hazards associated with the material as well as discussion of the most critical studies relating to the overall safety in use of this substance/mixture in consumer products. Details of the available toxicological data can be found overleaf.

Overall Toxicity Review:

Polyacrylamide is mostly used for its high water-absorbent power. As a polymer, it is quite inert. The unreacted Acrylamide monomer, however, has a significant toxicological profile, and is classified as 2A carcinogen by the International Agency for Research on Cancer (IARC) and carcinogenic 1B as per EU Classification, Labelling and Packaging (CLP). As such it must be ensured that levels of free monomer within this material are kept to an absolute minimum. The Cosmetic Ingredient Review (CIR) reported concentrations of monomer from < 1 ppm to 600 ppm (CIR, 2005).

A number of Consumer Products, including Cosmetics, have restrictions on the maximum amount of free monomer and these must be complied with for the relevant products (e.g. 0.1 ppm in leave-on cosmetic products in the EU)

The compound was not irritating to eyes or skin. The compound was well tolerated following acute oral exposure with a LD50 larger than 4 g/kg. No data was available on skin sensitisation, however, polymers of such nature are relatively inert; provided that the levels of impurities are kept to a minimum, it is not expected to cause an undue risk of sensitisation.

A NOAEL of > 464 mg/kg bw/day was reported from a 90-day repeated dose toxicity study and there were no adverse effects to reported in a three-generation study on polyacrylamide up to the highest tested dose (200 mg/kg bw/day). Whilst two NOAELs were reported, they are considered not appropriate to assess systemic risk, as the ingredient is not expected to be systemically available.

Cosmetic grades of polyacrylamide weigh from 30,000 to 12,000,000 Da (CIR, 2005). Therefore, they are not expected to be absorbed via the skin, thus will not be bioavailable.

Assuming the levels of free monomers are kept to a minimum and comply with any product specific requirements this material is unlikely to produce significant localised or systemic toxicity.

Margin(s) of Safety

An MoS for this material has been determined in accordance with the criteria outlined in the Annex Preface, however information pertaining to it has been redacted from the report in order to preserve the confidential nature of the quantitative formulation. Any concerns relating to the MoS are discussed on page 4 of the review under 'Toxicological & Regulatory Assessment'

ANNEX II - INGREDIENT DATA

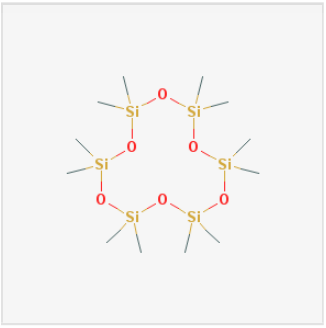
Polyacrylamide

Acute Toxicity Acute Toxicity, Lethality [Other]		LD50 > 4 g/kg
Rat	Oral, NOS	
Eye Irritation In vivo Eye Irritation [Other]		Not irritating. Application of solid polyacrylamide was placed in the conjuntival sac of one eye and washed after 30 sec. There was no indication of corneal or conjunctival irritation. a slight conjunctival response was observed at 1 hr, but both eyes were normal after 24 hr.
Rabbit	Instillation	
Repeated Dose Repeat Dose Oral Toxicity Study [Other]		NOAEL > 464 mg/kg/day 500, 2000, 10000, 50000 ppm, for 90 days
Rat	Oral, Feed	
Reproductive Toxicity In vivo reproductive toxicity study [Other]		NOAEL > 2000 ppm (approx 200 mg/kg/day) Three-generation study. No adverse effects were observed at the highest dose
Rat	Oral, Feed	
Skin Irritation Patch Test, 24hr [Other]		Not irritating. A 5% w/w preparation of polyacrylamide was relatively well tolerated.
Rabbit	Dermal	

ANNEX II - INGREDIENT DATA

Substance: Cyclohexasiloxane
CAS: 69430-24-6; 540-97-6
Function: Emollient; Hair conditioning; Skin conditioning; Solvent

Chemical Structure



Physical/Chemical Characteristics

Appearance	Clear Liquid
Boiling Point	245 °C
Flash Point	>76°C
Molecular Mass	444.92
Melting Point	-3°C
Odour	faint
Specific Gravity	0,959 g/cm3
Vapour Pressure	2.25X10-2 mm Hg at 25 deg C

Toxicological Summary

The below information is a summary of the toxicological profile for this raw material, including a description of general hazards associated with the material as well as discussion of the most critical studies relating to the overall safety in use of this substance/mixture in consumer products. Details of the available toxicological data can be found overleaf.

Overall Toxicity Review:

A cyclic silicone derivative, often referred to as D6 (6 units of Dimethicone), used as an emollient and for hair conditioning.

Some manufacturers classify it as irritating to the eyes (ECHA inventory), despite the studies submitted to the ECHA registration dossier which indicate it is only a mild eye irritant.

D6 is registered in the range of 10,000 - 100,000 tonnes per annum in Europe, and as such has a pretty complete registration dossier available, most of the studies having been conducted before 2013.

A Guinea Pig Maximisation Test with 50% Cyclyohexasiloxane in Corn Oil did not produce significant allergenic effects. Found to be non-mutagenic under the conditions of an Ames test and a mammallian cell gene mutation test.

D6 is not considered toxic to reproduction or development: a potential increase in the number of non-gravid females was seen at doses of 1g/kg/day in a Reproductive Toxicity study, however the effect was not significant and the 1g/kg/day exposure represented the highest dose level. No developmental effects were observed at this dose.

A Derived No Effect Level (DNEL) of 1.7 mg/kg/day has been proposed in the ECHA registration dossier, based on the 1000 mg/kg/day NOAEL from a OECD 422 study, and corrected with an assessment factor of 600. As the NOAEL is from short term study hence a factor of 3 is applied for to the NOAEL of 1000 mg/kg/day

Given the lack of dermal absorption of this material and its low potential for localised toxicity when used in Consumer Products, D6 would be expected to pose only a low risk of significant adverse effects.

The Cosmetic Ingredient Review (CIR) concluded in their 2011 safety assessment of cyclohexasiloxane that inclusion in cosmetic products at the concentrations and practices of use described in the report (at 0.0004-48% in 618 products (with up to 48% in leave-on products)).

To date, D6 is allowed in most countries, but it is noted that the very close analogues D4 and D5 will be restricted in the EU from 2020 in rinse-off products. Going forward, it is recommended to check the status of this ingredient.

Margin(s) of Safety

An MoS for this material has been determined in accordance with the criteria outlined in the Annex Preface, however information pertaining to it has been redacted from the report in order to preserve the confidential nature of the quantitative formulation. Any concerns relating to the MoS are discussed on page 4 of the review under 'Toxicological & Regulatory Assessment'

ANNEX II - INGREDIENT DATA

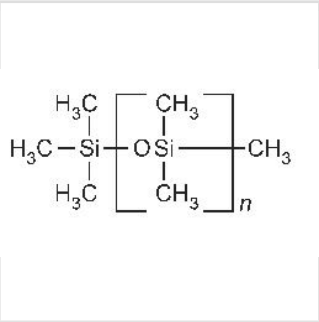
Cyclohexasiloxane

Acute Toxicity		LD50 > 2000 mg/kg
Acute Oral Toxicity, Lethality [OECD 401, OECD 423, OECD 425]		
Rat	Oral, Gavage	
ADME		Dermal penetration: 0.003%; skin absorption: 3%. 46.4% on the skin; 50% volatilized; virtually none penetrated the skin.
In vitro skin absorption [OECD 428]		
Human	In vitro exposure	
Eye Irritation		Not irritating Irritation of the conjuctivae, resolved within 24 hours.
Draize, Standard [OECD 405]		
Rabbit	Instillation	
Genotoxicity		Not mutagenic [Strains: Salmonella typhimurium (TA1535, TA1537, TA100 and TA98) and Escherichia coli (WP2uvrA]
Bacterial reverse mutation test (Ames) [OECD 471]		
Bacteria	In vitro exposure	
Genotoxicity		Not mutagenic
Mammalian cell gene mutation test [OECD 476]		
In-vitro culture	In vitro exposure	
Reproductive Toxicity		NOAEL > 1000 mg/kg/day 100, 330, 1000 mg/kg/day; exposure: males+females: 28d; reproductive females: 46d; 10/sex/dose
Combined Repeated Dose Toxicity Study with the Reproduction/Developmental Toxicity Screening Test		
Rat	Oral, Gavage	
Skin Irritation		Not irritating
Draize Test [OECD 404]		
Rabbit	Dermal	
Skin Sensitisation		Not sensitising intradermal induction: 50%, 100% topical: 100% challenge: 20-50%
Buehler [OECD 406]		
Guinea Pig	Dermal	

ANNEX II - INGREDIENT DATA

Substance: Dimethicone
CAS: 9016-00-6; 9006-65-9; 63148-62-9; 141-62-8
Function: Antifoaming; Emollient; Skin Conditioning; Skin Protecting

Chemical Structure



Physical/Chemical Characteristics

Appearance	Colourless liquid
Specific Gravity	0.915 @ 25C
pH	3.5
Boiling Point	> 35 °C
Viscosity	5 cSt
Water Solubility	Insoluble
Flash Point	> 101.1 °C (Closed Cup)
Appearance	Colourless liquid
Boiling Point	> 35 °C

Toxicological Summary

The below information is a summary of the toxicological profile for this raw material, including a description of general hazards associated with the material as well as discussion of the most critical studies relating to the overall safety in use of this substance/mixture in consumer products. Details of the available toxicological data can be found overleaf.

Overall Toxicity Review:

Dimethicone is a white fluid polymer which is a mixture of fully methylated linear siloxane polymers, end-blocked with trimethylsiloxy units. It functions as antifoaming, emollient, skin conditioning and skin protecting agent in cosmetic product. It has no restriction for use in cosmetic product within EU and US.

Dimethicone has low oral and dermal acute toxicity based on oral and dermal LD50s. This substance is essentially non irritating to skin and the eye, is not absorbed through the skin and has no potential to cause skin sensitisation. The compound's structure does not contain conjugated double bonds, therefore, it will not absorb UV light which is a prerequisite for phototoxicity. No mutagenic or reproductive toxicity was found based on in vitro studies and animal studies.

A no-observed-effect-level (NOEL) of 1000 mg/kg bw/day (the highest tested dose) for both systemic toxicity and oncogenicity was found in a 12-month chronic toxicity and a 24-month carcinogenicity study in rats, which is the highest tested dose in the studies. The true NOAEL may be at higher dose, however, this NOEL of 1000 mg/kg bw/day could be a conservative point of departure (PoD) for safety assessment.

The Joint FAO/WHO Expert Committee on Food Additives (JECFA) committee established an acceptable daily intake (ADI) of 1.5 mg/kg bw. This value could also be used as a point of departure for the calculation of the margin of safety of the compound.

The average molecular weight is 5000 ~ 100000 Da (chemicalbook.com) Polymeric material of this nature is expected to be poorly absorbed through skin and gastrointestinal tract. Low skin penetration is supported by the lack of evidence for skin absorption from the human studies in which following 10-day dermal application of dimethicone to 10 volunteers, no silicone was detected in the blood or urine. In an in vitro dermal penetration study, the interaction of Dimethicone with the stratum corneum (SC) lipid microstructure in healthy excised human tissue was evaluated. All results indicated that Dimethicone did not disturb or interact with the upper layer of epidermis, and is not likely to penetrate the skin barrier.
However, as a worst case scenario, a dermal absorption of 10% is conservatively chosen for margin of safety evaluation.

The manufacturer must ensure all the polymers are fully polymerised with no free monomers or residual solvents. The Cosmetic Ingredients Review (CIR) Expert Panel (2003) stated Dimethicone has been used in up to 30% in leave on product and concluded that Dimethicone is safe as used in cosmetic rinse-off and leave-on products. In 2020, the CIR reported Dimethicone is used in 12426 leave-on products at up to 85% and in 1616 rinse-off products at up to 23.4% (eye products at up to 37.8%; incidental ingestion products at up to 71.3%; baby products at up to 10%) and concluded that Dimethicone is safe as used in cosmetics (CIR 2020). Use in Consumer Products where dermal contact is the major route of exposure is therefore most unlikely to provoke an adverse response.

Margin(s) of Safety

An MoS for this material has been determined in accordance with the criteria outlined in the Annex Preface, however information pertaining to it has been redacted from the report in order to preserve the confidential nature of the quantitative formulation. Any concerns relating to the MoS are discussed on page 4 of the review under 'Toxicological & Regulatory Assessment'

ANNEX II - INGREDIENT DATA

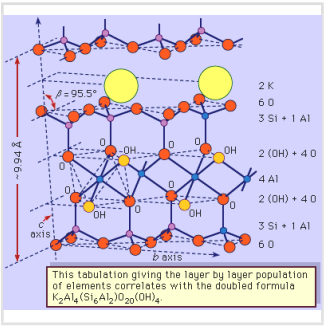
Dimethicone

Acute Toxicity Acute Toxicity, Lethality [Other]		LD50 = 6500 - 3190 mg/kg bw [3.26 - 100% formulations, summarised from multiple studies report in CIR report]
Rat	Oral, NOS	
Acute Toxicity Acute Toxicity, Lethality [Other]		LD50 > 2000 mg/kg bw [>90% trade mixture]
Rabbit	Dermal	
ADME In vivo absorption study [Other]		n=10, 100 cs Dimethicone fluid applied with no dressing once daily to the back of volunteers for 10 days. After 20 h exposure, the excess material was removed. Absorption was measured as silicon in blood and urine. No evidence of dermal absorption of dimethicone were made.
Human	Dermal	
ADME In vitro skin absorption [OECD 428]		Dimethicone did not disturb or interact with the liquid crystalline structure of the upper layer of the epidermis, and hence is not likely to penetrate the skin barrier. Excised human stratum corneum (SC) tissue were from the inner thigh of a healthy 50 year-old women and the abdomen of a healthy 26 year-old man.
In-vitro culture	In vitro exposure	
Carcinogenicity Carcinogenicity studies [Other]		No increase in the number of malignant or benign neoplasms was observed. [Up to 2.5% (corresponds to 5200 mg/kg bw/day), 76-week study]
Mouse	Oral, Feed	
Eye Irritation In vivo Eye Irritation [Other]		Non-irritant according to EU evaluation criteria [>90% trade mixture, 0.1 mL]
Rabbit	Instillation	
Genotoxicity Bacterial reverse mutation test (Ames) [OECD 471]		Not mutagenic with and without metabolic activation [S. typhimurium TA98, 100, 1535, 1537,1538, E.coli WP23 - 100% in trade products, summarised from multiple studies report in CIR report]
Bacteria	In vitro exposure	
Genotoxicity In vitro genotoxicity assay [Other]		Negative with and without metabolic activation [79% in trade product, transformation assay, summarised from multiple studies report in CIR report]
In-vitro culture	In vitro exposure	
Genotoxicity In vitro genotoxicity assay [Other]		Negative with and without metabolic activation [79% in trade product, chromosome abberation assay and HGPRT forward mutation assay, summarised from multiple studies report in CIR report]
In-vitro culture	In vitro exposure	
Repeated Dose Repeat Dose Dermal Toxicity Study [Other]		No adverse reactions, effects on body weights, or pathologic changes were noted. [up to 25%, 7-day exposure]
Rabbit	Dermal	
Repeated Dose Repeat Dose Inhalation Toxicity Study [Other]		Inhalation of silicone oil was harmless [10 mL/kg of atomised dimethicone for 4 hours, viscosity was 140 cs at 20°C, repeated 29 days later]
Rat	Inhalation	
Repeated Dose Repeat Dose Oral Toxicity Study [Other]		NOEL = 1000 mg/kg bw/day (the highest tested dose) for both systemic toxicity and oncogenicity Dimethicone (9.5 kg/ms) in the diet at doses of 0 (control), 100, 300, or 1000 mg/kg bw/d for 12 months (30/sex/group) or 24 months (50/sex/group).
Rat	Oral, Gavage	
Reproductive Toxicity In vivo reproductive toxicity study [Other]		No significant effects were observed in dams (toxicity, feed consumption, incidence of resorptions, body weight or liver weight) or offsprings (birth weight, incidence of external, visceral, or skeletal abnormalities). [Food grade at up to 2.5% in feed, GD 6-19]
Rabbit	Oral, Feed	
Skin Irritation In vivo skin irritation [Other]		Practically non-irritating 1hr - Slight to well-defined erythema and very slight oedema (PII = 0.4 out of 8) 72hr - Irritation diminished and cleared [>90% trade mixture, 4hrs exposure]
Rabbit	Dermal	
Skin Sensitisation Maximisation Test [Other]		No irritation or allergic reactions [79% Dimethicone. Modified split-adjuvant protocol: 4x 48-h occlusive patches in 10 days, 24h challenge patch test 10 days later]
Guinea Pig	Dermal	
Skin Sensitisation Repeat Insult Patch Test (RIPT) [Other]		Neither an irritant nor a sensitiser [5% w/v active Dimethicone in cyclomethicone, 103 subjects]
Human	Dermal	

ANNEX II - INGREDIENT DATA

Substance: Mica (CI 77019)
CAS: 12001-26-2
Function: Opacifying; Anticaking; Bulking; Cosmetic colouring

Chemical Structure



Physical/Chemical Characteristics

Appearance	Lustrous solid, forms crystalline plates in nature
Explosive	None
Molecular Mass	797 g/mol
Melting Point	1500 C
Particle Size	Variable
Specific Gravity	2.6
Water Solubility	Insoluble

Toxicological Summary

The below information is a summary of the toxicological profile for this raw material, including a description of general hazards associated with the material as well as discussion of the most critical studies relating to the overall safety in use of this substance/mixture in consumer products. Details of the available toxicological data can be found overleaf.

Overall Toxicity Review:

Mica is a series of silicate minerals of varying chemical composition but with similar physical properties. Chemically, Micas can be given the general formula (Deer et al., 1966);
X2Y4–6Z8O20(OH, F)4,
in which
X is K, Na, or Ca or less commonly Ba, Rb, or Cs;
Y is Al, Mg, or Fe or less commonly Mn, Cr, Ti, Li, etc.;
Z is chiefly Si or Al, but also may include Fe3+ or Ti.

In cosmetics Mica is used as an anticaking, bulking and opacifying agent. It is also used as a slip modifier and as a colorant. Mica has been approved by the FDA to be used as an indirect food additive (FDA, 2018).

Mica is not irritating to the skin. No irritation or corrosive effects were seen when undiluted potassium aluminium silicate was applied on to the skin of rabbits under semi-occlusive condition and in an in-vitro skin irritation test. Slight ocular irritation was noted when potassium silicate at concentration up to 39% was instilled in to the eyes of rabbits. Based on data from sodium metasilicate, Mica can be considered as not sensitising to the skin.

The acute oral toxicity for Mica is low. LD50 values in rats were greater than 2000 mg/kg bw.

A NOAEL of > 2,000 mg/kg bw/day was established in a 14 weeks dietary study in which rats were fed Mica at a concentration of 69-75%. In this study, rats were administered Iriodin Ti 100K (69-75% Mica) in diet at a concentration of 0, 5,000, 10,000 and 20,000 mg/kg feed. No treatment related effects were seen in this study. The 20,000 mg/kg (highest dose tested) in feed translates to 2,000 mg/kg body weight of rats, corresponding to at least 1,380 mg Mica/kg bw/day (taking the lowest purity level of 69%) is the point of departure and is conservatively chosen. However, the true NOAEL could be higher.

Mica is not genotoxic, carcinogenic or toxic to the reproductive system.

No specific data on dermal absorption is available. As dermal absorption is dependent on the molecular properties, concentration, exposure time and vehicle simultaneously, in the absence of relevant experimental data it is difficult to assess an exact value. If not stated otherwise within the risk assessment, we assume 100% dermal absorption, however it must be noted that for the majority of compounds, even low molecular weight, lipophilic compounds, dermal absorption is expected to be significantly lower than 100%.

Within the EU mica is not permitted as a cosmetic colourant/pigments, but it is not prohibited from use in cosmetics when listed as the ingredient "Mica", e. g. as an bulking agent.

