Screenwash -10°C Bubblegum

Future Developments (man.) Ltd

Part Number:
Version No: **1.2**
Safety data sheet according to REACH Regulation (EC) No 1907/2006, as amended by UK REACH Regulations SI 2019/758

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SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

1.1. Product Identifier

Product name	Screenwash -10°C Bubblegum
Physical Form	Mixture
Synonyms	Not Available
Other means of identification	Not Available

1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	for use as an automotive screenwash
Uses advised against	No specific uses advised against are identified.

1.3. Details of the manufacturer or supplier of the safety data sheet

Registered company name	**Future Developments (man.) Ltd**
Address	Davenport Street, Burslem. ST6 4HS Stoke-on-Trent Staffordshire GB
Telephone	01782829000
Fax	Not Available
Website	www.fdev.co.uk
Email	sales@fdev.co.uk

1.4. Emergency telephone number

Association / Organisation	**Future Developments (man.) Ltd**
Emergency telephone number(s)	**01782 829000**
Other emergency telephone number(s)	**Not Available**

SECTION 2 HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification according to regulation (EC) No 1272/2008 [CLP] and amendments[1]	Non hazardous

2.2. Label elements

Hazard pictogram(s)	Not Applicable
SIGNAL WORD	NOT APPLICABLE

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Hazard statement(s)

Not Applicable

Supplementary statement(s)

Not Applicable

Precautionary statement(s) General

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.
P103	Read carefully and follow all instructions.

Precautionary statement(s) Prevention

Not Applicable

Precautionary statement(s) Response

Not Applicable

Precautionary statement(s) Storage

Not Applicable

Precautionary statement(s) Disposal

Not Applicable

Material contains methanol, methylal, allyl alcohol, ethyl butyrate.

2.3. Other hazards

Cumulative effects may result following exposure*.

Vapours potentially cause drowsiness and dizziness*.

May produce skin discomfort*.

Ingestion may produce health damage*.

d-limonene	Listed in the Europe Regulation (EC) No 1907/2006 - Annex XVII (Restrictions may apply)
ethanol	Listed in the Europe Regulation (EC) No 1907/2006 - Annex XVII (Restrictions may apply)
methanol	Listed in the Europe Regulation (EC) No 1907/2006 - Annex XVII (Restrictions may apply)
allyl alcohol	Listed in the Europe Regulation (EC) No 1907/2006 - Annex XVII (Restrictions may apply)
triethylamine	Listed in the Europe Regulation (EC) No 1907/2006 - Annex XVII (Restrictions may apply)
2-bromo-2-nitropropan-1,3-diol	Listed in the Europe Regulation (EC) No 1907/2006 - Annex XVII (Restrictions may apply)

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

3.1. Substances

See 'Composition on ingredients' in Section 3.2

3.2. Mixtures

1. CAS No 2. EC No 3. Index No 4. REACH No	%[weight]	Name	Classified according to GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567	SCL / M-Factor	Nanoform Particle Characteristics
1. 105-54-4 2. 203-306-4 3. Not Available 4. Not Available	<0.05	ethyl butyrate	Flammable Liquids Category 2, Skin Corrosion/Irritation Category 2, Serious Eye Damage/Eye Irritation Category 2, Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3; H225, H315, H319, H335[1]	SCL: Not Available Acute M factor:Not Applicable Chronic M factor:Not Applicable	Not Available

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1. 140-11-4 2. 205-399-7 3. Not Available 4. Not Available	<0.05	benzyl acetate	Skin Corrosion/Irritation Category 2, Serious Eye Damage/Eye Irritation Category 2, Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3; H315, H319, H335[1]	SCL: Not Available Acute M factor:Not Applicable Chronic M factor:Not Applicable	Not Available
1. 5989-27-5 2. 227-813-5 3. 601-096-00-2, 601-029-00-7 4. Not Available	<0.025	d-limonene	Flammable Liquids Category 3, Aspiration Hazard Category 1, Skin Corrosion/Irritation Category 2, Sensitisation (Skin) Category 1B, Hazardous to the Aquatic Environment Acute Hazard Category 1, Hazardous to the Aquatic Environment Long-Term Hazard Category 3; H226, H304, H315, H317, H400, H412[2]	M = 1 Acute M factor:1 Chronic M factor:Not Applicable	Not Available
1. 123-11-5 2. 204-602-6 3. Not Available 4. Not Available	<0.025	p-anisaldehyde	Acute Toxicity (Oral) Category 4, Skin Corrosion/Irritation Category 2, Serious Eye Damage/Eye Irritation Category 2, Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3; H302, H315, H319, H335[1]	SCL: Not Available Acute M factor:Not Applicable Chronic M factor:Not Applicable	Not Available
1. 123-66-0 2. 204-640-3 3. Not Available 4. Not Available	<0.025	ethyl butyl acetate	Flammable Liquids Category 3, Skin Corrosion/Irritation Category 2, Serious Eye Damage/Eye Irritation Category 2, Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3; H226, H315, H319, H335[1]	SCL: Not Available Acute M factor:Not Applicable Chronic M factor:Not Applicable	Not Available
1. 91-64-5 2. 202-086-7 3. Not Available 4. Not Available	<0.025	coumarin	Acute Toxicity (Oral) Category 3, Acute Toxicity (Dermal and Inhalation) Category 4, Skin Corrosion/Irritation Category 2, Sensitisation (Skin) Category 1, Serious Eye Damage/Eye Irritation Category 2, Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3, Germ Cell Mutagenicity Category 2, Carcinogenicity Category 2, Reproductive Toxicity Category 2, Specific Target Organ Toxicity - Repeated Exposure Category 2, Hazardous to the Aquatic Environment Long-Term Hazard Category 4; H301, H312+H332, H315, H317, H319, H335, H341, H351, H361d, H373, H413[1]	SCL: Not Available Acute M factor:Not Applicable Chronic M factor:Not Applicable	Not Available
1. 7493-74-5 2. 231-335-2 3. Not Available 4. Not Available	<0.025	allyl phenoxyacetate	Acute Toxicity (Oral and Dermal) Category 4, Sensitisation (Skin) Category 1, Hazardous to the Aquatic Environment Acute Hazard Category 1; H302+H312, H317, H400[1]	SCL: Not Available Acute M factor:1 Chronic M factor:Not Applicable	Not Available
1. 122-40-7 2. 204-541-5 3. Not Available 4. Not Available	<0.005	alpha-amylcinnamaldehyde	Skin Corrosion/Irritation Category 2, Sensitisation (Skin) Category 1, Serious Eye Damage/Eye Irritation Category 2, Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3, Hazardous to the Aquatic Environment Long-Term Hazard Category 2; H315, H317, H319, H335, H411[1]	SCL: Not Available Acute M factor:Not Applicable Chronic M factor:Not Applicable	Not Available

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1. 115-95-7 2. 204-116-4 3. Not Available 4. Not Available	<0.005	linalyl acetate	Skin Corrosion/Irritation Category 2, Sensitisation (Skin) Category 1, Serious Eye Damage/Eye Irritation Category 2, Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3, Hazardous to the Aquatic Environment Long-Term Hazard Category 2; H315, H317, H319, H335, H411, EUH019[1]	SCL: Not Available Acute M factor:Not Applicable Chronic M factor:Not Applicable	Not Available
1. 78-70-6 2. 201-134-4 3. 603-235-00-2, 603-235-00-2, 603-235-00-2 4. Not Available	<0.05	linalool	Sensitisation (Skin) Category 1B; H317[2]	SCL: Not Available Acute M factor:Not Applicable Chronic M factor:Not Applicable	Not Available
1. 64-17-5 2. 200-578-6 3. 603-002-00-5 4. Not Available	11.87905-19.798416	ethanol	Flammable Liquids Category 2; H225[2]	SCL: Not Available Acute M factor:Not Applicable Chronic M factor:Not Applicable	Not Available
1. 67-56-1 2. 200-659-6 3. 603-001-00-X 4. Not Available	0.197984-0.989921	methanol *	Flammable Liquids Category 2, Acute Toxicity (Oral) Category 3, Acute Toxicity (Dermal) Category 3, Acute Toxicity (Inhalation) Category 3, Specific Target Organ Toxicity - Single Exposure Category 1; H225, H301, H311, H331, H370[2]	* STOT SE 1; H370: C ≥ 10 %, STOT SE 2; H371: 3 % ≤ C < 10 % Acute M factor:Not Applicable Chronic M factor:Not Applicable	Not Available
1. 109-87-5 2. 203-714-2 3. Not Available 4. Not Available	<0.197984	methylal	Flammable Liquids Category 2, Acute Toxicity (Oral, Dermal and Inhalation) Category 4, Skin Corrosion/Irritation Category 2, Serious Eye Damage/Eye Irritation Category 2, Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3, Specific Target Organ Toxicity - Single Exposure (Narcotic Effects) Category 3, Specific Target Organ Toxicity - Single Exposure Category 2; H225, H302+H312+H332, H315, H319, H335, H336, H371, EUH019[1]	SCL: Not Available Acute M factor:Not Applicable Chronic M factor:Not Applicable	Not Available
1. 107-18-6 2. 203-470-7 3. 603-015-00-6 4. Not Available	<0.197984	allyl alcohol*	Flammable Liquids Category 2, Acute Toxicity (Oral) Category 3, Acute Toxicity (Dermal) Category 3, Skin Corrosion/Irritation Category 2, Serious Eye Damage/Eye Irritation Category 2, Acute Toxicity (Inhalation) Category 3, Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3, Hazardous to the Aquatic Environment Acute Hazard Category 1; H225, H301, H311, H315, H319, H331, H335, H400[2]	SCL: Not Available Acute M factor:1 Chronic M factor:Not Applicable	Not Available
1. 121-44-8 2. 204-469-4 3. 612-004-00-5 4. Not Available	0.005939	triethylamine*	Flammable Liquids Category 2, Acute Toxicity (Oral) Category 4, Acute Toxicity (Dermal) Category 4, Skin Corrosion/Irritation Category	STOT SE 3; H335: C ≥ 1 % Acute M factor:Not	Not Available

