Delphic HSE Solutions Ltd

Cosmetic Product Safety Assessment

BS782 BONDI SANDS SELF TANNING FOAM ONE HOUR EXPRESS 200mL (2022 FORMULA)

PRODUCT DETAILS

Type of Product: Self Tan Mousse | Leave on

Physical Form: Liquid, Mousse

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

Product Reference
BS782; Formulation code: 10257 (12)

PHYSICAL / CHEMICAL CHARACTERISTICS

Appearance:	Liquid, mousse	**Viscosity:**	Not Provided
Odour:	Characteristic	**Water Solubility:**	Not Provided
Melting Point:	Not Provided	**Log Kow:**	Not Provided
pH:	3.9-5.0 at 25 ºC	**Particle Size:**	Not Provided
Specific Gravity:	1.06 - 1.08 at 25ºC		

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.

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

Product with a similar formulation underwent a 28-day challenge test in accordance with Ph Eur and BP (Appendix XVI C) 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: A combined 3-month stability and compatibility test was conducted on product with a similar formulation at fridge temperature (4°C), ambient temperature, 30°C and 45°C. Any changes in appearance and odour. No significant changes were noted and the product passed the test according to manufacturer test criteria.

Packaging Material: Bottle: PET
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 combined 3-month stability and compatibility test was conducted on product with a similar formulation at fridge temperature (4°C), ambient temperature, 30°C and 45°C. Any changes in appearance, odour and packaging. No significant changes were noted and the product passed the test according to manufacturer test criteria.

Product Durability: PAO: 6M

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
Dihydroxyacetone	96-26-4
Propylene Glycol	57-55-6; 4254-14-2
Dimethyl Isosorbide	5306-85-4
Polysorbate 20	9005-64-5; 9005-67-8
Ethoxydiglycol	111-90-0
Glycerin	56-81-5; 8013-25-0
Phenoxyethanol	56257-90-0; 37220-49-8; 122-99-6
Coco-Glucoside	58846-77-8; 110615-47-9; 68515-73-1; 141464-42-8; 54549-25-6
Glyceryl Oleate	68424-61-3; 25496-72-4; 67701-32-0; 111-03-5
Sodium Metabisulfite	7681-57-4
Erythrulose	533-49-3; 40031-31-0; 533-50-6 (L-Erythrulose)
CI 14700 (FD&C Red No 4)	4548-53-2
PEG-12 Dimethicone	70914-12-4; 68937-54-2
CI 19140 (FD&C Yellow No. 5)	1934-21-0
Benzyl Alcohol	100-51-6; 1336-27-2; 185532-71-2
CI 42090 (FD&C Blue No. 1)	71701-19-4 (K.Na salt); 71701-18-3 (K salt); 2650-18-2 (NH4 salt); 68921-42-6 (Al salt); 15792-67-3
PEG-12 Allyl Ether	27274-31-3
PEG-12	25322-68-3
Tocopheryl Acetate	58-95-7; 7695-91-2; 52225-20-4

Review of the Fragrance & Essential Oil components of this product indicate that the following allergens need to be declared on the product label:
Benzyl alcohol.

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:	8 g | 1 x Day
Retention Factor:	1
Minimum Expected Body Weight	60kg
Diluted in use:	No
Retained Exposure:	133.333 mg/kg/day

Exposure to Neat Product:

Body Site(s):	Whole Body
Surface Area:	15,521 cm^2
Exposure Level:	0.515 mg/cm^2
Exposure Time:	Left on

Exposure to Diluted Product: Product Not Diluted in Use

Manufacturers Instructions for Use

No specific instructions for use were provided for review.

Information on Previous Sales / Complaints

This is a new product to market, no previous sales or complaints data is available for review. 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

Details of user trials/additional product safety testing have not been supplied for review, and this assessment is conducted on the basis that no such testing has been undertaken. Should this be inaccurate, or additional testing be conducted in the future, Delphic HSE should be notified of the details of such testing so this safety assessment can be updated accordingly.

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 self tan mousse intended for use by adults, for distribution to the EU, UK, US, Canada, Australia and New Zealand market. The formulation indicated considers the maximum concentration of each ingredient across the shades and as a result, exceeds 100%.

No Observed Adverse Effect Levels (NOAELs) 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, the ingredient being a constituent of the human diet or for a reason explained in the individual ingredient toxicological summary in annex II. For those substances where values were available the MoS are above the typical recommended values (see preface to annexes), unless materials have recommended safe levels (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 MoS, apart from the following.

The MoS of Dimethyl Isosorbide is below the recommended level of 100, however this is based on repeated oral exposure. For a tanning foam such as this the oral exposure is expected to be minimal. Additionally according to NICNAS there is a history of use at up to 25% in leave on cosmetic products. The use of this ingredient at current level in this product is considered to be acceptable.

The MoS of Sodium Metabisulfite is below the recommended level of 100, however this is based on repeated oral exposure. For a tanning foam such as this the oral exposure is expected to be minimal. Additionally its current use is in compliance with the regulations in those regions that this product is sold. The use of this ingredient at current level in this product is considered to be acceptable.

The product contains low level of Sodium Metabisulfite, can react with acids and produce SO_2. According to the EU Cosmetic Regulations (Regulation (EC) No 1223/2009) and Cosmetic Products Group Standard 2017 - HSR002552, the maximum permitted level is 0.45% as free SO_2 in self tanning products for the face and 0.4% as free SO_2 in other self tanning products. The manufacturer has revealed the concentration of SO_2 in the raw material,which results in free SO_2 to be within the regulatory limit in the final product.

Although Sodium Metabisulfite listed in AUS SUSMP (as Sodium Metabisulphite), while its level is less than the scheduled level, thus there is no additional warning requirement in AUS.

The formulation contains Dihydroxyacetone, which is used as a colour additive in tanning products and it is not permitted for use in eye and lip areas according to US cosmetic regulation. According to US Code of Federal Regulation Title 21, Sec. 740.19, The labelling of sun-tanning preparations that do not contain a sunscreen ingredient must display the following warning: "**Warning--This product does not contain a sunscreen and does not protect against sunburn. Repeated exposure of unprotected skin while tanning may increase the risk of skin aging, skin cancer, and other harmful effects to the skin even if you do not burn.**"

However, there have been reports of allergic contact dermatitis in humans resulting from exposure to Dihydroyacetone and it has been reported to cause eye irritation. In order to ensure safe use of the product it is recommended that users be instructed to not apply the product on damaged skin, avoid eye contact, keep away from children and stop using the product if it disagrees with them.

The formulation contains low levels of Erythrulose, which itself is not an approved colour additive for use in cosmetics in the US. However, when used as an enhancer at low concentration in combination with Dihydroxyacetone (with Dihydroxyacetone being this main tanning agent), it is considered acceptable and has a long history of use in tanning products sold in US.

Ethoxydiglycol is prohibited for use in eye area and oral products (as of March 2017). The colorant CI 14700 (FD&C Red No 4) is also indicate by US FDA as a cosmetic colorant not suitable for application to the eye and lip area. This item is not specifically designed to be applied to the eye and lip area. However, the manufacturer / responsible person should monitor this situation and it may be prudent to label the product such that it is clear that the product should be **kept away from eyes and lip, and rinsed if contact occurs**.

The manufacturer should ensure that the product is manufactured following the GMP and any impurities if present are technically unavoidable and only present at trace levels.

The manufacturer must ensure that all raw materials are of suitably safe EU, UK, US, CAN, AUS and NZ cosmetic grade with the specification mentioned in the report and that all polymers are fully polymerised. Assuming the product is labelled with the safety warning, the product is expected to present a minimal toxicological risk to the majority of consumers under normal conditions of use.

Some ingredients or proprietary blends (Annex I) are not listed in the publicly available section of DSL inventory, they may therefore require registration prior to use

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.
There are low levels of substances present in this product which are likely to cause an allergic reaction. The concentrations are sufficiently low not to present a risk of inducing allergy.
Unlikely to produce systemic toxicity following skin contact.

Eye Toxicity - Neat Product

Contact with the eyes can cause severe irritation. If not washed out promptly, will injure the eye tissue and permanent damage may result.

Oral Toxicity - Neat Product

All materials if swallowed in large amounts have the potential to cause injury. If incidentally swallowed in small amounts, may cause some irritation to the mouth and upper digestive tract.
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

Keep away from eyes. If material accidentally enters the eye, rinse well with plenty of clean water. Seek medical attention if irritation persists.

Keep out of reach of children

Keep away from lip. If material accidentally contact with the lip, rinse well with plenty of clean water. Seek medical attention if irritation persists.

Stop using this product if you develop redness or itching.

Do not apply to damaged or inflamed skin.

(US regulatory region only) Warning-This product does not contain a sunscreen and does not protect against sunburn. Repeated exposure of unprotected skin while tanning may increase the risk of skin aging, skin cancer, and other harmful effects to the skin even if you do not burn.

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 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.

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.

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.

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.

Toxicological & Regulatory Assessor

Cecilia Yu, BSc (Hons), MSc, MRSB, CBiol — Mar 25, 2022

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)

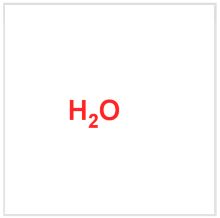
Annex IV - Foreseeable Exposures

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

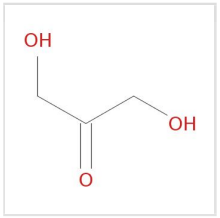
Cosmetic Regulation:	Not Controlled

USA

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

ANNEX I - REGULATORY CONTROLS

Substance: Dihydroxyacetone
CAS: 96-26-4
Function: Skin Conditioning; Reducing; Tanning



Regulatory Listings

Europe:

EINECS: 202-494-5

EU GHS Classification: H315, H319, H335 (self classified, 1300 notifiers)
Not Classified (self-classified, 54 notifiers with registration dossier support)
* few isolated cases of skin sensitisation effects at 10%, unlikely to contribute to the irritancy and sensitisation potential at 5% or below

REACh Annex XVII: Not Controlled

REACh SVHC: Not Controlled

EU Cosmetic Regulation: Annex III / 321: Maximum concentration of 6.25% as a hair dye substance in non-oxidative hair dye products and at a maximum concentration of 10% in self-tanning products.
COMMISSION REGULATION (EU) 2021/1099 of 5 July 2021 amending Annexes II and III to Regulation (EC) No 1223/2009 of the European Parliament and of the Council on cosmetic products.
New products which exceed the above levels must be on the market by 26 January 2022
Existing products which exceed the above levels must be removed by 22 April 2022

EU INCI Name: Dihydroxyacetone

United Kingdom

UK Cosmetic Regulation: Annex III / 321: Maximum concentration of 6.25% as a hair dye substance in non-oxidative hair dye products and at a maximum concentration of 10% in self-tanning products.
COMMISSION REGULATION (EU) 2021/1099 of 5 July 2021 amending Annexes II and III to Regulation (EC) No 1223/2009 of the European Parliament and of the Council on cosmetic products.
New products which exceed the above levels must be on the market by 26 January 2022
Existing products which exceed the above levels must be removed by 22 April 2022

Australia

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

Canada

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

New Zealand

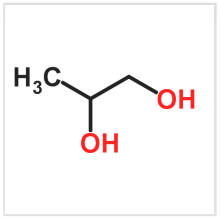
Cosmetic Regulation: Not Controlled

USA

Chemical Inventory: Listed
California Prop 65: Not listed
Cosmetic Regulation: Dihydroxyacetone
Permitted for external use only, with no exposure to mucous membranes (21 CFR 73.2150)
21 CFR 740.19. All suntanning preparations that do not contain sunscreen ingredients are required to carry the following warning statement on the label:
Warning-This product does not contain a sunscreen and does not protect against sunburn. Repeated exposure of unprotected skin while tanning may increase the risk of skin ageing, skin cancer, and other harmful effects to the skin even if you do not burn".

ANNEX I - REGULATORY CONTROLS

Substance: Propylene Glycol
CAS: 57-55-6; 4254-14-2
Function: Humectant; Skin Conditioning; Solvent; Viscosity Controlling



Regulatory Listings

Europe:

EINECS:	200-338-0; 610-038-5
EU GHS Classification:	CAS No. 57-55-6: Not Classified (self-classified, 6420 notifiers with joined entry); H410 (self-classified, 57 notifiers); H319 (self-classified, 40 notifiers); H302 (self-classified, 15 notifiers) CAS No. 4254-14-2: H319 (self-classified, 3 notifiers); Not Classified (self-classified, 2 notifiers)
REACh Annex XVII:	Not Controlled
REACh SVHC:	Not Controlled
EU Cosmetic Regulation:	Not Controlled
EU INCI Name:	Propylene Glycol
EN71 Toy Standards:	EN71 - 7 and EN71 - 9 Not Controlled EN71-5 permissible in solvent-based paints and lacquers
EU Toy Directive:	Not Controlled
EU Biocides Regulation:	Not Registered as a Biocide
EU Detergents Regulation:	Not a Detergent

United Kingdom

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

Australia

AICIS Inventory:	Listed as 1,2-Propanediol
Inventory Obligations:	No specific regulatory controls/obligations under the Australian Inventory
SUSMP:	Appendix B, Part 3 - Substances considered not to require control by scheduling
Cosmetic Regulation:	Not Controlled
TGA Controls:	Listed as an active and excipient under Therapeutic and Goods (Permissible Ingredients).

Canada

DSL:	Listed
WHMIS:	Listed. Uncontrolled. Disclosure at 1,0% according to the ingredient disclosure list.
Cosmetic Regulation:	Not Controlled
OTC Monographs:	Not Controlled

New Zealand

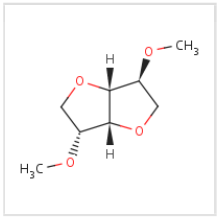
Cosmetic Regulation:	Not Controlled

USA

Chemical Inventory:	Listed as 57-55-6
California Prop 65:	Not listed
Cosmetic Regulation:	Propylene Glycol Not Controlled

ANNEX I - REGULATORY CONTROLS

Substance: Dimethyl Isosorbide
CAS: 5306-85-4
Function: Viscosity Controlling ; Solvent



Regulatory Listings

Europe:

EINECS:	226-159-8
EU GHS Classification:	Not Classified (self-classified)
REACh Annex XVII:	Not Controlled
REACh SVHC:	Not Controlled
EU Cosmetic Regulation:	Not Controlled
EU INCI Name:	Dimethyl Isosorbide

United Kingdom

UK Cosmetic Regulation:	Not Controlled

Australia

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

Canada

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

New Zealand

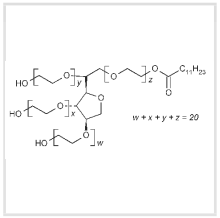
Cosmetic Regulation:	Not Controlled

USA

Chemical Inventory:	Not Listed
California Prop 65:	Not Listed
Cosmetic Regulation:	Dimethyl Isosorbide Not Controlled

ANNEX I - REGULATORY CONTROLS

Substance: Polysorbate 20
CAS: 9005-64-5; 9005-67-8
Function: Emulsifying; Surfactant



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:	Polysorbate 20
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:	Listed in appendix B - Substances considered not to require control by scheduling
Cosmetic Regulation:	Not Controlled
TGA Controls:	Listed as POLYSORBATE 20 - Permissible excipient

Canada

DSL:	Sorbitan, monododecanoate, poly(oxy-1,2-ethanediyl) derivs.
WHMIS:	Listed. Not controlled
Cosmetic Regulation:	Not Controlled
OTC Monographs:	Not Controlled

New Zealand

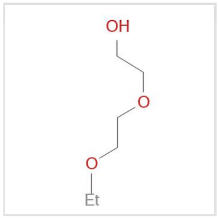
Cosmetic Regulation:	Not Controlled

USA

Chemical Inventory:	Listed as existing: Sorbitan, monododecanoate, poly(oxy-1,2-ethanediyl) derivs.
California Prop 65:	Not listed
Cosmetic Regulation:	Polysorbate 20 Not Controlled

ANNEX I - REGULATORY CONTROLS

Substance: Ethoxydiglycol
CAS: 111-90-0
Function: Perfuming; Humectant; Solvent



Regulatory Listings

Europe:

EINECS: 203-919-7
EU GHS Classification: Not Classified (self-classified)
REACh Annex XVII: Not Controlled
REACh SVHC: Not Controlled
EU Cosmetic Regulation: Annex III.297: Not to be used in eye products and oral products. Oxidative hair dye products (7%), non-oxidative hair dye products (5%), rinse-off products other than hair dye products (10%), other non-spray cosmetic products (2.6%) and following spray products: fine fragrances, hair sprays, antiperspirants and deodorants (2.6%). The level of ethylene glycol impurity must be ≤ 0.1%.
EU INCI Name: Ethoxydiglycol
EU Detergents Regulation: Not Controlled

United Kingdom

UK Cosmetic Regulation: Annex III.297: Not to be used in eye products and oral products. Oxidative hair dye products (7%), non-oxidative hair dye products (5%), rinse-off products other than hair dye products (10%), other non-spray cosmetic products (2.6%) and following spray products: fine fragrances, hair sprays, antiperspirants and deodorants (2.6%). The level of ethylene glycol impurity must be ≤ 0.1%.