Based on application and use within cosmetic products, Mica is not expected to pose any significant risk of adverse effects in the majority of individuals

Margin(s) of Safety

An MoS for this material has been determined in accordance with the criteria outlined in the Annex Preface, however information pertaining to it has been redacted from the report in order to preserve the confidential nature of the quantitative formulation. Any concerns relating to the MoS are discussed on page 4 of the review under 'Toxicological & Regulatory Assessment'

ANNEX II - INGREDIENT DATA

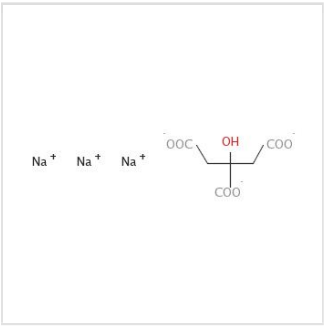
Mica (CI 77019)

Acute Toxicity Acute Oral Toxicity, Lethality [OECD 401, OECD 423, OECD 425]		LD50 (Oral, Rat) > 15000 mg/kg bw (68-76% mica; 24-32% Titanium Dioxide)
Rat	Oral, NOS	
Acute Toxicity Acute Oral Toxicity, Lethality [OECD 401, OECD 423, OECD 425]		LD50 (Oral, Rat) > 5000 mg/kg bw (58% mica; 40% Titanium Dioxide, 2% myristic acid)
Rat	Oral, NOS	
Carcinogenicity Carcinogenicity studies [Other]		A 52 week study on rat (male/female) with oral dose of test material (72% potassium aluminium silicate and 28% titanium dioxide) at 0, 10000, 20000 and 50000 mg/kg. The test material did not produce toxicological or carcinogenic effects at dietary concentrations up to 50000 mg/kg diet. equivalent to 2500 mg/kg bw/day of test material (1800 mg/kg/d for mica).
Rat	Oral, NOS	
Eye Irritation Draize, Standard [OECD 405]		At concentrations of 35 % and 29 % (highest tested concentrations) potassium silicates with molar ratios of 3.4 and 3.9 were only slightly, and not irritating to the eyes of rabbits, respectively.
Rabbit	Instillation	
Genotoxicity Bacterial reverse mutation test (Ames) [OECD 471]		Not genotoxic with and without metabolic activation Dose: 5–5000 µg/plate. Test Material: Mica pigment mix (63.5% mica, 26.4% TiO_2, 10.1% Fe_2O_3)
Bacteria	In vitro exposure	
Genotoxicity In vitro genotoxicity assay [Other]		Not genotoxic with and without metabolic activation to Escherichia coli WP2uvrA. Dose: 5–5000 µg/plate Test Material: Mica pigment mix (63.5% mica, 26.4% TiO_2, 10.1% Fe_2O_3)
Bacteria	In vitro exposure	
Genotoxicity Mammalian erythrocyte micronucleus test [OECD 474]		Negative Test Object: Male Wistar rat bone marrow Test Material: CandurinR Honeygold (36–52% mica, 42–52% TiO_2, 6–12% Fe_2O_3) Dose: 2000 mg/kg bw, orally
Rat	Oral, Feed	
Repeated Dose Repeat Dose Inhalation Toxicity Study [Other]		Exposure of workers to mica powder may cause irritation of respiratory tract & after several years, nodular fibrotic pneumoconiosis that was long considered to be a form of silicosis but which may be due to pure mica dust containing no free silica.
Human	Inhalation	
Repeated Dose 90-Day Oral Toxicity Study [OECD 408, OECD 409]		NOAEL: > 2,000mg/kg bw/day. No treatment related effects seen. Test substance: Iriodin® Ti 100K (69–75% mica, 25–31% TiO_2); 0, 5,000, 10,000 or 20,000 mg/kg in diet (equivalent to 0, 500, 1,000 and 2,000 mg/kg bw/day as Iriodin® Ti 100K). 15/sex/dose; 14 week exposure.
Rat	Oral, Feed	
Reproductive Toxicity Reproduction/Developmental Toxicity Screening Test [OECD 421]		No signs of adverse toxicity. Groups of 10 male and 10 female rats. 25, 250mg/kg/day Potassium aluminium silicate amorphous glass fibres for 40 to 55 days. NOAEL > 250 mg/kg/day.
Rat	Oral, Gavage	
Skin Irritation Draize Test [OECD 404]		Not irritating (Potassium aluminium borosilicate) [0.5 mg; vehicle: water; concentration not stated]
Rabbit	Dermal	
Skin Irritation Reconstructed Human Epidermis (RHE) Test [OECD 431, OECD 439]		Not irritating (Potassium aluminium borosilicate) [Conc. not reported; tissue viability 96.6%)
Ex-vivo Tissue	In vitro exposure	
Skin Sensitisation Local Lymph Node Assay [OECD 429, OECD 442A, OECD 442B]		Not sensitising. Sodium metasilicate at 2,4 and 6% for 3 days. SI: 1.0, 1.4 and 1.3 for the test doses.
Mouse	Dermal	

ANNEX II - INGREDIENT DATA

Substance: Sodium Citrate
CAS: 6132-04-3; 68-04-2
Function: Buffering; Chelating; Masking

Chemical Structure



Physical/Chemical Characteristics

Appearance	Clear colourless liquid / White solid
Molecular Mass	258.07
Melting Point	150C
Odour	None
pH	7.0 - 8.0
Specific Gravity	1.110 - 1.170 g/cm3
Water Solubility	Soluble

Toxicological Summary

The below information is a summary of the toxicological profile for this raw material, including a description of general hazards associated with the material as well as discussion of the most critical studies relating to the overall safety in use of this substance/mixture in consumer products. Details of the available toxicological data can be found overleaf.

Overall Toxicity Review:

Sodium citrate is the sodium salt of citric acid. It is reported to function in cosmetics as buffering agent, chelating agent, fragrance ingredients and pH adjusters. It is Generally Recognised As Safe (GRAS) as a direct food additive by the US FDA (21CFR184.1751).

Limited data on the compound itself was available, therefore, data on the constituent acid was used where appropriate. Sodium Citrate is a salt of citric acid. Salts dissociate rapidly when present in water based mediums to the common anion (i.e. citric acid) and to their different counter ions (i.e. sodium). Sodium as an ionic form is an essential element which is regulated by homeostasis in the human body; information related to roles of calcium in the human body has been well documented in the literature. Therefore, is thought to be unlikely to add to the toxicity of the compound.

In the Draize test, undiluted sodium citrate was not irritating to the skin and eyes of rabbits. Sodium citrate at a concentration of up to 75% showed no sensitisation potential in the guinea pig maximization test.

Although citric acid can be considered an Alpha Hydroxy Acid (AHA), which are known for their phototoxic potential, it is also a Beta-hydroxy acid. Structurally, citric acid is a tricarboxylic acid, and as such, has a unique functionality and is chemically and biologically distinct from the AHAs (ie, glycolic and lactic acid). Therefore, the concerns that stem from the mode of action of AHAs is not considered relevant to citric acid and its inorganic salts and alkyl esters, including Sodium citrate (CIR, 2014).

The acute oral toxicity of sodium citrate is low. The acute oral LD50 value in mice was > 2000 mg/kg. The acute dermal LD50 value for citric acid in rats was > 2000 mg/kg.

A NOAEL of greater than 1200 mg/kg bw/day was established in a 2 year dietary study in which rats were fed citric acid. No treatment related findings were found in this study. The NOAEL of 1200 mg/kg bw/day (highest dose tested) is the point of departure and is conservatively chosen. As this was the top dose tested, the true NOAEL could be higher.

Sodium citrate was not mutagenic in the Ames test. Sodium citrate was also found to be non-clastogenic in a chromosomal aberration assay using citric acid. Based on data from citric acid, sodium citrate can be considered as unlikely to be carcinogenic or toxic to the reproductive system.

As dermal absorption is dependent on the molecular properties, concentration, exposure time and vehicle simultaneously, in the absence of relevant experimental data it is difficult to assess an exact value. If not stated otherwise within the risk assessment, we assume 100% dermal absorption, however it must be noted that for the majority of compounds, even low molecular weight, lipophilic compounds, dermal absorption is expected to be significantly lower than 100%.

The Cosmetic Ingredients Review (CIR) Expert Panel reported usage of up to 10% in cosmetic products, and concluded it is safe in the present practices of use and concentration (CIR, 2014)

Margin(s) of Safety

An MoS for this material has been determined in accordance with the criteria outlined in the Annex Preface, however information pertaining to it has been redacted from the report in order to preserve the confidential nature of the quantitative formulation. Any concerns relating to the MoS are discussed on page 4 of the review under 'Toxicological & Regulatory Assessment'

ANNEX II - INGREDIENT DATA

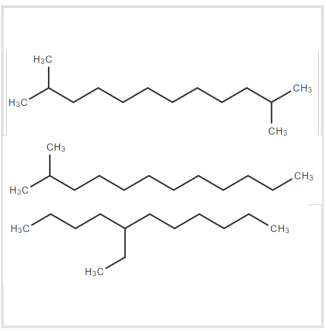
Sodium Citrate

Acute Toxicity Acute Oral Toxicity, Lethality [OECD 401, OECD 423, OECD 425]		LD50 > 2000 mg/kg
Mouse	Oral, Gavage	
Acute Toxicity Acute Dermal Toxicity, Lethality [OECD 402]		[Read across of Citric Acid] LD50 > 2000 mg/kg bw.
Rat	Dermal	
Carcinogenicity Combined chronic toxicity/carcinogenicity studies [Other]		[Read across of Citric Acid] In 2 year studies with groups of 20 male rats, dietary levels of 5% citric acid (about 2g/kg bw/d) or 3% slightly decreased growth (food consumption was also lower in the top-dose group), but no tissue abnormalities were found on examination of the major organs. Under the test conditions, NOAEL was found to be >1200 mg/kg/d.
Rat	Oral, Feed	
Eye Irritation Draize, Standard [OECD 405]		Under the test conditions, test material was not irritating to the eyes of rabbits. 0.1 g undiluted sodium citrate was instilled in rabbit eyes and reactions were observed at 1, 24, 48 and 72 h post-instillation.
Rabbit	Instillation	
Genotoxicity Bacterial reverse mutation test (Ames) [OECD 471]		Not mutagenic. Test substance: Sodium citrate. Strain tested: TA 1535, TA 100, TA 98, TA 1537, TA92 and TA 94. Test concentration: Up to 5000 µg/plate with and without metabolic activation.
Bacteria	In vitro exposure	
Genotoxicity Mammalian bone marrow chromosome aberration test [OECD 475]		[Read across of Citric Acid] Negative for the induction of chromosome aberrations. Up to 3500 mg/kg bw of citric acid was administered to groups of 5 animals for 5 conservative days.
Rat	Oral, Gavage	
Reproductive Toxicity Two-Generation Reproduction Toxicity [OECD 416]		[Read across of Citric Acid] 5% w/w citric acid (surrogate) fed to rats did not influence either the number of young born to mice and rats or their subsequent survival up to the point of weaning. Under the test conditions, NOAEL was >5% dietary concentration.
Rat	Oral, Feed	
Skin Irritation Draize Test [OECD 404]		Not irritating. 0.5 g (moistened with distilled water) sodium citrate was applied under semi-occlusive conditions for 4 hr .
Rabbit	Dermal	
Skin Sensitisation Maximisation Test [OECD 406]		Not sensitising. Sodium citrate was tested at a concentration of 25, 50 and 75% .
Guinea Pig	Dermal	

ANNEX II - INGREDIENT DATA

Substance: C13-14 Isoparaffin
CAS: 246538-79-4; 64365-06-6; 64742-47-8 (generic)
Function: Solvent ; Emollient

Chemical Structure



Physical/Chemical Characteristics

Appearance	Mobile liquid
Boiling Point	179 - 210 °C
Flammability	Autoignition temperature : 230 °C
Flash Point	61 °C
Odour	Mild hydrocarbon
pH	7
Specific Gravity	0.76 @ 15.6 °C
Vapour Pressure	2,60 mmHg at 38 °C
Viscosity	1.5 cSt @ 38 °C

Toxicological Summary

The below information is a summary of the toxicological profile for this raw material, including a description of general hazards associated with the material as well as discussion of the most critical studies relating to the overall safety in use of this substance/mixture in consumer products. Details of the available toxicological data can be found overleaf.

Overall Toxicity Review:

C13-14 Isoparaffin is a mixture of branched chain aliphatic hydrocarbons with 13 or 14 carbons in the alkyl chain. Isoparaffinic hydrocarbons are quite stable and relatively unreactive, such that polymerisation will not occur. C13-14 Isoparaffin has been approved by the US Food and Drug Administration (FDA) as a food additive permitted for direct addition to food for human consumption (FDA, 2018).

Where information is not available, data from structural analogues have been used as a read-across substance.

Based on read-across data from animal studies, C13-14 Isoparaffin can be considered as mildly irritating to the eyes of rabbits. A mascara containing 48.28% C11 to 12 isoparaffin was not irritating or sensitising to human volunteers.

Based on data from C11-13 Isoparaffin, C13-14 Isoparaffin can be considered as having a low acute oral, dermal and inhalation toxicity.

A NOAEL of greater than 495 mg/kg/day was established in a dermal study in which rats were exposed to Hydro desulfurized kerosene (read-across) for 13 weeks. No systemic effects where noted in this study. Therefore, the point of departure is 495 mg/kg/d (the highest dose tested) and is conservatively chosen (the true NOAEL is likely to be higher).

Based on read-across data, C13-14 Isoparaffin can be considered as not genotoxic or toxic to the reproductive system.

As dermal absorption is dependent on the molecular properties, concentration, exposure time and vehicle simultaneously, in the absence of relevant experimental data it is difficult to assess an exact value. If not stated otherwise within the risk assessment, we assume 100% dermal absorption, however it must be noted that for the majority of compounds, even low molecular weight, lipophilic compounds, dermal absorption is expected to be significantly lower than 100%. Generally, C9-C14 isoalkanes are taken up into the blood, distributed into internal organs, and rapidly eliminated following exposure.

The Cosmetic Ingredient Review (CIR) expert panel had accessed the safety of C13-14 Isoparaffin as used in cosmetic products and concludes it is safe in the present practice of use and concentration (up to 75%) (CIR, 2012).

Based on the low oral and dermal toxicity of structural analogues of C13-14 Isoparaffin, and coupled with its food use, this material is not expected to produce local or systemic toxicity when incorporated in to a cosmetic product.

Margin(s) of Safety

An MoS for this material has been determined in accordance with the criteria outlined in the Annex Preface, however information pertaining to it has been redacted from the report in order to preserve the confidential nature of the quantitative formulation. Any concerns relating to the MoS are discussed on page 4 of the review under 'Toxicological & Regulatory Assessment'

ANNEX II - INGREDIENT DATA

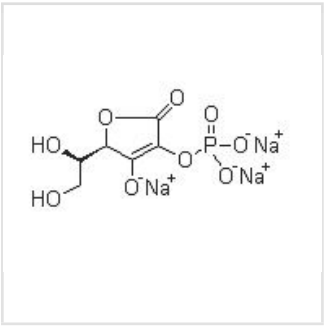
C13-14 Isoparaffin

Acute Toxicity Acute Oral Toxicity, Lethality [OECD 401, OECD 423, OECD 425]		C11-13 Isoparaffin (read-across) LD50 > 10 g/kg.
Rat	Oral, Gavage	
Acute Toxicity Acute Dermal Toxicity, Lethality [OECD 402]		C11-13 Isoparaffin (read-across) LD50 > 3.2 g/kg.
Rabbit	Dermal	
Acute Toxicity Acute Inhalation Toxicity, Lethality [OECD 403, OECD 436]		C11-13 Isoparaffin (read-across) LC50 > 715 ppm (5.01 mg/ml).
Rat	Inhalation	
Eye Irritation Draize, Standard [OECD 405]		Minimal/transient Irritant. 0.1 ml of undiluted C11-13 Isoparaffin (read-across) was instilled in to rabbit eyes.
Rabbit	Instillation	
Genotoxicity Bacterial reverse mutation test (Ames) [OECD 471]		Negative C11-13 Isoparaffin (read-across) was tested at 50-5000 µg/plate concentration with and without metabolic activation. Strain Tested: TA1535, TA1537, TA98, TA100, TA102.
Bacteria	In vitro exposure	
Genotoxicity Mammalian cell gene mutation test [OECD 476]		Negative. Test substance: C10-13 Isoparaffin (read-across). Test concentration: up to 1000 µg/mL. with and without metabolic activation.
Mouse	In vitro exposure	
Repeated Dose 90-day Dermal Toxicity Study [OECD 411]		NOEL (systemic toxicity)- >495 mg/kg/d LOEL (dermal irritation)- 165 mg/kg/d Hydrodesulfurized kerosene (read-across) was applied on to rats at 165, 330 & 495 mg/kg/day dose for 5 days/week for 13 weeks. Dermal irritation was noted at the mid and high dose groups.
Rat	Dermal	
Reproductive Toxicity In vivo reproductive toxicity study [Other]		Animals were exposed to 0, 300 or 900 ppm C10-11 Isoparaffin (read across) on Days 6 to 15 of gestation. Test substance was neither fetotoxic nor teratogenic. SPD
Rat	Inhalation	
Skin Sensitisation Repeat Insult Patch Test (RIPT) [Other]		Non irritant and non sensitiser. A mascara containing 48.28% C11 to 12 isoparaffin (read-across) was applied on to 107 male and female subjects using semi occlusive patches.
Human	Dermal	

ANNEX II - INGREDIENT DATA

Substance: Sodium Ascorbyl Phosphate
CAS: 66170-10-3
Function: Antioxidant

Chemical Structure



Physical/Chemical Characteristics

Appearance	Beige solid
Log Kow	< -4
Molecular Mass	322.05
Melting Point	260 °C
pH	9.4 at 1 g/l at 20 °C
Specific Gravity	290 kg/m3

Toxicological Summary

The below information is a summary of the toxicological profile for this raw material, including a description of general hazards associated with the material as well as discussion of the most critical studies relating to the overall safety in use of this substance/mixture in consumer products. Details of the available toxicological data can be found overleaf.

Overall Toxicity Review:

A water soluble derivative of vitamin C with strong antioxidant properties. Vitamin C derivatives find widespread use in a variety of consumer products, particularly in Foodstuffs and Supplement. EFSA reviewed the safety of Vitamin C and derivatives and noted that "The available human data suggest that supplemental daily doses of vitamin C up to about 1 g, in addition to normal dietary intakes, are not associated with adverse gastrointestinal effects, but that acute gastrointestinal effects may occur at higher intakes (3-4 g/day)"

Was not irritating to skin or to eyes of rabbits, and showed no evidence of sensitisation in a guinea pig maximisation test at up to 50%. Although no phototoxicity data was present the compound itself, ascorbic acid and its salts are reported to act as a photoprotectant in humans, protecting against the phototoxic effects caused by UVA and UVB (CIR, 2005; Stamford, 2012).

Has low acute toxicity, with an oral LD50 of 5,000 mg/kg bw/day.

A 28 day oral toxicity study in rats identified a NOAEL in females of 90.3 mg/kg bw/day based on histopathalogical changes in the thymus and increased water consumption at the higher dose. The point of departure for calculation of MoS is therefore set as 30 mg/kg bw/day (NOAEL value is divided by 3 as the data is from sub acute toxicity study, SCCS notes of guidance 8 the revision)

Was not genotoxic in the Ames test with or without metabolic activation.

Has a very low dermal absorption of 0.2% based on in vitro/ex vivo studies using hairless mouse skin.

The Cosmetic Ingredient Review (CIR, 2005) panel concluded that Sodium Ascorbyl Phosphate is safe as used in cosmetic products, reported as being up to 3%.

The use of low levels of this material within a Consumer Product would not be expected to pose an undue risk of significant adverse effects.

Margin(s) of Safety

An MoS for this material has been determined in accordance with the criteria outlined in the Annex Preface, however information pertaining to it has been redacted from the report in order to preserve the confidential nature of the quantitative formulation. Any concerns relating to the MoS are discussed on page 4 of the review under 'Toxicological & Regulatory Assessment'

ANNEX II - INGREDIENT DATA

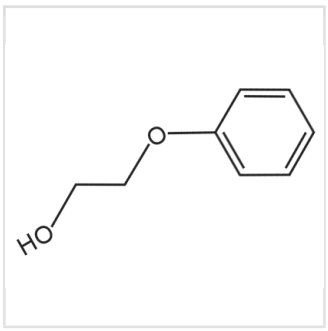
Sodium Ascorbyl Phosphate

Acute Toxicity Acute Toxicity, Lethality [Other]		LD50 > 5000 mg/kg
Rat	Oral, Gavage	
ADME In vitro absorption study [Other]		Dermal absorption through ex vivo mouse skin was found to be 0.2% (read across to magnesium ascorbyl phosphate)
Ex-vivo Tissue	In vitro exposure	
Eye Irritation Draize, Standard [OECD 405]		Not irritating to rabbit eyes. [Conc. undiluted]
Rabbit	Instillation	
Genotoxicity Bacterial reverse mutation test (Ames) [OECD 471]		Negative in S. typhimurium TA 100 and E. coli WP2 uvr A with and without metabolic activation.
Bacteria	In vitro exposure	
Repeated Dose 28-day Oral Toxicity Study [OECD 407]		NOAEL: 90.3 mg/kg bw/day for females and 424.1 mg/kg bw/day for males based on histopathological changes in the thymus of the females, of the urinary bladder in the males at higher doses.
Rat	Oral, Water	
Skin Irritation Draize Test [OECD 404]		Not irritating to rabbit skin. [0.5g of compound moistened with water]
Rabbit	Dermal	
Skin Sensitisation Maximisation Test [OECD 406]		Not sensitising in the guinea pig maximisation test at up to 50%.
Guinea Pig	Dermal	

ANNEX II - INGREDIENT DATA

Substance: Phenoxyethanol
CAS: 56257-90-0; 37220-49-8; 122-99-6
Function: Preservative

Chemical Structure



Physical/Chemical Characteristics

Appearance	Viscous liquid - colourless
Odour	Faint aromatic (Rose aroma)
Specific Gravity	1.123
pH	7.0
Melting Point	14°C
Boiling Point	245°C
Water Solubility	2.67E+04 mg/L @ 20°C (2.6%)
Log Kow	1.16
Vapour Pressure	0.007 mm HG @ 25°C

Toxicological Summary

The below information is a summary of the toxicological profile for this raw material, including a description of general hazards associated with the material as well as discussion of the most critical studies relating to the overall safety in use of this substance/mixture in consumer products. Details of the available toxicological data can be found overleaf.