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			1A, Acute Toxicity (Inhalation) Category 4; H225, H302, H312, H314, H332[2]	Applicable Chronic M factor:Not Applicable	
1. 1310-73-2 2. 215-185-5 3. 011-002-00-6 4. Not Available	0.00198	sodium hydroxide	Skin Corrosion/Irritation Category 1A; H314[2]	Skin Corr. 1A; H314: C ≥ 5 %, Skin Corr. 1B; H314: 2 % ≤ C < 5 %, Skin Irrit. 2; H315: 0,5 % ≤ C < 2 %, Eye Irrit.2; H319: 0,5 % ≤ C < 2 % Acute M factor:Not Applicable Chronic M factor:Not Applicable	Not Available
1. 52-51-7 2. 200-143-0 3. 603-085-00-8 4. Not Available	<0.019802	2-bromo-2-nitropropan-1,3-diol	Acute Toxicity (Oral) Category 4, Acute Toxicity (Dermal) Category 4, Skin Corrosion/Irritation Category 2, Serious Eye Damage/Eye Irritation Category 1, Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3, Hazardous to the Aquatic Environment Acute Hazard Category 1; H302, H312, H315, H318, H335, H400[2]	M=10 Acute M factor:10 Chronic M factor:Not Applicable	Not Available
1. 64-02-8 2. 200-573-9 3. 607-428-00-2 4. Not Available	0.007919	EDTA tetrasodium salt	Acute Toxicity (Oral) Category 4, Serious Eye Damage/Eye Irritation Category 1; H302, H318[2]	SCL: Not Available Acute M factor:Not Applicable Chronic M factor:Not Applicable	Not Available
1. 5064-31-3 2. 225-768-6 3. 607-620-00-6 4. Not Available	0.000008	nitrilotriacetic acid, trisodium salt	Acute Toxicity (Oral) Category 4, Serious Eye Damage/Eye Irritation Category 2, Carcinogenicity Category 2; H302, H319, H351[2]	Carc. 2; H351: C ≥ 5 % Acute M factor:Not Applicable Chronic M factor:Not Applicable	Not Available
1. 1300-72-7 2. 215-090-9 3. Not Available 4. Not Available	0.000356	sodium xylenesulfonate	Skin Corrosion/Irritation Category 2, Serious Eye Damage/Eye Irritation Category 2, Specific Target Organ Toxicity - Single Exposure (Respiratory Tract Irritation) Category 3; H315, H319, H335[1]	SCL: Not Available Acute M factor:Not Applicable Chronic M factor:Not Applicable	Not Available
1. 8042-47-5 2. 232-455-8 3. Not Available 4. Not Available	0.000079	white mineral oil (petroleum)	Aspiration Hazard Category 1; H304[1]	SCL: Not Available Acute M factor:Not Applicable Chronic M factor:Not Applicable	Not Available

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Legend: *1. Classified by Chemwatch; 2. Classification drawn from GB-CLP Regulation, UK SI 2019/720 and UK SI 2020/1567; 3. Classification drawn from C&L; * EU IOELVs available; [e] Substance identified as having endocrine disrupting properties*

SECTION 4 FIRST AID MEASURES

4.1. Description of first aid measures

Eye Contact	If this product comes in contact with the eyes: • Wash out immediately with fresh running water. • Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. • Seek medical attention without delay; if pain persists or recurs seek medical attention. • Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	If skin contact occurs: • Immediately remove all contaminated clothing, including footwear. • Flush skin and hair with running water (and soap if available). • Seek medical attention in event of irritation.
Inhalation	• If fumes or combustion products are inhaled remove from contaminated area. • Lay patient down. Keep warm and rested. • Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. • Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. • Transport to hospital, or doctor, without delay.
Ingestion	• Immediately give a glass of water. • First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

4.2. Most important symptoms and effects, both acute and delayed

See Section 11

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5 FIREFIGHTING MEASURES

5.1. Extinguishing media

- Water spray or fog.
- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.

5.2. Special hazards arising from the substrate or mixture

Fire Incompatibility	• Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result

5.3. Advice for firefighters

Fire Fighting	• Alert Fire Brigade and tell them location and nature of hazard. • Wear full body protective clothing with breathing apparatus. • Prevent, by any means available, spillage from entering drains or water course. • Use water delivered as a fine spray to control fire and cool adjacent area. • Avoid spraying water onto liquid pools. • **DO NOT** approach containers suspected to be hot. • Cool fire exposed containers with water spray from a protected location. • If safe to do so, remove containers from path of fire.
Fire/Explosion Hazard	**WARNING:** In use may form flammable/ explosive vapour-air mixtures. • Combustible. • Slight fire hazard when exposed to heat or flame. • Heating may cause expansion or decomposition leading to violent rupture of containers. • On combustion, may emit toxic fumes of carbon monoxide (CO). • May emit acrid smoke. • Mists containing combustible materials may be explosive. Combustion products include:

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	carbon dioxide (CO2) other pyrolysis products typical of burning organic material. May emit poisonous fumes. May emit corrosive fumes.

SECTION 6 ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

See section 8

6.2. Environmental precautions

See section 12

6.3. Methods and material for containment and cleaning up

Minor Spills	• Remove all ignition sources. • Clean up all spills immediately. • Avoid breathing vapours and contact with skin and eyes. • Control personal contact with the substance, by using protective equipment. • Contain and absorb spill with sand, earth, inert material or vermiculite. • Wipe up. • Place in a suitable, labelled container for waste disposal.
Major Spills	• Clear area of personnel and move upwind. • Alert Fire Brigade and tell them location and nature of hazard. • Wear full body protective clothing with breathing apparatus. • Prevent, by all means available, spillage from entering drains or water courses. • Consider evacuation (or protect in place). • No smoking, naked lights or ignition sources. • Increase ventilation. • Stop leak if safe to do so. • Water spray or fog may be used to disperse / absorb vapour. • Contain or absorb spill with sand, earth or vermiculite. • Collect recoverable product into labelled containers for recycling. • Collect solid residues and seal in labelled drums for disposal. • Wash area and prevent runoff into drains. • After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using. • If contamination of drains or waterways occurs, advise emergency services.

6.4. Reference to other sections

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 HANDLING AND STORAGE

7.1. Precautions for safe handling

Safe handling	• Avoid all personal contact, including inhalation. • Wear protective clothing when risk of exposure occurs. • Use in a well-ventilated area. • Prevent concentration in hollows and sumps. • **DO NOT** enter confined spaces until atmosphere has been checked. • Avoid smoking, naked lights or ignition sources. • Avoid contact with incompatible materials. • When handling, **DO NOT** eat, drink or smoke. • Keep containers securely sealed when not in use. • Avoid physical damage to containers. • Always wash hands with soap and water after handling. • Work clothes should be laundered separately. • Use good occupational work practice. • Observe manufacturer's storage and handling recommendations contained within this SDS. • Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions. • **DO NOT** allow clothing wet with material to stay in contact with skin
Fire and explosion protection	See section 5
Other information	• Store in original containers. • Keep containers securely sealed. • No smoking, naked lights or ignition sources.