Australia

AICIS Inventory: Listed as Ethanol, 2-(2-ethoxyethoxy)-
Inventory Obligations: Not Listed
SUSMP: Not Controlled
Cosmetic Regulation: Not Controlled

Canada

DSL: Listed
WHMIS: B3 - Combustible liquid ; D2B - Eye irritation
Cosmetic Regulation: Not Controlled
OTC Monographs: Not Controlled

New Zealand

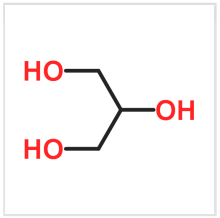
Cosmetic Regulation: Not Controlled

USA

Chemical Inventory: Listed
California Prop 65: Not listed
Cosmetic Regulation: Ethoxydiglycol
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

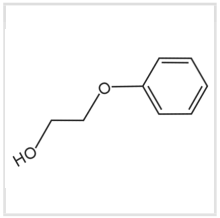
Cosmetic Regulation:	Not Controlled

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: 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 (SCCS 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 (SCCS 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

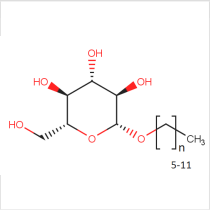
Cosmetic Regulation:	Approved Preservative - Maximum 1% all Product

USA

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

ANNEX I - REGULATORY CONTROLS

Substance: Coco-Glucoside
CAS: 58846-77-8; 110615-47-9; 68515-73-1; 141464-42-8; 54549-25-6
Function: Cleansing; Foaming; Surfactant



Regulatory Listings

Europe:

EINECS:	604-232-9
EU GHS Classification:	Not officially classified Notifications: H315, H319 (104 from 161) H315, H318 (56 from 161)
REACh Annex XVII:	Not Controlled
REACh SVHC:	Not Controlled
EU Cosmetic Regulation:	Not Controlled
EU INCI Name:	Coco-Glucoside
EN71 Toy Standards:	Not listed in EN71-7 or EN71-9.
EU Toy Directive:	Not Controlled
EU Biocides Regulation:	Not Controlled
EU Detergents Regulation:	Surfactants in detergents shall be considered as biodegradable if the level of biodegradability (mineralisation) measured according to one of the approved tests is at least 60 % within 28 days.

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:	Not listed
WHMIS:	Not Controlled
Cosmetic Regulation:	Not Controlled
OTC Monographs:	Not listed

New Zealand

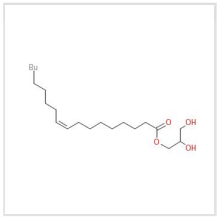
Cosmetic Regulation:	Not Controlled

USA

Chemical Inventory:	Not found in the open section of TSCA Listings
California Prop 65:	Not listed
Cosmetic Regulation:	Coco-Glucoside Not Controlled

ANNEX I - REGULATORY CONTROLS

Substance: Glyceryl Oleate
CAS: 68424-61-3; 25496-72-4; 67701-32-0; 111-03-5
Function: Perfuming; Emollient; Emulsifying



Regulatory Listings

Europe:

EINECS:	247-038-6
EU GHS Classification:	Unclassified
REACh Annex XVII:	Not Controlled
REACh SVHC:	Not Controlled
EU Cosmetic Regulation:	Not Controlled
EU INCI Name:	Glyceryl Oleate
EU Biocides Regulation:	Not Controlled
EU Detergents Regulation:	Not Controlled

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 as 25496-72-4 & 111-03-5
WHMIS:	Not Listed as Hazardous according to WHMIS
Cosmetic Regulation:	Not Controlled
OTC Monographs:	Not Listed

New Zealand

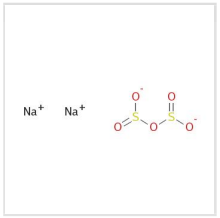
Cosmetic Regulation:	Not Controlled

USA

Chemical Inventory:	Listed as 25496-72-4 & 111-03-5
California Prop 65:	Not listed
Cosmetic Regulation:	Glyceryl Oleate Not Controlled

ANNEX I - REGULATORY CONTROLS

Substance: Sodium Metabisulfite
CAS: 7681-57-4
Function: Reducing; Antioxidant; Preserving



Regulatory Listings

Europe:

EINECS: 231-673-0

EU GHS Classification: H302 Harmful if swallowed.
H318 Causes serious eye damage.
EUH031 Contact with acids liberates toxic gas.
(*harmonised classification*)

REACh Annex XVII: Not Controlled

REACh SVHC: Not Controlled

EU Cosmetic Regulation: Annex III/99 apart from preservative use:
(a) Oxidative hair dye products - 0.67% expressed as free SO2
(b) Hair straightening products - 6.7% expressed as free SO2
(c) Self tanning products for the face - 0.45% expressed as free SO2
(d) Other self tanning products - 0.40% expressed as free SO2
Annex V/9 preservative use at 0.2% as SO2

EU INCI Name: Sodium Metabisulfite

EN71 Toy Standards: Listed on EN71-7, maximum allowed 0.2% (as free SO2).
Not Listed on EN71-9

EU Toy Directive: Not Controlled.

United Kingdom

UK Cosmetic Regulation: Annex III/99 apart from preservative use:
(a) Oxidative hair dye products - 0.67% expressed as free SO2
(b) Hair straightening products - 6.7% expressed as free SO2
(c) Self tanning products for the face - 0.45% expressed as free SO2
(d) Other self tanning products - 0.40% expressed as free SO2
Annex V/9 preservative use at 0.2% as SO2

UK Toy Legislation: Not Controlled.

Australia

AICIS Inventory: Listed, as Disulfurous acid, disodium salt

Inventory Obligations: Sulfites: Human health tier II assessment

SUSMP: Listed as Sodium Metabisulphite; SCHEDULE 5: except in preparations containing 10 per cent or less; APPENDIX E Part 2 (only applicable to scheduled poisons, the directions are for substances and their preparations at the concentrations at which the Schedules apply); APPENDIX F PART 3: more than 50 per cent

Cosmetic Regulation: Not controlled

Canada

DSL: Listed

WHMIS: Listed

Cosmetic Regulation: Not Controlled

New Zealand

Cosmetic Regulation: Controlled: Schedule 5, Ref. 99 (a) Oxidative hair dye products - 0.67% expressed as free SO2
(b) Hair straightening products - 6.7% expressed as free SO2
(c) Self tanning products for the face - 0.45% expressed as free SO2
(d) Other self tanning products - 0.40% expressed as free SO2
Annex V/9 preservative use at 0.2% as SO2.
Schedule 7 Ref. 9 Preservative use at 0.2% as SO2

USA

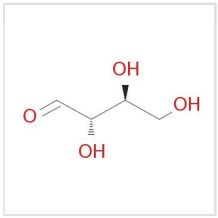
Chemical Inventory: Listed

California Prop 65: Not listed

Cosmetic Regulation: Sodium Metabisulfite
Not Controlled

ANNEX I - REGULATORY CONTROLS

Substance: Erythrulose
CAS: 533-49-3; 40031-31-0; 533-50-6 (L-Erythrulose)
Function: Tanning



Regulatory Listings

Europe:

EINECS:	-
EU GHS Classification:	Unclassfied
REACh Annex XVII:	Not Controlled
REACh SVHC:	Not Controlled
EU Cosmetic Regulation:	Not Controlled
EU INCI Name:	Erythrulose

United Kingdom

UK Cosmetic Regulation:	Not Controlled

Australia

AICIS Inventory:	Listed
Inventory Obligations:	Defined scope of assessment - This chemical has been assessed as a component of dermal cosmetic products at concentrations no more than 2%. This chemical is not to be used in topical products intended for the eye. Public Report Assessments available: EX120, LTD1130, SN19 (CAS No. 533-50-6)
SUSMP:	Not Listed
Cosmetic Regulation:	Not Controlled

Canada

DSL:	Not listed
WHMIS:	Not considered Hazardous according WHMIS
Cosmetic Regulation:	Not Controlled

New Zealand

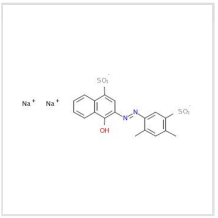
Cosmetic Regulation:	Not controlled

USA

Chemical Inventory:	Not Listed
California Prop 65:	Not Listed
Cosmetic Regulation:	Erythrulose Considered a colour additive and is not on the approved list of pigments permitted for use in cosmetics in the US. * When used as an enhancer at low concentration in combination with Dihydroxyacetone (with Dihydroxyacetone being this main tanning agent), it is considered acceptable and has a long history of use in tanning products sold in US.

ANNEX I - REGULATORY CONTROLS

Substance: CI 14700 (FD&C Red No 4)
CAS: 4548-53-2
Function: Pigment



Regulatory Listings

Europe:

EINECS: 224-909-9

EU GHS Classification: Not classified (self-classification)

REACh Annex XVII: Not Controlled

REACh SVHC: Not Controlled

EU Cosmetic Regulation: Permitted pigment: Annex IV item 18 - All Cosmetic Products
ANNEX II ITEM 1341-Disodium 3-[(2,4-dimethyl-5-sulphonatophenyl)azo]-4-hydroxynaphthalene-1-sulphonate (Ponceau SX; CI 14700) when used as a substance in hair dye products

EU INCI Name: CI 14700

EN71 Toy Standards: Not listed in EN71 Part 7 & 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: Permitted pigment: Annex IV item 18 - All Cosmetic Products
ANNEX II ITEM 1341-Disodium 3-[(2,4-dimethyl-5-sulphonatophenyl)azo]-4-hydroxynaphthalene-1-sulphonate (Ponceau SX; CI 14700) when used as a substance in hair dye products

UK Toy Legislation: Not controlled

Australia

AICIS Inventory: Listed

Inventory Obligations: Not Listed

SUSMP: Not Listed

Cosmetic Regulation: Not Controlled

TGA Controls: Listed as PONCEAU SX - Permissible excipient
Permitted for use only as a colour for topical use.

Canada

DSL: Listed

WHMIS: Not Listed

Cosmetic Regulation: Not Controlled

New Zealand

Cosmetic Regulation: Approved Colour - All Cosmetic Products

USA

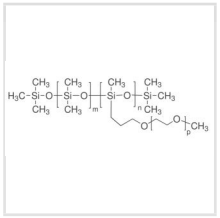
Chemical Inventory: Listed

California Prop 65: Not listed

Cosmetic Regulation: FD&C Red No. 4
Approved Color - External Use Only (Not including Lipsticks) and not near eye area. [§74.2304]

ANNEX I - REGULATORY CONTROLS

Substance: PEG-12 Dimethicone
CAS: 70914-12-4; 68937-54-2
Function: Skin Conditioning; Hair Conditioning



Regulatory Listings

Europe:

EINECS:	-
EU GHS Classification:	Unclassified
REACh Annex XVII:	Not Controlled
REACh SVHC:	Not Controlled
EU Cosmetic Regulation:	Not Controlled
EU INCI Name:	PEG-12 Dimethicone
EU Biocides Regulation:	Not Controlled
EU Detergents Regulation:	Not Controlled

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 as Hazardous according to WHMIS
Cosmetic Regulation:	Not Controlled

New Zealand

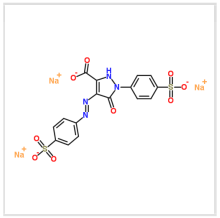
Cosmetic Regulation:	Not Controlled

USA

Chemical Inventory:	Listed
California Prop 65:	Not Listed
Cosmetic Regulation:	PEG-12 Dimethicone Not controlled OTC active ingredient: skin protectant (1 to 30%)

ANNEX I - REGULATORY CONTROLS

Substance: CI 19140 (FD&C Yellow No. 5)
CAS: 1934-21-0
Function: Pigment



Regulatory Listings

Europe:

EINECS:	217-699-5
EU GHS Classification:	Not classified (self-classified by 63.2% notifers under REACH, total 2132)
REACh Annex XVII:	Not Controlled
REACh SVHC:	Not Controlled
EU Cosmetic Regulation:	Permitted pigment: Annex IV item 44 - All Cosmetic Products: Purity criteria as set out in Commission Directive 231/2012/EC (E 102). Restricted use in hair dyes (non-oxidative) to 0.5% - Annex III item 189.
EU INCI Name:	CI 19140
EN71 Toy Standards:	Not Controlled. Not listed in EN71 Part 7 & 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:	Permitted pigment: Annex IV item 44 - All Cosmetic Products: Purity criteria as set out in Commission Directive 231/2012/EC (E 102). Restricted use in hair dyes (non-oxidative) to 0.5% - Annex III item 189.
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

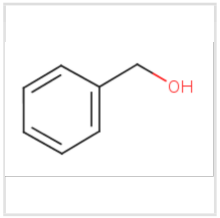
Cosmetic Regulation:	Permitted pigment, schedule 6, all products. Purity criteria: EU commission directive 231/2012/EC E 102 Restricted use: schedule 5, table 1, item 189 - in hair dyes (non-oxidative) to 0.5%.