Overall Toxicity Review:

A preservative material that finds widespread use in consumer products.

The neat material is a mild skin irritant and an eye irritant. No evidence of allergenic potential in common animal assays or human patch testing. Undiluted phenoxyethanol under occlusion and with UVA exposure was not photoirritating to 28 panelists (CIR 1990).

Phenoxyethanol displays moderate acute toxicity by the oral route. The available data suggests low acute toxicity by the dermal and inhalation routes.

The French National Agency for Medicines and Health Products Safety (ANSM) have previously recommended to prohibit the use of phenoxyethanol in cosmetic products for the nappy zone and to reduce the allowed phenoxyethanol concentration to 0.4 % in other types of products for children under the age of three. A review by the Scientific Committee for Consumer Safety (SCCS) in 2016 indicated they believed current levels of use (up to 1% in all products) were acceptable based on a corrected NOAEL of 357 mg/kg bw/day from a 90-day repeat-dose dermal study in rabbits (Dow unpublished report, 1986). As part of this process they indicated that a Margin of Safety (MoS) of 25 or more would be acceptable as opposed to the standard 100-fold; a conclusion based on the known toxicokinetic data.

Negative in the Ames Assay with and without metabolic activation, and no evidence of significant carcinogenic effects. Has a history of safe use in Cosmetics within the EU at up to 1% and the Cosmetic Ingredient Review (CIR, 1990) panel has previously concluded that it can be considered safe at up to 5%.

As dermal absorption is dependent on the molecular properties, concentration, exposure time and vehicle simultaneously, in the absence of relevant experimental data it is difficult to assess an exact value. If not stated otherwise within the risk assessment, we assume 100% dermal absorption, however it must be noted that for the majority of compounds, even low molecular weight, lipophilic compounds, dermal absorption is expected to be significantly lower than 100%.

Based on the available data it is considered that the use of phenoxyethanol at typical levels within a consumer product would be unlikely to produce significant localised or systemic toxicity.

Margin(s) of Safety

An MoS for this material has been determined in accordance with the criteria outlined in the Annex Preface, however information pertaining to it has been redacted from the report in order to preserve the confidential nature of the quantitative formulation. Any concerns relating to the MoS are discussed on page 4 of the review under 'Toxicological & Regulatory Assessment'

ANNEX II - INGREDIENT DATA

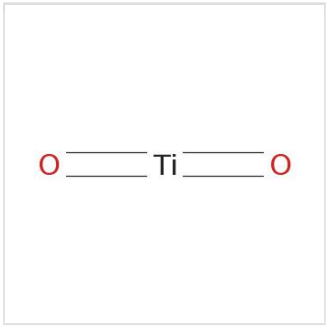
Phenoxyethanol

Acute Toxicity Acute Oral Toxicity, Lethality [OECD 401, OECD 423, OECD 425]		Combined LD50 = 2740 mg/kg bw Female LD50 = 1840 mg/kg bw Male LD50 = 4070 mg/kg bw
Rat	Oral, Gavage	
Acute Toxicity Acute Toxicity, Lethality [Other]		LD50 > 2,214 mg/kg bw [Limit dose of 2 mL/kg bw, corresponding to 2214 mg/kg bw. Protocol: Draft IRLG (Interagency Regulatory Liaison Group) Guidelines for Selected Acute Toxicity Tests (August. 1979).]
Rabbit	Dermal	
Acute Toxicity Acute Toxicity, Lethality [Other]		LC50 > 1000 mg/m³ air (nominal) [Based on OECD 412 sub-acute inhalation toxicity. Exposure: 6 hours per day, 5 days per week for 14 days (10 exposures)]
Rat	Inhalation	
ADME In vitro skin absorption [OECD 428]		37% + 10% dermal absorption in rinse-off formulations. 78% + 7% in leave-on formulations
Ex-vivo Tissue	In vitro exposure	
Carcinogenicity Carcinogenicity studies [OECD 451]		NOAEL = 5000 ppm (468 mg/kg bw/day in males and 586 mg/kg bw/day in females.). [No evidence of carcinogenic activity of phenoxyethanol in male or female mice. NOAEL related to a decreases in cholesterol, phospholipids and triglycerides.]
Mouse	Oral, Water	
Eye Irritation Draize, Standard [OECD 405]		Irritating [0.1ml of undiluted test substance was placed into the conjunctival sac of the right eye of rabbits. Clear signs of eye irritation were observed in all three animals.]
Rabbit	Instillation	
Genotoxicity Bacterial reverse mutation test (Ames) [OECD 471]		Negative with and without metabolic activation.
Bacteria	In vitro exposure	
Genotoxicity Mammalian erythrocyte micronucleus test [OECD 474]		Phenoxyethanol did not induce an increase in number of cells with micronuclei in erythrocytes of treated mice.
Mouse	Intraperitoneal	
Genotoxicity Mammalian bone marrow chromosome aberration test [OECD 475]		Phenoxyethanol did not induce an increase in number of cells with chromosomal aberrations in erythrocytes of treated rats.
Rat	Oral, Gavage	
Repeated Dose 90-day Dermal Toxicity Study [OECD 411]		NOAEL = 500 mg/kg bw/day. Corrected NOAEL with multiplying factor of 5/7 = 357mg/kg/day. [Concentrations: 0, 50, 150, 500 mg/kg bw/day. 6 hours per day, 5 days/week for 13 consecutive weeks.]
Rabbit	Dermal	
Repeated Dose 90-Day Oral Toxicity Study [OECD 408, OECD 409]		NOAEL 369 mg/kg bw/day (actual dose received) [0, 1250, 2500, 5000, 10000, and 20000 mg/L dose in water.]
Rat	Oral, Water	
Repeated Dose 28-day Inhalation Toxicity Study [OECD 412]		NOAEC = 48.2 mg/m³ air (analytical) [Concentrations: 0, 40, 200, 1000 mg/m³ (nominal conc.)]
Rat	Inhalation	
Reproductive Toxicity In vivo reproductive toxicity study [Other]		NOAEL for Male mice (F0) was 2.5% in diet, corresponding to 4000 mg/kg bw/day. NOAEL for parental males was 400 mg/kg bw/day and females was 950 mg/kg bw/day
Mouse	Oral, Gavage	
Reproductive Toxicity Prenatal Development Toxicity Study [OECD 414]		Maternal Toxicity NOAEL = 300 mg/kg bw/day Developmental NOAEL = 1000 mg/kg bw/day.
Rat	Oral, Gavage	
Skin Irritation Draize Test [OECD 404]		Non-irritating (neat material)
Rabbit	Dermal	
Skin Sensitisation Maximisation Test [OECD 406]		Non-sensitising [10 animals per treatment group]
Guinea Pig	Dermal	

ANNEX II - INGREDIENT DATA

Substance: CI 77891 (Titanium Dioxide)
CAS: 1317-80-2 (Rutile); 13463-67-7; 1317-70-0 (Anatase)
Function: Cosmetic colorant; Opacifying; UV Absorber; UV filter

Chemical Structure



Physical/Chemical Characteristics

Appearance	White Powder
Odour	None
Specific Gravity	3.9
Melting Point	1800°C
Water Solubility	Insoluble
Vapour Pressure	negligible
Flash Point	will not burn
Flammability	Not Flammable
Explosive	Not Explosive

Toxicological Summary

The below information is a summary of the toxicological profile for this raw material, including a description of general hazards associated with the material as well as discussion of the most critical studies relating to the overall safety in use of this substance/mixture in consumer products. Details of the available toxicological data can be found overleaf.

Overall Toxicity Review:

Titanium dioxide can be produced in either anatase or rutile forms and is available as a micronised product that may present a respiratory irritation hazard when handled in bulk. Used as a colourant, opacifying ingredient, UV filter and UV absorber, it is also a permitted food additive in the EU (E171). Joint FAO/WHO Expert Committee on Food Additives (JECFA) has established a "Not Limited" ADI (acceptable daily intake) for Titanium Dioxide.

Non-irritating to skin and does not show significant allergenic potential. Not irritating to the eye, but can potentially act as a mechanical irritant.

Is not acutely toxic orally or by inhalation, with an oral LD50 > 25 g/kg in rats.

90-Day oral toxicity study in rats, conducted to the OECD 408 test standard, did not identify any test item toxicity and as such the NOAEL was the highest dose tested 962 mg/kg/day (1000 mg/kg/day nominal). This can be taken as a conservative Point of Departure.

Negative in a variety of in-vitro genotoxicity assays and no evidence of significant carcinogenic or reproductive toxicity was found.

Dermal absorption is expected to be minimal based on the results of an in vitro skin absorption study using porcine skin, conducted in accordance with OECD 428 (ECHA). The study showed that titanium dioxide was unable to penetrate porcine stratum corneum. SCCS opinions also reported a number of in vitro and in vivo dermal penetration studies and showed that Titanium Dioxide nanoparticles are unlikely to penetrate across the skin. The skin absorption of the non-nano form Titanium Dioxide would thus be expected very low. However, as a worst case scenario, a dermal absorption of 10% is assumed for margin of safety evaluation.

Overall the use of this material in non-powder formulations would be considered to pose only a minimal risk of significant localised or systemic toxicity. Use in powder formations should be considered in terms of particle size and likely inhalation of the material.

Margin(s) of Safety

An MoS for this material has been determined in accordance with the criteria outlined in the Annex Preface, however information pertaining to it has been redacted from the report in order to preserve the confidential nature of the quantitative formulation. Any concerns relating to the MoS are discussed on page 4 of the review under 'Toxicological & Regulatory Assessment'

ANNEX II - INGREDIENT DATA

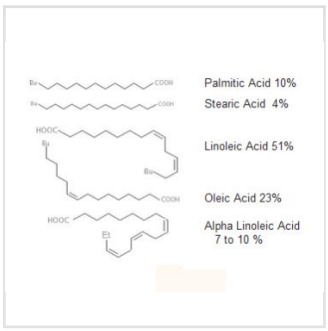
CI 77891 (Titanium Dioxide)

Acute Toxicity Acute Toxicity, Lethality [Other]		Oral LD50 Rat > 25 g/kg bw/day The acute oral LD50 value for TiO2 was > 10 g TiO2/kd bw per day for mice and > 25 g/kg bw per day for rats.
Rat	Oral, NOS	
Acute Toxicity Acute Inhalation Toxicity, Lethality [OECD 403, OECD 436]		Practically nontoxic LC50 > 6,82mg/L (MMAD=1.55 µm, GSD=1.70 µm), 4 h
Rat	Inhalation	
ADME In vitro skin absorption [OECD 428]		TiO2 was not able to penetrate porcine stratum corneum. Pig skin, 24 hour in vitro test.
In-vitro culture	Dermal	
Carcinogenicity Combined chronic toxicity/carcinogenicity studies [Other]		Diet containing 2% corn oil and 25000 or 50000 ppm titanium dioxide for 103 weeks (7 days per week). NOEL (tumourogenicity; mice): 50000ppm / 7500 mg/kg/day.
Mouse	Oral, Feed	
Carcinogenicity Combined chronic toxicity/carcinogenicity studies [Other]		Diet containing 2% corn oil and 25000 or 50000 ppm (1250 mg/kg/day) or (2500 mg/kg/day) titanium dioxide for 103 weeks (7 days per week). NOEL: 2500 mg/kg/day
Rat	Oral, Feed	
Eye Irritation Draize, Standard [OECD 405]		Not irritating.
Rabbit [NOS]	Instillation	
Genotoxicity Mammalian chromosome aberration test [OECD 473]		Negative result.
In-vitro culture	In vitro exposure	
Genotoxicity Bacterial reverse mutation test (Ames) [OECD 471]		Negative in gene mutation tests in bacteria.
Bacteria	In vitro exposure	
Repeated Dose 90-Day Oral Toxicity Study [OECD 408, OECD 409]		NOAEL (males & females): >962 mg/kg/day (actual dose)
Rat	Oral, Gavage	
Repeated Dose Repeat Dose Inhalation Toxicity Study [Other]		4-week inhalation exposures to high dust concentrations produced persistent pulmonary effects, many lasting throughout a 6-month post-exposure period. These included pulmonary inflammation, enhanced proliferation of pulmonary cells, impairment of particle clearance mechanisms, deficits in macrophage function, and morphological evidence of macrophage aggregation.
Rat	Inhalation	
Repeated Dose Repeat Dose Inhalation Toxicity Study [Other]		NOAEC (female mice): 2.2 (± 0.1) mg/m³ air (analytical) LOAEC (female mice): 10.8 (± 1.0) mg/m³ air (analytical)
Mouse	Inhalation	
Reproductive Toxicity Reproduction/Developmental Toxicity Screening Test [OECD 421]		NOAEL: 1000 mg/kg bw/day
Rat	Oral, Gavage	
Skin Irritation Draize Test [OECD 404]		Not irritating.
Rabbit [NOS]	Dermal	
Skin Sensitisation Buehler [OECD 406]		Not sensitising Induction concentration: 100% w/w. Exposure: 6h, occlusive. Challenge concentration: 100% w/w. Exposure: 6h, occlusive.
Guinea Pig [NOS]	Dermal	
Skin Sensitisation Local Lymph Node Assay [OECD 429, OECD 442A, OECD 442B]		Not sensitising Doses: 0% (vehicle control), 5%, 25%, 50%, or 100%. Stimulation indexes (SIs) of less than 3.0 were observed at all test concentrations of the test substance.
Mouse [NOS]	Dermal	

ANNEX II - INGREDIENT DATA

Substance: Glycine Soja (Soybean) Oil
CAS: 8001-22-7
Function: Emollient; Perfuming; Skin Conditioning

Chemical Structure



Physical/Chemical Characteristics

Appearance	Light yellow, transparent liquid
Boiling Point	310°C
Flash Point	318°C
Odour	Vegetable oil odour
Specific Gravity	0.922 @ 20C
Water Solubility	Insoluble, floats on water

Toxicological Summary

The below information is a summary of the toxicological profile for this raw material, including a description of general hazards associated with the material as well as discussion of the most critical studies relating to the overall safety in use of this substance/mixture in consumer products. Details of the available toxicological data can be found overleaf.

Overall Toxicity Review:

Glycine Soja (Soybean) Oil is the oil obtained from soybeans by extraction or expression. It consists essentially of triglycerides of oleic, linoleic, linolenic and saturated acids. Soybean oil has been approved to be used as an indirect food additive by the US FDA (FDA, 2019).

Where information is not available, data on structural analogues have been used as a read-across substance. This toxicity profile is mainly based on data from triglycerides the main constituents of soybean oil.

In the HRIPT, a lipstick containing 39% hydrogenated soybean oil was not irritating or sensitising to human volunteers. An undiluted mixture of methyl esters of saturated and unsaturated C16 to 18 fatty acid was not irritating to the eyes of rabbits.

Based on read-across data, the acute oral and dermal toxicity of soybean oil can be considered as low. The acute oral and dermal LD50 values in animals were greater than 2000 mg/kg bw.

A NOAEL of > 1000 mg/kg bw/day was established in a combined repeated dose and reproductive toxicity study in which rats were fed 100, 300 and 1000 mg/kg bw/day Heptadecanoic Fatty Acid Methyl Ester (C16-C18). No treatment related effects were noted in this study. The point of departure is 1000 mg/kg bw/day (highest dose tested) and is conservatively chosen. The true NOAEL could be higher. However, an uncertainty factor of 3 (SCCS notes of guidance 10th revision) is considered due to the short duration of the study.

Based on read-across data soybean oil can be considered as not genotoxic or toxic to the reproductive system.

No specific data on dermal absorption was available therefore a dermal absorption of 100% is assumed.

The Cosmetic Ingredient Review (CIR) have assessed the safety of Glycine Soja (Soybean) Oil as used in cosmetic products and concludes it is safe in the present practice of use and concentration (up to 95%) (CIR, 2017).

Overall, based on the low oral and dermal toxicity of triglycerides as well as the history of safe use in food, soybean is not expected to produce local or systemic toxicity when incorporated in a consumer product at typical levels. The CIR panel expressed concern regarding pesticide residues and heavy metals that may be present in botanical ingredients and stressed that the cosmetics industry should continue to use the necessary procedures to limit these impurities in the ingredient before blending into cosmetic formulations.

Margin(s) of Safety

An MoS for this material has been determined in accordance with the criteria outlined in the Annex Preface, however information pertaining to it has been redacted from the report in order to preserve the confidential nature of the quantitative formulation. Any concerns relating to the MoS are discussed on page 4 of the review under 'Toxicological & Regulatory Assessment'

ANNEX II - INGREDIENT DATA

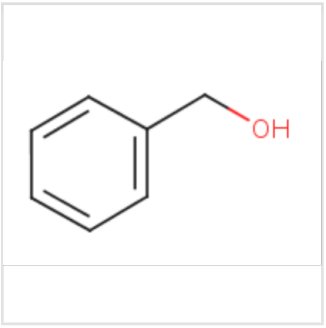
Glycine Soja (Soybean) Oil

Acute Toxicity Acute Oral Toxicity, Lethality [OECD 401, OECD 423, OECD 425]		LD50 > 2000mg/kg Ethyl oleate (read-across).
Mouse	Oral, Gavage	
Acute Toxicity Acute Dermal Toxicity, Lethality [OECD 402]		LD50 > 2000mg/kg Fatty acids C6 -C12 methyl esters (read-across).
Rabbit	Dermal	
Eye Irritation Draize, Standard [OECD 405]		Not irritating. 1 ml of undiluted mixture of methyl esters of saturated and unsaturated C16 to 18 fatty acids (read-across) was instilled into the conjunctival sac of 6 rabbits for 3 days. The eyes were not rinsed.
Rabbit	Instillation	
Genotoxicity Bacterial reverse mutation test (Ames) [OECD 471]		Negative. Strain tested : TA 1535, TA 1537, TA 98, TA 100 and TA 102. Test substance: methylesters of saturated and unsaturated C16 to C20 fatty acids (read-across). Test concentration: up to 1000 µg/plate, with and without metabolic activation.
Bacteria	In vitro exposure	
Reproductive Toxicity Combined Repeated Dose Toxicity Study with the Reproduction/Developmental Toxicity Screening Test		NOAEL = 1000mg/kg bw/day. Rats (40 males and 40 females) received Heptadecanoic Fatty Acid Methyl Ester (C16-C18) (read-across) at dose levels of 100, 300 and 1000 mg/kg bw/day.For 2 weeks prior to pairing, during pairing, during gestation and until at least day 4post-partumfor females .No effects seen.
Rat	Oral, Gavage	
Skin Sensitisation Repeat Insult Patch Test (RIPT) [Other]		Not a dermal irritant or sensitiser. 39% hydrogenated soybean oil in a lipstick was applied to 108 subjects under occlusive conditions.
Human	Dermal	

ANNEX II - INGREDIENT DATA

Substance: Benzyl Alcohol
CAS: 100-51-6; 1336-27-2; 185532-71-2
Function: Perfuming; Preservative; Solvent; Viscosity controlling

Chemical Structure



Physical/Chemical Characteristics

Molecular Mass	108.14
Specific Gravity	1.045
Water Solubility	33 g/L @ 20°C
Vapour Pressure	0.125 hPa @ 25°C
Flash Point	96°C
Boiling Point	205°C
Melting Point	-15°C

Toxicological Summary

The below information is a summary of the toxicological profile for this raw material, including a description of general hazards associated with the material as well as discussion of the most critical studies relating to the overall safety in use of this substance/mixture in consumer products. Details of the available toxicological data can be found overleaf.