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	• Store in a cool, dry, well-ventilated area. • Store away from incompatible materials and foodstuff containers. • Protect containers against physical damage and check regularly for leaks. • Observe manufacturer's storage and handling recommendations contained within this SDS.

7.2. Conditions for safe storage, including any incompatibilities

Suitable container	• Metal can or drum • Packaging as recommended by manufacturer. • Check all containers are clearly labelled and free from leaks.
Storage incompatibility	• Avoid oxidising agents, acids, acid chlorides, acid anhydrides, chloroformates. Terpenoids and terpenes, are generally unsaturated, are thermolabile, are often volatile and may be easily oxidised or hydrolysed depending on their respective structure. Terpenoids are subject to autoxidation. Autoxidation is any oxidation that occurs in open air or in presence of oxygen (and sometimes UV radiation) and forms peroxides and hydroperoxides. Though autoxidation has been particularly investigated in the field of fatty oils, it also plays a most crucial part for terpenoid deterioration. Although virtually all types of organic materials can undergo air oxidation, certain types are particularly prone to autoxidation, including unsaturated compounds that have allylic or benzylic hydrogen atoms (C6H5CH2-); these materials are converted to hydroperoxides by autoxidation. Promoted by heat, catalytic quantities of redox-reactive metals, and exposure to light, autoxidation may result in the formation of explosive peroxides which may become explosive upon concentration. As a rule, however, primary autoxidation products such as hydroperoxides eventually break down during advanced stages of oxidation depending on their individual stability. Thereby they give rise to a range of stable oxidised secondary products such as mono- to polyvalent alcohols, aldehydes, ketones, epoxides, peroxides, or acids as well as highly viscous, often oxygen-bearing polymers. Light, heat, or increasing acidity often promote this breakdown. Compounds rich in allylic hydrogen atoms (2HC=CHCH2-R), found in most terpenoids, make up the most probable targets for autoxidation. Several terpenoids (typically oxygen containing derivatives) are saturated and do not react in a similar fashion to their unsaturated congeners. Thermolabile terpenoids, especially mere terpenes and aldehydes, are susceptible to rearrangement processes at elevated temperatures. Terpenic conversion reactions, upon heating, have been reported both for isolated compounds as well as for essential oils.(which tend to be rich in mono-, and sesqui-terpenes. Mono-, bi-, or tricyclic mono- terpenoids (those containing two isoprene units, dienes) and sesquiterpenoids (with three isoprene units, trienes) of different chemical classes, such as hydrocarbons, ketones, alcohols, oxides, aldehydes, phenols, or esters, make up the major part in essential oils. Electron-donating groups and increasing alkyl substitution contribute to a stronger carbon-peroxide bond through a hyperconjugative effect, thus leading to more stable and subsequently built-up hydroperoxides. Some oxygen-bearing terpenoids such as menthol, eucalyptol (1,8-cineol), and menthone do not form hydroperoxides upon oxidation but are directly converted into ketones, acids, and aldehydes.None of these are unsaturated compounds. Due to their low volatility, diterpenes (with four isoprenes, tetraenes) are barely encountered in genuine essential oils obtained by distillation, while tri- and higher terpenoids such as sterols or carotenoids are only present in the nonvolatile fractions such as plant resins or gums and will remain in the residue Aging processes generally come along with a more or less pronounced quality loss In addition to the frequent development of unpleasant and often pungent flavours, shifting colors such as the formation of a yellow staining or changes in consistency up to resinification have been reported both upon degradation of single terpenoids as well as of essential oils. Formaldehyde: • is a strong reducing agent • may polymerise in air unless properly inhibited (usually with methanol up to 15%) and stored at controlled temperatures • will polymerize with active organic material such as phenol • reacts violently with strong oxidisers, hydrogen peroxide, potassium permanganate, acrylonitrile, caustics (sodium hydroxide, yielding formic acid and flammable hydrogen), magnesium carbonate, nitromethane, nitrogen oxides (especially a elevated temperatures), peroxyformic acid • is incompatible with strong acids (hydrochloric acid forms carcinogenic bis(chloromethyl)ether*), amines, ammonia, aniline, bisulfides, gelatin, iodine, magnesite, phenol, some monomers, tannins, salts of copper, iron, silver. • acid catalysis can produce impurities: methylal, methyl formate Aqueous solutions of formaldehyde: • slowly oxidise in air to produce formic acid • attack carbon steel Concentrated solutions containing formaldehyde are: • unstable, both oxidising slowly to form formic acid and polymerising; in dilute aqueous solutions formaldehyde appears as monomeric hydrate (methylene glycol) - the more concentrated the solution the more polyoxymethylene glycol occurs as oligomers and polymers (methanol and amine-containing compounds inhibit polymer formation) • readily subject to polymerisation, at room temperature, in the presence of air and moisture, to form paraformaldehyde (8-100 units of formaldehyde), a solid mixture of linear polyoxymethylene glycols containing 90-99% formaldehyde; a cyclic trimer, trioxane (CH2O3), may also form Flammable and/or toxic gases are generated by the combination of aldehydes with azo, diazo compounds, dithiocarbamates, nitrides, and strong reducing agents *The empirical equation may be used to determine the concentration of bis(chloromethyl)ether (BCME) formed by reaction with HCl: log(BCME)ppb = -2.25 + 0.67• log(HCHO) ppm + 0.77• log(HCl)ppm Assume values for formaldehyde, in air, of 1 ppm and for HCl of 5 ppm, resulting BCME concentration, in air, would be 0.02 ppb.
Hazard categories in accordance with	Not Available

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Regulation (EC) No 2012/18/EU (Seveso III)	
Qualifying quantity (tonnes) of dangerous substances as referred to in Article 3(10) for the application of	Not Available