USA

Chemical Inventory:	Listed
California Prop 65:	Not Listed
Cosmetic Regulation:	FD&C Yellow No. 5 Permitted Pigment - Generally (Includes Lipsticks) including Eye Area (since 1994), and External Use [74.2705]

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

USA

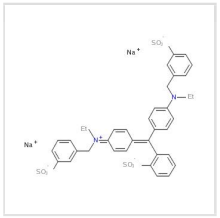
Chemical Inventory: Listed (100-51-6)

California Prop 65: Not listed

Cosmetic Regulation: Benzyl Alcohol
Not controlled

ANNEX I - REGULATORY CONTROLS

Substance: CI 42090 (FD&C Blue No. 1)
CAS: 71701-19-4 (K.Na salt); 71701-18-3 (K salt); 2650-18-2 (NH4 salt); 68921-42-6 (Al salt); 15792-67-3 (Al salt); 3844-45-9
Function: Pigment



Regulatory Listings

Europe:

EINECS: 220-168-0 / 223-339-8 / 272-939-6 / 239-897-0 / 275-866-8 / 275-867-3

EU GHS Classification: Not classified (by 1496 / 1633 Notifiers under REACH)
H315, H319 (Self-classified by 81 / 1633 Notifiers under REACH)

REACh Annex XVII: Not Controlled

REACh SVHC: Not Controlled

EU Cosmetic Regulation: Permitted pigment: Annex IV item 63 - All Cosmetic Products, Purity criteria as set out in Commission Directive 231/2012/EC (E133)
Restricted Pigment: Annex III item 190 - Permitted in Hair dye substance in non-oxidative hair dye products at up to 0.5%. The free base and salts of this hair colouring ingredient, unless prohibited under Annex II, are permitted for use.

EU INCI Name: CI 42090

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

EU Toy Directive: Not Controlled

EU Biocides Regulation: Not controlled

EU Detergents Regulation: Not controlled

United Kingdom

UK Cosmetic Regulation: Permitted pigment: Annex IV item 63 - All Cosmetic Products, Purity criteria as set out in Commission Directive 231/2012/EC (E133)
Restricted Pigment: Annex III item 190 - Permitted in Hair dye substance in non-oxidative hair dye products at up to 0.5%. The free base and salts of this hair colouring ingredient, unless prohibited under Annex II, are permitted for use.

UK Toy Legislation: Not Controlled

Australia

AICIS Inventory: Listed.

Inventory Obligations: Not Listed

SUSMP: Not Controlled

Cosmetic Regulation: Not Controlled

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

For listed medicine: permitted for use only as a colour for oral, topical and dental use

Canada

DSL: Listed

WHMIS: Not Listed

Cosmetic Regulation: Not Controlled

New Zealand

Cosmetic Regulation: Permitted pigment, schedule 6, all products.
Restricted use: schedule 5, table 1, item 190 - in hair dyes (non-oxidative) to 0.5%.

USA

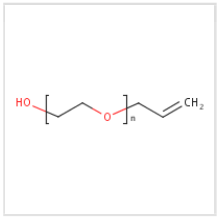
Chemical Inventory: Listed as 2650-18-2, 3844-45-9, 68921-42-6, 71701-18-3 and 71701-19-4

California Prop 65: Not Listed

Cosmetic Regulation: FD&C Blue No. 1
Approved Colour - Eye Area (since 1994), Generally (Including Lip Products), and External Use [74.2101]

ANNEX I - REGULATORY CONTROLS

Substance: PEG-12 Allyl Ether
CAS: 27274-31-3
Function: Binding



Regulatory Listings

Europe:

EINECS: 608-071-5

EU GHS Classification: Not officially Classified
H315; H319 (Self-classified)

REACh Annex XVII: Not Controlled

REACh SVHC: Not Controlled

EU Cosmetic Regulation: Not Controlled
EU INCI Name: PEG-12 Allyl Ether

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

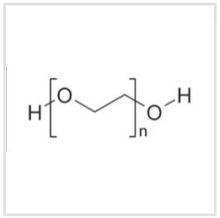
Cosmetic Regulation: Not controlled

USA

Chemical Inventory: Listed
California Prop 65: Not listed
Cosmetic Regulation: PEG-12 Allyl Ether
Not controlled

ANNEX I - REGULATORY CONTROLS

Substance: PEG-12
CAS: 25322-68-3
Function: Humectant; Solvent



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: PEG-12

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 as Hazardous according to WHMIS
Cosmetic Regulation: Not controlled

New Zealand

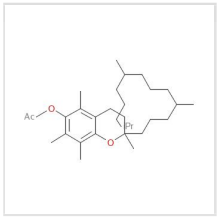
Cosmetic Regulation: Not controlled

USA

Chemical Inventory: Listed
California Prop 65: Not Listed
Cosmetic Regulation: PEG-12
Not Controlled

ANNEX I - REGULATORY CONTROLS

Substance: Tocopheryl Acetate
CAS: 58-95-7; 7695-91-2; 52225-20-4
Function: Antioxidant; Skin Conditioning



Regulatory Listings

Europe:

EINECS:	200-405-4; 231-710-0
EU GHS Classification:	Self-classification by REACH registrants: Not Classified (1188 notifiers); H413 - May cause long-lasting harmful effects to aquatic life (212 notifiers) (self classifications, total notifiers = 1400)
REACh Annex XVII:	Not Controlled
REACh SVHC:	Not Controlled
EU Cosmetic Regulation:	Not Controlled
EU INCI Name:	Tocopheryl Acetate
EN71 Toy Standards:	Not listed in EN71-7 and EN71-9
EU Toy Directive:	Not Controlled
EU Biocides Regulation:	Not registered for an 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:	D-ALPHA-TOCOPHERYL ACETATE - Listed as an active ingredient, excipient and homoeopathic preparation ingredientunder Therapeutic Goods (Permissible Ingredients) Determination (No. 1) 2020, Volume 2, entry 1672. DL-ALPHA-TOCOPHERYL ACETATE - Listed as an active ingredient, excipient and homoeopathic preparation ingredient under Therapeutic Goods (Permissible Ingredients) Determination (No. 1) 2020, Volume 2, entry 1924.

Canada

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

New Zealand

Cosmetic Regulation:	Not controlled

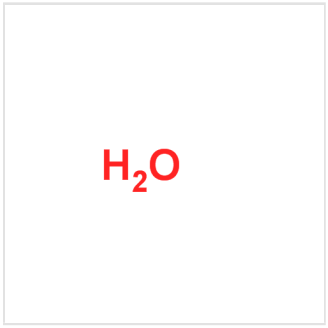
USA

Chemical Inventory:	Listed as 7695-91-2
California Prop 65:	Not listed
Cosmetic Regulation:	Tocopheryl Acetate 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

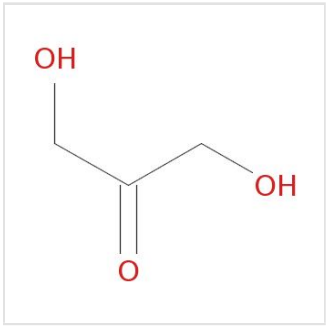
Aqua

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: Dihydroxyacetone
CAS: 96-26-4
Function: Skin Conditioning; Reducing; Tanning

Chemical Structure



Physical/Chemical Characteristics

Appearance	white to off white crystaline powder
Boiling Point	188°C - Decomposes
Log Kow	-1.822
Molecular Mass	90.08
Melting Point	96.5°C
pH	4 - 6 in 5% aqueous solution
Specific Gravity	1.523
Water Solubility	> 930 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:

Dihydroxyacetone (DHA) is a chemical that reacts with amino acids and amino groups of proteins present in sweat, keratin and skin. This reaction (similar to the Maillard reaction - non-enzymatic browning) produces coloured melanoidins. normal components of the skin (SCCS, 2010).

The material is not likely to cause severe eye irritation or skin irritation, and the studies considered, although they cannot be confirmed to follow current guidelines, only slight transient reddening of the eyes and skin were observed. Although there have been a few isolated reports of skin sensitisation to a 10% dihydroxyacetone aqueous solution (Morren M. 1991) and to 10% dihydroxyacetone in ethanol (Zokaie et al., 2011). However. the SCCS have concluded that on the basis of the local lymph node assay at up to 50% DHA, that it is not considered as a sensitiser (SCCS, 2020).

The SCCS (2010) concluded that despite DHA producing a positive response in the Ames test the weight of evidence suggests that DHA can be considered to be non-mutagenic/non-genotoxic in vivo. No further information on genotoxicity or mutagenicity was identified in the most recent SCCS opinion.
In 2009, SCCP Review concluded that use at 10% as a self-tanning ingredient in cosmetic formulations and have also concluded that use in spray tanning booths at 14% will not pose a risk to the health of the consumer. In 2020, the use of this ingredient in leave on non-oxidative hair dyes has been reviewed with a conclusion that at up to 6.25% such use is safe, and reaffirmed the use of self-tanning lotion and face cream containing up to a maximum concentration of 10% Dihydroxyacetone is considered safe (SCCS 2020).

On 5th July 2020,COMMISSION REGULATION (EU) 2021/1099 amending Annexes II and III to Regulation (EC) No 1223/2009 of the European Parliament and of the Council on cosmetic products, amended Annex III to include following restrictions on Dihydroxyacetone:
(a) Hair dye substance in non-oxidative hair dye products - maximum concentration of 6.25%
(b) Self-tanning products - maximum concentration of 10%
New products containing the substance and not complying with the restrictions shall not be placed on the European Union market after 26th January 2022 and existing products which do not comply with the restrictions must be removed from the EU market by 22nd April 2022. This regulation does not automatically apply in the UK, and will be subject to independent UK scrutiny.

A NOAEL of 1000 mg/kg bw/day was identified. Although it may not represent the true NOAEL as it is the highest tested dose, it can be used as a conservative point of departure for the calculation of the Margin of Safety.

When used at concentrations over 10% may cause mild irritation. At such concentrations users should be warned to stop using the product if it disagrees with them and not to apply to damaged or inflamed skin.

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

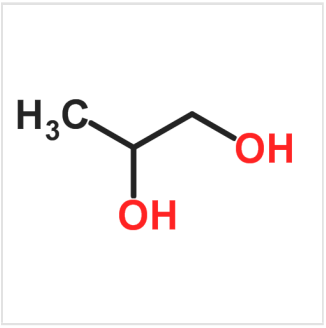
Dihydroxyacetone

ADME In vitro absorption study [Other]		Absorption studies in humans has shown that the chemical binds to components within the skin and may not be easily be systemically available. The SCCS has calculated an absorption of 48.03% for DHA
Human	Dermal	
Eye Irritation In vivo Eye Irritation [Other]		100mg; 24h exposure; 3 animals Slight conjunctival reddening in 1 rabbit
Rabbit	Instillation	
Genotoxicity Bacterial reverse mutation test (Ames) [OECD 471]		Mutagenic in TA100 and TA102; A complementary study showed that DHA is inactivated by mammalian metabolizing enzymes
Bacteria	In vitro exposure	
Genotoxicity Mammalian cell gene mutation test [OECD 476]		Not mutagenic up to limit of solubility
In-vitro culture	In vitro exposure	
Genotoxicity Mammalian chromosome aberration test [OECD 473]		Not clastogenic
In-vitro culture	In vitro exposure	
Genotoxicity Mammalian erythrocyte micronucleus test [OECD 474]		1250, 2500, 5000 mg/kg Not mutagenic
Mouse	Intraperitoneal	
Repeated Dose 28-day Oral Toxicity Study [OECD 407]		0, 250, 500, 1000 mg/kg/day, for 14 days. NOAEL = 1000 mg/Kg/day
Rat	Oral, Gavage	
Repeated Dose 90-Day Oral Toxicity Study [OECD 408, OECD 409]		0, 250, 500, 1000 mg/kg/day; 10/sex/dose NOAEL = 1000 mg/kg/day
Rat	Oral, Gavage	
Reproductive Toxicity Prenatal Development Toxicity Study [OECD 414]		0, 100, 300, 1000 mg/kg/day; 22/dose. Exposure from day 6 to day 20 post coitum. NOEL = 1000 mg/kg/day for both maternal and foetal organisms
Rabbit	(Route)	
Skin Irritation In vivo skin irritation [Other]		24h contact, 0.5ml/6cm²; 6 animals; Slight reddening of the skin at the site of application.
Rabbit	Dermal	
Skin Sensitisation Local Lymph Node Assay [OECD 429, OECD 442A, OECD 442B]		0, 12.5, 25, 50% in ethanol/water. 5 mice/dose Not sensitising
Mouse	Dermal	

ANNEX II - INGREDIENT DATA

Substance: Propylene Glycol
CAS: 57-55-6; 4254-14-2
Function: Humectant; Skin Conditioning; Solvent; Viscosity Controlling

Chemical Structure



Physical/Chemical Characteristics

Melting Point	-60°C
Boiling Point	187.6°C
Log Kow	0.92
Water Solubility	1000000 mg/L
Vapour Pressure	0..129 mm Hg at 25 °C
Molecular Mass	76.0942
Density	0.785 g/ ml
Appearance	Colourless liquid
Boiling Point	189C

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:

Propylene Glycol is a widely used solvent in consumer products such as Cosmetics and foodstuffs. As a food additive it is referred to as E1520.

Mild irritant to the human skin at 25% in the patch test. Negative in eye irritation Draize test. Found to be non-sensitising in a local lymph node assay and showed low potential for sensitisation in a Human Repeat Insult Patch Tests (HRIPT) study. Propylene Glycol has low oral and dermal acute toxicity with high oral and dermal LD50 of greater than 18350 mg/kg bw and 2000 mg/kg bw, respectively. Non-mutagenic in in vitro and in-vivo genetic toxicity studies.

Propylene Glycol did not show carcinogenic activity in rats up to 50000 ppm in diet per day. Additionally, no adverse effects on reproductive or developmental toxicity was observed up to the highest tested doses in the respective studies. However, the maternal NOAEL from the developmental toxicity study was set at 520 mg/kg bw/day due to increased water consumption at higher doses. No other effects were observed. This value is not considered significant as a point of departure due to the duration of the study.

A no-observed-adverse-effect-level (NOAEL) of 2500 mg/kg bw/day is selected from a 2 year rat carcinogenicity study as the point of departure. A human acceptable daily intake (ADI) of 25 mg/kg bw has also been established by Joint FAO/WHO Expert Committee on Food Additives (JECFA, 2002).

An OECD 414 prenatal developmental toxicity study was performed in CD-1 mice by oral gavage (GD 6 to 15) with 30 females per dose group (0.5, 5 and 10 ml/kg bw/day). This study produced a maternal NOAEL of 520 mg/kg bw/day; based on water consumption, and foetal NOAEL of 1040 mg/kg bw/day; based on the top dose (the highest dose tested). A further two-generation reproductive toxicity study was performed also in CD-1 mice (male and female) by ingestion of drinking water with 20/sex/dose in each dose group (0, 1.82, 4.80 and 10.10 g/kg bw/day). This study produced a reproductive NOAEL of 10,100 mg/kg bw/day; also based on no effects occurring at the top dose.

Dermal absorption of propylene glycol is highly variable. In the earliest study radiolabelled propylene glycol did not penetrate the human skin biopsy sample after 1 hour (McGee et al. 1945). In more recent in-vitro studies, the relative dermal absorption of the applied dose was estimated to be 23% (0.96%/h) for monopropylene glycol (Fasano 2011) after indefinite, 24-hour application to human abdominal skin under occlusion. In another, similar study 0.65% (+- 0.35 S.D.) of monopropylene glycol was in the receptor fluid after 24 hours (Trottet 2004). In the same paper it was demonstrated that the skin penetration of PG is largely dependant on the formulation it is found in, and on the amount of product applied to the skin. Two formulations were tested – a gel and a cream, where PG was present at 12, 15 or 40%. The formulations were applied at 10 or 40 mg/cm2 for 24 hrs under occlusion. The skin penetration varied between 29.9% (+/-8.5 S.D.) to 45.4% (+/-5.4 S.D.) - the penetration rates were dependent on the formulation and on the amount applied (there was a positive relationship between the latter and the level of absorption), but it was not dependent on the % inclusion of PG in the formulation. Dermal absorption of 50% is conservatively taken for margin of safety calculations. However, 100% dermal absorption will be used for risk assessment of oral care products.