Overall Toxicity Review:

A preservative material that is legally permitted at up to 1% in cosmetic products sold within the EU. Also finds use as a fragrance component and masking agent (Benzyl Alcohol is one of the EU common 26 Allergens).

Benzyl Alcohol is non-irritating to skin and eyes, and in the local lymph node assay (LLNA) the substance was non-sensitising. Nevertheless the material is a known allergen, with numerous human case reports available and the substance is identified as a common cosmetic allergen. Exposure in cosmetics should, therefore, be restricted in relation to skin loading levels. A NESIL of 5906 µg/cm2 was identified by the International Fragrance Association (IFRA standards).

Benzyl alcohol displays mild toxicity by the oral route (EU CLP Acute Cat 4), and low acute toxicity by the dermal and inhalation routes. Both a 2-year chronic carcinogenicity study and a 13 weeks repeated dose study identified a NOAEL of 400 mg/kg/day. This is, therefore, considered an appropriate point of departure for hazard characterisation purposes.

As dermal absorption is dependent on the molecular properties, concentration, exposure time and vehicle simultaneously, in the absence of relevant experimental data it is difficult to assess an exact value. If not stated otherwise within the risk assessment, we assume 100% dermal absorption, however it must be noted that for the majority of compounds, even low molecular weight, lipophilic compounds, dermal absorption is expected to be significantly lower than 100%. The ECHA registration dossier for Benzyl alcohol (https://echa.europa.eu/registration-dossier/-/registered-dossier/14748/7/2/1) indicates dermal absorption is dependent on airflow over the skin with values reported ranging from 32 to 80% depending on degree of occlusion. Absorbed material is shown to be rapidly metabolised and excreted in urine however.

When incorporated at typical levels, considered unlikely to pose a significant risk of localised or systemic toxicity.

Margin(s) of Safety

An MoS for this material has been determined in accordance with the criteria outlined in the Annex Preface, however information pertaining to it has been redacted from the report in order to preserve the confidential nature of the quantitative formulation. Any concerns relating to the MoS are discussed on page 4 of the review under 'Toxicological & Regulatory Assessment'

ANNEX II - INGREDIENT DATA

Benzyl Alcohol

Acute Toxicity Acute Oral Toxicity, Lethality [OECD 401, OECD 423, OECD 425]		LD50 > 1620 mg/kg
Rat	Oral, Gavage	
Acute Toxicity Acute Inhalation Toxicity, Lethality [OECD 403, OECD 436]		LC50 (4h) was concluded to be > 4178 mg/m³ air for male and female rats. (Inhalation: aerosol, nose/head only.)
Rat	Inhalation	
Acute Toxicity Acute Toxicity, Lethality [Other]		LD50 > 2 g/kg (EPA OTS 798.1100)
Rabbit	Dermal	
Carcinogenicity Carcinogenicity studies [OECD 451]		NOAEL = 400 mg/kg/day (Dose: 0, 200, 400 mg/kg/day; 50/sex/dose 103 weeks)
Rat	Oral, Gavage	
Eye Irritation Draize, Standard [OECD 405]		Non-irritant
Rabbit	Instillation	
Repeated Dose 28-day Inhalation Toxicity Study [OECD 412]		30, 100, 300, and 1000 mg/m³; 6h/day NOAEC = 1000 mg/m³
Rat	Inhalation	
Repeated Dose Repeat Dose Oral Toxicity Study [Other]		NOAEL = 400 mg/kg/day (50, 100, 200, 400, and 800 mg/kg bw/day; 10/sex/dose, 13 weeks, clinical signs, reduced body weight, histological change changes in brain at 800 mg/kg/day)
Rat	Oral, Gavage	
Skin Irritation Draize Test [OECD 404]		Non-irritant
Rabbit	Dermal	
Skin Sensitisation Local Lymph Node Assay [OECD 429, OECD 442A, OECD 442B]		Non-sensitising
Mouse	Dermal	

ANNEX II - INGREDIENT DATA

Substance: Laureth-7
CAS: 68439-50-9; 3055-97-8; 9002-92-0
Function: Surfactant; Emulsifying

Chemical Structure

Physical/Chemical Characteristics

Appearance	Solid white/off white
Boiling Point	>150 C
Flash Point	177.8
Log Kow	3.0
Melting Point	27.8 C
Odour	Slight charavteristic
Vapour Pressure	< 0,1 mm Hg @ 25 ° C
Water Solubility	Poorly Soluble

Toxicological Summary

The below information is a summary of the toxicological profile for this raw material, including a description of general hazards associated with the material as well as discussion of the most critical studies relating to the overall safety in use of this substance/mixture in consumer products. Details of the available toxicological data can be found overleaf.

Overall Toxicity Review:

Laureth-7 is polyethylene glycol ethers produced by reacting 7 moles of ethylene oxide per mole of lauryl alcohol. It is part of a wider group of ethoxylated alcohol, Alcohols, C12-14 ethoxylated, registered as per REACH regulation at the ECHA. This substance (CAS 68439-50-9) contains a non-specific amount of ethylene oxide per mole of C12-14 alcohols, but is considered appropriate for the assessment of Laureth-7, which is included in this definition.

Cosmetic Ingredient Review (CIR) reports that Laureth-7 was used up to 4% in leave on products (up to 0.4% for eye areas, 0.4% for possible ingestion; 4% for dermal contact product) and 2% in rinse off products. The CIR Expert Panel concluded that Laureth 7 is safe in the present practices of use and concentration when formulated to be non-irritating.As the compound's structure does not contain conjugated double bonds, it will not absorb UV light which is a prerequisite for phototoxicity, therefore, the compound is unlikely to be phototoxic.

Laureths are generally classified as mild to severe irritants, but no specific data for Laureth-7 were found. Provided that it is formulated to be not irritant, its use should not be avoided.

A conservative NOAEL of 500 mg/kg/day is considered a relevant point of departure for risk assessment. It is from a carcinogenicity study in rats, conducted with the analogue C12-13AE6.5.

2 % dermal absorption was calculated based on the penetration of radiolabelled C12AE6 through human skin in vivo.

Overall the use of this material at low levels within Consumer Products would not be expected to pose an undue risk of significant adverse effects.

Margin(s) of Safety

An MoS for this material has been determined in accordance with the criteria outlined in the Annex Preface, however information pertaining to it has been redacted from the report in order to preserve the confidential nature of the quantitative formulation. Any concerns relating to the MoS are discussed on page 4 of the review under 'Toxicological & Regulatory Assessment'

ANNEX II - INGREDIENT DATA

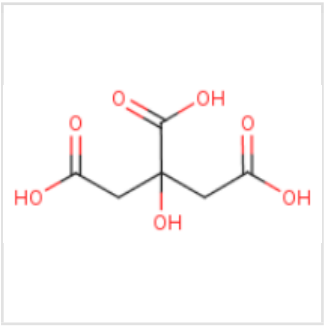
Laureth-7

ADME		The dermal penetration rate for alcohol ethoxylates was calculated on the basis of a dermal penetration study with 14C-labelled C12AE6 in human volunteers and assumes – conservatively - 2% absorption within the first 24 h following dermal application.
In vitro absorption study [Other]		
Human	Dermal	
Carcinogenicity		[Read across from C12-13AE6.5] No carcinogenic effects were observed in a two-year study in which 100 Sprague-Dawley rats were fed with diet containing C12-13AE6.5 at doses up to 1% (i.e., 500 mg/kg bw/d).
Carcinogenicity studies [Other]		
Rat	Oral, Feed	
Genotoxicity		Not mutagenic
Bacterial reverse mutation test (Ames) [OECD 471]		
Bacteria	In vitro exposure	
Repeated Dose		NOAEL: >= 500 mg/kg bw/day Dose: 15, 50, 150, 500 mg/kg bw/day Exposure: 13 weeks No. of animals per sex per dose: 24 (control), 12 (dose groups)
90-Day Oral Toxicity Study [OECD 408, OECD 409]		
Rat	Oral, Feed	

ANNEX II - INGREDIENT DATA

Substance: Citric Acid
CAS: 77-92-9; 5949-29-1 (Citric Acid Monohydrate)
Function: Buffering; Chelating; Masking

Chemical Structure



Physical/Chemical Characteristics

Appearance	Crystalline powder
Boiling Point	175 C
Flammability	Auto ignition temperature 1010°C
Log Kow	- 1.72
Molecular Mass	192.12
Melting Point	approx 100°C to 153˚C
Odour	None
pH	1.8 (5% solution)
Specific Gravity	1.665 @18˚C

Toxicological Summary

The below information is a summary of the toxicological profile for this raw material, including a description of general hazards associated with the material as well as discussion of the most critical studies relating to the overall safety in use of this substance/mixture in consumer products. Details of the available toxicological data can be found overleaf.

Overall Toxicity Review:

A water soluble organic acid and a ubiquitous natural substance that appears as an intermediate in the basic physiological citric acid cycle in every eukaryote cell. It is a normal constituent of a number of foodstuffs, and for many years added to processed food and beverages, used in pharmaceutical preparations and in household cleaners. In cosmetics, it primarily serves as a buffering, chelating, or masking agent.

It is not acutely toxic with a high oral and dermal LD50. In-vivo studies show it is non-irritating to the skin, and the sensitising potential is seen as low based on the few reports on its intolerance. As for eye irritancy, it was minimally irritating to rabbit eyes at 10% and moderately irritating at 30%. pH of the final formulation is expected to play a significant role in its irritancy potential.

Although citric acid can be considered an Alpha Hydroxy Acid (AHA), which are known for their phototoxic potential, it is also a Beta-hydroxy acid. Structurally, citric acid is a tricarboxylic acid, and as such, has a unique functionality and is chemically and biologically distinct from the AHAs (ie, glycolic and lactic acid). Therefore, the concerns that stem from the phototoxic potential of AHAs is not considered relevant to citric acid and its inorganic salts and alkyl esters (CIR, 2014).

The substance is not expected to be genotoxic or carcinogenic, based on mostly negative results in in-vitro and in-vivo assays: but was clastogenic in mammalian cell micronucleus test and a chormosaome aberration test where the compound was tested without metabolic activation (It is possible that they are related to hydroxyl radicals formation). It was found to be negative in in-vivo mammalian bone marrow chromosome aberration test and Rodent dominant lethal test. The compound was also not carcinogenic in 2 year chronic study in rats. Moreover, citric acid is used as a food additive and is generally regarded as safe (GRAS) when used as a direct food substance 21CFR184.1033, April 1, 2018. Based on the weight of evidence approach it is not expected to cause genotoxic effects.

One reproductive toxicity study in rats reported a no-observed-effect-level (NOEL) of 2500 mg/kg bw/day. The no-observed-adverse-effect-level (NOAEL) from a 2 year feeding study in rats was concluded to be 1200 mg/kg bw/day, and no tissue abnormalities were observed. Only slightly decreased growth was observed, and as such may be conservative. The Joint FAO/WHO Expert Committee on Food Additives (JECFA) attributed a 'Not Limited' acceptable daily intake (ADI) to citric acid, in 1973, but this value of 1200 mg/kg bw/day was conservatively chosen to be the point of departure for systemic toxicity evaluation.

As dermal absorption is dependent on the molecular properties, concentration, exposure time and vehicle simultaneously, in the absence of relevant experimental data it is difficult to assess an exact value. If not stated otherwise within the risk assessment, we assume 100% dermal absorption, however it must be noted that for the majority of compounds, even low molecular weight, lipophilic compounds, dermal absorption is expected to be significantly lower than 100%.

The Cosmetic Ingredient Review (CIR) Expert Panel (2014) found it was used up to 4% in leave-on products, up to 10% in rinse-off products, and up to 39% in products intended to be diluted for (bath) use. The panel also concluded that citric acid is safe in the present practices of use and concentration

Margin(s) of Safety

An MoS for this material has been determined in accordance with the criteria outlined in the Annex Preface, however information pertaining to it has been redacted from the report in order to preserve the confidential nature of the quantitative formulation. Any concerns relating to the MoS are discussed on page 4 of the review under 'Toxicological & Regulatory Assessment'

ANNEX II - INGREDIENT DATA

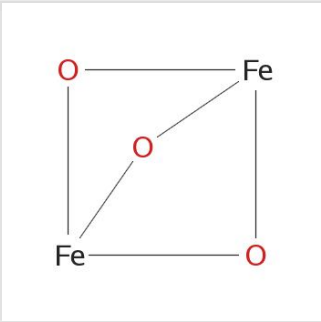
Citric Acid

Acute Toxicity Acute Oral Toxicity, Lethality [OECD 401, OECD 423, OECD 425]		Oral LD50 mouse: 5400 mg/kg
Mouse	Oral, Gavage	
Acute Toxicity Acute Dermal Toxicity, Lethality [OECD 402]		Dermal LD50 rat > 2000 mg/kg
Rat	Dermal	
Carcinogenicity Carcinogenicity studies [Other]		Negative in rat oral feed study, 2g/kg /day for 2 years (IUCLID)
Rat	Oral, Feed	
Eye Irritation Draize, Standard [OECD 405]		Weakly irritating at 10%; moderately irritant at 30%. 3 animals/dose 10% and 30% tested (0.1ml) Not irritating according to GHS criteria, but slight effects are observed at 10%, particularly redness of conjuctivae (and more important at 30%).
Rabbit	Instillation	
Eye Irritation In vitro Eye Irritation [Other]		EYTEX assay - Undiluted - Severe/extreme irritant; EDE > 51
In-vitro culture	Instillation	
Genotoxicity Bacterial reverse mutation test (Ames) [OECD 471]		Negative to S. typhymurium strains TA 1535, TA 100, TA 98, TA 1537, TA92 and TA 94 with and without S9 metabolic activation, up to 5000µg/plate.
Bacteria	In vitro exposure	
Genotoxicity Mammalian cell micronucleus test [OECD 487]		Positive 50, 100, 200, 3000 µg/ml Tested without S9.No
Human	In vitro exposure	
Genotoxicity In vivo genotoxicity assay [Other]		Negative for the induction of dominant lethals under the conditions of the study. Doses: Test 1: 1.2, 12.0, 120 mg/kg bw; Test 2: 300, 500, 3500 mg/kg bw (single dose daily for 5 days) EU Method B.22 (Rodent Dominant Lethal Test)
Rat	Oral, Gavage	
Genotoxicity Mammalian chromosome aberration test [OECD 473]		Negative only tested without S9 mix
Human	In vitro exposure	
Genotoxicity Mammalian chromosome aberration test [OECD 473]		Positive. only tested without S9 mix, relevant data at up to 200 µg/ml, citric acid being cytotoxic at the highest tested level of 3000. Slight, dose-dependant positive effects.
In-vitro culture	In vitro exposure	
Genotoxicity Mammalian bone marrow chromosome aberration test [OECD 475]		Negative 5/sex/dose. test 1: 1.2, 12.0, 120 mg/kg bw; test 2; 300, 500, 3500 mg/kg bw
Rat	Oral, Gavage	
Repeated Dose Repeat Dose Oral Toxicity Study [Other]		NOAEL = 1200 mg/kg/day. Oral, dietary, deed containing 5% and 3% citric acid on rat for 2 years, slightly decreased growth was observed but no tissue abnormalities were found on examination of the major organs.
Rat	Oral, Feed	
Reproductive Toxicity In vivo reproductive toxicity study [Other]		NOEL = 2500 mg/kg/d oral, dietary, feed containing 5% citric acid to female rats prior, during and subsequent to mating; no harmful effects reported
Rat	Oral, Feed	
Skin Irritation Draize Test [OECD 404]		Not irritating - rabbits Well defined erythema in 1/6 from 1-48 h; mild erythema in the same animal was still evident at 72h when study was terminated.
Rabbit	In vitro exposure	
Skin Sensitisation Repeat Open Application Test (ROAT) [Other]		Patch testing of 60 eczema patients with 2.5% citric acid in petrolatum did not produce any irritant or allergic reactions Genuine sensitisation to citric acid seems to be a rare phenomenon.
Human	Dermal	

ANNEX II - INGREDIENT DATA

Substance: CI 77491 (Red / Brown Iron Oxide) (Pigment red 101)
CAS: 1345-25-1 ; 1309-37-1; 1317-61-9 ; 1345-27-3; 52357-70-7 ; 90452-21-4; 1332-37-2
Function: Pigment, Cosmetic Colourant

Chemical Structure



Physical/Chemical Characteristics

Appearance	Reddish Brown Powder
Molecular Mass	159.69
Melting Point	1,538 °C
Odour	none
Specific Gravity	5.24
Vapour Pressure	0
Water Solubility	Negligible

Toxicological Summary

The below information is a summary of the toxicological profile for this raw material, including a description of general hazards associated with the material as well as discussion of the most critical studies relating to the overall safety in use of this substance/mixture in consumer products. Details of the available toxicological data can be found overleaf.

Overall Toxicity Review:

Red Iron Oxide is a pigment material with a long history of safe use in cosmetics and foodstuffs.

The available information shows that the material is non-irritant, and non-sensitising. Whilst in a powder form the substance may produce some mechanical or foreign body irritation, however once diluted in a liquid formulation these effects will not be of concern.

Red iron oxide with a high oral LD50, however limited repeat-dose toxicity data were available for review. The substance was non-genotoxic in an in vivo study designed to look at DNA strand breaks, and there was no signed of carcinogenic activity when up to 1530 mg/kg was administered by intratracheal instillation.

A recommended Acceptable Daily Intake (ADI) of 0.5 mg/kg has been established by JECFA, which in the absence of other studies is considered a suitable point of departure (PoD) for hazard characterisation purposes.

In the absence of specific data, 100% dermal absorption must be assumed.

Under normal conditions of use incorporation within a Consumer Product would not be expected to pose an undue risk of significant adverse effects.

Margin(s) of Safety

An MoS for this material has been determined in accordance with the criteria outlined in the Annex Preface, however information pertaining to it has been redacted from the report in order to preserve the confidential nature of the quantitative formulation. Any concerns relating to the MoS are discussed on page 4 of the review under 'Toxicological & Regulatory Assessment'

ANNEX II - INGREDIENT DATA

CI 77491 (Red / Brown Iron Oxide) (Pigment red 101)

Acute Toxicity Acute Toxicity, Lethality [Other]		LD50 > 5g/kg (EU Method B.1 (Acute Toxicity (Oral)), as per Directive 84/449/EEC, B.1)
Rat	Oral, Gavage	
Carcinogenicity Carcinogenicity studies [Other]		Non-carcinogenic (10 mg/kg for 13 appl. followed by 20 mg/kg for 6 appl. and finally 40 mg/kg. Total dose 1,530 mg/kg. 50 animals per sex per dose.
Rat	Intratracheal	
Eye Irritation Draize, Standard [OECD 405]		Non-irritant
Rabbit	Instillation	
Genotoxicity In vivo genotoxicity assay [Other]		Non-genotoxic (DNA strand breakage test using the Comet Assay)
Rat	Endotracheal	
Skin Irritation Draize Test [OECD 404]		Non-irritant
Rabbit	Dermal	
Skin Sensitisation Maximisation Test [Other]		Non-sensitising (Maurer Optimisation Test)
Guinea Pig	Dermal	

ANNEX II - INGREDIENT DATA

Substance: Daucus Carota Sativa (Carrot) Root Extract
CAS: 84929-61-3
Function: Skin conditioning

Chemical Structure

Physical/Chemical Characteristics

Toxicological Summary

The below information is a summary of the toxicological profile for this raw material, including a description of general hazards associated with the material as well as discussion of the most critical studies relating to the overall safety in use of this substance/mixture in consumer products. Details of the available toxicological data can be found overleaf.

Overall Toxicity Review:

Daucus Carota Sativa Extract is the extract of the Carrot, Daucus carota L. subsp. Sativus, Apiaceae. Carrot is widely used in the human diet with few adverse reactions unlikely to produce significant localised or systemic toxicity in the majority of consumers. Carrot extract has low acute oral toxicity with LD50 > 5000 mg/kg and was not mutagenic in Ames test. The essential oils and natural extractives of Carrot (Daucus carota L.) are affirmed as substances generally recognised as safe (GRAS) in US (21 CFR 182.20).

It should be noticed, however, that some notifiers registered carrot extract as a skin sensitiser, but the ECHA registration dossier indicate that it has not been tested, and this classification is based on some of the constituents. These are mostly related to food allergy and IgE mediated type 1 allergies (Ballmer-Wweber, 2001). Also, carrot has a long history of use as food without any reported incidences of skin sensitization.