7.3. Specific end use(s)

See section 1.2

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Control parameters

Ingredient	DNELs Exposure Pattern Worker	PNECs Compartment
ethyl butyrate	Dermal 2.33 mg/kg bw/day (Systemic, Chronic) Inhalation 49.3 mg/m³ (Systemic, Chronic) ***#Dermal 0.833 mg/kg bw/day (Systemic, Chronic) **** ***#Inhalation 0.0074 mg/m³ (Systemic, Chronic) **** ***#Oral 0.833 mg/kg bw/day (Systemic, Chronic) ****	0.0297 mg/L (Water (Fresh)) 1 mg/L (Water - Intermittent release) 0.00297 mg/L (Water (Marine)) 0.173 mg/kg sediment dw (Sediment (Fresh Water)) 0.0173 mg/kg sediment dw (Sediment (Marine)) 0.0171 mg/kg soil dw (Soil) 23.6 mg/L (STP)
benzyl acetate	Dermal 2.5 mg/kg bw/day (Systemic, Chronic) Inhalation 9 mg/m³ (Systemic, Chronic) ***#Dermal 1.3 mg/kg bw/day (Systemic, Chronic) **** ***#Inhalation 0.0022 mg/m³ (Systemic, Chronic) **** ***#Oral 1.3 mg/kg bw/day (Systemic, Chronic) ****	0.018 mg/L (Water (Fresh)) 0.04 mg/L (Water - Intermittent release) 0.002 mg/L (Water (Marine)) 0.526 mg/kg sediment dw (Sediment (Fresh Water)) 0.053 mg/kg sediment dw (Sediment (Marine)) 0.094 mg/kg soil dw (Soil) 8.55 mg/L (STP)
d-limonene	Dermal 0.418 mg/kg bw/day (Systemic, Chronic) Inhalation 15.4 mg/m³ (Systemic, Chronic) ***#Dermal 0.149 mg/kg bw/day (Systemic, Chronic) **** ***#Inhalation 0.00274 mg/m³ (Systemic, Chronic) **** ***#Oral 0.149 mg/kg bw/day (Systemic, Chronic) ****	0.014 mg/L (Water (Fresh)) 0.0014 mg/L (Water (Marine)) 3.85 mg/kg sediment dw (Sediment (Fresh Water)) 0.385 mg/kg sediment dw (Sediment (Marine)) 0.763 mg/kg soil dw (Soil) 1.8 mg/L (STP) 133 mg/kg food (Oral)
p-anisaldehyde	Dermal 3.33 mg/kg bw/day (Systemic, Chronic) Inhalation 5.88 mg/m³ (Systemic, Chronic) ***#Dermal 2 mg/kg bw/day (Systemic, Chronic) **** ***#Inhalation 0.00174 mg/m³ (Systemic, Chronic) **** ***#Oral 1 mg/kg bw/day (Systemic, Chronic) ****	0.013 mg/L (Water (Fresh)) 0.8111 mg/L (Water - Intermittent release) 0.0013 mg/L (Water (Marine)) 0.06 mg/kg sediment dw (Sediment (Fresh Water)) 0.006 mg/kg sediment dw (Sediment (Marine)) 0.004 mg/kg soil dw (Soil) 8.5 mg/L (STP)
ethyl butyl acetate	Not Available	0.00674 mg/L (Water (Fresh)) 0.0674 mg/L (Water - Intermittent release) 0.000674 mg/L (Water (Marine)) 0.136 mg/kg sediment dw (Sediment (Fresh Water)) 0.0136 mg/kg sediment dw (Sediment (Marine)) 0.0232 mg/kg soil dw (Soil) 10 mg/L (STP)
coumarin	Dermal 0.79 mg/kg bw/day (Systemic, Chronic) Inhalation 6.78 mg/m³ (Systemic, Chronic) ***#Dermal 0.39 mg/kg bw/day (Systemic, Chronic) **** ***#Inhalation 0.00169 mg/m³ (Systemic, Chronic) **** ***#Oral 0.39 mg/kg bw/day (Systemic, Chronic) ****	0.019 mg/L (Water (Fresh)) 0.0142 mg/L (Water - Intermittent release) 0.0019 mg/L (Water (Marine)) 0.15 mg/kg sediment dw (Sediment (Fresh Water)) 0.015 mg/kg sediment dw (Sediment (Marine)) 0.018 mg/kg soil dw (Soil) 6.4 mg/L (STP) 30.7 mg/kg food (Oral)
allyl phenoxyacetate	Dermal 0.875 mg/kg bw/day (Systemic, Chronic) Inhalation 2.47 mg/m³ (Systemic, Chronic) ***#Dermal 0.313 mg/kg bw/day (Systemic, Chronic) **** ***#Inhalation 0.000435 mg/m³ (Systemic, Chronic) **** ***#Oral 0.125 mg/kg bw/day (Systemic, Chronic) ****	0.000133 mg/L (Water (Fresh)) 0.00133 mg/L (Water - Intermittent release) 0.000013 mg/L (Water (Marine)) 0.00255 mg/kg sediment dw (Sediment (Fresh Water)) 0.000255 mg/kg sediment dw (Sediment (Marine))

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		0.00043 mg/kg soil dw (Soil) 0.2 mg/L (STP)
linalyl acetate	Dermal 2.5 mg/kg bw/day (Systemic, Chronic) Inhalation 2.75 mg/m³ (Systemic, Chronic) Dermal 0.2362 mg/cm² (Local, Chronic) Dermal 0.2362 mg/cm² (Local, Acute) ***#Dermal 1.25 mg/kg bw/day (Systemic, Chronic) **** ***#Inhalation 0.00068 mg/m³ (Systemic, Chronic) **** ***#Oral 0.2 mg/kg bw/day (Systemic, Chronic) **** ***#Dermal 0.2362 mg/cm² (Local, Chronic) **** ***#Dermal 1000 mg/cm² (Local, Acute) ****	0.011 mg/L (Water (Fresh)) 0.11 mg/L (Water - Intermittent release) 0.001 mg/L (Water (Marine)) 0.609 mg/kg sediment dw (Sediment (Fresh Water)) 0.061 mg/kg sediment dw (Sediment (Marine)) 0.115 mg/kg soil dw (Soil) 1 mg/L (STP)
linalool	Dermal 3.5 mg/kg bw/day (Systemic, Chronic) Inhalation 24.58 mg/m³ (Systemic, Chronic) Dermal 3 mg/cm² (Local, Chronic) Dermal 3 mg/cm² (Local, Acute) ***#Dermal 1.25 mg/kg bw/day (Systemic, Chronic) **** ***#Inhalation 0.00433 mg/m³ (Systemic, Chronic) **** ***#Oral 2.49 mg/kg bw/day (Systemic, Chronic) **** ***#Dermal 1.5 mg/cm² (Local, Chronic) **** ***#Dermal 1000 mg/cm² (Local, Acute) ****	0.2 mg/L (Water (Fresh)) 2 mg/L (Water - Intermittent release) 0.02 mg/L (Water (Marine)) 2.22 mg/kg sediment dw (Sediment (Fresh Water)) 0.222 mg/kg sediment dw (Sediment (Marine)) 0.327 mg/kg soil dw (Soil) 10 mg/L (STP) 7.8 mg/kg food (Oral)
ethanol	Dermal 343 mg/kg bw/day (Systemic, Chronic) Inhalation 380 mg/m³ (Systemic, Chronic) Inhalation 1900 mg/m³ (Local, Acute) ***#Dermal 206 mg/kg bw/day (Systemic, Chronic) **** ***#Inhalation 0.114 mg/m³ (Systemic, Chronic) **** ***#Oral 87 mg/kg bw/day (Systemic, Chronic) **** ***#Inhalation 950 mg/m³ (Local, Acute) ****	0.96 mg/L (Water (Fresh)) 2.75 mg/L (Water - Intermittent release) 0.79 mg/L (Water (Marine)) 3.6 mg/kg sediment dw (Sediment (Fresh Water)) 2.9 mg/kg sediment dw (Sediment (Marine)) 0.63 mg/kg soil dw (Soil) 580 mg/L (STP) 380 mg/kg food (Oral)
methanol	Dermal 20 mg/kg bw/day (Systemic, Chronic) Inhalation 130 mg/m³ (Systemic, Chronic) Inhalation 130 mg/m³ (Local, Chronic) Dermal 20 mg/kg bw/day (Systemic, Acute) Inhalation 130 mg/m³ (Systemic, Acute) Inhalation 130 mg/m³ (Local, Acute) ***#Dermal 4 mg/kg bw/day (Systemic, Chronic) **** ***#Inhalation 0.026 mg/m³ (Systemic, Chronic) **** ***#Oral 4 mg/kg bw/day (Systemic, Chronic) **** ***#Inhalation 26 mg/m³ (Local, Chronic) **** ***#Dermal 4 mg/kg bw/day (Systemic, Acute) **** ***#Inhalation 26 mg/m³ (Systemic, Acute) **** ***#Oral 4 mg/kg bw/day (Systemic, Acute) **** ***#Inhalation 26 mg/m³ (Local, Acute) ****	Not Available
methylal	Dermal 17.9 mg/kg bw/day (Systemic, Chronic) Inhalation 126.6 mg/m³ (Systemic, Chronic) ***#Dermal 18.1 mg/kg bw/day (Systemic, Chronic) **** ***#Inhalation 0.0315 mg/m³ (Systemic, Chronic) **** ***#Oral 18.1 mg/kg bw/day (Systemic, Chronic) ****	14.577 mg/L (Water (Fresh)) 1.477 mg/L (Water (Marine)) 13.135 mg/kg sediment dw (Sediment (Fresh Water)) 1.313 mg/kg sediment dw (Sediment (Marine)) 4.654 mg/kg soil dw (Soil) 10000 mg/L (STP)
allyl alcohol	Dermal 0.125 mg/kg bw/day (Systemic, Chronic) Inhalation 4.63 mg/m³ (Systemic, Chronic) Dermal 7.6 mg/kg bw/day (Systemic, Acute) Inhalation 12.1 mg/m³ (Systemic, Acute) Inhalation 12.1 mg/m³ (Local, Acute) ***#Oral 0.075 mg/kg bw/day (Systemic, Chronic) ****	0.0032 mg/L (Water (Fresh)) 0.0032 mg/L (Water - Intermittent release) 0.00032 mg/L (Water (Marine)) 0.0127 mg/kg sediment dw (Sediment (Fresh Water)) 0.00127 mg/kg sediment dw (Sediment (Marine)) 0.00368 mg/kg soil dw (Soil) 10 mg/L (STP) 0.33 mg/kg food (Oral)
triethylamine	Dermal 12.1 mg/kg bw/day (Systemic, Chronic) Inhalation 8.4 mg/m³ (Systemic, Chronic) Inhalation 8.4 mg/m³ (Local, Chronic) Inhalation 12.6 mg/m³ (Systemic, Acute) Inhalation 12.6 mg/m³ (Local, Acute)	0.11 mg/L (Water (Fresh)) 0.08 mg/L (Water - Intermittent release) 0.011 mg/L (Water (Marine)) 1.575 mg/kg sediment dw (Sediment (Fresh Water)) 0.158 mg/kg sediment dw (Sediment (Marine)) 0.25 mg/kg soil dw (Soil) 100 mg/L (STP)
sodium hydroxide	Inhalation 2.05 mg/m³ (Systemic, Chronic) Inhalation 1 mg/m³ (Local, Chronic) Inhalation 2 mg/m³ (Local, Acute) ***#Inhalation 0.00051 mg/m³ (Systemic, Chronic) **** ***#Inhalation 1 mg/m³ (Local, Chronic) ****	Not Available

Continued...