Propylene glycol was shown to be a penetration enhancer for other substances, in particular for hydrophilic compounds (Carrer et al. 2019). This property of propylene glycol is possibly due to its ability to disorder the lipidic order of the bilayer in dermis and epidermis (Carrer et al. 2019).

The Cosmetic Ingredient Review (CIR) Expert Panel reported Propylene Glycol was used at 0.0008-99% in 9747 products (with up to 73% in leave-on products) as of 2009, and concluded that it is safe as cosmetic ingredient in the present practices of use and concentration when formulated to be nonirritating (CIR 2012).

Overall the use of this material at typical levels 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

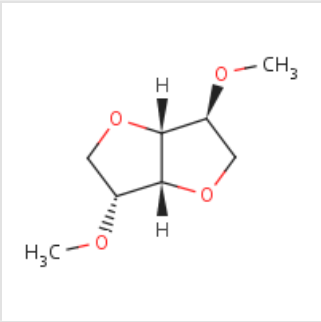
Propylene Glycol

Acute Toxicity Acute Toxicity, Lethality [Other]		LD50: 22000 mg/kg bw /day [1st experiment (serie A): 15, 17.5, 20, 22.5 and 25 ml/kg bw; 2nd experiment (serie B): 17.6, 18,6, 20.0, 21.4 and 22.6 ml/kg bw]
Rat	Oral, Gavage	
Acute Toxicity Acute Toxicity, Lethality [Other]		LD50: >2000 mg/kg bw [Dose: 2000 mg/kg bw]
Rabbit	Dermal	
ADME In vitro skin absorption [OECD 428]		dermal absorption of monopropylene glycol was 23% (0.96%/h) after 24 hours [indefinite dose of monopropylene glycol applied under occlusion]
Human	Dermal	
ADME In vitro skin absorption [OECD 428]		After 24 hours, percentage of propylene glycol (PG) in the receptor fluid was: -in the PG in water as 50/50 solution (occluded, infinite conditions) condition 0.65% (+/- 0.35 S.D.) -in the 12%, 15% or 40% PG in gel or cream formulation (occluded, 10mg/cm2 or 40mg/cm2 applied) from 29.9% (+/- 8.5 S.D.) to 45.5% (+/- 5.4 S.D.)
Human	Dermal	
Carcinogenicity Carcinogenicity studies [Other]		NOAEL: 2500 mg/kg bw /day Dose: 0, 6250, 12500, 25000 and 50000 ppm in diet Duration: 2 years; No. of animal: 30/sex/dose
Rat	Oral, Feed	
Eye Irritation Draize, Standard [OECD 405]		cornea opacity score 0/4; iris score 0.1/2; conjunctivae score 0.4/3; chemosis score 0/4
Rabbit	Instillation	
Genotoxicity Bacterial reverse mutation test (Ames) [OECD 471]		Negative Ames Test +/- S9 activation
Bacteria	In vitro exposure	
Genotoxicity Mammalian chromosome aberration test [OECD 473]		Negative chromosomal aberration (human lymphocytes) +/- S9 activation
In-vitro culture	In vitro exposure	
Genotoxicity Mammalian erythrocyte micronucleus test [OECD 474]		Propylene glycol produced no detectable increase in micronucleated polychromatic erythrocytes when administered by ip injection to mice at doses up to 15000 mg/kg.
Mouse	Intraperitoneal	
Repeated Dose Repeat Dose Oral Toxicity Study [Other]		NOAEL: 50000 ppm (1700 mg/kg bw/day for male; 2 100 mg/kg bw/day for female) [Dose: 0, 6250, 12500, 25000 and 50000 ppm in diet, Exposure: 2 years; No. of animal: 30/sex/dose]
Rat	Oral, Feed	
Repeated Dose Repeat Dose Inhalation Toxicity Study [Other]		Systemic NOAEC: 1000 mg/m³ air for female (bw changed only); 2200 mg/m³ air for male (no effect on males) Local LOAEC: 160 mg/m3 (effect on nose: nasal haemorrhaging) [Dose: 0, 160, 1000, 2200 mg/m³ air / 0, 0.16 ± 0.04, 1.01 ± 0.11 and 2.18 ± 0.31 mg/l, Exposure: 90 days, 6 hours/day, 5 days/week, 19/sex/dose]
Rat	Inhalation	
Reproductive Toxicity NTP Reproductive Assessment by Continuous Breeding (RACB)		NOAEL for toxicity/ fertility/ developmental effects: 10100 mg/kg bw/day [Dose: 0, 1.82, 4.80 and 10.10 g/kg bw/day, two generation study, No of animal: Main study: 20/sex/dose in each treatment group; 40/sex/dose in the control group; Second generation animals: 20/sex/dose]
Mouse	Oral, Water	
Reproductive Toxicity Prenatal Development Toxicity Study [OECD 414]		NOAEL (maternal animals): 520 mg/kg bw/day (water consumption) NOAEL (fetuses): 1040 mg/kg bw/day (highest tested dose) [Dose: 0.5, 5 & 10 ml/kgb w/day; Exposure: On gestation days 6 through 15, No .of animal: 30 females/dose]
Mouse	Oral, Gavage	
Skin Irritation Patch Test, 24hr [Other]		0.2 ml 25% propylene glycol applied to 30 female and 3 male subjects. The tested substance exhibited mild irritation compared to that of the positive control.
Human	Dermal	
Skin Sensitisation Local Lymph Node Assay [OECD 429, OECD 442A, OECD 442B]		Non-sensitiser Dose: 50% and 100% Result: For 50% solution, 1.2; For 100% test substance, 1.6
Mouse	Dermal	
Skin Sensitisation Repeat Insult Patch Test (RIPT) [Other]		Approximately 0.2 ml of the test material was applied to 113 volunteers (as a neat substance for subjects 1-47 only, and as a 50% aqueous solution for the rest of the panel). One subject was observed to be hypersensitive in an irritant manner, throughout the induction and challenge phases of the study.
Human	Dermal	

ANNEX II - INGREDIENT DATA

Substance: Dimethyl Isosorbide
CAS: 5306-85-4
Function: Viscosity Controlling ; Solvent

Chemical Structure



Physical/Chemical Characteristics

Appearance	Liquid, clear
Boiling Point	93 - 95 °C
Flash Point	120 °C
Molecular Mass	174
Odour	Characteristic
Specific Gravity	1.15
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:

A heterocyclic compound derived from glucose which can be hydrogenated to sorbitol. Sorbitol upon double dehydration gives isosorbide. Dimethyl Isosorbide primarily works as a solvent, and secondarily as a viscosity decreasing.

Found to be not irritating and not sensitising when comes into contact with the skin. At high concentrations, might be slightly irritating to the eye. The compound's structure does not contain conjugated double bonds, therefore, it will not absorb UV light which is a prerequisite for phototoxicity.

Has low oral acute toxicity, as shown in the rodent studies in which the LD50s were in excess of 6.5g/kg.

A number of in-vitro genotixicity testing have been carried out. Dimethyl Isosorbide was shown to be not mutagenic in the Ames test and not clastogenic in the human lymphocyte chromosome aberration test.

Systemic toxicity following oral administration of Dimethyl Isosorbide was investigated in dogs and rats. Upon 90-day exposure, there were no adverse effects on rodents at up to 375 mg/kg/day. Dogs shown signs of general toxicity when dosed with 700 mg of Dimethyl Isosorbide /kg bw/day for 90 days. In this study, a NOAEL was 100 mg/kg bw/day. This value can be used as a point of departure.

Two developmental toxicity studies failed to produce evidence of maternal or developmental toxicity at concentrations up to 300 mg/kg bw/day in the rabbit or rat.

Dimethyl Isosorbide has a high degree (31.8 % ± 7.6%) of percutaneous absorption following 12-hour skin contact in rats. Shown to increase the penetration of the stratum corneum by glycerol.

Safety of Dimethyl Isosorbide was evaluated in an oral tolerance test. A dental cleaning gels containing this ingredient at up to 25% and used for two weeks did not cause any effects in 15 individuals (NCINAS 2004).

The human safety of this material was evaluated by The National Industrial Chemicals Notification and Assessment Scheme (NICNAS). They concluded that personal care products containing the notified chemical at concentrations of up to 25% pose low risk to public health due to the low toxicity nature and the small amounts of product applied (exposure is expected to be limited to 1-10 grams of product, 1-2 times per day).

Taken together, Dimethyl Isosorbide would not be expected to pose a risk of significant adverse effects in the majority of individuals when used in Cosmetic and Consumer 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

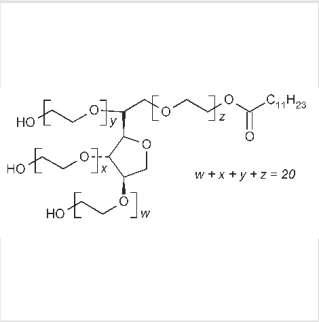
Dimethyl Isosorbide

Acute Toxicity Acute Oral Toxicity, Lethality [OECD 401, OECD 423, OECD 425]		LD50: 6531 mg/kg bw. (NICNAS File No: STD/1052)
Rat	Oral, Gavage	
Acute Toxicity Acute Oral Toxicity, Lethality [OECD 401, OECD 423, OECD 425]		LD50 = 5.63 mL/kg bw, corresponding to 6565 mg/kg bw based on a density of 1.166 g/cm³
Rat	Oral, Gavage	
ADME In vivo skin absorption [OECD 427]		A 100 mg/kg dose of 14C-DMI was applied dorsally to a 4 × 3 cm shaved skin area of eight male rats. The percentage of dose measure in the excretion products and in the body as 14C after the percutaneous administration of 14C-DMI was determined to be an average of 31.8% +/- 7.6% absorbed dose in 12 hours (NICNAS REPORT).
Rat	Dermal	
Eye Irritation Draize, Standard [OECD 405]		Slightly irritating to rabbit eyes at 100%
Rabbit	Instillation	
Eye Irritation Draize, Standard [OECD 405]		Not irritating to the eye.
Rabbit	Instillation	
Genotoxicity Bacterial reverse mutation test (Ames) [OECD 471]		Not mutagenicin the Ames test Strain: S. typhimurium TA 1535, TA 1537, TA 98 and TA 100, TA 1538. Negative with and withour metabolic activation.
Bacteria	In vitro exposure	
Genotoxicity Mammalian chromosome aberration test [OECD 473]		Negative. Did not induce chromosome aberration in human lymphocytes with and without metabolic activation.
In-vitro culture	In vitro exposure	
Repeated Dose 90-Day Oral Toxicity Study [OECD 408, OECD 409]		Doses: 30, 100, 375 mg/kg bw/day for 13 weeks. NOAEL = 375 mg/kg/day (highest tested dose)
Rat	Oral, Gavage	
Repeated Dose 90-Day Oral Toxicity Study [OECD 408, OECD 409]		NOAEL = 100 mg/kg/day based on signs of general toxicity at 700 mg/kg/day, included reduced body weight gain haematological and blood biochemistry changes and liver effects
Dog	Oral, NOS	
Reproductive Toxicity Prenatal Development Toxicity Study [OECD 414]		NOAEL 300 mg/kg bw/day (highest dose tested) dosing period of 13 days NB: a study in rats was also carried kout, with the same result
Rabbit	Oral, Gavage	
Skin Irritation In vivo skin irritation [Other]		Not irritating to rabbit skin
Rabbit	Dermal	
Skin Irritation Draize Test [OECD 404]		Not irritating
Rabbit	Dermal	
Skin Sensitisation Repeat Insult Patch Test (RIPT) [Other]		Undiluted material was Not sensitising, Not irritating to 200 volunteers
Human	Dermal	
Skin Sensitisation Local Lymph Node Assay [OECD 429, OECD 442A, OECD 442B]		Not sensitising. SI = 1.1, 0.9, 1.1 for 50%, 75% and 100% respectively.
Mouse	Dermal	

ANNEX II - INGREDIENT DATA

Substance: Polysorbate 20
CAS: 9005-64-5; 9005-67-8
Function: Emulsifying; Surfactant

Chemical Structure



Physical/Chemical Characteristics

Appearance	Amber coloured liquid
Boiling Point	>200C
Flammability	>100C
Flash Point	>148.89°C (300F)
Molecular Mass	1227.72
Melting Point	15C
Odour	Mild
pH	c.7
Specific Gravity	1.1

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:

Polysorbate 20, which functions as emulsifying agent and surfactant in cosmetics, is also used as food additive.

The material is not a skin or eye irritant. Polysorbate-20 was not sensitising in the majority of studies. The compound is unlikely to cause phototoxicity or photosensitisation based on data on polysorbates (CIR, 2015).

Polysorbate 20 has a low acute toxicity with high oral & dermal LD50 greater than 36 g/kg bw and 3 g/kg bw respectively. A no-observed-adverse-effect-level (NOAEL) of 2500 mg/kg bw/day was identified from a repeated dose toxicity study in rats. All genotoxicity studies found were negative.

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) Panel of Experts (CIR 2015) reported that Polysorbate 20 was used up to 9.1% in leave-on products (3.5% for eye area, 5.8% for incidental ingestion) and 19.6% for rinse-off products. The CIR Expert Panel concluded that Polysorbate 20 is safe in cosmetics when formulated to be non-irritating.

An Acceptable Daily Intake ADI of 25 mg/kg bw is suggested by Joint FAO/WHO Expert Committee on Food Additives (JECFA) (JECFA 1973), this value is derived from the no-observed-adverse-effect-level (NOAEL) of the rat study (2500 mg/kg bw/day).

Since the molecular weight of Polysorbate 20 is > 500 Da, thus a very low dermal absorption is expected as per SCCS guidance (SCCS/1602/18), thus a conservative estimation of 10% dermal absorption is therefore selected for risk assessment purposes, for products topically applied.