As dermal absorption is dependent on the molecular properties, concentration, exposure time and vehicle simultaneously, in the absence of relevant experimental data it is difficult to assess an exact value. If not stated otherwise within the risk assessment, we assume 100% dermal absorption, however it must be noted that for the majority of compounds, even low molecular weight, lipophilic compounds, dermal absorption is expected to be significantly lower than 100%.

Overall, considering the great history of use of carrot, use of extracts in cosmetic products is considered not a concern.

Margin(s) of Safety

An MoS for this material has been determined in accordance with the criteria outlined in the Annex Preface, however information pertaining to it has been redacted from the report in order to preserve the confidential nature of the quantitative formulation. Any concerns relating to the MoS are discussed on page 4 of the review under 'Toxicological & Regulatory Assessment'

ANNEX II - INGREDIENT DATA

Daucus Carota Sativa (Carrot) Root Extract

Acute Toxicity	LD50 > 5000 mg/kg
Acute Oral Toxicity, Lethality [OECD 401, OECD 423, OECD 425]	
Mouse	Oral, Gavage
Genotoxicity	Negative. Not mutagenic in S. typhimurium TA 1535, TA 1537, TA 98, TA 100 and Escherichia coli WP2 (uvrA-) (pKM 101) strains without, or with metabolic activation.
Bacterial reverse mutation test (Ames) [OECD 471]	
Bacteria	In vitro exposure

ANNEX II - INGREDIENT DATA

Substance: Terminalia Ferdinandiana Fruit Extract
CAS: 1176234-54-0
Function: Anti-oxidant; Bleaching

Chemical Structure

No Structure Available

Physical/Chemical Characteristics

Appearance	Liquid
Odour	Characteristic
Specific Gravity	1.07 to 1.11
Water Solubility	Soluble

Toxicological Summary

The below information is a summary of the toxicological profile for this raw material, including a description of general hazards associated with the material as well as discussion of the most critical studies relating to the overall safety in use of this substance/mixture in consumer products. Details of the available toxicological data can be found overleaf.

Overall Toxicity Review:

Terminalia Ferdinandiana Fruit Extract is an extract of the fruit of the Terminalia ferdinandiana, Combretaceae. The material is reported to function as antioxidant and (skin) bleaching in cosmetic formulations according CosIng (2020).

The fruit, also known as Kakadu plum, has a high concentration of vitamin C: 2300-3150 mg per 100 g wet weight (Brand et al. 1982) and occasionally as high as 5300 mg per 100 g (NTDHCS 2005). Compared with 50 mg per 100 g for oranges, this ranks among the highest known of any natural source. Kakadu plum is used as bush tucker (bushfood) or traditional medicine by Australian Aboriginal people. For example, refreshing drinks are made from fresh or dried fruits in Western Australia (Sultanbawa et al. 2018); fruits are consumed to cure headaches and to alleviate the symptoms of colds and flu while the pounded fruit is used as an antiseptic and a soothing balm for aching limbs (Sultanbawa et al. 2018). The present applications of Kakadu plum include food supplements (beverages, capsules and powders), skin and care products, pharmacological products, and in gourmet bush foods (chutneys, jams and pickles) (Konczak et al. 2014).

Kakadu plum is an abundant source of phenolic ellagic acid (EA) (averages of 622 ± 205 mg per 100 g dry weight (DW) of free EA and 976 ± 223 mg per 100 g DW of total EA from the whole fruit) which is receiving increasing attention for its nutritional and pharmacological potential as an antioxidant and antimicrobial agent. On the other hand, it is known to contain high content of oxalic acid, which is associated with interference with calcium absorption and kidney stone formation when consumed in excess. The total oxalate content of the whole fruit was reported to reach an average of 2717 ± 601 mg per 100 g DW, which is higher than 2220 mg per 100 g DW for star fruit, but lower than 3720 to 14,651 mg per 100 g DW for spinach, and comparable to 2740 mg per 100 g DW for bamboo shoots. The American Dietetic Association has recommended that daily Oxalate intake shall not exceed 50 mg per day (Williams et al. 2016). This is equivalent to 2.25 g DW of the fruit. It should be noted that although the oxalate content is rather high in Kakadu plum, some other commonly consumed foods also contain similar levels of oxalate as mentioned above. Also, there seems to be no evidence that the flesh or kernels of the native Australian species known have been eaten by humans are toxic, at least in normal use (Hegarty and Hegarty 2001). When used at low levels in cosmetic product, this is not expected to be a major concern.

Although there is lack for experimental data for skin sensitsation, there is lack of case reporting adverse effect. Thus, it can be conservatively assume as a weak sensitizer, and a NESIL of 691.83 is derived from a LLNA EC3 of 1000 for a weak skin sensitizer (Gerberick GF et al., 2001).

As dermal absorption is dependent on the molecular properties, concentration, exposure time and vehicle simultaneously, in the absence of relevant experimental data it is difficult to assess an exact value. If not stated otherwise within the risk assessment, we assume 100% dermal absorption, however it must be noted that for the majority of compounds, even low molecular weight, lipophilic compounds, dermal absorption is expected to be significantly lower than 100%.

A NOAEL is not available for review, however, as an edible bushfood that has been consumed for centuries, it is not expected to pose an undue risk to the majority of users when included at low levels within a cosmetic product.

Margin(s) of Safety

An MoS for this material has been determined in accordance with the criteria outlined in the Annex Preface, however information pertaining to it has been redacted from the report in order to preserve the confidential nature of the quantitative formulation. Any concerns relating to the MoS are discussed on page 4 of the review under 'Toxicological & Regulatory Assessment'

ANNEX II - INGREDIENT DATA

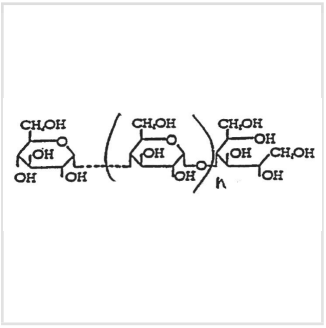
Terminalia Ferdinandiana Fruit Extract

Details on specific toxicological studies related to endpoints of concern are not available for Terminalia Ferdinandiana Fruit Extract, please see the previous page for a justification of safety based on history of use &/or weight of evidence.

ANNEX II - INGREDIENT DATA

Substance: Hydrogenated Starch Hydrolysate
CAS: 68425-17-2
Function: Humectant

Chemical Structure



Physical/Chemical Characteristics

Appearance	Clear colourless viscous liquid / white powder
Odour	none
pH	4.0-5.0 (20% solution)
Specific Gravity	1.3
Water Solubility	Soluble

Toxicological Summary

The below information is a summary of the toxicological profile for this raw material, including a description of general hazards associated with the material as well as discussion of the most critical studies relating to the overall safety in use of this substance/mixture in consumer products. Details of the available toxicological data can be found overleaf.

Overall Toxicity Review:

The product of hydrogenation of hydrolysed starch, typically Corn/Maize starch. Finds widespread usage in the food industry, primarily used as a sugar substitute. The original material, hydrolyse starch is mainly composed of mono- or oligo-saccharides such as glucose, maltose, maltotriose, maltotetraose (CIR 2015). Data on a range of Hydrogenated Corn Syrups are available, all sharing the CAS of 68425-17-2. As the material is generated from natural extracts, the exact composition of any grade will be variable and thus data from the range of materials can be considered representative.

Corn is widely used and consumed throughout the world, with more than 10 billion tonnes produced in 2016. It is a staple food for large parts of the World (Food & Agriculture Organisation of the United Nations). Several grades of corn starch are Generally Recognised As Safe (GRAS) in the US (US FDA). The Cosmetic Ingredient Review (CIR) Expert Panel also concluded corn starch is safe at the uses and concentrations in cosmetic products at the time of the report (up to 99% in leave-on products) (CIR 2011).

Appropriate data on localised toxicity could not be identified for review, although information on Hydrogenated Wheat Starch Hydrolysate indicates a relatively minimal potential for skin or eye irritation. According to a 2015 CIR Expert Panel Opinion, Hydrogenated Starch Hydrolysate has a history of safe use in both leave-on (41) and rinse-off (19) products and was concluded as safe in the practice of use in cosmetics (CIR 2015). In light of this, significant localised toxicity when incorporated in cosmetic formulations is considered unlikely following normal conditions of use. Additionally, the compound's structure does not contain conjugated double bonds, therefore, it will not absorb UV light which is a prerequisite for phototoxicity.

The material displays low oral acute toxicity, and resulted in negative in Ames test. However, an OECD 453 test for carcinogenicity did identify an increase in tumour incidence at doses of 4.5g/kg/day. A NOAEL of 1.5g/kg/day was therefore identified in this study.

Available repeat-dose and reproductive toxicity testing found no evidence of adverse effects at up to 5g/kg/day and 7g/kg/day respectively. Thus the NOAEL of 1.5g/kg/day is selective as protective and considered a suitable Point of Departure (PoD) for hazard characterisation purposes.

As dermal absorption is dependent on the molecular properties, concentration, exposure time and vehicle simultaneously, in the absence of relevant experimental data it is difficult to assess an exact value. If not stated otherwise within the risk assessment, we assume 100% dermal absorption, however it must be noted that for the majority of compounds, even low molecular weight, lipophilic compounds, dermal absorption is expected to be significantly lower than 100%.

Based on the available information the use of this material at typical concentrations would not be expected to pose an undue risk of significant localised or systemic toxicity.

Margin(s) of Safety

An MoS for this material has been determined in accordance with the criteria outlined in the Annex Preface, however information pertaining to it has been redacted from the report in order to preserve the confidential nature of the quantitative formulation. Any concerns relating to the MoS are discussed on page 4 of the review under 'Toxicological & Regulatory Assessment'

ANNEX II - INGREDIENT DATA

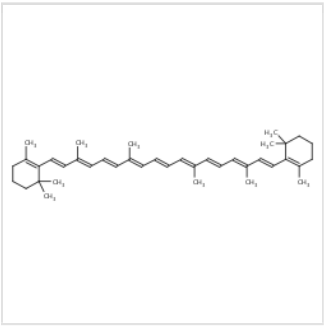
Hydrogenated Starch Hydrolysate

Acute Toxicity		LD50 >24.37g/kg
Acute Oral Toxicity, Lethality [OECD 401, OECD 423, OECD 425]		
Rat	Oral, Gavage	
Carcinogenicity		NOAEL = 1.5g/kg/day (Doses of 0.5, 1.5 and 4.5g/kg/day. Dose dependent increase in occurrence of tumours, significant at 4.5g/kg/day. 2 years study]
Combined chronic toxicity/carcinogenicity studies [OECD 453]		
Rat	Oral, Feed	
Genotoxicity		Negative, with and without metabolic activation (S. typhimurium TA 1535, TA 1537, TA 98 and TA 100)
Bacterial reverse mutation test (Ames) [OECD 471]		
In-vitro culture	In vitro exposure	
Repeated Dose		NOAEL > 5g/kg (Single test dose of 5g/kg, no adverse effects identified.)
90-Day Oral Toxicity Study [OECD 408, OECD 409]		
Dog	Oral, Gavage	
Reproductive Toxicity		Developmental NOAEL = 7,000mg/kg/day (Dosing on day 6 to 15 of gestation. No effects at doses of 3. 5 or 7g/kg/day. Conservative NOAEL of 7,000mg/kg/day.)
Prenatal Development Toxicity Study [OECD 414]		
Rat	Oral, Gavage	

ANNEX II - INGREDIENT DATA

Substance: CI 75130 (Food Orange 5)
CAS: 7235-40-7; 116-32-5
Function: Cosmetic colorant

Chemical Structure



Physical/Chemical Characteristics

Appearance	Orange
Flash Point	103.3 °C
Molecular Mass	536.8726
Melting Point	176 - 184 °C
Specific Gravity	1.000
Water Solubility	Practically insoluble 0.0006 g/l

Toxicological Summary

The below information is a summary of the toxicological profile for this raw material, including a description of general hazards associated with the material as well as discussion of the most critical studies relating to the overall safety in use of this substance/mixture in consumer products. Details of the available toxicological data can be found overleaf.

Overall Toxicity Review:

A well known red-orange coloured pigment used as a colouring in both cosmetics and in food (E160a) with high exposure and few if any adverse effects. Unlikely to cause problems when used in a Consumer Product. It is listed in annex IV of EC regulation 1223/2009 as an allowed colourant, with minimum purity specifications. Beside acting as a pigment, it can also function as an antioxidant or as a skin conditioning agent.

Beta carotene was fount to be non-irritating to skin but possess an eye irritating potential, non sensitising, non-mutagenic and has a relatively high oral LD 50 value.

A NOAEL of 696 mg/kg bw/day was chosen as the Point of departure from a repeated dose oral feed study.

As dermal absorption is dependent on the molecular properties, concentration, exposure time and vehicle simultaneously, in the absence of relevant experimental data it is difficult to assess an exact value. If not stated otherwise within the risk assessment, we assume 100% dermal absorption, however it must be noted that for the majority of compounds, even low molecular weight, lipophilic compounds, dermal absorption is expected to be significantly lower than 100%.

Beta carotene is one of the most commonly occuring forms of carotene in plants and is a precursor to vitamin A. In the body, it is converted to vitamin A within the intestinal wall. EFSA panel concluded that beta-carotene as food colour is not of safety concern, provided that the estimated intake from their use as a food additive and as food supplement is not more than the amount likely to be ingested as a result of the regular consumption of the foods in which they occur naturally (5-10 mg/day). The Panel also noted that epidemiological studies reported no increased cancer incidence at supplemental dose levels varying from 6-15 mg/day for about 5 up to 7 years.

The long history of use in consumer products such as Cosmetics and Food indicate that under normal conditions of use incorporation of this material into a consumer product would not be expected to pose an undue risk.

Margin(s) of Safety

An MoS for this material has been determined in accordance with the criteria outlined in the Annex Preface, however information pertaining to it has been redacted from the report in order to preserve the confidential nature of the quantitative formulation. Any concerns relating to the MoS are discussed on page 4 of the review under 'Toxicological & Regulatory Assessment'

ANNEX II - INGREDIENT DATA

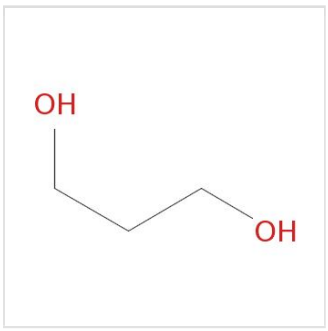
CI 75130 (Food Orange 5)

Carcinogenicity Carcinogenicity studies [Other]		0, 100, 250, 500, or 1000 mg/kg bw/day for 114 weeks, not carcinogenic.
Rat	Oral, Feed	
Carcinogenicity Carcinogenicity studies [Other]		0, 100, 250, 500, or 1000 mg/kg bw/day for 104 weeks, not carcinogenic.
Mouse	Oral, Feed	
Repeated Dose 90-Day Oral Toxicity Study [OECD 408, OECD 409]		Doses: 0.63%, 1.25%, 2.5%, 5% in diet. Dunaliella carotene (algal β-carotene). NOAEL = 696 mg/kg bw/day (males, 1.25%) NOAEL = 2879 mg/kg bw/day (females, 5%). No mortality or treatment-related clinical signs were observed in all groups. Body weight gain was slightly but significantly reduced in 2.5% and 5% males
Rat	Oral, Feed	
Reproductive Toxicity In vivo reproductive toxicity study [Other]		Four generations of rats received synthetic β-carotene as a 0 or 0.1% dietary admixture (equivalent to 0 or 50 mg/kg bw/day) for 110 weeks. In comparison to control, no adverse effects were observed with respect to body weight gain, growth, food consumption, haematological determinations, gross and microscopic pathology, or reproductive performance.
Rat	Oral, Feed	
Reproductive Toxicity In vivo reproductive toxicity study [Other]		3 generation study (210 males, 420 females) 0, 100, 250, 500, 1000 mg/kg/day NOAEL = 1000 mg/kg/day
Rat	Oral, NOS	

ANNEX II - INGREDIENT DATA

Substance: Propanediol
CAS: 504-63-2; 26264-14-2
Function: Viscosity Controlling; Solvent

Chemical Structure



Physical/Chemical Characteristics

Appearance	Liquid
Boiling Point	214 °C at 1,013 hPa - lit.
Flash Point	> 110.00°C - closed cup
Molecular Mass	76.1 g/mole
Melting Point	-27°C
Water Solubility	Easily soluble in cold water.
Log Kow	- 1.04

Toxicological Summary

The below information is a summary of the toxicological profile for this raw material, including a description of general hazards associated with the material as well as discussion of the most critical studies relating to the overall safety in use of this substance/mixture in consumer products. Details of the available toxicological data can be found overleaf.

Overall Toxicity Review:

A three-carbon diol commonly used as an intermediate in the production of polyesters. In cosmetics it mainly functions as a viscosity controlling agent or solvent.

Based on animal data, neat application may cause slight irritation to skin and eyes. Maximisation test in guinea pigs concluded the material has no sensitising potential. Propanediol is unlikely to be phototoxic. This is based on the compound's structure which does not contain conjugated double bonds, therefore, it will not absorb UV light which is a prerequisite for phototoxicity, and based on the read-across study, in which chemically similar isopentyldiol (belongs to same structural class with similar functional groups) was not photoirritating or photosensitising when tested in undiluted form in the Guinea pigs.

Animal data also shows low order of toxicity from acute oral and dermal exposures. Repeated exposure studies in rats from oral and inhalation routes also found no adverse effects at the highest dose tested. It was demonstrated to be non-mutagenic and non-clastogenic in a number of in-vitro and in-vivo studies, and no reported adverse effects on reproduction and foetal development were identified.

A NOAEL of 1000 mg/kg bw/day, based on absence of adverse effects in a 90-day sub-chronic oral toxicity study as well as prenatal developmental toxicity study in rats, was chosen as the point of departure for assessment. Whilst this is unlikely to represent a true NOAEL, as toxicologically relevant adverse effects were not identified during the studies, it can be used as a conservative point of reference for the determination of the Margin of Safety (MoS).

As dermal absorption is dependent on the molecular properties, concentration, exposure time and vehicle simultaneously, in the absence of relevant experimental data it is difficult to assess an exact value. If not stated otherwise within the risk assessment, we assume 100% dermal absorption, however it must be noted that for the majority of compounds, even low molecular weight, lipophilic compounds, dermal absorption is expected to be significantly lower than 100%.

It is a food additives according to Joint FAO/WHO Expert Committee on Food Additives (JECFA 2002) with an acceptable daily intake (ADI) = 0-25 mg/kg bw.

In 2018, the Cosmetic Ingredient Review (CIR) expert panel reported the use of up to 39.9% in leave-on products and up to 10% in eye products, and concluded that inclusion in cosmetics at the concentrations and practices of use at the time of the report was safe.

Overall, this material is not expected to produce significant localised or systemic toxicity at typical levels found within consumer and cosmetic products.