2-bromo-2-nitropropan-1,3-diol	Dermal 2 mg/kg bw/day (Systemic, Chronic) Inhalation 3.5 mg/m³ (Systemic, Chronic) Dermal 0.008 mg/cm² (Local, Chronic) Inhalation 2.5 mg/m³ (Local, Chronic) Dermal 6 mg/kg bw/day (Systemic, Acute) Inhalation 10.5 mg/m³ (Systemic, Acute) Dermal 0.008 mg/cm² (Local, Acute) Inhalation 2.5 mg/m³ (Local, Acute) ***#Dermal 0.7 mg/kg bw/day (Systemic, Chronic) **** ***#Inhalation 0.0006 mg/m³ (Systemic, Chronic) **** ***#Oral 0.18 mg/kg bw/day (Systemic, Chronic) **** ***#Dermal 0.004 mg/cm² (Local, Chronic) **** ***#Inhalation 0.6 mg/m³ (Local, Chronic) **** ***#Dermal 2.1 mg/kg bw/day (Systemic, Acute) **** ***#Inhalation 1.8 mg/m³ (Systemic, Acute) **** ***#Oral 0.5 mg/kg bw/day (Systemic, Acute) **** ***#Dermal 0.185 mg/cm² (Local, Acute) **** ***#Inhalation 0.6 mg/m³ (Local, Acute) ****	0.001 mg/L (Water (Fresh)) 0 mg/L (Water - Intermittent release) 0.001 mg/L (Water (Marine)) 0.021 mg/kg sediment dw (Sediment (Fresh Water)) 0.009 mg/kg sediment dw (Sediment (Marine)) 0.21 mg/kg soil dw (Soil) 0.43 mg/L (STP)
EDTA tetrasodium salt	Inhalation 1.5 mg/m³ (Systemic, Chronic) Inhalation 1.5 mg/m³ (Local, Chronic) Inhalation 3 mg/m³ (Systemic, Acute) Inhalation 3 mg/m³ (Local, Acute) ***#Oral 25 mg/kg bw/day (Systemic, Chronic) **** ***#Inhalation 0.6 mg/m³ (Local, Chronic) **** ***#Inhalation 1.2 mg/m³ (Local, Acute) ****	2.83 mg/L (Water (Fresh)) 1 mg/L (Water - Intermittent release) 0.283 mg/L (Water (Marine)) 1.1 mg/kg soil dw (Soil) 50 mg/L (STP)
nitrilotriacetic acid, trisodium salt	Inhalation 3.2 mg/m³ (Systemic, Chronic) Inhalation 5.25 mg/m³ (Systemic, Acute) ***#Inhalation 0.0008 mg/m³ (Systemic, Chronic) **** ***#Oral 0.3 mg/kg bw/day (Systemic, Chronic) **** ***#Inhalation 1.75 mg/m³ (Systemic, Acute) **** ***#Oral 0.5 mg/kg bw/day (Systemic, Acute) ****	0.93 mg/L (Water (Fresh)) 0.8 mg/L (Water - Intermittent release) 0.093 mg/L (Water (Marine)) 3.64 mg/kg sediment dw (Sediment (Fresh Water)) 0.364 mg/kg sediment dw (Sediment (Marine)) 0.182 mg/kg soil dw (Soil) 270 mg/L (STP) 0.2 mg/kg food (Oral)
white mineral oil (petroleum)	Dermal 217.05 mg/kg bw/day (Systemic, Chronic) Inhalation 164.56 mg/m³ (Systemic, Chronic) ***#Dermal 93.02 mg/kg bw/day (Systemic, Chronic) **** ***#Inhalation 0.03478 mg/m³ (Systemic, Chronic) **** ***#Oral 25 mg/kg bw/day (Systemic, Chronic) ****	Not Available

* Values for General Population

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available

EMERGENCY LIMITS

Ingredient	TEEL-1	TEEL-2	TEEL-3
benzyl acetate	30 ppm	330 ppm	2,000 ppm
d-limonene	15 ppm	67 ppm	170 ppm
p-anisaldehyde	21 mg/m3	230 mg/m3	300 mg/m3
coumarin	0.88 mg/m3	9.7 mg/m3	58 mg/m3
ethanol	Not Available	Not Available	15000* ppm
methanol	Not Available	Not Available	Not Available
methylal	230 ppm	2500* ppm	15000** ppm
allyl alcohol	Not Available	Not Available	Not Available
triethylamine	1 ppm	170 ppm	1,000 ppm
sodium hydroxide	Not Available	Not Available	Not Available
EDTA tetrasodium salt	75 mg/m3	830 mg/m3	5,000 mg/m3
EDTA tetrasodium salt	82 mg/m3	900 mg/m3	5,500 mg/m3

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nitrilotriacetic acid, trisodium salt	1.6 mg/m3	18 mg/m3	110 mg/m3
white mineral oil (petroleum)	140 mg/m3	1,500 mg/m3	8,900 mg/m3

Ingredient	Original IDLH	Revised IDLH
ethyl butyrate	Not Available	Not Available
benzyl acetate	Not Available	Not Available
d-limonene	Not Available	Not Available
p-anisaldehyde	Not Available	Not Available
ethyl butyl acetate	Not Available	Not Available
coumarin	Not Available	Not Available
allyl phenoxyacetate	Not Available	Not Available
alpha-amylcinnamaldehyde	Not Available	Not Available
linalyl acetate	Not Available	Not Available
linalool	Not Available	Not Available
ethanol	Not Available	Not Available
methanol	6,000 ppm	Not Available
methylal	Not Available	Not Available
allyl alcohol	20 ppm	Not Available
triethylamine	200 ppm	Not Available
sodium hydroxide	10 mg/m3	Not Available
2-bromo-2-nitropropan-1,3-diol	Not Available	Not Available
EDTA tetrasodium salt	Not Available	Not Available
nitrilotriacetic acid, trisodium salt	Not Available	Not Available
sodium xylenesulfonate	Not Available	Not Available
white mineral oil (petroleum)	2,500 mg/m3	Not Available

OCCUPATIONAL EXPOSURE BANDING

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
ethyl butyrate	C	> 1 to ≤ 10 parts per million (ppm)
benzyl acetate	C	> 1 to ≤ 10 parts per million (ppm)
d-limonene	C	> 1 to ≤ 10 parts per million (ppm)
p-anisaldehyde	C	> 1 to ≤ 10 parts per million (ppm)
ethyl butyl acetate	C	> 1 to ≤ 10 parts per million (ppm)
coumarin	E	≤ 0.01 mg/m³
allyl phenoxyacetate	D	> 0.1 to ≤ 1 ppm
alpha-amylcinnamaldehyde	D	> 0.1 to ≤ 1 ppm
linalyl acetate	D	> 0.1 to ≤ 1 ppm
linalool	C	> 1 to ≤ 10 parts per million (ppm)
methanol	E	≤ 0.1 ppm
methylal	C	> 1 to ≤ 10 parts per million (ppm)
allyl alcohol	C	> 1 to ≤ 10 parts per million (ppm)
triethylamine	E	≤ 0.1 ppm
sodium hydroxide	E	≤ 0.01 mg/m³
2-bromo-2-nitropropan-1,3-diol	E	≤ 0.01 mg/m³
EDTA tetrasodium salt	E	≤ 0.01 mg/m³
nitrilotriacetic acid, trisodium	E	≤ 0.01 mg/m³

Continued...

salt		
sodium xylenesulfonate	C	> 0.1 to ≤ milligrams per cubic meter of air (mg/m³)
Notes:	***Occupational exposure banding is a process of assigning chemicals into specific categories or bands based on a chemical's potency and the adverse health outcomes associated with exposure. The output of this process is an occupational exposure band (OEB), which corresponds to a range of exposure concentrations that are expected to protect worker health.***	

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.
The basic types of engineering controls are:
Process controls which involve changing the way a job activity or process is done to reduce the risk.
Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.
Employers may need to use multiple types of controls to prevent employee overexposure.