When used in typical concentrations/formulations the material is considered unlikely to be of a health concern 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

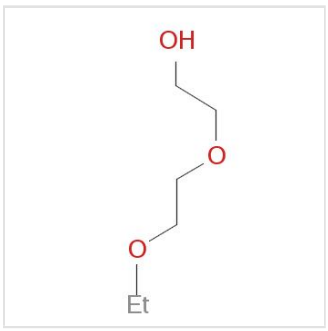
Polysorbate 20

Acute Toxicity Acute Oral Toxicity, Lethality [OECD 401, OECD 423, OECD 425]		LD50 >36700 mg/kg bw
Rat	Oral, Gavage	
Acute Toxicity Acute Dermal Toxicity, Lethality [OECD 402]		LD50 >3000 mg/kg bw
Guinea Pig	Dermal	
ADME Toxicokinetic study [OECD 417]		Following oral ingestion of polysorbate 20 in humans, 90% or more of the administered substance was excreted in the faeces as metabolites, with the polyoxyethylene sorbitan structure maintained, and 2%-3% of these metabolites were excreted in the urine
Human	Oral, NOS	
ADME In vitro absorption study [Other]		Dermal absorption of the test substance was predicted to be very low with an estimated dermal permeability coefficient (Kp) of 0.000826 (1 EO) and 2.18 e-006 (7 EO) cm/hr and a dermal absoprtion rate of 0.00034 mg/cm²/h (=0.0000861 mg/cm²/event, 1 EO) and 0.0000024 mg/cm²/h (=0.00000064 mg/cm²/event, 7 EO).
Human	Dermal	
Eye Irritation Draize [Other]		10% was not ocular irritant
Rabbit	Instillation	
Eye Irritation In vivo Eye Irritation [Other]		Type of population: general Subjects: Sex: men and women; Age: 20-46 The test substance caused no untoward effect on the eye, even up to 40% concentration, and did not cause ocular irritation.
Human	Instillation	
Genotoxicity Bacterial reverse mutation test (Ames) [OECD 471]		Not mutagenic with and without metaolic activation to S. typhimurium TA 1535, TA 1537, TA 98 and TA 100, and E. coli WP2 uvr A
Bacteria	In vitro exposure	
Genotoxicity Mammalian chromosome aberration test [OECD 473]		Negative with and without metabolic activation.
In-vitro culture	In vitro exposure	
Genotoxicity Mammalian cell gene mutation test [OECD 476]		Negative with and without metabolic activation.
In-vitro culture	In vitro exposure	
Repeated Dose Repeat Dose Oral Toxicity Study [Other]		NOAEL: 5% (2500 mg/kg/ day) Dose: 2%, 5%, 10% and 25% Exposure: whole life-span No. of Animal: 12 per dose per sex
Rat	Oral, Feed	
Reproductive Toxicity Prenatal Development Toxicity Study [OECD 414]		NOAEL: > 5 000 mg/kg bw/day Dose: 500 and 5000 mg/kg bw Exposure: 20 days No. of animal: 25 females
Rat	Oral, Gavage	
Skin Sensitisation Repeat Insult Patch Test (RIPT) [Other]		Not a primary skin irritant, Not a sensitizer Number of subjects exposed: 50
Human	Dermal	

ANNEX II - INGREDIENT DATA

Substance: Ethoxydiglycol
CAS: 111-90-0
Function: Perfuming; Humectant; Solvent

Chemical Structure



Physical/Chemical Characteristics

Appearance	colourless Hydroscopic liquid
Boiling Point	197 – 205 °C
Evaporation Rate	0.02
Flash Point	96 °C - closed cup
Log Kow	Log Pow: - 0.54 (exp)
Molecular Mass	134.2
Melting Point	-76 °C
Odour	Mild, pleasant odour
Specific Gravity	0.999 g/cm3 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:

Diethylene glycol monoethyl ether (DEGEE) may be prepared from ethylene oxide and 2-ethoxyethanol in the presence of SO2. It is used in the chemical and paint industries as a solvent for nitrocellulose, resins, and dyes. DEGEE is not used in food or detergent products (SCCS, 2010).

Ethoxydiglycol is not a skin or eye irritant with a low potential to cause sensitisation.

Ethoxydiglycol has a low acute toxicity with high oral & dermal LD50 of 6031 mg/kg bw and 9143 mg/kg bw respectively.

A NOAEL of 400 mg/kg bw/day is selected from a dog repeated dose study, as this value is the lowest NOAEL among other studies.
Ethoxydiglycol is non-mutagenic in in vivo and in vitro studies.

CIR reported that Ethoxydiglycol was used up to 80% in cosmetic products (up to 15% in leave-on products). The CIR Expert Panel concluded that this ingredient is safe as presently used in cosmetics (CIR, 2006).

SCCS concluded that a maximum concentration of 2.6% in cosmetic products does not pose a risk to the health of the consumer (SCCS, 2013).

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

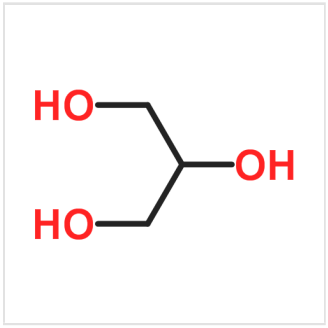
Ethoxydiglycol

Acute Toxicity Acute Oral Toxicity, Lethality [OECD 401, OECD 423, OECD 425]		LD50: 6031 mg/kg bw
Mouse	Oral, Gavage	
Acute Toxicity Acute Dermal Toxicity, Lethality [OECD 402]		LD50: 9143 mg/kg bw
Rabbit	Dermal	
Acute Toxicity Acute Inhalation Toxicity, Lethality [OECD 403, OECD 436]		LC0: 0.0025 mg/L air, 8 h
Rat	Inhalation	
ADME In vitro skin absorption [OECD 428]		Dermal absorption used by SCCS in MOS calculation: - 21.4% for use of 10% DEGEE in rinse-off products - 50.4% for use of 2.6% in leave-on products (based on unoccluded data with 2% DEGEE, absorption was 55.9% under occlusion) [See notes]
Ex-vivo Tissue	In vitro exposure	
Eye Irritation Draize, Standard [OECD 405]		Not irritating
Rabbit	Instillation	
Genotoxicity Bacterial reverse mutation test (Ames) [OECD 471]		Negative
Bacteria	In vitro exposure	
Genotoxicity Mammalian erythrocyte micronucleus test [OECD 474]		Negative
Mouse	Intraperitoneal	
Genotoxicity In vivo genotoxicity assay [Other]		Unscheduled DNA Synthesis (UDS) Test with Mammalian Liver Cells in vivo [OECD 486] Negative
Rat	Oral, Gavage	
Repeated Dose 90-Day Oral Toxicity Study [OECD 408, OECD 409]		NOAEL = 400 mg/kg/day Dose: 400, 1000, 2000/1500 mg/kg/day Exposure: 91 days No. of animal: 4-6 per dose per sex
Dog	Oral, Gavage	
Repeated Dose 21/28-day Dermal Toxicity Study [OECD 410]		NOAEL: >1000 mg/kg bw/day (systemic effects) Dose: 100, 300, or 1000mg/kg/day Exposure: 28 days No. of animal: 5 per dose per sex
Rabbit	Dermal	
Reproductive Toxicity Two-Generation Reproduction Toxicity [OECD 416]		NOAEL: 1.25% (2200mg/kg/day) Dose: 0, 0.25, 1.25, and 2.5% w/v Exposure: two genterations No. of Animal: 40/sex for untreated controls and 20/sex for treated
Mouse	Oral, Water	
Reproductive Toxicity Prenatal Development Toxicity Study [OECD 414]		NOAEL: 1000 mg/kg/day Dose: 0, 300, 1000 or 2000 mg/kg/day Exposure: Animals were killed on day 20 of gestation No. of animal: 25 per sex per dose
Rat	Oral, Gavage	
Skin Irritation Draize Test [OECD 404]		Not irritating to intact or abraded skin
Rabbit	Dermal	
Skin Sensitisation Repeat Insult Patch Test (RIPT) [Other]		Not induce any primary or cumulative irritation, nor any cutaneous sensitisation reaction
Human	Dermal	

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

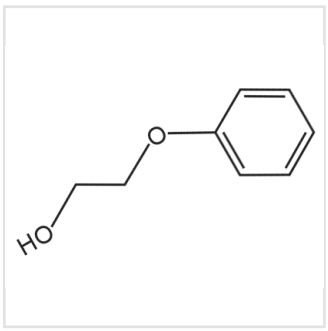
Glycerin

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: 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

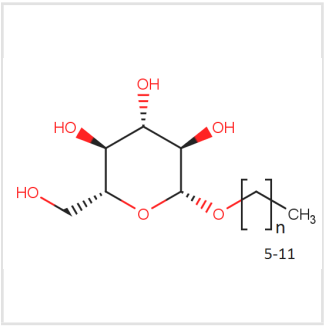
Phenoxyethanol

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: Coco-Glucoside
CAS: 58846-77-8; 110615-47-9; 68515-73-1; 141464-42-8; 54549-25-6
Function: Cleansing; Foaming; Surfactant

Chemical Structure



Physical/Chemical Characteristics

Appearance	Yellow, visous liquid (with ca. 50% water)
pH	11.5 to 12.5 (with ca. 50% water)
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:

Coco-Glucoside is the product obtained by the condensation of coconut alcohol with glucose. The material is mainly used for its surfactant properties. Enzymatic breakdown can lead to glucose and fatty alcohols with a variety of chain lengths. While glucose is a typical food sugar, fatty alcohols are non-genotoxic, moderately irritating to skin/eyes and systemically well tolerated (high LD50). Although there is no data on the exact fraction of Coco-Glucoside (6-12 carbon chains), there is data on Alkylpolyglycoside C10-16 which is a constituent part of coco-glugoside.

Local effects, such as skin and eye irritation, are known for fatty alcohol glucosides, in fact Coco-glucoside was corrosive to the eye of rabbits and irritating to the skin of rabbits when applied neat. However, the compound was not sensitising in Guinea pig maximisation test and a Buehler test. The compound's structure does not contain conjugated double bonds, therefore, it will not absorb UV light which is a prerequisite for phototoxicity.

Acute toxicity and repeated dose toxicity are low as demonstrated with an LD50 of > 1000 mg/kg bw and a no-observed-adverse-effect-level (NOAEL) of > 1000 mg/kg bw/day from a 90-day repeat-dose toxicity study in rats. As this was the highest dose tested, it was considered not to reflect the true NOAEL for the material, but can be considered as a conservative Point of Departure (PoD).

Furthermore, the ingredient is not associated with mutagenicity or clastogenicity, with and without metabolic activation, in in-vitro tests (mammalian chromosome abberration and bacterial reverse mutation (Ames)). It was also not clastogenic in in-vivo mammalian erythrocyte micronucleus test.

In a 10% solution dermal absorption did not exceed 1% in an in vitro human skin assay. Due to the possibility of slightly higher concentration in the final product, which could theoretically increase dermal absorption slightly, a worst case scenario of 10% dermal absorption is assumed.

Fatty alcohol glucosides have a long history of safe use, particularly in rinse-off products. According to the Cosmetic Ingredient Review (CIR) report for Decyl Glucoside and other Alkyl Glucosides (CIR, 2013), Coco-Glucoside is safe to use in rinse-off products in concentrations up to 15% and in leave-on products up to 2%.

Overall, the incorporation of Coco-Glucoside at typical levels within a consumer product would not be expected to pose an undue risk of 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

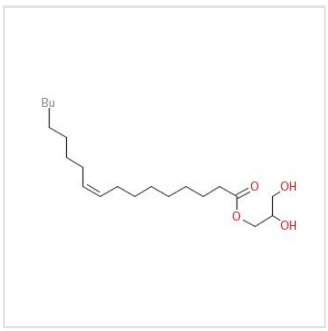
Coco-Glucoside

Acute Toxicity Acute Oral Toxicity, Lethality [OECD 401, OECD 423, OECD 425]		LD50 > 5000 mg/kg bw
Rat	Oral, Gavage	
Acute Toxicity Acute Dermal Toxicity, Lethality [OECD 402]		LD50 > 2000 mg/kg bw
Rabbit	Dermal	
ADME In vitro skin absorption [OECD 428]		< 1% absorption Dose of 10% administered. The mean absorbed dose of CG, sum of the amounts found in the viable epidermis, dermis and receptor medium, were considered as 0.01%.
Human	Dermal	
Eye Irritation Draize, Standard [OECD 405]		Corrosive 0.1g applied without washing; conc. 100%.
Rabbit	Instillation	
Genotoxicity Mammalian erythrocyte micronucleus test [OECD 474]		Not clastogenic Doses administered at 0, 62.5, 125, 250 mg/kg bw
Mouse	Intraperitoneal	
Genotoxicity Bacterial reverse mutation test (Ames) [OECD 471]		Not mutagenic, with and without metabolic activation 0, 5, 15, 50, 150, 500, 1500 and 5000 µg/plate administered to strains of S. typhimurium and E. coli
Bacteria	In vitro exposure	
Genotoxicity Mammalian chromosome aberration test [OECD 473]		Not clastogenic, with and without metabolic activation
In-vitro culture	In vitro exposure	
Repeated Dose 90-Day Oral Toxicity Study [OECD 408, OECD 409]		NOAEL > 1000 mg/kg bw/day Doses of 0, 250, 500, 1000 mg/kg bw administered. Inflammation and ulcerations of mucous membrane of the forestomach due to bolus administration and irritating potential of the test substance (LOEL = 500 mg/kg bw/day). No systemic or cumulative effects observed.
Rat	Oral, Gavage	
Skin Irritation Draize Test [OECD 404]		Irritating [Conc. 100%] Moderate skin erythema and edema as well as eschar formation were observed after treatment. These reactions were fully reversible within 17 days.
Rabbit	Dermal	
Skin Sensitisation Maximisation Test [OECD 406]		Not sensitising Induction, intradermal: 1% (Day 1) Induction, epicutaneous: 60% (Day 8; 48 h) Challenge: 10% (Day 22; 24 h)
Guinea Pig	Dermal	
Skin Sensitisation Buehler [OECD 406]		Not sensitising Induction and challenge: 20% epicutaneous
Guinea Pig	Dermal	

ANNEX II - INGREDIENT DATA

Substance: Glyceryl Oleate
CAS: 68424-61-3; 25496-72-4; 67701-32-0; 111-03-5
Function: Perfuming; Emollient; Emulsifying

Chemical Structure



Physical/Chemical Characteristics

Appearance	Pale Yellow Soft Solid or Liquid
Flash Point	154 Degrees C (Closed Cup)
Melting Point	35 Degrees C
Specific Gravity	0.95
Water Solubility	Dispersible

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:

This substance is mono oleyl fatty ester of glycerine. When used in cosmetic products functions as a perfuming, emollient and emulsifying agent.

A sunscreen formulation containing 5% glyceryl oleate was not toxic and produced no lethality at doses up to 13g/kg bw in rats, and as such the oral LD50 is considered to be greater than 650 mg/kg bw.

Based on experimental data the compound was a minimal eye irritant when tested at 50% in rabbits and minimally irritating to the skin when applied neat to the skin of rabbits. On the other hand the compound showed no skin sensitising potential in human studies.

A no-observed-adverse-effect-level (NOAEL) of 1000 mg/kg bw/ day was identified from a Repeated Dose Toxicity Study with Reproductive and Developmental Screening in Rats. No adverse effects were observed and 1000 mg/kg bw/day was the highest tested dose, therefore the true NOAEL may be higher, however this can be chosen as a conservative point of departure (PoD). Due to the duration of the study a safety factor of 3 is applied, as per SCCS, guidelines, to derive a PoD of 333.33 mg/kg bw/day.

The substance was not mutagenic in an Ames test.

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 concluded that glyceryl oleate is safe for use in cosmetics in present practices of use and concentration. The maximum reported uses were 5% in rinse off products and 3% in leave on products.