Margin(s) of Safety

An MoS for this material has been determined in accordance with the criteria outlined in the Annex Preface, however information pertaining to it has been redacted from the report in order to preserve the confidential nature of the quantitative formulation. Any concerns relating to the MoS are discussed on page 4 of the review under 'Toxicological & Regulatory Assessment'

ANNEX II - INGREDIENT DATA

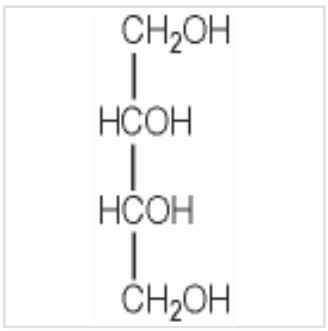
Propanediol

Acute Toxicity Acute Oral Toxicity, Lethality [OECD 401, OECD 423, OECD 425]		LD50 = 14.9 ml/kg bw [Doses: 9.0, 10.8, 13.0, 15.6, or 18.7 ml/kg bw]
Rat	Oral, Gavage	
Acute Toxicity Acute Toxicity, Lethality [Other]		LD50 > 4.0 ml/kg bw (equivalent to > 4 200 mg/kg bw) [Doses: 1.0, 2.0, or 4.0 ml/kg bw, 24hr occlusive exposure, 9-day observation period]
Rat	Dermal	
ADME In vitro skin absorption [OECD 428]		0.12% of the applied test substance was detected in the receptor chamber after 48 hours. n=6(from 3 donors). permeability coefficient (Kp) = 1.50x10e-5 cm/h based on the slope at the steady-state (15.9 ug/cm square per hour)
In-vitro culture	In vitro exposure	
Eye Irritation Draize, Standard [OECD 405]		Not irritating (slight redness of the conjunctivae in 4 out of 6 rabbits, cleared up after 48 hours) [Undiluted, unrinsed]
Rabbit	Instillation	
Genotoxicity Mammalian chromosome aberration test [OECD 473]		Negative for the induction of structural and numerical chromosome aberrations with and without metabolic activation at up to 5000 µg/mL.
In-vitro culture	In vitro exposure	
Genotoxicity Bacterial reverse mutation test (Ames) [OECD 471]		Non-mutagenic with and without metabolic activation at up to 5000 µg/plate
Bacteria	In vitro exposure	
Genotoxicity In vivo genotoxicity assay [Other]		Not clastogenic [Micronucleus assay, Exposure at 1000, 1470 and 2150 mg/kg bw]
Mouse	Oral, Gavage	
Phototoxicity In vivo phototoxicity		Undiluted isopentyldiol was not photoirritating [0.025mL of test material applied epixutaneously, animals exposed to 20 J/cm2 of UVA radiation (320-400 nm)]
Guinea Pig	Dermal	
Phototoxicity In vivo phototoxicity		Undiluted isopentyldiol was not photosensitising [induction: epicutaneous application of undiluted material, exposure to 485 mJ/cm2 of UVA, 185 mJ/cm2 of UVB for 10mins, repeated 5x at approx.48hr intervals. Challenge:12 days after the final induction undiluted test material applied open epicutaneously and exposed to 10 J/cm2 of UVA]
Guinea Pig	Dermal	
Repeated Dose 90-Day Oral Toxicity Study [OECD 408, OECD 409]		NOAEL = 1000 mg/kg bw/day (no adverse effects noted at highest dose level tested) [0, 100, 300, 1000 mg/kg bw/day; 10/sex/dose]
Rat	Oral, Gavage	
Repeated Dose 28-day Inhalation Toxicity Study [OECD 412]		NOAEL = 1800 mg/m3 (no test substance-related clinical signs of toxicity observed) [Concentrations: 0, 41, 650, 1800 mg/m3; MMAD = 2.2 to 2.4 um (>99% less than 10 um); GSD = 1.6]
Rat	Inhalation	
Reproductive Toxicity In vivo reproductive toxicity study [Other]		NOAEL = 1000 mg/kg bw/day (No effects on reproductive organs were observed in the study. No treatment-related effects on spermatogenic endpoints at any dose level.) [Based on OECD 408 repeated dose toxicity test result findings, 0, 100, 300, 1000 mg/kg bw/day]
Rat	Oral, Gavage	
Reproductive Toxicity Prenatal Development Toxicity Study [OECD 414]		NOAEL = 1000 mg/kg bw/day (No effects observed on maternal toxicity, embryotoxicity or teratogenic effects.) [Concentrations: 250 and 1000 mg/kg bw/day, Exposure from GD6-15]
Rat	Oral, Gavage	
Skin Irritation Draize Test [OECD 404]		Slightly irritating [Undiluted, occlusive on abraded and intact skin, 24hrs exposure]
Rabbit	Dermal	
Skin Sensitisation Maximisation Test [Other]		Not sensitising [Induction: 10 injections of 25% (intradermal); Challenge: 25% (intradermal)]
Guinea Pig	Dermal	
Skin Sensitisation Maximisation Test [OECD 406]		Not sensitising [Induction 2.5% (intradermal) and 100% (topical); Challenge 50% (topical)]
Guinea Pig	Dermal	

ANNEX II - INGREDIENT DATA

Substance: Erythritol
CAS: 149-32-6; 7541-59-5
Function: Humactant; Moisturising; Skin conditioning

Chemical Structure



Physical/Chemical Characteristics

Appearance	Colorless to white cristalline powder
Particle Size	D50 = 550,5 µm
Water Solubility	36.2 kg/L (miscible) at 25°C

Toxicological Summary

The below information is a summary of the toxicological profile for this raw material, including a description of general hazards associated with the material as well as discussion of the most critical studies relating to the overall safety in use of this substance/mixture in consumer products. Details of the available toxicological data can be found overleaf.

Overall Toxicity Review:

Erythritol is a sugar alcohol (or polyol) that is considered safe (GRAS) as a food additive in the United States (FDA 2019).

Tested on human subjects, undiluted erythritol was not irritating or sensitising. Erythritol was reliably predicted as non-irritant to the eye with iSafeRabbit model.

Erythritol have a low oral and dermal toxicity. LD50 values in rats were > 2000 mg/kg bw.

A NOAEL of 1250 mg/kg bw/d was derived in a 13 weeks dietary study in which rats received erythritol at doses of 0, 1.25, 2.5, or 5 g/kg bw per day. Increase in water consumption was observed in animals in the mid and high dose groups. Thus, the point of departure in this study is at 1.25 g/kg bw per day.

Erythritol is not genotoxic, carcinogenic or toxic to the reproductive system.

No information on dermal absorption was available, therefore a dermal absorption of 100% is assumed.

Based on the low oral and dermal toxicity , this material is not expected to produce local or systemic toxicity when incooporated in to a consumer product.

References

FDA (2019). GRAS notices. Online available at: https://www.accessdata.fda.gov/scripts/fdcc/?set=GRASNotices&sort=GRN_No&order=DESC&startrow=1&type=basic&search=erythritol. (Accessed February 2019).

Margin(s) of Safety

An MoS for this material has been determined in accordance with the criteria outlined in the Annex Preface, however information pertaining to it has been redacted from the report in order to preserve the confidential nature of the quantitative formulation. Any concerns relating to the MoS are discussed on page 4 of the review under 'Toxicological & Regulatory Assessment'

ANNEX II - INGREDIENT DATA

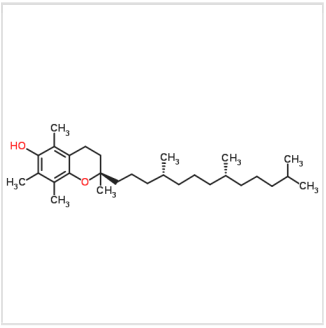
Erythritol

Acute Toxicity Acute Oral Toxicity, Non-lethal [OECD 420]		LD 50 > 2000mg/kg
Rat	Oral, Gavage	
Acute Toxicity Acute Dermal Toxicity, Lethality [OECD 402]		LD 50 > 2000mg/kg Xylitol (read-across)
Rat	Dermal	
Carcinogenicity Carcinogenicity studies [OECD 451]		Groups of 50 rats of each sex consumed diets with 0, 2, 5, or 10% erythritol, or 10% mannitol, for a period of 104 -107 weeks.no other treatment-related, morphological changes were observed in the kidneys. Evidence for a tumor-inducing or tumor-promoting effect of erythritol was not seen.
Rat	Oral, Feed	
Genotoxicity Bacterial reverse mutation test (Ames) [OECD 471]		Negative Strain tested - S. typhimurium TA 1535, TA 1537, TA 98 and TA 100. Dose - Up to 30 mg/plate with and without metabolic activation.
Bacteria	In vitro exposure	
Genotoxicity Mammalian erythrocyte micronucleus test [OECD 474]		Xylitol (read-across) caused no observable mutagenic effects in the system studied
Mouse	Oral, Feed	
Repeated Dose 90-Day Oral Toxicity Study [OECD 408, OECD 409]		NOAEL = 1.25 g/kg bw/day. Groups of three beagles of each sex were given erythritol (purity, 99.7%) by gavage at on seven days per week for 13 weeks. Increase in water consumption was observed in animals in the mid and high dose groups.
Dog	Oral, Gavage	
Reproductive Toxicity Two-Generation Reproduction Toxicity [OECD 416]		24 rats/sex/generation/dose group were given up to 10% Erythritol for 2 consecutive generations. Erythritol did not affect reproductive performance or fetal development in rats when administered in the diet at levels of up to 10% for 2 consecutive generations.
Rat	Oral, Feed	
Skin Irritation In vivo skin irritation [Other]		Not irritating or sensitising 0%, 33%, 50%, 66% and 100% of erythritol was dermally applied to the right fore arm of groups of 10 female volunteers for 14 days.
Human	Dermal	

ANNEX II - INGREDIENT DATA

Substance: Tocopherol
CAS: 1406-18-4; 10191-41-0; 1406-66-2; 2074-53-5; 59-02-9; 148-03-8; 119-13-1; 54-28-4
Function: Skin Conditioning; Antioxidant; Masking

Chemical Structure



Physical/Chemical Characteristics

Appearance	Oily Viscous light yellow liquid
Boiling Point	200 - 220 °C at 0.1 hPa
Flammability	Auto-Ignition Temperature: 340°C
Flash Point	240°C
Molecular Mass	430.69
Melting Point	3°C
Odour	None
pH	n.a.
Specific Gravity	0.95

Toxicological Summary

The below information is a summary of the toxicological profile for this raw material, including a description of general hazards associated with the material as well as discussion of the most critical studies relating to the overall safety in use of this substance/mixture in consumer products. Details of the available toxicological data can be found overleaf.

Overall Toxicity Review:

Vitamin E is an essential nutrient, also used as an antioxidant in many consumer products (in food, authorised within the EU under E306 to E309, and generally recognized as safe (GRAS) in the USA (21CFR184.1890).

It is generally not shown as irritant in animal tests, as described in the European Chemical Agency (ECHA) registration dossiers of tocopherols and/or alpha-tocopherol. The Cosmetic Ingredients Review (CIR) Expert Panel commented that although moderate sensitisation potential was reported in a Guinea pig maximization test of dl-α-tocopherol, dermal reactions to tocopherol in humans are rare. In clinical patch tests the incidence of positive reactions to α-tocopherol in petrolatum was 0.66% in 1814 patients, and undiluted dl-α-tocopherol was 0.7% in 4454 patients. Some case reports of contact dermatitis to tocopherol containing products have been described (CIR, 2018). However, the North American Contact Dermatitis Group deleted this ingredient from its standard testing panel because of the extremely low incidence of reactions. As a precaution, the EC3 value of 7.4% derived from the Local Lymph Node Assay can be used to calculate a point of departure (NESIL) for the sensitisation endpoint. Using Basketter's equation (2005) a NESIL of 1395.005 ug/cm2 was derived from the EC3 value.

Dietary References Values for vitamin E range between 5 mg/day and 11 mg /day (EFSA, 2015), and despite the European Food Safety Authority's (EFSA) Panel on Food Additives and Nutrient Sources Added to Food (ANS) concluded that no acceptable daily intake (ADI) could be established, as limited data were available regarding reproductive and developmental toxicology. However, it concluded that tocopherols are not of safety concern at the levels used in food. On the contrary, the Joint FAO/WHO Expert Committee on Food Additives (JECFA,1986) derived an ADI of 0.15-2 mg/kg/day for dl-alpha-tocopherol, Furthermore a NOAEL of 125 mg/kg/day based on a 90 day repeated dose toxicity study was identified which can be used complimentary to the human ADI as point of departure.

Several dermal absorption studies indicate that the absorption of Tocopherol is variable depending on the formulations used and most of it stays on the skin (accumulates in cell membranes but also in the extracellular lipid matrix of the stratum corneum) and topical application of Tocopherol increases its levels in epidermis and dermis by several folds, where vitamin E contributes to antioxidant defences. However, much of a topically applied dose of vitamin E alone will be destroyed in the skin following exposure to UV light (Oregon state university). Because of the variability in the dermal absorption studies that a consistent value cannot be derived, 100% is conservatively assumed as a default value for assessment purpose. Tocopherol was tested to have photoprotective effects: 5 mg/cm² Tocopherol was applied to the back of female hairless mice for 24 hours prior to UV. The results indicated the protection of cutaneous tissue against oxidative damage. In other study, 5% Tocopherol was topically applied to female hairless mice for 1 week prior to UV exposure (24 weeks) and until study termination. No toxic effects were found and Tocopherol protected against blistering, pigmentation and tumours compared to untreated mice. Time to tumour developmental was significantly delayed with Tocopherol. In the human study, A formulation containing 10% Tocopherols and other cosmetic ingredients was applied to a 2 cm² area of skin in 30 participant. Test sites were evaluated immediately and 6 and 24 hours after UVB exposure. Phototoxic reactions were statistically significantly decreased at the test site than at the untreated site (Animal studies: Lopez-Torres 1998, Burke 2000; Human study: Pedrelli VF 2012; all cited in CIR 2018 report). In its 2018 review, the CIR reported 6635 products containing tocopherol, at up to 5.4% in leave-on products and up to 3% in rinse-off. It concluded that it is safe in the current practices of use and concentration in cosmetic products. The Scientific Committee on Cosmetic Products and Non-Food Products (SCCNFP) had the same conclusion in its 2001 evaluation report on alpha-tocopherol

Margin(s) of Safety

An MoS for this material has been determined in accordance with the criteria outlined in the Annex Preface, however information pertaining to it has been redacted from the report in order to preserve the confidential nature of the quantitative formulation. Any concerns relating to the MoS are discussed on page 4 of the review under 'Toxicological & Regulatory Assessment'

ANNEX II - INGREDIENT DATA

Tocopherol

Acute Toxicity Acute Oral Toxicity, Lethality [OECD 401, OECD 423, OECD 425]		[dl-alpha-tocopherol] LD50 > 2000 mg/kg 5 animals/sex
Rat	Oral, Gavage	
Acute Toxicity Acute Dermal Toxicity, Lethality [OECD 402]		LD50 >2000mg/kg bw
Rabbit	Dermal	
ADME In vivo metabolism study [Other]		Major route of excretion was faeces. 18 Tocopherol-derived metabolites along with a-, g-, and d-tocopherol identified in faeces. Short-chain degradation metabolites, primarily g- and d-carboxyethyl hydroxychromans and carboxymethylbutyl hydroxychromans detected in urine, serum and liver samples.
Mouse	Oral, Feed	
ADME In vitro absorption study [Other]		Dermal penetration of 1% tocopherol evaluated in several vehicles: Greatest permeation found in viable skin + receptor was from emulsion vehicle that contained 10% isopropyl myristate; 12.24% of applied dose was found in viable skin and receptor fluid
Ex-vivo Tissue	Dermal	
ADME In vivo absorption study [Other]		Dermal application of 5 mg/cm2 a-tocopherol to the backs of female hairless SKH1 mice for 24 h resulted in a 62-fold increase of a-tocopherol in the epidermis and a 22-fold increase in the dermis.
Mouse	Dermal	
Carcinogenicity Carcinogenicity studies [Other]		Not carcinogenic at up to 2000 mg/kg/day (but no NOAEL established for other toxicological endpoints) 500, 1000, 2000 mg/kg/day 104 weeks study. 60/Sex/dose
Rat	Oral, Feed	
Eye Irritation Draize, Standard [OECD 405]		Not irritating. 9 animals. Primary irritation score = 0
Rabbit	Instillation	
Genotoxicity Mammalian cell gene mutation test [OECD 476]		Negative Without metabolic activation (not tested with).
Hamster	In vitro exposure	
Genotoxicity Bacterial reverse mutation test (Ames) [OECD 471]		Negative TA 97, TA 98, TA 100, TA 102 and TA 1535, +/- S9 mix
Bacteria	In vitro exposure	
Repeated Dose 90-Day Oral Toxicity Study [OECD 408, OECD 409]		[d-alpha-tocopherol] NOAEL = 125 mg/kg/day 10/sex/dose; 0, 125, 500, 2000 mg/kg/day Main effects: Increased liver-to-body-weight ratio, increased thromboplastin time.
Rat	Oral, Gavage	
Reproductive Toxicity In vivo reproductive toxicity study [Other]		[alpha-Tocopherol] NOAEL = 7.5 mg/kg/day (reduced pregancy rate) 0.75, 7.5 and 75mg/day, 20 days prior to mating and during gestation. Animals killed on GD20.
Rat	Oral, Feed	
Reproductive Toxicity In vivo reproductive toxicity study [Other]		[d-alpha-tocopherol] LOAEL = 1000 mg/kg/day (only dose tested) 1000 mg/kg/day, 2 weeks before mating and until end of lactation. Offspring fed the same. Sacrifices at PDN0, 7 ,14, 21 and 60-90. No adverse effects on survival, weight, litter size. Reduction of long-term synaptic plasticity in juvenile hippocampus, deficit in long-lasting spatial memory.
Rat	Oral, Feed	
Reproductive Toxicity In vivo reproductive toxicity study [Other]		[dl-alpha-tocopheryl acetate] NOAEL > 2252 mg/kg/day Several experiments, with administration to dams during gestation only, or gestation + lactation, or to pups. No fetal abnormalities in any of the groups.
Rat	Oral, Feed	
Skin Irritation Draize Test [OECD 404]		Slightly Irritating. 3 animals, 4h exposure in semiocclusive conditions, no vehicle Primary Irritation Index = 1.2
Rabbit	Dermal	
Skin Sensitisation Maximisation Test [OECD 406]		Moderate sensitiser. 24hrs after patch removal and erythema score of 1 was reported for 3 animals. After 48hrs, the erythema scores were 1 for for 4 animals, and 2 for 3 animals
Guinea Pig	Dermal	
Skin Sensitisation Local Lymph Node Assay [OECD 429, OECD 442A, OECD 442B]		A volume of 25 uL tocopherol was applied to the dorsum of the ears of mice for 3 days. The minimum concentration required to elicit a sensitisation reaction (EC3) was 7.4%
Mouse	Dermal	

ANNEX II - INGREDIENT DATA

Substance: Coffea Arabica Seed Extract
CAS: 84650-00-0
Function: Masking; Skin conditioning

Chemical Structure

Physical/Chemical Characteristics

Molecular Mass 524.201947 g/mol

Toxicological Summary

The below information is a summary of the toxicological profile for this raw material, including a description of general hazards associated with the material as well as discussion of the most critical studies relating to the overall safety in use of this substance/mixture in consumer products. Details of the available toxicological data can be found overleaf.

Overall Toxicity Review:

Coffea Arabica Seed Extract is an extract of the beans of the coffee plant, Coffea arabica L., Rubiaceae.

Has been used for hundreds of years both in food and as a drink, but has also been used medicinally. In Brazil. a decoction of the seed is taken orally for influenza. in Mexico, the leaves are made into a poultice and used to treat fever. In Thailand and the West Indies, the seed extract is mixed with hot water and is taken orally as a cardiotonic, neurotonic, and to treat asthma.

Coffea Arabica (Coffee) Seed Extract (coffee extract) is a food additive and belongs to be substances generally recognised as safe (GRAS) in US (21 CFR 182.20) when used in cola type beverages up to a level of 0.02% or 200 ppm. The average caffeine consumption from all sources is about 70 mg/person/day. The daily caffeine consumption of 300 mg from all sources by an adult has been assumed to be safe. (Menezes, 2017) The most recognised effect of caffeine in humans is its psychostimulant action. It is a stimulant of the central nervous system and peripheral nervous system.

Has been reported that coffea arabica has antimicrobial activity. It is a rich source of antioxidants, including those derived from the hydroxycinnamic acid family, flavonoids and polyphenols. When evaluating the antioxidant properties of coffee, higher activity levels appear in vivo, after the coffee has been consumed, because colonic microflora metabolize most of the dietary phenols and therefore significantly increase the antioxidant activity. (Bisht, 2010)

An acute toxicity study carried out on mice concluded a LD50 of 1000 mg/kg in mice.

The lethal oral dose of caffeine in humans has been estimated as 5 to 10 g, equivalent to 50 to 100 cups of coffee.

Pregnant women are advised to limit caffeine intake to less than 300 mg (about three cups of coffee) daily. Caffeine is listed as a “maternal medication usually compatible with breast-feeding” by the American Academy of Pediatrics Committee on Drugs. The committee noted that maternal consumption of caffeine may cause irritability and poor sleeping patterns in nursing infants, and that maternal consumption of caffeinated beverages should be limited to two to three cups daily (American herbal products association hand book second edition).

Systematic review of the potential adverse effects of caffeine consumption in healthy adults, pregnant women, adolescents, and children concluded that Evidence supported consumption of ≤400 mg/day in adults is not associated with overt, adverse effects. Intakes of ≤300 mg/day in pregnant women and ≤2.5 mg/kg-day in children and adolescents remain acceptable (Daniele Wikoff et. al).

An average 8 oz cup (227 ml) of coffee contains 75 to 130 mg caffeine. A shot of espresso contains 55 to 76 mg caffeine. The caffeine content of a single type of coffee purchased from one store of an international coffee company on six different days was found to vary from 130 to 282 mg per 8 oz cup (American herbal products association hand book second edition).