- Employees exposed to confirmed human carcinogens should be authorized to do so by the employer, and work in a regulated area.
- Work should be undertaken in an isolated system such as a "glove-box" . Employees should wash their hands and arms upon completion of the assigned task and before engaging in other activities not associated with the isolated system.
- Within regulated areas, the carcinogen should be stored in sealed containers, or enclosed in a closed system, including piping systems, with any sample ports or openings closed while the carcinogens are contained within.
- Open-vessel systems are prohibited.
- Each operation should be provided with continuous local exhaust ventilation so that air movement is always from ordinary work areas to the operation.
- Exhaust air should not be discharged to regulated areas, non-regulated areas or the external environment unless decontaminated. Clean make-up air should be introduced in sufficient volume to maintain correct operation of the local exhaust system.
- For maintenance and decontamination activities, authorized employees entering the area should be provided with and required to wear clean, impervious garments, including gloves, boots and continuous-air supplied hood. Prior to removing protective garments the employee should undergo decontamination and be required to shower upon removal of the garments and hood.
- Except for outdoor systems, regulated areas should be maintained under negative pressure (with respect to non-regulated areas).
- Local exhaust ventilation requires make-up air be supplied in equal volumes to replaced air.
- Laboratory hoods must be designed and maintained so as to draw air inward at an average linear face velocity of 0.76 m/sec with a minimum of 0.64 m/sec. Design and construction of the fume hood requires that insertion of any portion of the employees body, other than hands and arms, be disallowed.

8.2.2. Individual protection measures, such as personal protective equipment

Eye and face protection

- Safety glasses with side shields.
- Chemical goggles. [AS/NZS 1337.1, EN166 or national equivalent]
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation - lens should be removed in a clean environment only after workers have washed hands thoroughly. [CDC NIOSH Current Intelligence Bulletin 59].

Skin protection

See Hand protection below

Hands/feet protection

- Wear chemical protective gloves, e.g. PVC.
- Wear safety footwear or safety gumboots, e.g. Rubber

The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice.
Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.
Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include:
· frequency and duration of contact,
· chemical resistance of glove material,
· glove thickness and
· dexterity
Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).

Continued...

	· When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended. · When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended. · Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use. · Contaminated gloves should be replaced. As defined in ASTM F-739-96 in any application, gloves are rated as: · Excellent when breakthrough time > 480 min · Good when breakthrough time > 20 min · Fair when breakthrough time < 20 min · Poor when glove material degrades For general applications, gloves with a thickness typically greater than 0.35 mm, are recommended. It should be emphasised that glove thickness is not necessarily a good predictor of glove resistance to a specific chemical, as the permeation efficiency of the glove will be dependent on the exact composition of the glove material. Therefore, glove selection should also be based on consideration of the task requirements and knowledge of breakthrough times. Glove thickness may also vary depending on the glove manufacturer, the glove type and the glove model. Therefore, the manufacturers technical data should always be taken into account to ensure selection of the most appropriate glove for the task. Note: Depending on the activity being conducted, gloves of varying thickness may be required for specific tasks. For example: · Thinner gloves (down to 0.1 mm or less) may be required where a high degree of manual dexterity is needed. However, these gloves are only likely to give short duration protection and would normally be just for single use applications, then disposed of. · Thicker gloves (up to 3 mm or more) may be required where there is a mechanical (as well as a chemical) risk i.e. where there is abrasion or puncture potential Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.
Body protection	See Other protection below
Other protection	• Employees working with confirmed human carcinogens should be provided with, and be required to wear, clean, full body protective clothing (smocks, coveralls, or long-sleeved shirt and pants), shoe covers and gloves prior to entering the regulated area. [AS/NZS ISO 6529:2006 or national equivalent] • Employees engaged in handling operations involving carcinogens should be provided with, and required to wear and use half-face filter-type respirators with filters for dusts, mists and fumes, or air purifying canisters or cartridges. A respirator affording higher levels of protection may be substituted. [AS/NZS 1715 or national equivalent] • Emergency deluge showers and eyewash fountains, supplied with potable water, should be located near, within sight of, and on the same level with locations where direct exposure is likely. • Prior to each exit from an area containing confirmed human carcinogens, employees should be required to remove and leave protective clothing and equipment at the point of exit and at the last exit of the day, to place used clothing and equipment in impervious containers at the point of exit for purposes of decontamination or disposal. The contents of such impervious containers must be identified with suitable labels. For maintenance and decontamination activities, authorized employees entering the area should be provided with and required to wear clean, impervious garments, including gloves, boots and continuous-air supplied hood. • Prior to removing protective garments the employee should undergo decontamination and be required to shower upon removal of the garments and hood. • Overalls. • P.V.C apron. • Barrier cream. • Skin cleansing cream. • Eye wash unit.

Recommended material(s)

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:
"Forsberg Clothing Performance Index".
The effect(s) of the following substance(s) are taken into account in the ***computer-generated*** selection:
Screenwash -10°C Bubblegum

Material	CPI
BUTYL	C
BUTYL/NEOPRENE	C
NAT+NEOPR+NITRILE	C
NATURAL RUBBER	C
NATURAL+NEOPRENE	C
NEOPRENE	C
NEOPRENE/NATURAL	C
NITRILE	C
NITRILE+PVC	C

Respiratory protection

Type KAX-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant. Protection Factors (defined as the ratio of contaminant outside and inside the mask) may also be important.

Required minimum protection factor	Maximum gas/vapour concentration present in air p.p.m. (by volume)	Half-face Respirator	Full-Face Respirator
up to 10	1000	KAX-AUS / Class1 P2	-
up to 50	1000	-	KAX-AUS / Class 1 P2
up to 50	5000	Airline *	-
up to 100	5000	-	KAX-2 P2
up to 100	10000	-	KAX-3 P2

Continued...

PE	C
PE/EVAL/PE	C
PVA	C
PVC	C
PVDC/PE/PVDC	C
SARANEX-23	C
SARANEX-23 2-PLY	C
TEFLON	C
VITON	C
VITON/CHLOROBUTYL	C
VITON/NEOPRENE	C

* CPI - Chemwatch Performance Index
A: Best Selection
B: Satisfactory; may degrade after 4 hours continuous immersion
C: Poor to Dangerous Choice for other than short term immersion
NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -
* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

100+			Airline**

* - Continuous Flow ** - Continuous-flow or positive pressure demand
A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO2), G = Agricultural chemicals, K = Ammonia(NH3), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

- Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content.
- The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate.
- Cartridge performance is affected by humidity. Cartridges should be changed after 2 hr of continuous use unless it is determined that the humidity is less than 75%, in which case, cartridges can be used for 4 hr. Used cartridges should be discarded daily, regardless of the length of time used

8.2.3. Environmental exposure controls

See section 12

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	Not Available

Physical state	Liquid	**Relative density (Water = 1)**	Not Available
Odour	Not Available	**Partition coefficient n-octanol / water**	Not Available
Odour threshold	Not Available	**Auto-ignition temperature (°C)**	Not Available
pH (as supplied)	7.5-9.0	**Decomposition temperature (°C)**	Not Available
Melting point / freezing point (°C)	Not Available	**Viscosity (cSt)**	Not Available
Initial boiling point and boiling range (°C)	Not Available	**Molecular weight (g/mol)**	Not Available
Flash point (°C)	Not Available	**Taste**	Not Available
Evaporation rate	Not Available	**Explosive properties**	Not Available
Flammability	Not Applicable	**Oxidising properties**	Not Available
Upper Explosive Limit (%)	Not Available	**Surface Tension (dyn/cm or mN/m)**	Not Available
Lower Explosive Limit (%)	Not Available	**Volatile Component (%vol)**	Not Available
Vapour pressure (kPa)	Not Available	**Gas group**	Not Available
Solubility in water	Soluble	**pH as a solution (1%)**	Not Available
Vapour density (Air = 1)	Not Available	**VOC g/L**	Not Available
Heat of Combustion (kJ/g)	Not Available	**Ignition Distance (cm)**	Not Available
Flame Height (cm)	Not Available	**Flame Duration (s)**	Not Available
Enclosed Space Ignition Time Equivalent (s/m3)	Not Available	**Enclosed Space Ignition Deflagration Density**	Not Available

Continued...