Under normal conditions of use the incorporation of glyceryl oleate in consumer products at low levels 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

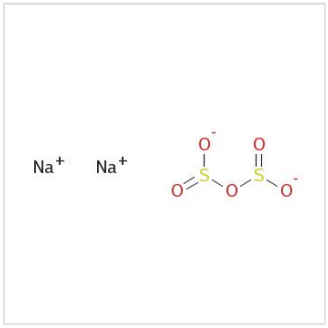
Glyceryl Oleate

Acute Toxicity Acute Oral Toxicity, Lethality [OECD 401, OECD 423, OECD 425]		5% glyceryl oleate in a scunscreen formulation: 13 g/kg did not produce toxicity nor lethality (5% : 650 mg/kg)
Rat [NOS]	Oral, NOS	
Carcinogenicity Carcinogenicity studies [Other]		200 mg/mouse/day (approx 10g/kg/day): digestive tract tumors; considered due to free fatty acid impurities. Very high dose. CIR panel considered the results as equivocal
Mouse [NOS]	Oral, NOS	
Eye Irritation Draize, Standard [OECD 405]		50% Glyceryl Oleate in corn oil. Minimal eye irritation. Mean score = 1 (Max. 110) on Day 1 following treatment
Rabbit	Instillation	
Eye Irritation Draize [Other]		Glyceryl Oleate undiluted. Minimal eye irritation. Mean score = 1 (Max. 110) on Day 1 following treatment
Rabbit	Instillation	
Eye Irritation Draize [Other]		19% Glyceryl Oleate in fragrance preparation. Moderate eye irritation. Mean score: 12 on Day 1, 8 on Days 2 and 3, 6 on Day 4, 2 on Day 7.
Rabbit	Dermal	
Genotoxicity Bacterial reverse mutation test (Ames) [OECD 471]		Not mutagenic with or without metabolic activation to Salmonella typhimurium strains TA 98, TA 100, TA 1535, and TA 1537
Bacteria	In vitro exposure	
Reproductive Toxicity Combined Repeated Dose Toxicity Study with the Reproduction/Developmental Toxicity Screening Test		NOAEL (systemic, fertility and development): 1000 mg/kg/day 0, 100, 300, 1000 mg/kg for 14 days prior to mating, and until day 4 of lactation (Males 28 days and females were dosed longer)
Rat	Oral, Gavage	
Skin Irritation Draize Test [OECD 404]		Minimal skin irritation. SIPT, PII = 0.72 (max. 8.00). [Applied undiluted]
Rabbit	Dermal	
Skin Sensitisation Repeat Insult Patch Test (RIPT) [Other]		50% Glyceryl Oleate in paraffin oil tested on 107 healthy subjects, did not induce irritation or sensitisation.
Human	Dermal	
Skin Sensitisation Repeat Insult Patch Test (RIPT) [Other]		15% Glyceryl Oleate aqueous solution. Test for skin irritation by Draize-Shelanski SIOPT in 20 subjects. 18/20 had score of 0; l/20 had score of l/2; l/20 had score of 1 (max = 3).
Human	Dermal	

ANNEX II - INGREDIENT DATA

Substance: Sodium Metabisulfite
CAS: 7681-57-4
Function: Reducing; Antioxidant; Preserving

Chemical Structure



Physical/Chemical Characteristics

Appearance	White powder
Log Kow	-3.7 at 25 °C
Molecular Mass	190.11
Melting Point	300 °C
Odour	Pungent
pH	4.5 at 50 g/l at 20 °C
Specific Gravity	1.480 g/cm3
Water Solubility	650 g/l at 20 °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:

An inorganic bisulphite used as a disinfectant, antioxidant, and preservative agent in a variety of purposes including photographic film development, production of leather, food, and pharmaceuticals. It was given the GRAS status by US FDA SCOGS as a chemical preservative used at levels that are now current and in the manner now practiced, except in meats, food recognised as a source of vitamin B1, and fruits or vegetables intended to be served/sold raw or to be presented to consumers as fresh (21CFR182.3766). In cosmetics, it primarily functions as an antioxidant, preservative and reducing agent.

It is an approved cosmetic preservative in EU, with a maximum use concentration at 0.2% (as free SO2) when combined with other inorganic sulphites and hydrogensulphites (Annex V/9). For formulation containing only this ingredient as the inorganic sulphite and hydrogensulphite preservative, then this regulatory limit translates to roughly 0.299% of Sodium Metabisulfite (Sodium Metabisulfite is only 67% sulfur dioxide).

Other than as a preservative, it is also approved in EU for use in cosmetic products at concentrations up to 0.67% in oxidative hair dye products, up to 6.7 % in hair waving/straightening products, up to 0.45 % in self-tanning products for the face and up to 0.40 % in self-tanning products for the body (all expressed as SO2), (Feine, 2006).

It is not found to be irritating or sensitising to skin, but was demonstrated to cause irreversible ocular damage in rabbits treated with the undiluted substance.

It is harmful if swallowed with a reported acute oral LD50 of 1420 mg/kg bw in rats. It is not mutagenic under Ames assay with and without metabolic activation, and no maternal or developmental toxicities were identified from a prenatal oral feeding study at up to 123 mg/kg bw/day. A 3-generation, 2-year chronic toxicity study found hyperplastic changes in stomach of rats fed with feed containing 0.5% or above of this ingredient, but no evidence of systemic toxicity or carcinogenicity were found in animals fed up to 2% in feed.

A NOAEL of 955 mg/kg bw/day, based on no systemic toxicity found in a 2-year oral toxicity study, is chosen to be the point of departure of this assessment. It should be noted that this value is based on a maximum study dose and is not the true NOAEL, but rather taken as a conservative and protective value for calculating the Margin of Safety.

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%.

In 2003, the Cosmetic Ingredients Review (CIR) Expert Panel reported the use of up to 0.4% in skin care preparations, up to 14% in hair wave sets, and the Panel concluded it is safe in the practices of use and concentration described in the assessment.

Providing the ingredient is used in cosmetics at or below the levels permitted in regulations, it is unlikely to present a risk to health.

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

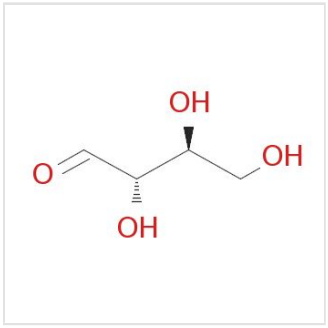
Sodium Metabisulfite

Acute Toxicity Acute Oral Toxicity, Lethality [OECD 401, OECD 423, OECD 425]		LD50 = 1420 mg/kg bw
Rat	Oral, Gavage	
Carcinogenicity Carcinogenicity studies [Other]		No evidence of carcinogenicity was found [Three-generation study, up to 2% in feed]
Rat	Oral, Feed	
Eye Irritation Draize, Standard [OECD 405]		Irreversible damage [Undiluted, 0.1 mL, 1 application, no wash, evaluation up to 8 days]
Rabbit	Instillation	
Genotoxicity Bacterial reverse mutation test (Ames) [OECD 471]		Not mutagenic with and without metabolic activation
Bacteria	In vitro exposure	
Repeated Dose Chronic Toxicity Studies in Rodents [OECD 452]		NOAEL (local effects) = 0.25% (equivalent to 110 mg/kg bw/day) (Hyperplastic changes in stomach at higher doses) NOAEL (systemic) > 2% (equivalent to 955 mg/kg bw/day) (No signs of systemic toxicity at highest dose) [3 generations-2 years; 20/sex/dose; Concentrations: 0, 0.125, 0.25, 0.5, 1, 2% in feed]
Rat	Oral, Feed	
Reproductive Toxicity Prenatal Development Toxicity Study [OECD 414]		NOAEL > 123 mg/kg bw/day (no effects on maternal and developmental toxicity) [Exposures: 1.23, 5.71, 26.5, 123 mg/kg bw/day, from GD 6-18]
Rabbit	Oral, Gavage	
Skin Irritation Draize Test [OECD 404]		Non-irritating (primary irritation score = 0) [Undiluted, 0.5 mL, semiocclusive for 4 hrs]
Rabbit	Dermal	
Skin Sensitisation Maximisation Test [Other]		Not sensitising (no animals responded positively)
Guinea Pig	Dermal	

ANNEX II - INGREDIENT DATA

Substance: Erythrulose
CAS: 533-49-3; 40031-31-0; 533-50-6 (L-Erythrulose)
Function: Tanning

Chemical Structure



Physical/Chemical Characteristics

Appearance	Liquid
Boiling Point	>180℃ (356o F), exothermic decompose
Flash Point	> 113.00 °C - closed cup
Molecular Mass	120.1 g/mol
pH	2.0 – 5.0 (in 50 % water)
Vapour Pressure	1243 Pa (at 20 - 25℃)
Water Solubility	Soluble in 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:

Erythrulose is a keto-sugar which occurs naturally. In the presence of dihydroxyacetone it reacts with the amino groups of keratin forming brownish polymers, thereby tanning the skin. It is non-irritating to the skin or eyes and is reported not to be a sensitiser. It is therefore unlikely to give rise to skin irritation or allergy when incorporated into cosmetic product.

Any ingredient that imparts colour onto the skin is considered to be a colour additive and as such this ingredient is not permitted for use in cosmetics as a pigment in the US. However, when used as an enhancer at low concentration in combination with Dihydroxyacetone (with Dihydroxyacetone being this main tanning agent), it is considered acceptable and has a long history of use in tanning products sold in US.

NICNAS report indicated that it is safe at 5% when used in skin tanning products using the NOAEL value of 1000 mg/kg/d. This value is taken from a 28-day study and therefore an additional factor of 3 is applied to give a PoD of 333 mg/kg bw/day to account for the short duration of the study.

Studies on percutaneous absorption of Erythrulose indicate that absorption will be negligible. 10% dermal absorption is conservative taken for the Margin of Safety calculations.

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

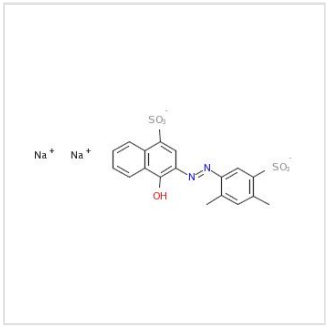
Erythrulose

Acute Toxicity		5/sex. Mortality = 0/10 LD50 > 2000 mg/kg
Acute Oral Toxicity, Lethality [OECD 401, OECD 423, OECD 425]		
Rat	Oral, Gavage	
ADME		The test substance did not penetrate human skin in vitro within 48 hours (detection limit of 0.04% of the applied dose)
In vitro skin absorption [OECD 428]		
Ex-vivo Tissue	Dermal	
Eye Irritation		20% in water; 3 animals. Slightly irritating
Draize, Standard [OECD 405]		
Rabbit	Instillation	
Genotoxicity		Not mutagenic
Bacterial reverse mutation test (Ames) [OECD 471]		
Bacteria	In vitro exposure	
Repeated Dose		0, 50, 150, 1000 mg/kg/day; 5/sex/dose NOAEL = 1000 mg/kg/day
28-day Oral Toxicity Study [OECD 407]		
Rat	Oral, Gavage	
Skin Irritation		20% in water; semi-occlusive; 3 animals Not irritating
Draize Test [OECD 404]		
Rabbit	Dermal	
Skin Sensitisation		test group: 20 animals; control: 20 animals Induction: 20% intradermal; 20% topical Challenge: 20% and 10% Not sensitising
Buehler [OECD 406]		
Guinea Pig	Dermal	

ANNEX II - INGREDIENT DATA

Substance: CI 14700 (FD&C Red No 4)
CAS: 4548-53-2
Function: Pigment

Chemical Structure



Physical/Chemical Characteristics

Appearance	Dark red powder
Molecular Mass	480.44
Melting Point	Solid at room temperatures
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:

A red pigment widely used in a number of consumer products with widespread use in Food, Drugs, Toys and Cosmetics. Permitted for use in all products in EU cosmetics and for external use only (not including lip area or eye area) in cosmetics in the US.

Not irritating to skin or eyes, and no evidence of sensitisation potential. Shown to be not phototoxic in concentrations up to 0.3% in a Kaidbey-Kligman photomaximization test

Has low acute toxicity, with and oral LD50 of 2000 mg/kg bw/day.

In a developmental toxicity study, the NOAEL in rats was considered to be 200 mg/kg bw/day although this was the highest tested dose, and may be a conservative point of departure for calculation of MoS. As there is NOAEL value from carcinogenicty study higher than NOAEL value found in reproductive toxicity study uncertainty factor application is not considered necessary even though the study was for short duration.
In a chronic skin painting study in mice the dermal NOAEL was 1428.5 mg/kg bw/day.

CI 14700 was not genotoxic in the Ames test, had no evidence of carcinogenicity or evidence of reproductive toxicity.

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 substances widespread use it is considered unlikely to produce significant localised or systemic toxicity when incorporated into a Consumer 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

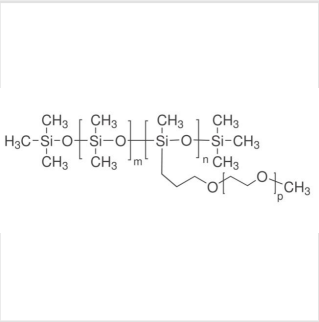
CI 14700 (FD&C Red No 4)

Acute Toxicity Acute Oral Toxicity, Lethality [OECD 401, OECD 423, OECD 425]		LD50 > 2000 mg/kg
Rat	Oral, Gavage	
Carcinogenicity Carcinogenicity studies [Other]		Not carcinogenic in a 2 year oral feeding study at up to 2.0% (NOAEL: 3.333 g/kg bw/day) highest tested dose
Mouse	Oral, Feed	
Eye Irritation In vivo Eye Irritation [Other]		Not irritating to rabbit eyes
Rabbit	Instillation	
Genotoxicity Bacterial reverse mutation test (Ames) [OECD 471]		Not mutagenic in TA 100, TA 98, TA 97 and TA 1535 with and without metabolic activation
Bacteria	In vitro exposure	
Phototoxicity In vivo phototoxicity		The Kaidbey-Kligman photomaximization test , conducted with 25 healthy adults, treated with up to 0.3% in petrolatum under occlusion and exposed to UV-light six times, was also negative.
Human	Dermal	
Repeated Dose Repeat Dose Dermal Toxicity Study [Other]		NOAEL: 1428.5 mg/kg bw/day in a chronic skin painting study of 19.5 months.
Mouse	Dermal	
Reproductive Toxicity In vivo reproductive toxicity study [Other]		NOAEL = 200 mg/kg/day (highest dose tested) 19 days exposure. Presence and location of resorption sites and implantation sites, Corpora lutea, Live and dead foetuses, weight and sexed of foetuses, Gross external malformations under magnification, and the crown-rump length and soft tissues variations of foetuses were examined.
Rat	Oral, Gavage	
Skin Irritation In vivo skin irritation [Other]		Not irritating to rabbit skin
Rabbit	Dermal	
Skin Sensitisation Maximisation Test [OECD 406]		Not sensitising in a human Kligman maximisation test at up to 0.3% in 25 subjects.
Human	Dermal	

ANNEX II - INGREDIENT DATA

Substance: PEG-12 Dimethicone
CAS: 70914-12-4; 68937-54-2
Function: Skin Conditioning; Hair Conditioning

Chemical Structure



Physical/Chemical Characteristics

Appearance	Liquid
Boiling Point	>93C / >175C
Flash Point	74C
Molecular Mass	c. 5000
Melting Point	0C
Odour	None
Specific Gravity	1.07
Viscosity	130 cs / 260 mm2/s at 25°C.
Water Solubility	Miscible

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:

Polyethylene glycol derivative of dimethicone containing an average of 12 moles of ethylene oxide. Belongs to the chemical class of siloxanes and silanes. In cosmetics, used as a hair and skin-conditioner.