As dermal absorption is dependent on the molecular properties, concentration, exposure time and vehicle simultaneously, in the absence of relevant

Margin(s) of Safety

An MoS for this material has been determined in accordance with the criteria outlined in the Annex Preface, however information pertaining to it has been redacted from the report in order to preserve the confidential nature of the quantitative formulation. Any concerns relating to the MoS are discussed on page 4 of the review under 'Toxicological & Regulatory Assessment'

ANNEX II - INGREDIENT DATA

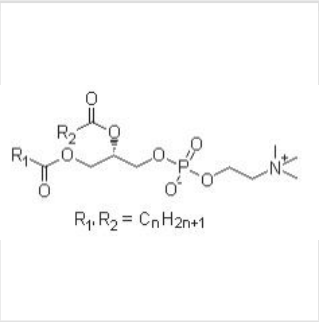
Coffea Arabica Seed Extract

Acute Toxicity Acute Toxicity, Lethality [Other]		LD50 > 1000 mg/kg
Mouse	Intraperitoneal	
Repeated Dose Repeat Dose Oral Toxicity Study [Other]		6% regular or decaffeinated instant coffee for 2 years, the average coffee intake was 2.9 g/kg daily in males and 3.5 g/kg daily in females, a human equivalent of 70 to 80 cups of coffee daily. Total number of neoplasms was either similar to or lower than the total in the control group
Rat	Oral, Feed	
Repeated Dose Repeat Dose Oral Toxicity Study [Other]		In rats fed diets containing 0.5 to 5% instant coffee daily for 2 years, weight gain was impaired at the highest dose level. Liver and kidney hypertrophy were also observed at that dose level.
Rat	Oral, Feed	

ANNEX II - INGREDIENT DATA

Substance: Lecithin
CAS: 8030-76-0; 8002-43-5
Function: Antistatic; Emollient; Emulsifying; Skin conditioning

Chemical Structure



Physical/Chemical Characteristics

Appearance	Golden to tan granular solid. (white when new)
Molecular Mass	677.92
Melting Point	236.1°C
pH	6.8 (1% solution)
Specific Gravity	1.0305 @ 24°C
Water Solubility	Insoluble in cold water

Toxicological Summary

The below information is a summary of the toxicological profile for this raw material, including a description of general hazards associated with the material as well as discussion of the most critical studies relating to the overall safety in use of this substance/mixture in consumer products. Details of the available toxicological data can be found overleaf.

Overall Toxicity Review:

Lecithins is a generic name for the complex combination of diglycerides of fatty acids linked to the choline ester of phosphoric acid. Found in living plants and animals, Phosphatidyl choline, a form of lecithin, is a major component in cell membranes, forming the lipid layer in the Protein Lipid Protein membrane structure.

Available studies on rabbits indicate that Lecithin is only minimally irritating to skin and eyes at up to 65% in solution. Whilst no direct data on the allergenicity of lecitihin was available for review, Human Repeat Insult Patch Testing of products containing 3% or 0.1% Lecitihin (65% active solution) showed no evidence of allergenic activity. The compound's structure does not contain conjugated double bonds, therefore, it will not absorb UV light which is a prerequisite for phototoxicity.

Material displays low acute toxicity by the oral route, and there is no evidence of genotoxicity under Ames Assay Conditions.

Of the available repeat-dose data, a 2-year feeding study in rats identified a NOAEL of 1,470mg/kg/day is considered the most robust. Whilst there was some evidence of increased parathyroid gland hyperplasia incidence in males, this was attributed to increased phosphate intake and no significant change in tumour incidence was reported.

A number of reproductive toxicity studies in rodents identify NOAELs of 1600 mg/kg/day, the highest tested dose. The NOAEL of 1470 mg/kg/day from the oral feeding study is, therefore, considered protective of any reproductive effects.

As dermal absorption is dependent on the molecular properties, concentration, exposure time and vehicle simultaneously, in the absence of relevant experimental data it is difficult to assess an exact value. If not stated otherwise within the risk assessment, we assume 100% dermal absorption, however it must be noted that for the majority of compounds, even low molecular weight, lipophilic compounds, dermal absorption is expected to be significantly lower than 100%.

The Cosmetic Ingredient Review (CIR) Expert Panel reported Lecithin was used at 0.00000008-50% in leave-on products, 0.0000008-11.5% in rinse-off products and concluded that it is safe as cosmetic ingredient in the present practices of use and concentration.

Overall, based on the available data, the inclusion of Lecithin within consumer products at typical levels is considered most unlikely to provoke significant localised or systemic toxicity.

Margin(s) of Safety

An MoS for this material has been determined in accordance with the criteria outlined in the Annex Preface, however information pertaining to it has been redacted from the report in order to preserve the confidential nature of the quantitative formulation. Any concerns relating to the MoS are discussed on page 4 of the review under 'Toxicological & Regulatory Assessment'

ANNEX II - INGREDIENT DATA

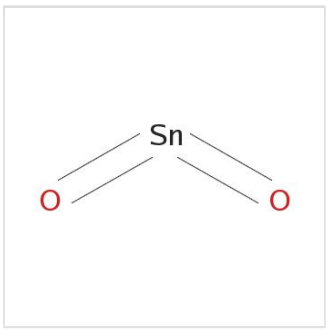
Lecithin

Acute Toxicity Acute Toxicity, Lethality [Other]		LD50 > 16g/kg
Mouse	Oral, Gavage	
Eye Irritation Draize [Other]		Minimally Irritating (65% Solution) (Eyes not rinsed after instillation)
Rabbit	Instillation	
Genotoxicity Bacterial reverse mutation test (Ames) [OECD 471]		Non-mutagenic to Salmonella typhimurium strains TA1535, TA1537, and TA1538 and Saccharomyces cervisiae D4 with and without metabolic activation.
Bacteria	In vitro exposure	
Repeated Dose Repeat Dose Oral Toxicity Study [Other]		NOAEL = 1,470mg/kg/day (Males, Soya Lecithin) (1470 mg/kg bw/day for males, 2280 mg/kg bw/day for females. 2 year feeding study, 48/sex/dose. Parathyrooid gland hyperplasia incidence was increased in males, but is attributed to increased phosphate intake and no significant change in tumour incidence.)
Rat	Oral, Feed	
Reproductive Toxicity In vivo reproductive toxicity study [Other]		NOAEL > 1,600mg/kg/day (Dosed orally, days 6 to 15 of gestation.)
Mouse	Oral, Gavage	
Reproductive Toxicity In vivo reproductive toxicity study [Other]		NOAEL > 1,600mg/kg/day (Dosed orally, days 6 to 15 of gestation.)
Rat	Oral, Gavage	
Skin Irritation Draize Test [OECD 404]		Minimally Irritating (65% Solution)
Rabbit	Dermal	
Skin Sensitisation Repeat Insult Patch Test (RIPT) [Other]		A tanning oil containing 3% of a solution containing 65% lecithin, a mascara containing 0.1% of a solution containing 65% lecithin, and a foundation containing 0.3% of a solution containing 65% were all found to be non-sensitizing.
Human	Dermal	

ANNEX II - INGREDIENT DATA

Substance: Tin Oxide (CI 77861)
CAS: 18282-10-5; 1332-29-2
Function: Abrasive; Opacifying; Viscosity Controlling; Bulking

Chemical Structure



Physical/Chemical Characteristics

Appearance	White/Grey powdered solid
Boiling Point	Sublimes at 1800 - 1900 deg. C.
Molecular Mass	150.7
Melting Point	1630°C
Odour	None
Specific Gravity	6.95
Water Solubility	Insoluble

Toxicological Summary

The below information is a summary of the toxicological profile for this raw material, including a description of general hazards associated with the material as well as discussion of the most critical studies relating to the overall safety in use of this substance/mixture in consumer products. Details of the available toxicological data can be found overleaf.

Overall Toxicity Review:

Tin Oxide functions as an abrasive, bulking, and opacifying agent in cosmetic products.

Tin Oxide is not a skin irritant or a sensitizer but can cause mild eye irritation.

Tin Oxide has a low acute toxicity with high oral LD50 greater than 2000 mg/kg.

A NOAEL of 510 mg/kg bw/day is selected from a 4 weeks oral repeated dose toxicity study. The value is divided by three to extrapolate to long term study (SCCS opinion). The NOAEL is derived from the highest dose of the study, this is not a true NOAEL but can be taken as a conservative and protective value for calculating MoS.

Data is not available for genotoxicity and carcinogenicity for Tin Oxide.

There is no evidence to support the lack of dermal penetration of silica and as such the dermal absorption is assumed as 100%.

The Cosmetic Ingredient Review (CIR) reports that Tin Oxide was used up to 1.3% in leave on products (Incidental ingestion was 0.2%; Incidental inhalation was 1%, Eye area was 1.3%) and 0.4% in rinse off products. The CIR Expert Panel concluded that Tin Oxide is safe in the present practices of use and concentration.

Overall the use of this material at low levels within Consumer Products would not be expected to pose an undue risk of significant adverse effects.

Margin(s) of Safety

An MoS for this material has been determined in accordance with the criteria outlined in the Annex Preface, however information pertaining to it has been redacted from the report in order to preserve the confidential nature of the quantitative formulation. Any concerns relating to the MoS are discussed on page 4 of the review under 'Toxicological & Regulatory Assessment'

ANNEX II - INGREDIENT DATA

Tin Oxide (CI 77861)

Acute Toxicity		LD50 > 2000 mg/kg
Acute Toxicity, Lethality [Other]		
Rat	Oral, Gavage	
Eye Irritation		Mild irritant
Bovine Corneal Opacity & Permeability (BCOP) Test [OECD 437]		
Ex-vivo Tissue	In vitro exposure	
Repeated Dose		NOAEL > 1% (= 510 mg/kg/day) Dose: 0, 0.03, 0.1, 0.3, 1%; 10/sex/dose Duration: 4 weeks
Repeat Dose Dermal Toxicity Study [Other]		
Rat	Oral, Feed	
Skin Irritation		The test item showed no corrosive effects and no irritant effects. The test item is classified as "non corrosive" and "non-irritant".
Reconstructed Human Epidermis (RHE) Test [OECD 431, OECD 439]		
In-vitro culture	In vitro exposure	
Skin Sensitisation		An eye shadow containing 1.3% tin(IV) oxide tested with 209 male and female patients (16-79 years old). The eye shadow did not indicate a potential for dermal irritation or allergic contact sensitization.
Repeat Insult Patch Test (RIPT) [Other]		
Human	Dermal	

ANNEX II - INGREDIENT DATA

Substance: Hibiscus Sabdariffa Fruit Extract
CAS: -
Function: Skin Conditioning

Chemical Structure

Physical/Chemical Characteristics

Water Solubility	Soluble
Appearance	Liquid

Toxicological Summary

The below information is a summary of the toxicological profile for this raw material, including a description of general hazards associated with the material as well as discussion of the most critical studies relating to the overall safety in use of this substance/mixture in consumer products. Details of the available toxicological data can be found overleaf.

Overall Toxicity Review:

Hibiscus Sabdariffa, commonly known as Roselle, has had a long history of use: In China the seeds are used for their oil and the plant is used for its medicinal properties, while in West Africa the leaves and powdered seeds are used in meals. Additionally, it is used in the pharmaceutical and food industries.

All parts of roselle plant are edible and useful. From the calyces and flowers of the plant herbal drinks, wines, flavouring agents, chocolates and other food products are obtained. Fruits are used to make beverages and for cooking fish or eel. Oils are obtained from the seeds and the plant's leaves and shoots are eaten raw or cooked as vegetable or a condiment. It has also been historically used as a medicine believed to have diuretic, cholerectic, febrifugal and hypotensive effects, decreasing the viscosity of the blood and stimulating intestinal peristalsis among other uses (Da-Costa-Rocha et al. 2014; Lim 2014).

Morevoer, it is worth mentioning that Hibiscus sabdariffa is approved by the US FDA as a direct food additive (used for flavouring agent or adjuvant) [21 CFR 172.510]. No limitations have been specified for Hibiscus sabdariffa, it is only specified that it is to be used in the minimum quantity required to produce its intended physical or technical effect and in accordance with all the principles of good manufacturing practice.

Anticlastogenic effects were demonstrated by a crude aqueous extract of Hibiscus sabdariffa fruits in a micronucleus assay in mice. Oral administration of the extract (50, 100 and 150 mg/kg bw) for 7 days alone or followed by a single dose of sodium arsenite (2.5 mg/kg bw) caused no significant increase in micronucleated polychromatic erythrocytes (mPCEs) (i.e. not clastogenic) or effectively reduced the mPCEs induced by sodium arsenite (i.e. anticlastogenic) respectively (Adetutu et al. 2004).

Although a NOAEL was not available, on the basis of the available data and history of use of Hibiscus sabdariffa for human consumption, use of this material at low concentrations within consumer products is not expected to cause an undue risk to the intended user.

Margin(s) of Safety

An MoS for this material has been determined in accordance with the criteria outlined in the Annex Preface, however information pertaining to it has been redacted from the report in order to preserve the confidential nature of the quantitative formulation. Any concerns relating to the MoS are discussed on page 4 of the review under 'Toxicological & Regulatory Assessment'

ANNEX II - INGREDIENT DATA

Hibiscus Sabdariffa Fruit Extract

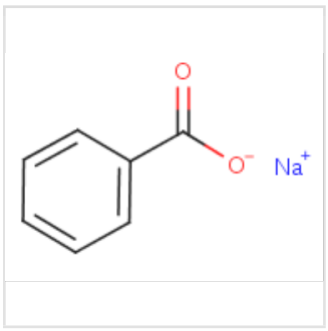
Genotoxicity	
In vivo genotoxicity assay [Other]	
Mouse	Oral, Gavage

Anticlastogenic in bone marrow micronucleus assay
Aqueous fruit extract alone (50, 100 and 150 mg/kg bw for 7 days): No significant increase in micronucleated polychromatic erythrocytes (mPCEs). The extract (7 days) + Sodium arsenite (2.5 mg/kg bw on day 7): Significant decrease in mPCEs induced by sodium arsenite alone

ANNEX II - INGREDIENT DATA

Substance: Sodium Benzoate
CAS: 532-32-1
Function: Anticorrosive; Masking; Preservative

Chemical Structure



Physical/Chemical Characteristics

Appearance	White solid
Flammability	Autoifnition > 500°C
Flash Point	> 100 °C
Log Kow	-2.27
Molecular Mass	144.11
Melting Point	410 to 430°C
Odour	None
pH	9 (100 g/L @ 20°C)
Specific Gravity	1.44

Toxicological Summary

The below information is a summary of the toxicological profile for this raw material, including a description of general hazards associated with the material as well as discussion of the most critical studies relating to the overall safety in use of this substance/mixture in consumer products. Details of the available toxicological data can be found overleaf.

Overall Toxicity Review:

Sodium Benzoate is a sodium salt of benzoic acid and a well-established preservative with a long history of safe use in a variety of Consumer Products including Food and Cosmetics. It is an approved food additive in the EU (E211) and given the generally recognised as safe (GRAS) status by US FDA Select Committee on Generally Recognised as Safe Substances (SCOGS) as a direct food substance with maximum level of 0.1% in food (FDA, 2018). In cosmetics it primarily serves as an anticorrosive, masking and preservative agent. The ingredient is an approved preservative for use in cosmetic products in the EU, with the following maximum concentration limits according to Annex V Entry 1 of the European Cosmetic Regulation: Rinse-off products, except oral care products at 2.5% (as acid); Oral care products at 1.7% (as acid); Leave-on products at 0.5% (as acid). As Sodium Benzoate is 84.7% Benzoic Acid by weight, the actual concentration corresponds to 2.9%, 1.97% and 0.59%, respectively (EC, 2018).

Neat application may cause irritation to eyes, but no dermal irritating effects is expected based on animal data. It is demonstrated to be non-phototoxic in human erythrocyte suspensions.

Regarding skin sensitisation, human clinical study testing unspecified concentration of Sodium Benzoate reported positive reactions in 1.9% of treated patients, however it was suggested that the positive reactions observed were actually nonimmunologic contact urticaria. Read-across data from Benzoic acid, the free acid of Sodium benzoate is also available. It should be emphasised that Sodium benzoate dissolves in water to Benzoic acid and Sodium ions and therefore the read-across candidate is addressing the same chemical entity as the query compound. In the Local Lymph Node Assay (LLNA), there was no indication that Benzoic Acid at 5, 10 and 20% could elicit skin sensitisation. In addition, Sodium benzoate has a long history of use (in 2017, the Cosmetic Ingredient Review (CIR) Panel of Experts reported the presence of this ingredient in a total of 1570 products) combined with low incidence of sensitisation reports. Taken together, this ingredient is unlikely to be a skin sensitiser.

The ingredient is practically non-toxic from acute oral, dermal and inhalation exposures. A feeding study of up to 24 months did not identify any significant toxicological effects at the highest treatment dose of 2%. Long term inhalation exposure may be associated with pulmonary effects and changes in organ and body weights. The ingredient was demonstrated to be non-genotoxic in both in-vitro and in-vivo studies, and no carcinogenic effects were found in-vivo. Prenatal development toxicity study found no effects on maternal and developmental toxicity at the highest dose of 175 mg/kg bw/day.

As dermal absorption is dependent on the molecular properties, concentration, exposure time and vehicle simultaneously, in the absence of relevant experimental data it is difficult to assess an exact value. If not stated otherwise within the risk assessment, we assume 100% dermal absorption, however it must be noted that for the majority of compounds, even low molecular weight, lipophilic compounds, dermal absorption is expected to be significantly lower than 100%.

The Joint FAO/WHO Expert Committee on Food Additives (JECFA, 1998) has set an acceptable daily intake (ADI) as 5 mg/kg bw for this group of preservatives (benzoic acid, the benzoate salts (calcium, potassium and sodium), benzaldehyde, benzyl acetate, benzyl alcohol and benzyl benzoate, expressed as benzoic acid equivalents). This value is chosen as the point of departure for the assessment. In 2017, the CIR Expert Panel reported the use of up to 1% in cosmetic products, and the Panel concluded it is safe in the practices of use and concentration described in the assessment (CIR, 2017). The

Margin(s) of Safety

An MoS for this material has been determined in accordance with the criteria outlined in the Annex Preface, however information pertaining to it has been redacted from the report in order to preserve the confidential nature of the quantitative formulation. Any concerns relating to the MoS are discussed on page 4 of the review under 'Toxicological & Regulatory Assessment'

ANNEX II - INGREDIENT DATA

Sodium Benzoate

Acute Toxicity Acute Toxicity, Lethality [Other]		LD50 = 3140 mg/kg bw (practically non-toxic)
Rat	Oral, Gavage	
Acute Toxicity Acute Toxicity, Lethality [Other]		LC50 > 12200 mg/m³ [Dust of 12200 mg/m³, 4hr exposure]
Rat	Inhalation	
Acute Toxicity Acute Toxicity, Lethality [Other]		LD50 > 2000 mg/kg bw [Semi-occlusive, fixed dose 2000 mg/kg, 24hr exposure]
Rabbit	Dermal	
Carcinogenicity Combined chronic toxicity/carcinogenicity studies [Other]		NOAEL > 1000 mg/kg bw/day (no evidence of carcinogenicity) [Concentration: 1% and 2% in diet (approx. 500 and 1000 mg/kg bw/day), exposure for 18 to 24 months]
Rat	Oral, Feed	
Eye Irritation Draize, Standard [OECD 405]		Slightly irritating (irritation of the conjunctivae was reversible within 14 days) [Undiluted, 60mg, 24hr exposure]
Rabbit	Instillation	
Genotoxicity Bacterial reverse mutation test (Ames) [OECD 471]		Not mutagenic with and without metabolic activation at up to 10 mg/plate.
Bacteria	In vitro exposure	
Genotoxicity In vitro genotoxicity assay [Other]		No significant aberration in the anaphase chromosomes of human tissue culture cells at up to 200.0 mg/mL. [Mammalian chromosome aberration study; without metabolic activation]
In-vitro culture	In vitro exposure	
Genotoxicity Mammalian bone marrow chromosome aberration test [OECD 475]		No detectable significant increase in the number of aberrations in bone marrow metaphase chromosomes [Concentrations: 50, 500 and 5000 mg/kg, once a day for 5 consecutive days]
Rat	Oral, Gavage	
Phototoxicity In vitro phototoxicity [other]		Not phototoxic in the presence of UVA or UVB light. [Concentration: 10^-3 mol/L, 1hr expousre]
In-vitro culture	In vitro exposure	
Repeated Dose Repeat Dose Oral Toxicity Study [Other]		NOAEL = 2% in diet (equivalent to 1000 mg/kg bw/day) (No findings of toxicological significance at highest treatment dose) [Concentrations: 1 or 2% in feed, exposure for 18 to 24 months.]
Rat	Oral, Feed	
Repeated Dose 28-day Inhalation Toxicity Study [OECD 412]		NOAEC (local effects) < 25 mg/m³ (Pulmonary fibrosis and inflammatory cell infiltrate at lowest dose level) NOAEC (systemic) = 250 mg/m³ (Decrease in organ and body weight at higher doses) [Dust exposure at 25, 250, 1200 mg/m³ , mean equivalent aerodynamic diameter of 4.7 µm; 6 h/day, 5 days/week]
Rat	Inhalation	
Reproductive Toxicity Prenatal Development Toxicity Study [OECD 414]		NOAEL >= 175 mg/kg bw/day (no effects on maternal and developmental toxicity at the highest dose) [Concentrations are 1.75, 8.0, 38.0, and 175.0 mg/kg bw/day, exposure from GD6-15]
Rat	Oral, Gavage	
Skin Irritation Draize Test [OECD 404]		Not irritating (PII score = 0) [Undiluted, semi-occlusive, shaved, 0.5g, 4hr exposure]
Rabbit	Dermal	
Skin Sensitisation Local Lymph Node Assay [OECD 429, OECD 442A, OECD 442B]		[Read-across from benzoic acid (CAS 65-85-0)] Not sensitising (The SI values for 5%, 10% and 20% were 0.8, 0.9 and 0.8 respectively. No indication that the test substance could elicit an SI >=3 when tested on higher concentrations)
Mouse	Dermal	
Skin Sensitisation Repeat Open Application Test (ROAT) [Other]		Positive reactions in 1.9% of patients (It has been suggested that the positive reactions observed were actually nonimmunologic contact urticaria) [465 patients, Unknown concentration or procedure]
Human	Dermal	

ANNEX II - INGREDIENT DATA

Substance: Aphanizomenon Flos-Aquae Extract
CAS: -
Function: Humectant; Skin Conditioning

Chemical Structure

No Structure Available

Physical/Chemical Characteristics

Toxicological Summary

The below information is a summary of the toxicological profile for this raw material, including a description of general hazards associated with the material as well as discussion of the most critical studies relating to the overall safety in use of this substance/mixture in consumer products. Details of the available toxicological data can be found overleaf.