		(g/m3)	
Nanoform Solubility	Not Available	**Nanoform Particle Characteristics**	Not Available
Particle Size	Not Available		

9.2. Other information

Not Available

SECTION 10 STABILITY AND REACTIVITY

10.1. Reactivity	See section 7.2
10.2. Chemical stability	• Unstable in the presence of incompatible materials. • Product is considered stable. • Hazardous polymerisation will not occur.
10.3. Possibility of hazardous reactions	See section 7.2
10.4. Conditions to avoid	See section 7.2
10.5. Incompatible materials	See section 7.2
10.6. Hazardous decomposition products	See section 5.3

SECTION 11 TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Inhaled	The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage. Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by sleepiness, reduced alertness, loss of reflexes, lack of co-ordination, and vertigo. Animal testing shows that the most common signs of inhalation overdose is inco-ordination and drowsiness.
Ingestion	Ingestion of ethanol (ethyl alcohol, "alcohol") may produce nausea, vomiting, bleeding from the digestive tract, abdominal pain, and diarrhoea. Effects on the body:

Blood concentration	Effects
<1.5 g/L	Mild: impaired vision, co-ordination and reaction time; emotional instability
1.5-3.0 g/L	Moderate: Slurred speech, confusion, inco-ordination, emotional instability, disturbances in perception and senses, possible blackouts, and impaired objective performance in standardized tests. Possible double vision, flushing, fast heart rate, sweating and incontinence. Slow breathing may occur rarely and fast breathing may develop in cases of metabolic acidosis, low blood sugar and low blood potassium. Central nervous system depression may progress to coma.
3-5 g/L	Severe: cold clammy skin, low body temperature and low blood pressure. Atrial fibrillation and heart block have been reported. Depression of breathing may occur, respiratory failure may follow serious poisoning, choking on vomit may result in lung inflammation and swelling. Convulsions due to severe low blood sugar may also occur. Acute liver inflammation may develop.

Continued...

	The material has **NOT** been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence.
Skin Contact	Skin contact with the material may damage the health of the individual; systemic effects may result following absorption. There is some evidence to suggest that this material can cause inflammation of the skin on contact in some persons. Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.
Eye	This material can cause eye irritation and damage in some persons. Direct contact of the eye with ethanol (alcohol) may cause an immediate stinging and burning sensation, with reflex closure of the lid, and a temporary, tearing injury to the cornea together with redness of the conjunctiva. Discomfort may last 2 days but usually the injury heals without treatment.
Chronic	Repeated or long-term occupational exposure is likely to produce cumulative health effects involving organs or biochemical systems. Long-term exposure to respiratory irritants may result in airways disease, involving difficulty breathing and related whole-body problems. There is sufficient evidence to suggest that this material directly causes cancer in humans. Toxic: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed. This material can cause serious damage if one is exposed to it for long periods. It can be assumed that it contains a substance which can produce severe defects. Ample evidence exists, from results in experimentation, that developmental disorders are directly caused by human exposure to the material. Prolonged exposure to ethanol may cause damage to the liver and cause scarring. It may also worsen damage caused by other agents. A number of common flavor and fragrance chemicals can form peroxides surprisingly fast in air. Antioxidants can in most cases minimize the oxidation. Fragrance terpenes are easily oxidized in air. Non-oxidised forms are very weak sensitizers; however, after oxidation, the hyproperoxides are strong sensitisers which may cause allergic reactions. Autooxidation of fragrance terpenes contributes greatly to fragrance allergy. There is the need to test for compounds the patients are actually exposed to, not only the ingredients originally applied in commercial formulations. Peroxidisable terpenes and terpenoids should only be used when the level of peroxides is kept to the lowest practicable level, for instance by adding antioxidants at the time of production. This should be less than 10 millimoles of peroxide per litre. This is because peroxides may have sensitizing properties.

Screenwash -10°C Bubblegum	TOXICITY	IRRITATION
	Not Available	Not Available

ethyl butyrate	TOXICITY	IRRITATION
	dermal (rat) LD50: >2000 mg/kg [1]	Eye: adverse effect observed (irritating) [1]
	Inhalation (Rat) LC50: >1.845 mg/L4h [1]	Skin (Rodent - rabbit): 500mg/24H - Moderate
	Oral (Rat) LD50: >2000 mg/kg [1]	Skin: no adverse effect observed (not irritating) [1]

benzyl acetate	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: >5000 mg/kg [2]	Eye: no adverse effect observed (not irritating) [1]
	Oral (Rat) LD50: 2490 mg/kg [2]	Skin (Rodent - rabbit): 100mg/24H - Moderate
		Skin: no adverse effect observed (not irritating) [1]

d-limonene	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: >5000 mg/kg [2]	Eye: no adverse effect observed (not irritating) [1]
	Oral (Rat) LD50: >2000 mg/kg [1]	Skin (Rodent - mouse): 700mg/7D (intermittent) - Severe
		Skin (Rodent - rabbit): 10%/24H - Mild
		Skin (Rodent - rabbit): 500mg/24H - Moderate
		Skin (Rodent - rat): 100%/1H
		Skin: no adverse effect observed (not irritating) [1]

p-anisaldehyde	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: >5000 mg/kg [2]	Skin (Rodent - rabbit): 500mg/24H - Moderate

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	Oral (Guinea) LD50; 1260 mg/kg [2]	
ethyl butyl acetate	**TOXICITY**	**IRRITATION**
	dermal (rat) LD50: >2000 mg/kg [1]	Eye: no adverse effect observed (not irritating) [1]
	Oral (Rat) LD50: >5000 mg/kg [1]	Skin (Rodent - rabbit): 500mg/24H - Moderate
		Skin: adverse effect observed (irritating) [1]
coumarin	**TOXICITY**	**IRRITATION**
	dermal (rat) LD50: 293 mg/kg [1]	Skin (Human - man): 5%
	Oral (Rat) LD50: ~290 mg/kg [1]	Skin (Human): 5%/2D
allyl phenoxyacetate	**TOXICITY**	**IRRITATION**
	dermal (rat) LD50: 820 mg/kg [2]	Eye: no adverse effect observed (not irritating) [1]
	Oral (Rat) LD50: 522.5 mg/kg [2]	Skin (Human): 2/24H
		Skin: no adverse effect observed (not irritating) [1]
alpha-amylcinnamaldehyde	**TOXICITY**	**IRRITATION**
	Dermal (rabbit) LD50: >2000 mg/kg [1]	Eye: no adverse effect observed (not irritating) [1]
	Oral (Rat) LD50: 3730 mg/kg [2]	Skin (Human): 1%/2D
		Skin (Rodent - guinea pig): 100mg/24H - Moderate
		Skin (Rodent - guinea pig): 5%/2W - Mild
		Skin (Rodent - rabbit): 100mg/24H - Severe
		Skin: no adverse effect observed (not irritating) [1]
linalyl acetate	**TOXICITY**	**IRRITATION**
	Dermal (rabbit) LD50: >5000 mg/kg [2]	Skin (Rodent - guinea pig): 100mg/24H - Moderate
	Oral (Mouse) LD50; 12000 mg/kg [2]	Skin (Rodent - rabbit): 100mg/24H - Severe
linalool	**TOXICITY**	**IRRITATION**
	dermal (rat) LD50: 5610 mg/kg [2]	Eye (Rodent - rabbit): 0.1mL/1H - Moderate
	Oral (Rat) LD50: 2790 mg/kg [2]	Eye (Rodent - rabbit): 100uL - Moderate
		Eye: adverse effect observed (irritating) [1]
		Skin (Human - man): 16mg/48H - Mild
		Skin (Human): 10%/2D
		Skin (Human): 32%/72H - Mild
		Skin (Rodent - guinea pig): 100mg/24H - Moderate
		Skin (Rodent - rabbit): 100mg/24H - Severe
		Skin (Rodent - rabbit): 500mg/24H - Mild
		Skin: adverse effect observed (irritating) [1]
ethanol	**TOXICITY**	**IRRITATION**
	Dermal (rabbit) LD50: 17100 mg/kg [1]	Eye (Rodent - rabbit): 0.1mL
	Inhalation (Rat) LC50: 64000 ppm4h [2]	Eye (Rodent - rabbit): 100mg/4S - Moderate
	Oral (Rat) LD50: 7060 mg/kg [2]	Eye (Rodent - rabbit): 100uL - Moderate
		Eye (Rodent - rabbit): 500mg - Severe
		Eye (Rodent - rabbit): 500mg/24H - Mild