Limited data available on the compound itself, thus structurally related molecules are used instead for the purpose of this assessment. The difference between PEG-12 and read-across compounds is the ethylene oxide content.

PEG-12 Dimethicone was negative in the Ames test and in in-vitro skin irritation study. No skin irritation was also noted in human patch test upon application of a formulation containing up to 5 % PEG-12 Dimethicone. Read-across PEG--x Dimethicone induced mild eye irritation at the most in Bovine Cornea Opacity/Permeability test (BCOP), whereas formulation containing 3 % PEG-3 Dimethicone was not sensitising to the human skin.

No effect on the developing foetus or the mother was noted following dermal administration of generic siloxanes and silicones, 3-hydroxypropyl Me, di-Me, ethoxylated from day 6 to 18 of gestation.

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%.

PEG-12 dimethicone is a physically and chemically inert ingredient and thus its use in cosmetics is not expected to produce significant localised or systemic toxicity. The Cosmetic Ingredients Review (CIR) Expert Panel reports the use of this ingredient in over 500 products at a maximum concentration of 6.5% and concludes such use does not pose risk to consumers.

Thus, based on the available data, inclusion of PEG-12 Dimethicone in cosmetic products at low concentrations is unlikely to elicit adverse health 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

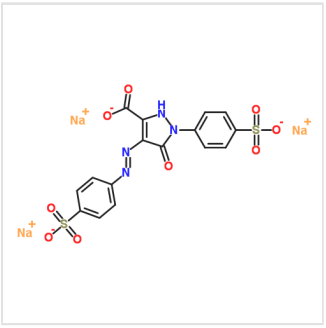
PEG-12 Dimethicone

Eye Irritation		[read-across silicone polyether (polydimethylsiloxane/ polyethoxy copolymer; generic term that could represent any of the alkoxy polysiloxanes with the name PEG-x dimethicone] Not to mildly irritating (100 % test substance applied. There was minimal to no effect on corneal opacity and permeability, compared to the controls.)
Bovine Corneal Opacity & Permeability (BCOP) Test [OECD 437]		
Ex-vivo Tissue	In vitro exposure	
Genotoxicity		Not mutagenic on S. typhimurium strains TA98, TA100, TA1535, TA1537 and E. coli WP2uvrA at up to 5 mg/plate +/- metabolic activation.
Bacterial reverse mutation test (Ames) [OECD 471]		
Bacteria	In vitro exposure	
Reproductive Toxicity		[read-across generic siloxanes and silicones, 3-hydroxypropyl Me, di-Me, ethoxylated] Neither embryotoxic nor teratogenic Test substance administered at 50, 100 and 200 mg/kg to the shaved backs of the animals on gestation days 6 to 18.
In vivo reproductive toxicity study [Other]		
Rabbit	Dermal	
Skin Irritation		When PEG-12 dimethicone (0.5%, 2%, and 5%) was administered simultaneously with sodium lauryl sulfate (SLS) (1% aqueous) to the backs of subjects (n=48 female, 5 male) under occlusion for 24 h, the test material provided protection against the primary dermal irritation produced by the SLS compared to the SLS-only control.
In vivo skin irritation [Other]		
Human	Dermal	
Skin Irritation		[SkinEthic ™ test] Not irritant The cells were exposed to the test substance for 42 min and the cells were evaluated 42 h after exposure.
Reconstructed Human Epidermis (RHE) Test [OECD 431, OECD 439]		
In-vitro culture	In vitro exposure	
Skin Sensitisation		[read across PEG-3 dimethicone] A makeup base (0.2 mL) containing 3 % test substance was found to be non - sensitising in an HRIPT (n=51).
Repeat Insult Patch Test (RIPT) [Other]		
Human	Dermal	

ANNEX II - INGREDIENT DATA

Substance: CI 19140 (FD&C Yellow No. 5)
CAS: 1934-21-0
Function: Pigment

Chemical Structure



Physical/Chemical Characteristics

Appearance	Yellow/Orange Powder
Log Kow	-10.17
Molecular Mass	534.37
Melting Point	347.1 °C
Odour	None
pH	7 - 8 @ 1%
Specific Gravity	0.7
Water Solubility	Soluble at 30%

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:

CI 19140 (also known as Tartrazine) is a synthetic azo dye that finds widespread use in consumer products and foodstuffs.

In powdered form this material may act as a mechanical irritant or nuisance dust, however dilute solutions are typically non-irritant to skin and eyes. Testing in accordance with the Local Lymph Node Assay (LLNA) methodology indicates that CI 19140 does not possess significant allergenic potential. However, a 2009 review by the European Food Safety Authority (EFSA) confirms that intolerance reactions may occur in a small fraction of the population - primarily following oral exposure. The prevalence of tartrazine intolerance is estimated to be less than 0.12% in the general population (Elhkim et al., 2007).

In the photopatch test, one out of 28 persons developed a light erythema following the exposure to CI 19140 (FD&C Yellow No. 5) at 5% and UV light. The Panel stated the study is not in accordance with current standards, however, the results must be regarded as a hint on possible phototoxic effects of Acid Yellow 5. It must be noted that the test was performed on patients with pigmented cosmetic dermatitis, thus more susceptible to irritation/allergic reactions. The authors concluded the compound did not elicit an allergic reaction in the patch test (SCCNFP, 2004). Based on the experimental data available, it is not possible to conclude on the phototoxicity potential of the compound, however, the compound has a wide history of use in colour cosmetics and as such it is considered unlikely to cause an undue risk of adverse effects in the majority of the population.

Based on available test data, this substance has low acute toxicity via the oral, intraperitoneal and intravenous routes. A range of chronic, long-term toxicity studies in experimental animals found no evidence of significant adverse effects at up to the maximum test doses.

There was no evidence of genotoxic, carcinogenic or reproductive effects in the studies available for review. A NOAEL of 2641mg/kg/day was identified in a one-generation reproductive toxicity study, as well as in a combined chronic toxicity/carcinogenicity study. Both studies used 5% CI 19140 in the diet, with no toxicologically relevant effects reported in either. Resultantly this value can be selected as a conservative, worst-case Point of Departure (PoD) for risk assessment 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%.

As a food colourant an acceptable daily intake (ADI) of 7.5 mg/kg/day has been suggested by the Scientific Committee for Food (SCF). A review by the European Food Safety Authority (EFSA) found no reason to change this value during their 2009 review into the safety of tartrazine.

Based on the available data, and given its existing widespread use in Consumer Products, CI 19140 is not expected to produce significant localised or systemic toxicity following Dermal exposure. Although the incidence of adverse reaction following Oral exposure is low, it must be ensured that the recommended ADI of 7.5 mg/Kg is not exceeded in products where ingestion is likely.

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

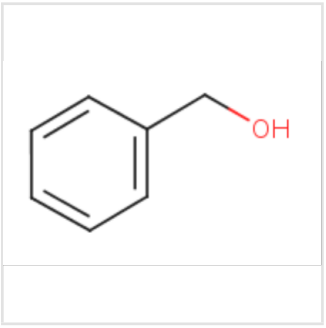
CI 19140 (FD&C Yellow No. 5)

Acute Toxicity Acute Toxicity, Lethality [Other]		Oral LD50 = 12.75g/kg
Mouse	Oral, NOS	
Acute Toxicity Acute Toxicity, Lethality [Other]		IP LD50 > 2g/kg
Rat [NOS]	Intraperitoneal	
Acute Toxicity Acute Toxicity, Lethality [Other]		IV LD50 > 2g/kg
Rat	Intravenous	
Carcinogenicity Combined chronic toxicity/carcinogenicity studies [Other]		Non-carcinogenic [2% in drinking water for 104 weeks]
Rat	Oral, Water	
Carcinogenicity Combined chronic toxicity/carcinogenicity studies [OECD 453]		Non-carcinogenic (NOAEL = 2,641 mg/kg/day) [2-year exposure, No effects observed. NOAEL = 2641 mg/kg bw/day (nominal) for males, NOAEL = 3348 mg/kg bw/day (norminal) for females.]
Rat	Oral, Gavage	
Eye Irritation Draize [Other]		Not irritating, (10% solution of 3% test substance)
Rabbit	Instillation	
Genotoxicity Bacterial reverse mutation test (Ames) [OECD 471]		Negative in S. typhimurium TA 1535, TA 1537, TA 98, TA 100 and TA 102 and E. coli WP2 uvr A with and without metabolic activation.
Bacteria	In vitro exposure	
Genotoxicity Mammalian cell gene mutation test [OECD 476]		Negative with and without metabolic activation.
Mouse	In vitro exposure	
Phototoxicity In vivo phototoxicity		CI 19140 (FD&C Yellow No. 5) at 5% is possibly phototoxic 5% in a 88% polyethylene glycol 400 and 12 %polyethylene glycol 6000 elicited light erythema in 1/28 patients
Human	Dermal	
Repeated Dose Repeat Dose Oral Toxicity Study [Other]		NOAEL = 8,103mg/kg/day (nominal, males) NOAEL = 9,735mg/kg/day (nominal, females) OECD Guideline 453 (Combined Chronic Toxicity / Carcinogenicity Studies). NOAELs are highest tested doses.
Rat	Oral, Feed	
Reproductive Toxicity One-Generation Reproduction Toxicity Study [OECD 415]		NOAEL = 5% (2,641 mg/kg/day - nominal, P1+F1 M+F) [Lifetime exposure of rats to the tested substance as a dietary admixture at levels up to 5.0% did not demonstrate toxic effects.]
Rat	Oral, Gavage	
Reproductive Toxicity Prenatal Development Toxicity Study [OECD 414]		NOAEL = 1,000 mg/kg/day (nominal, M+F)
Rat	Oral, Gavage	
Skin Irritation Reconstructed Human Epidermis (RHE) Test [OECD 431, OECD 439]		Non-irritant [Conc. not reported]
Human	In vitro exposure	
Skin Sensitisation Local Lymph Node Assay [OECD 429, OECD 442A, OECD 442B]		Non-sensitiser [SI: 1% = 1.48 ; 2.5% = 1.46 ; 5% = 2.16.]
Mouse	Dermal	
Skin Sensitisation Maximisation Test [OECD 406]		Not sensitising. None of the control and test animals showed skin reactions after the challenge treatment with Acid Yellow 5 (5% induction and 50% challenge). The 50 % test item stained the skin orange, therefore it was not possible to determine whether erythema were present or not. However, no oedema was observed.
Guinea Pig	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

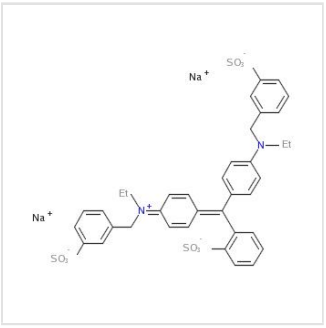
Benzyl Alcohol

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: CI 42090 (FD&C Blue No. 1)
CAS: 71701-19-4 (K.Na salt); 71701-18-3 (K salt); 2650-18-2 (NH4 salt); 68921-42-6 (Al salt);
Function: Pigment

Chemical Structure



Physical/Chemical Characteristics

Appearance	Solid
Melting Point	283°C
Appearance	Blue Powder
Log Kow	-0.32
Molecular Mass	792
Melting Point	283
Odour	None
pH	5 to 6 @ 1%
Specific Gravity	0.8 to 1.0

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:

CI 42090 (FD&C Blue 1) is a dye thoroughly tested for use as a food additive (FD&C Colour in the USA, E133 in the EU) and as cosmetic dye and with a long history of use.

Not irritating to skin, and only mild transient irritation to eyes. There was no evidence of skin sensitisation in the mouse local lymph node assay.

The dye has low acute toxicity, with high oral LD50 of > 1,900 mg/kg and a subcutaneous LD50 of 4,600 mg/kg. Not acutely sensitising or irritating effects are known.

The no-observed-effect-level (NOEL) from an extended one generation reproductive feeding study in rats was determined to be 631mg/kg bw/day for the F1 females. There is growing evidence of some adverse reactions to the material, mainly attributed to its inhibitory effects on mitochondrial respiration of human cells. It has been shown that oral administration of the material may be unsafe particularly during an illness associated with enhanced gut permeability. However, this is mainly observed in clinical settings where blue dye 1 is used as a way to detect pulmonary aspiration of gastric contents in enterally fed patients (Maloney et al., 2002). It must be noted that this review is not in accordance with EFSA, however, the clinical use settings are considered to be extreme (continuous feeding in already compromised patients) compared to use as a food. Moreover, this would be unlikely to pose a risk of adverse effects via the dermal route, considering the information mentioned above.

The compound is unlikely to be genotoxic based on negative results from an Ames test and a mammalian erythrocyte micronucleus test. It also showed no evidence of carcinogenicity in a 24 month feeding study in mice at 5% in the diet (7,000 mg/kg bw).

The high molecular weight and octanol-water partition coefficient indicate that dermal absorption is expected to be negligible.

European Food Safety Authority (EFSA) established an acceptable daily intake (ADI) of 6 mg/kg bw/day.

Is not expected to pose an undue risk of significant adverse effects in a consumer product under typical conditions of use.

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

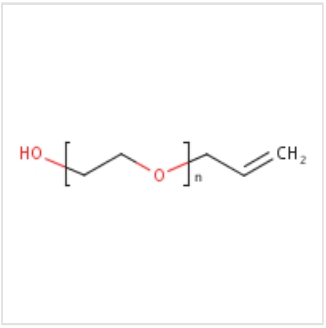
CI 42090 (FD&C Blue No. 1)

Acute Toxicity Acute Toxicity, Lethality [Other]		LD50: 4,600 mg/kg bw
Mouse	Subcutaneous	
Acute Toxicity Acute Oral Toxicity, Lethality [OECD 401, OECD 423, OECD 425]		LD50: > 1,900 mg/kg bw
Rat	Oral, Gavage	
ADME In vitro absorption study [Other]		No measurable permeation through skin was detected.
Ex-vivo Tissue	In vitro exposure	
ADME In vivo metabolism study [Other]		Very low intestinal absorption based on several studies in rats
Rat [NOS]	Oral, Gavage	
Carcinogenicity Combined chronic toxicity/carcinogenicity studies [OECD 453]		NOAEL: >7000 mg/kg bw corresponding to 5% in the diet for 24 months. Absence of carcinogenic effects at the highest tested dose
Mouse	Oral, Feed	
Eye Irritation Draize, Standard [OECD 405]		Transient irritation in rabbits [aqueous formulation containing 38% CI42090, 47% water and 7% oxalic acid]
Rabbit	Instillation	
Genotoxicity Bacterial reverse mutation test (Ames) [OECD 471]		Negative with or without activation in S. typhimurium TA 1535, TA 1537, TA 98, TA 100 and TA 102 and in E. coli WP2 uvr A.
Bacteria	In vitro exposure	
Genotoxicity Mammalian erythrocyte micronucleus test [OECD 474]		Negative in the micronucleus study in mice at up to 1010 mg/kg bw/day
Mouse	Intraperitoneal	
Reproductive Toxicity Extended One-Generation Reproductive Toxicity Study [OECD 443]		NOEL: F1 Female 631 mg/kg bw/day; F1 male >= 1072 mg/kg bw/day. No adverse effects on reproductive organs in both dose.
Rat	Oral, Feed	
Skin Irritation Draize Test [OECD 404]		Not irritating to skin. oedema score 0 out of 4, erythema score not determinable due to staining of skin. [aqueous formulation containing 38% CI42090, 47% water and 7% oxalic acid]
Rabbit	Dermal	
Skin Sensitisation Local Lymph Node Assay [OECD 429, OECD 442A, OECD 442B]		Not sensitising in the mouse local lymph node assay at up to 25%
Mouse	Dermal	

ANNEX II - INGREDIENT DATA

Substance: PEG-12 Allyl Ether
CAS: 27274-31-3
Function: Binding

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:

A surfactant produced from the condensation of Propylene glycol and Epoxy ethane. Belongs to the "PEG-ethers" class of compounds, which are extensively used in the cosmetics and as solvents in lacquers, paints, inks. They are also used in household products, adhesives and lubricants (CIR, 2012).