Overall Toxicity Review:

Aphanizomenon Flos-Aquae Extract is the extract of the alga, Aphanizomenon flos-aquae, Nostocaceae. Aphanizomenon Flos-Aquae is a species of cyanobacteria (blue-green algae), which is a substance that has a high concentration of vitamins, minerals and enzymes with a complete spectrum of essential and non-essential amino acids that are all easily absorbed by the body (Sanaei et al, 2015).

It is naturally present in fresh-water sources and has been harvested as dietary blue-green algae supplements (BGAS) in the U.S. since the 1980s. In freshwater environments, several cyanobacteria species including Aphanizomenon spp. form the most common and noxious type of harmful cyanobacteria blooms (CyanoHABs), which have potentially dire consequences for environmental and human health. The potential danger that exposure to cyanotoxins presents is widely known, and has been estimated to cause between 50,000 to 500,000 human intoxications per year from consumption of finfish and shellfish. While the liver is the primary target organ of microcystins (MCs), other organs can be affected as well. Previous studies have shown effects on the heart, nervous system, kidneys, and GI tract. Very few earlier studies addressed the variability of toxin content in BGAS, although this knowledge would have been important for risk assessments. Long-term consumption of BGAS containing harmful cyanotoxins is cause for public health concerns as they are widely available, labeled as safe products and promoted as beneficial for health. Further analysis discovered BGAS samples had cyanotoxins levels exceeding tolerable daily intake values.

On the other hand, in the United States, the Food and Drug Administration (FDA) has determined that Aphanizomenon Flos-Aquae is a dietary supplement; therefore, it is not subject to regulation as a drug, provided that the health benefits claimed by the manufacturer do not include the cure or treatment of a specific disease such as depression or cancer. The harvesting of cyanobacteria for production as dietary supplements has recently come under scrutiny, as the production of these BGAS suffer from less strict quality controls than other food products or pharmaceuticals. In addition, BGAS are marketed internationally and sold widely over the counter and via the Internet. Although insufficient evidence exists, BGAS are reported to have beneficial health effects including weight loss, increasing alertness and energy, and mood elevation for people suffering from depression.

Aphanizomenon Flos-Aquae is primarily harvested from cyanobacteria collected from Upper Klamath Lake in Oregon to produce BGAS. In southern Oregon, growth of Microcystis aeruginosa is a regular occurrence together in blooms with Aphanizomenon Flos-Aquae. Because M. aeruginosa regularly coexists with Aphanizomenon Flos-Aquae it can be collected inadvertently during the harvesting process, resulting in MC contamination of BGAS. Recommendations include: limit harvesting of Aphanizomenon Flos-Aquae to months when toxicity is lowest, include Aphanizomenon Flos-Aquae in cell counts during visible blooms, and properly identify cyanobacteria species using 16S rRNA methods when toxicity levels are higher than advisory levels. (Lyon-Colbert. A. et al, 2018).

A NOAEL of 333 ug/kg bw/day (0.333 mg/kg) was found for the contaminant of Aphanizomenon Flos-Aquae (AFA); Microcyctis aeruginose (MCLR) and a safe level of 10.0 ug MCLR/g AFA was established based on a safety factor of 1,000 and a daily consumption of 2 g AFA in a 60-kg person.

As dermal absorption is dependent on the molecular properties, concentration, exposure time and vehicle simultaneously, in the absence of relevant experimental data it is difficult to assess an exact value. If not stated otherwise within the risk assessment, we assume 100% dermal absorption, however it

Margin(s) of Safety

An MoS for this material has been determined in accordance with the criteria outlined in the Annex Preface, however information pertaining to it has been redacted from the report in order to preserve the confidential nature of the quantitative formulation. Any concerns relating to the MoS are discussed on page 4 of the review under 'Toxicological & Regulatory Assessment'

ANNEX II - INGREDIENT DATA

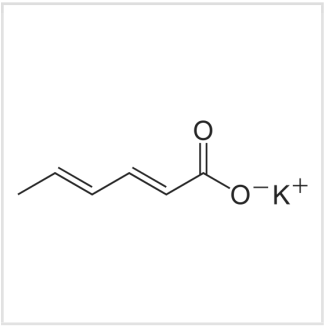
Aphanizomenon Flos-Aquae Extract

Reproductive Toxicity		[Read-across from Aphanizomenon flos-aquae (AFA) containing 20±5 ug Microcystin (MCLR)/g] NOAEL = 16,667 mg AFA/kg/d (0.333 mg MCLR/kg/d). No signs of toxicity in adults or newborns Exposure: 0, 2167, 4167, 6167, 16667 mg AFA/kg bw/day for 21 to 43 days (including during gestation and lactation). 5/sex/dose.
In vivo reproductive toxicity study [Other]		
Mouse	Oral, Feed	

ANNEX II - INGREDIENT DATA

Substance: Potassium Sorbate
CAS: 590-00-1; 24634-61-5; 24634-61-5
Function: Preservative

Chemical Structure



Physical/Chemical Characteristics

Appearance	White solid
Odour	Odourless
Melting Point	250°C
Density	1.36
Vapour Pressure	0 hPa at 20°C
Water Solubility	1.95 g/L at 20°C
Explosive	non explosive
pH	7.75 - 7.77
Viscosity	17.4 - 19.3 mPa s

Toxicological Summary

The below information is a summary of the toxicological profile for this raw material, including a description of general hazards associated with the material as well as discussion of the most critical studies relating to the overall safety in use of this substance/mixture in consumer products. Details of the available toxicological data can be found overleaf.

Overall Toxicity Review:

A preservative with a good history of safe use and widely used to preserve plant extracts, particularly at slightly acidic pH (approx 4.5, with an upper effective limit often defined as 6.5). It is authorised as a food additive (E 202) in the EU.

The substance has a high oral LD50, is not irritating to the skin and shows no evidence of significant allergenic potential. However, potassium sorbate is irritating to the eye in the neat form, but at the levels typically seen in Consumer Products would be considered unlikely to provoke significant levels of irritation.

The compound contains conjugated double bonds, which is a prerequisite for phototoxicity. However, when tested at 0.01% in an eye makeup remover formulation, it was not a photosenistiser in 102 subjects. This ingredient and sorbic acid have a long history of use in cosmetics (in 1988, the Cosmetic Ingredient Review (CIR) reported the presence of sorbic acid and potassium sorbate in a total of 445 and 117 products, respectively, with a typical level of inclusion ranging from 0.1 to 1%), and a low incidence of adverse effect reports in the literature, suggesting photosensitising potential is minimal.

It was negative in tests for genotoxicity and there are no indications of carcinogenicity in long-term feeding studies.

A NOAEL of 6800 mg/kg bw/day was identified in a 90-day repeat dose oral toxicity study with sorbic acid in the ECHA registration dossier for this substance: the dossier states that "extrapolation from sorbic acid to potassium sorbate is considered not to be restricted in any way, since the determinant of potential toxicity is on the "sorbate" anion". This was the highest tested dose and thus cannot be considered as a "true" no-observed-adverse-effect-level (NOAEL),

In reproductive and developmental toxicity studies, the administration of up to 340 mg/kg bw of potassium sorbate in rats had no discernible adverse effects. In an two-generation reproductive toxicity study with sorbic acid in rats, the NOAEL for parental toxicity is 1000 mg/kg bw/day and NOAEL for developmental toxicity is 300 mg/kg bw/day. In another prenatal development toxicity study with sorbic acid in rabbits, the NOAEL was 300 mg/kg bw/day for both maternal and fetuses toxicity. Therefore, the lowest NOAEL of 300 mg/kg bw/day is selected as the point of departure (PoD) for safety evaluation.

The Joint FAO/WHO Expert Committee on Food Additives (JECFA) has established an acceptable daily intake (ADI) of 25 mg/kg bw/day as part of its evaluation on its use as a flavouring ingredient (JECFA, 1973), but this value was revised to 3 mg/kg/day for sorbic acid and its potassium salt by the European Food Safety Authority (EFSA) in 2015 based on the NOAEL of 300 mg/kg bw/day from the two-generation reproductive toxicity study in rats.

As dermal absorption is dependent on the molecular properties, concentration, exposure time and vehicle simultaneously, in the absence of relevant experimental data it is difficult to assess an exact value. If not stated otherwise within the risk assessment, we assume 100% dermal absorption, however it must be noted that for the majority of compounds, even low molecular weight, lipophilic compounds, dermal absorption is expected to be significantly lower than 100%.

Margin(s) of Safety

An MoS for this material has been determined in accordance with the criteria outlined in the Annex Preface, however information pertaining to it has been redacted from the report in order to preserve the confidential nature of the quantitative formulation. Any concerns relating to the MoS are discussed on page 4 of the review under 'Toxicological & Regulatory Assessment'

ANNEX II - INGREDIENT DATA

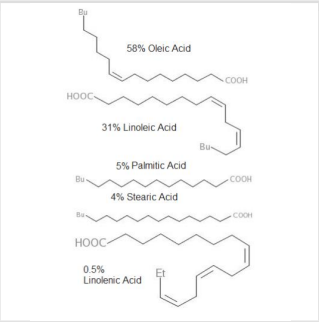
Potassium Sorbate

Acute Toxicity Acute Toxicity, Lethality [Other]		[read-across from sorbic acid] LD50 = 9600 mg/kg (female); 12500 mg/Kg (male) 8/sex/dose. 0, 3.8, 5.1, 6.9, 9.3, 12.5, 16.9 g/kg.
Rat	Oral, Gavage	
Acute Toxicity Acute Dermal Toxicity, Lethality [OECD 402]		[read-across from sorbic acid] LD50 > 2000 mg/kg 5/sex/dose. Semiocclusive conditions; 24H exposure.
Rat	Dermal	
Eye Irritation Draize, Standard [OECD 405]		Irritating. 3 animals. 0.1 g /eye. 24h exposure. observation period: 21 days. Effects fully reversibility was noted after 21 days.
Rabbit	Instillation	
Genotoxicity Bacterial reverse mutation test (Ames) [OECD 471]		Not mutagenic 0, 2, 10, 50, 100, 200 µg/plate +/- S9
Bacteria	In vitro exposure	
Genotoxicity Mammalian cell gene mutation test [OECD 476]		Negative Method followed: Hsie et al, 1979 CHO cells. 0, 10 000 and 20 000 µg/mL +/- S9
Hamster	In vitro exposure	
Phototoxicity In vivo phototoxicity		[Read-across from sorbic acid] An eye makeup remover formulation containing 0.01% sorbic acid was not photosenistizer. 102 subjects. Patch test with and without UV. Eye makeup remover was nonirritating, nonsensitising and nonphotosensitising.
Human	Dermal	
Repeated Dose 28-day Oral Toxicity Study [OECD 407]		[Read-across from sorbic acid] NOAEL > 100000 ppm (approx 9200 mg/kg/day in males, 8600 in females) 10/sex/dose in group 1 and 4 and control; 5 in groups 2 and 3 Dose: 0, 25 000, 50 000 and 100 000 ppm
Rat	Oral, Feed	
Repeated Dose 90-Day Oral Toxicity Study [OECD 408, OECD 409]		[read across sorbic acid] NOAEL = 100,000 ppm (6800 mg/kg/day for males, 7200 for females) 25000, 50 000 and 100 000 ppm 20/sex/dose
Rat	Oral, Feed	
Reproductive Toxicity Two-Generation Reproduction Toxicity [OECD 416]		[Read-across from sorbic acid] NOAEL F0: 1000 mg/kg/day; F1 & F2: 300 mg/kg/day (F0: 30/sex/dose; F1: 25/sex/dose. 0, 300, 1000, 3000 mg/kg/day. Reduced body weight, assumed to be related to decreased food intake, in F0 and F1 (not adverse) Sexual maturity slightly but significantly delayed in high group F1 (therefore LOAEL = 3000))
Rat	Oral, Gavage	
Reproductive Toxicity Prenatal Development Toxicity Study [OECD 414]		NOAEL: 340 mg/kg bw/day for material toxic, and embryotoxic/ teratogenic effects The administration of up to 340 mg/kg bw of potassium sorbate had no clearly discernible effect on nidation or on maternal or foetal survival. The number of abnormalities did not differ from controls. EU Method B.31 (Prenatal Developmental Toxicity Study)
Rat	Oral, Gavage	
Reproductive Toxicity Prenatal Development Toxicity Study [OECD 414]		[Read-across from sorbic acid] NOAEL = 300 mg/kg bw/day for material toxic and embryotoxic/ teratogenic effects. Doses: 300, 1000 or 3000 mg/kg bw/day.
Rabbit	Oral, Gavage	
Skin Irritation Draize Test [OECD 404]		Not irritating. 3 animals; 4h exposure. 72h observation period. Irritation scores = 0
Rabbit	Dermal	
Skin Sensitisation Maximisation Test [OECD 406]		[Read-across from sorbic acid] Not sensitising 10/sex/dose. Induction:0.1% intracutaneous; first challenge 0.1% intracutaenous; second challenge: 1% epicutaneous
Guinea Pig	Subcutaneous	

ANNEX II - INGREDIENT DATA

Substance: Helianthus Annuus (Sunflower) Seed Oil
CAS: 8001-21-6; 164250-88-8
Function: Emollient ; Skin Conditioning; Masking

Chemical Structure



Physical/Chemical Characteristics

Appearance	Light amber oil
Specific Gravity	0.894-0.899 (60°C)
Melting Point	0

Toxicological Summary

The below information is a summary of the toxicological profile for this raw material, including a description of general hazards associated with the material as well as discussion of the most critical studies relating to the overall safety in use of this substance/mixture in consumer products. Details of the available toxicological data can be found overleaf.

Overall Toxicity Review:

Helianthus Annuus Seed Oil is the oil expressed from the seeds of the Sunflower, Helianthus annuus L., Compositae. This is a vegetable oil widely used in the diet and has low irritancy and sensitisation potential. While, in common with other vegetable oils, occasional susceptible individuals can develop a food allergy to it, an allergic response is unlikely to result from the concentrations used in cosmetic products. Linoleic acid, Oleic acid and Palmitic acid are the major fatty acid component of the Helianthus annuus seed oil.

The predominant ingredient, Oleic acid, is a permitted direct food additive (FDA, 2018; JECFA, 1998) and is also listed as generally regarded as safe (GRAS) in the US. Oleic acid has a low acute toxicity, not sensitising, mildly irritating to skin and eyes. It was also not phototoxic in human, when tested in makeup formulations. This toxicological profile is in agreement with the profiles of other fatty acids found in the Sunflower seed oil (CIR 2019). A 16-week feeding study on Oleic acid in rodents identified no adverse effects at up to 15% in the diet. This NOAEL cannot be used as a Point of Departure, due to the limited toxicological endpoints measured in the study, however it supports low systemic toxicity of the ingredient in question.

Another major fatty acid in the oil is Linoleic acid which is a polyunsaturated omega-6 fatty acid and is one of two essential fatty acids for humans, who must obtain it through their diet. During their review of a novel Conjugated Linoleic Acid (CLA) food ingredient, a mixture of CLAs consisting of approximately 80% of the isomers c9,t11: t10,c12, EFSA identified a number of toxicological studies supporting the safety of such materials. In conclusion EFSA considered that the mixture of CLA would be safe at up to 3.5 g per day for up to 6 months, corresponding to 58 mg/kg/day for a 60-kg person (EFSA, 2010).

The local local toxicity of Helianthus Annuus (Sunflower) Seed Oil is supported by clinical studies in which no evidence of skin irritation and sensitisation were observed when formulations containing between 6% and 39.8% Helianthus Annuus (Sunflower) Seed Oil were tested.

As dermal absorption is dependent on the molecular properties, concentration, exposure time and vehicle simultaneously, in the absence of relevant experimental data it is difficult to assess an exact value. If not stated otherwise within the risk assessment, we assume 100% dermal absorption, however it must be noted that for the majority of compounds, even low molecular weight, lipophilic compounds, dermal absorption is expected to be significantly lower than 100%.

Based on the widespread use of this material in a variety of consumer products, including foodstuffs, the incorporation of this material within an item would be considered most unlikely to produce significant adverse effects.

The Cosmetic Ingredients Review CIR (2017) Expert Panel reported that Helianthus Annuus (Sunflower) Seed Oil was used up to 96% in leave-on products (19% for eye area, 41% for incidental ingestion), 92% in rinse-off products. The CIR Expert Panel concluded that this ingredient is safe in the present practices of use and concentration.

In light of the above toxicological information and the history of safety use of Helianthus Annuus (Sunflower) Seed Oil and the main ingredient, Oleic acid

Margin(s) of Safety

An MoS for this material has been determined in accordance with the criteria outlined in the Annex Preface, however information pertaining to it has been redacted from the report in order to preserve the confidential nature of the quantitative formulation. Any concerns relating to the MoS are discussed on page 4 of the review under 'Toxicological & Regulatory Assessment'

ANNEX II - INGREDIENT DATA

Helianthus Annuus (Sunflower) Seed Oil

Eye Irritation Draize [Other]		Major component, Oleic Acid: Mildly irritating (0.5 mL, as commercially supplied) (Mean score 2 after 24 h; 1 after 48 and 72 h (max = 110). Mild conjunctivitis)
Rabbit	Instillation	
Phototoxicity In vivo phototoxicity		Makeup formulations containing 5.08% and 1.5% Oleic Acid were nonphotoallergenic and not photosensitising, respectively in a clinical study in 36 volunteers, when exposed to UVA and UVB
Human	Dermal	
Repeated Dose Repeat Dose Oral Toxicity Study [Other]		Major component, Oleic Acid: NOAEL = 15% in diet (Nominal 13500 mg/kg bw/day) (16-week feeding study, up to 15% in the diet. No adverse effects on growth or general health)
Rabbit	Oral, Feed	
Skin Irritation In vivo skin irritation [Other]		Major component, Oleic Acid: Mildly irritating (0.5 mL, as commercially supplied) (SIOPT - mild irritation (PII 0.5/8.0), mild erytherma 24h after treatment. ROPT (24, 48, 72 h) - increasing erythema and edema with respect to exposure time.)
Rabbit	Dermal	
Skin Sensitisation Repeat Insult Patch Test (RIPT) [Other]		39.8% Helianthus annuus (sunflower) seed oil in a massage oil tested with 107 subjects. Not a dermal irritant or sensitizer.
Human	Dermal	
Skin Sensitisation Repeat Insult Patch Test (RIPT) [Other]		6% Helianthus annuus (sunflower) seed oil in a skin cream tested with 106 subjects. Not a dermal irritant or sensitizer.
Human	Dermal	
Skin Sensitisation Repeat Insult Patch Test (RIPT) [Other]		20% Helianthus annuus (sunflower) seed oil in a face serum tested with 108 subjects. Not a dermal irritant or sensitizer.
Human	Dermal	

Allergen Name
Benzyl Alcohol

ANNEX IV - ADDITIONAL REASONABLY FORESEEABLE EXPOSURES