No data on PEG-12 Allyl Ether or structurally related polymer was found. Compounds with the predicted most reactive, allyl group, i.e. 2-Allyloxyethanol (CAS 111-45-5), and 2-allyloxymethyl-2-ethylpropanediol (CAS 682-11-1) were used as a read-across for PEG-12 Allyl Ether.

It needs to be noted that PEG-12 Allyl Ether is an inert polymer thus it is unlikely to permeate throughout the skin or mucous membranes. Thus, its local and systemic adverse effects are likely to be much lower than those of 2-Allyloxyethanol or 2-allyloxymethyl-2-ethylpropanediol. Nonetheless, relevant data from these compounds can be used as a conservative approach for the safety assessment of PEG-12 Allyl Ether.

2-Allyloxyethanol was severely irritating to the eyes and moderately irritating to the skin of the rabbit. 2-allyloxymethyl-2-ethylpropanediol in a neat form and at 75 % was not sensitising to the Guinea Pigs in the Buehler test.

Reported oral LD50 for 2-Allyloxyethanol is 250 mg/kg. The lowest published lethal dose for this compound is 2 mg/kg bw obtained following the intraperitoneal administration in rats.

NOAEL of 40 mg/kg bw per day was derived from 28-day oral toxicity study in which rats were administered 2-allyloxymethyl-2-ethylpropanediol via gavage. To account for the short duration of this study, the value of 40 is divided by 3 (SCCS, 2018). 13.33 mg/kg bw per day is thus consider an appropriate Point of Departure (PoD) for the Margin of Safety calculations for PEG-12 Allyl Ether.

Negative results from the bacterial reverse mutation test and erythrocyte micronucleus test in mice with 2-allyloxymethyl-2-ethylpropanediol, suggests PEG -12 allyl alkyl is not genotoxic.

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 supplier must make sure that the material does not contain reactive species or significant quantities of monomers.

Use at low levels within a Consumer Product would not be expected to pose an undue risk of 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

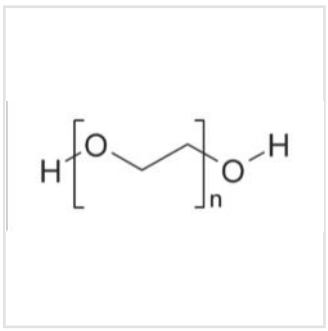
PEG-12 Allyl Ether

Acute Toxicity Acute Toxicity, Lethality [Other]		[read-across 2-Allyloxyethanol] LD50 = 250 mg/kg
Rat	Oral, NOS	
Acute Toxicity Acute Toxicity, Lethality [Other]		[read-across 2-Allyloxyethanol] LDLo (Lowest published lethal dose) = 2mg/kg
Rat	Intraperitoneal	
Eye Irritation Draize [Other]		[read-across 2-Allyloxyethanol] Severely irritating
Rabbit	Instillation	
Genotoxicity Bacterial reverse mutation test (Ames) [OECD 471]		[read-across Glyceryl Allyl Ether] Not mutagenic on S typhimurium strains TA98, TA100, and TA1538 and E coli strains WP2 and WP2 uvrA at up to 4000 mg/plate in the presence and absence of metabolic activation S9.
Bacteria	In vitro exposure	
Genotoxicity Bacterial reverse mutation test (Ames) [OECD 471]		[read across 2-allyloxymethyl-2-ethylpropanediol] Not mutagenic on Salmonella typhimurium strains TA 1535, TA 1537, TA 98 and TA 100 and the Escherichia coli strain WP2 uvrA at concentrations up to 5000 µg/plate with and without S9 metabolic activation.
Bacteria	In vitro exposure	
Genotoxicity Mammalian erythrocyte micronucleus test [OECD 474]		[read across 2-allyloxymethyl-2-ethylpropanediol] Not clastogenic at 1250 mg/kg bw
Mouse	Intraperitoneal	
Repeated Dose 28-day Oral Toxicity Study [OECD 407]		[read-across 2-allyloxymethyl-2-ethylpropanediol] Doses: 0, 8, 40 and 200 mg/kg NOAEL = 40 mg/kg bw per day based on the clinical observations (hypoactivity and bad coordination of movements) in the top dose group.
Rat	Oral, Gavage	
Skin Irritation In vivo skin irritation [Other]		[read-across 2-Allyloxyethanol] Moderately irritating
Rabbit	Dermal	
Skin Sensitisation Buehler [OECD 406]		[read-across 2-allyloxymethyl-2-ethylpropanediol] Undiluted and 75 % material was not sensitising
Guinea Pig	Dermal	

ANNEX II - INGREDIENT DATA

Substance: PEG-12
CAS: 25322-68-3
Function: Humectant; Solvent

Chemical Structure



Physical/Chemical Characteristics

Appearance	Clear Liquid / white solid
Boiling Point	> 200 °C
Flash Point	238 °C (close cup)/ 273 °C (open cup)
Molecular Mass	570 - 630 g/mol
Melting Point	20 - 25 °C (Freezing Point)
Odour	Mild
pH	4.5 - 7.0
Specific Gravity	1.128 20 °C (calculated)
Vapour Pressure	< 0.01 mmHg @ 20 °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 simple polyethylene glycol polymer of 12 moles of ethylene oxide. It is used as a humectant and solvent in a range of cosmetic products.

Limited toxicological data are available on the material itself, but data on structurally similar polyethylene glycol polymers are available for read-across evaluation.

Based on read-across findings, the material is expected to have low systemic toxicity from both acute and sub-chronic exposures. It is also expected to have low potential to cause skin or eye irritancy, as well as having no reports of significant allergenic potential. There is currently no available evidence to suggest it has any carcinogenic or genotoxic potential.

PEGs may contain trace amounts of 1,4-dioxane, a carcinogenic by-product of ethoxylation. SCCS opinionated that a trace level in cosmetic products of ≤10 ppm is considered safe. Specification in cosmetics should demonstrate low levels.

The Cosmetic Ingredient Review (CIR) Expert Panel reported use of up to 8% in leave-on cosmetics, 30% in foot powder and sprays, 56% in non-colouring hair products, and concluded it is safe in the present practices of use and concentrations.

A NOAEL was not available for review but extrapolated from the LOAEL with a safety factor of 10. However, it must be noted that this is a conservative approach ignoring the history of safe use.

Overall the material is unlikely to pose a risk to the majority of the population at typical levels in consumer 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

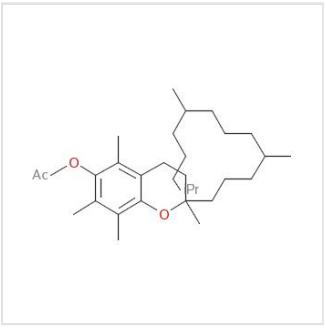
PEG-12

Acute Toxicity Acute Toxicity, Lethality [Other]		Read-across PEG-8: LD50 = 32800 mg/kg bw
Rat	Oral, NOS	
Eye Irritation In vivo Eye Irritation [Other]		Read-across PEG-6, PEG-8, PEG-32, and PEG-75: Not irritating [Undiluted, 24hr exposure]
Rabbit	Instillation	
Repeated Dose Repeat Dose Oral Toxicity Study [Other]		Read-across PEG-6, PEG-32 and PEG-75: LOAEL = 4050 mg/kg/day (Microscopic abnormality in kidneys at higher doses) [Dose: up to 22900 mg/kg/day (16%) in drinking water; 90-day exposure]
Rat	Oral, Water	
Reproductive Toxicity In vivo reproductive toxicity study [Other]		Read-across PEG-6, PEG-32: No changes or adverse responses to either compound occurred in the three generations. [2-year oral toxicity studies; Dose: 0.015, 0.059, 0.27 and 1.69 g/kg/day; allowed to breed during the study]
Rat	Oral, NOS	
Skin Irritation In vivo skin irritation [Other]		Read-across PEG-6 and PEG-8: Not irritating [Undiluted, 4h exposure, 24h observation]
Rabbit	Dermal	
Skin Sensitisation Repeat Insult Patch Test (RIPT) [Other]		Read-across PEG-8: Did not exhibit a potential for inducing allergic contact dermatitis
Human	Dermal	

ANNEX II - INGREDIENT DATA

Substance: Tocopheryl Acetate
CAS: 58-95-7; 7695-91-2; 52225-20-4
Function: Antioxidant; Skin Conditioning

Chemical Structure



Physical/Chemical Characteristics

Appearance	Viscous slightly yellow liquid
Boiling Point	443°C ; 300°C (ChemSpider)
Flammability	Ignition 320°C
Flash Point	243°C ; 210°C (ChemSpider)
Log Kow	12.2
Molecular Mass	472.7
Melting Point	-27.5°C
Specific Gravity	0.96
Viscosity	6589 cP @ 20°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:

Also known as Vitamin E Acetate, this ingredient is the ester of tocopherol and acetic acid. It is a generally recognized as a safe (GRAS) food ingredient in the US when used as a nutrient (21CFR182.8892). In cosmetics it is commonly used as an antioxidant and skin conditioning agent.

Available data indicates minimal risk of localised toxicity. No irritating effects observed in rabbits from dermal and ocular exposures. Photoallergenicity testing in guinea pigs and patch testing in humans indicated no significant allergenic potential. In clinical study, 0.2 mL Tocopheryl Acetate applied under an occlusive patch for 24 hours prior to irradiation, was not phototoxic in 11 participants.

The ingredient demonstrated low order of acute toxicity, with oral and dermal LD50 in rats reported to be exceeding 10g/kg bw and 3g/kg bw, respectively. As a lipophilic vitamin (cf. retinoids) there is a potential risk of toxicity from chronic exposure due to accumulation. However, multiple repeated-dose toxicity studies did not find significant adverse effects from prolonged exposure to the levels much higher than typically seen in consumer products, indicating it is well tolerated. There was no evidence of genotoxic, carcinogenic or toxicity to reproduction in the available studies.

The point of departure used for assessment is based on NOAEL found from a 90-day oral study in rats, which is 500 mg/kg bw/day. This value is chosen based on haematological changes identified at higher dosages.

Based on an in vitro skin absorption study of a cosmetic product containing 5% of this ingredient, dermal absorption was determined to be 4.2%. Consequently a 5% dermal absorption was conservatively considered in the assessment. However, 100% dermal absorption will be used for risk assessment of oral care products.

In 2001, the Scientific Committee on Cosmetic Products and Non-Food Products (SCCNFP) evaluated the use of alpha-tocopherol acetate in cosmetic products considering evidence suggesting it may enhance the incidence of squamous cell carcinoma from UV radiation (SCCNFP, 2001). The Committee concluded, based on the available literature, the ingredient does not pose a threat to the health of the consumer and therefore does not propose any restrictions or conditions on its use in cosmetic products.

The Cosmetic Ingredients Review (CIR) Expert Panel reported the ingredient is used at up to 36% in leave-on cosmetic products, and concluded it is safe for use in cosmetic formulation at the reported concentrations and uses.

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

Tocopheryl Acetate

Acute Toxicity Acute Oral Toxicity, Lethality [OECD 401, OECD 423, OECD 425]		LD50 > 10000 mg/kg bw
Rat	Oral, Gavage	
Acute Toxicity Acute Dermal Toxicity, Lethality [OECD 402]		LD50 > 3000 mg/kg bw
Rat	Dermal	
ADME In vitro skin absorption [OECD 428]		Dermal Absorption = 4.2% [5% in AHA Cream, over 18hrs]
Ex-vivo Tissue	In vitro exposure	
Carcinogenicity Combined chronic toxicity/carcinogenicity studies [OECD 453]		NOAEL > 2000 mg/kg/day, no tumorigenic effect
Rat	Oral, Feed	
Eye Irritation Draize, Standard [OECD 405]		Non-irritating [Undiluted Vitamin E acetate, 0.1mL]
Rabbit	Instillation	
Genotoxicity Mammalian erythrocyte micronucleus test [OECD 474]		Negative at up to 200 mg/kg/day (1000 ppm in diet).
Mouse	Oral, Feed	
Genotoxicity Bacterial reverse mutation test (Ames) [OECD 471]		Negative with and without metabolic activation at up to 5000 µg/plate.
Bacteria	In vitro exposure	
Genotoxicity Mammalian chromosome aberration test [OECD 473]		Negative with and without metabolic activation at up to 1800 µg/ml.
In-vitro culture	In vitro exposure	
Phototoxicity In vivo phototoxicity		Tocopheryl Acetate was not phototoxic, and no responses were observed at the exposed, nonirradiated site. 0.2 mL, 24 hours occlusive patch prior to irradiation. 11 subjects. [induction: 24-hr occluded patch, irradiated with UVA for 5 to 8 minutes (10.5 to 16.8 J) until 1 MED was achieved. Sites scored 15 minutes, 24 and 48 hrs later]
Human	Dermal	
Repeated Dose 90-Day Oral Toxicity Study [OECD 408, OECD 409]		NOAEL = 500 mg/kg bw/day [Test doses: 125, 500, 2000 mg/kg bw/day] [2000 mg/kg bw/day caused hematological changes]
Rat	Oral, Gavage	
Repeated Dose 28-day Oral Toxicity Study [OECD 407]		NOAEL > 2000 mg/kg bw/day
Rat	Oral, Gavage	
Reproductive Toxicity Prenatal Development Toxicity Study [OECD 414]		NOAEL > 1600 mg/kg bw/day [for maternal toxicity, embryotoxicity and teratogenicity]
Rat	Oral, Gavage	
Reproductive Toxicity Prenatal Development Toxicity Study [OECD 414]		NOAEL > 1600 mg/kg bw/day [for maternal toxicity, embryotoxicity and teratogenicity]
Rabbit	Oral, Gavage	
Skin Irritation Draize Test [OECD 404]		Non-irritating [Undiluted Vitamin E acetate]
Rabbit	Dermal	
Skin Sensitisation Repeat Insult Patch Test (RIPT) [Other]		Non-sensitising [203 human volunteers. Induction with 100% Tocopheryl Acetate, 10 times over two weeks. 2-week rest period followed by 3-days of challenge with 100%.]
Human	Dermal	
Skin Sensitisation Maximisation Test [Other]		Non-sensitising and not photoallergenic [Induction: 100% (undiluted); Challenge: 100% (undiluted), 75%, 50%, and 25%]
Guinea Pig	Dermal	

Allergen Name
Benzyl Alcohol

ANNEX IV - ADDITIONAL REASONABLY FORESEEABLE EXPOSURES