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		Eye: adverse effect observed (irritating) [1]
		Eye: no adverse effect observed (not irritating) [1]
		Skin (Human): 70%/2D
		Skin (Rodent - rabbit): 20mg/24H - Moderate
		Skin (Rodent - rabbit): 400mg - Mild
		Skin: no adverse effect observed (not irritating) [1]

	TOXICITY	IRRITATION
methanol	Dermal (rabbit) LD50: 15800 mg/kg [2]	Eye (Rodent - rabbit): 0.1mL
	Inhalation (Rat) LC50: 64000 ppm4h [2]	Eye (Rodent - rabbit): 0.1mL - Severe
	Oral (Rat) LD50: 5628 mg/kg [2]	Eye (Rodent - rabbit): 100mg/24H - Moderate
		Eye (Rodent - rabbit): 40mg - Moderate
		Eye: no adverse effect observed (not irritating) [1]
		Skin (Rodent - rabbit): 20mg/24H - Moderate
		Skin: no adverse effect observed (not irritating) [1]

	TOXICITY	IRRITATION
methylal	Dermal (rabbit) LD50: >5000 mg/kg [1]	Eye (Rodent - rabbit): 100uL - Moderate
	Inhalation (Rat) LC50: 3000 ppm4h [2]	Skin: no adverse effect observed (not irritating) [1]
	Oral (Rabbit) LD50; 5708 mg/kg [2]	

	TOXICITY	IRRITATION
allyl alcohol	Dermal (rabbit) LD50: 45 mg/kg [2]	Eye (Human): 25ppm - Severe
	Inhalation (Rat) LC50: >100 ppm4h [1]	Eye (Rodent - rabbit): 0.1mL
	Oral (Rat) LD50: 64 mg/kg [2]	Eye (Rodent - rabbit): 20mg - Severe
		Eye: adverse effect observed (irritating) [1]
		Skin (Rodent - rabbit): 0.5mL - Mild
		Skin (Rodent - rabbit): 10mg/24H
		Skin: adverse effect observed (irritating) [1]

	TOXICITY	IRRITATION
triethylamine	Dermal (rabbit) LD50: 570 mg/kg [2]	Eye: adverse effect observed (irritating) [1]
	Inhalation (Rat) LC50: 3.675 mg/l4h [1]	Skin (Rodent - rabbit): 365mg - Mild
	Oral (Cat) LD50; >370<730 mg/kg [1]	Skin: adverse effect observed (corrosive) [1]
		Skin: adverse effect observed (irritating) [1]

	TOXICITY	IRRITATION
sodium hydroxide	Dermal (rabbit) LD50: 1350 mg/kg [2]	Eye (Primate - monkey): 1%/24H - Severe
	Oral (Rabbit) LD50; 325 mg/kg [1]	Eye (Rodent - rabbit): 1% - Severe
		Eye (Rodent - rabbit): 100mg
		Eye (Rodent - rabbit): 1mg/24H - Severe
		Eye (Rodent - rabbit): 1mg/30S - Severe
		Eye (Rodent - rabbit): 400ug - Mild
		Eye (Rodent - rabbit): 50ug/24H - Severe
		Eye: adverse effect observed (irritating) [1]

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		Skin (Human): 0.15%/96H
		Skin (Human): 2.50%/24H
		Skin (Human): 2%/24H - Mild
		Skin (Rodent - rabbit): 500mg/24H - Severe
		Skin: adverse effect observed (corrosive) [1]

2-bromo-2-nitropropan-1,3-diol	TOXICITY	IRRITATION
	dermal (rat) LD50: ~1600 mg/kg [1]	Eye (Rodent - rabbit): 5mg
	Inhalation (Rat) LC50: >0.12<1.14 mg/l4h [1]	Eye: adverse effect observed (irreversible damage) [1]
	Oral (Rat) LD50: 180 mg/kg [2]	Skin (Human): 10mg - Moderate
		Skin (Rodent - rabbit): 500mg/24H - Mild
		Skin (Rodent - rabbit): 80mg - Moderate
		Skin (Rodent - rat): 0.2%
		Skin: adverse effect observed (irritating) [1]

EDTA tetrasodium salt	TOXICITY	IRRITATION
	Oral (Rat) LD50: 630 mg/kg [2]	Eye (Rodent - rabbit): 100mg/24H - Moderate
		Eye (Rodent - rabbit): 1900ug
		Eye: adverse effect observed (irritating) [1]
		Skin (Human - man): 0.2%
		Skin (Rodent - rabbit): 500mg/24H - Moderate
		Skin: no adverse effect observed (not irritating) [1]

nitrilotriacetic acid, trisodium salt	TOXICITY	IRRITATION
	Inhalation (Rat) LC50: >5 mg/l4h [2]	Eye: adverse effect observed (irritating) [1]
	Oral (Rat) LD50: 1100 mg/kg [2]	Skin: no adverse effect observed (not irritating) [1]

sodium xylenesulfonate	TOXICITY	IRRITATION
	Oral (Rat) LD50: >10 mg/kg [2]	Eye: adverse effect observed (irritating) [1]
		Skin: no adverse effect observed (not irritating) [1]

white mineral oil (petroleum)	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: >2000 mg/kg [1]	Eye: no adverse effect observed (not irritating) [1]
	Inhalation (Rat) LC50: >4.5 mg/l4h [1]	Skin: no adverse effect observed (not irritating) [1]
	Oral (Rat) LD50: >5000 mg/kg [2]	

Legend:	***1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances***

p-anisaldehyde	A member or analogue of a group of hydroxy and alkoxy-substituted benzyl derivatives generally regarded as safe (GRAS) based in part on their self-limiting properties as flavouring substances in food; their rapid absorption. metabolic detoxification, and excretion in humans and other animals, their low level of flavour use, the wide margin of safety between the conservative estimates of intake and the no-observed-adverse effect levels determined from chronic and subchronic studies and the lack of significant genotoxic and mutagenic potential. This evidence of safety is supported by the fact that the intake of benzyl derivatives as natural components of traditional foods is greater than the intake as intentionally added flavouring substances. All members of this group are aromatic primary alcohols, aldehydes, carboxylic acids or their corresponding esters or acetals. The structural features common to all members of the group is a primary oxygenated functional group bonded directly to a benzene ring. The ring also contains hydroxy or alkoxy substituents. The hydroxy- and alkoxy- substituted benzyl derivatives are raidly absorbed by the gastrointestinal tract, metabolised in the liver to yield benzoic acid derivatives and excreted primarily in the urine either unchanged or conjugated. It is expected than aromatic esters and acetals will be hydrolysed in vivo through the catalytic activity of carboxylesterases, (A-esterases), Acetals hydrolyse uncatalysed in gastric juices and intestinal fluids to yield acetaldehydes. Substituted benzyl esters

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	and benzaldehyde acetals are hydrolysed to the corresponding alcoholic alcohols and carboxylic acid. In general hydroxy- and alkoxy- derivatives of benzaldehyde and benzyl alcohol are oxidised to the corresponding benzoic aid derivatives and, to a lesser extent reduced to corresponding benzyl alcohol derivatives. Following conjugation these are excreted in the urine. Benzyl alcohol derivatives may also be reduced in gut microflora to toluene derivatives. Flavor and Extract Manufacturers Association (FEMA)
allyl phenoxyacetate	* Calculated.
methylal	For acetals: Aliphatic acetals are reported to have little acute toxicity if given by mouth. They are generally broken down to their corresponding aldehydes and alcohols within several hours in the stomach and bowel; in the liver, they are expected, in humans, to be converted to alcohols and acids. There is not enough data to rule out significant amounts of the original acetals reaching the general circulation. The component alcohols and aldehydes are divided into linear, alpha,beta-unsaturated and branched chain structural types which differ in their breakdown process. The first two types are generally oxidised to carboxylic acids; branched-chain aliphatic aldehydes have been reported to be mainly oxidised to more polar breakdown products which are mainly excreted in the urine as a mixture of diacids and hydroxyacids.
allyl alcohol	Animal studies show that allyl alcohol is broken down in the liver to many products, including acrolein, which is toxic to the liver. Acrolein is also potentially toxic to the heart. Allyl alcohol is slightly irritating to the skin, eyes and lining of the nose. The substance has been harmful to the kidney in rats. It is uncertain whether allyl alcohol causes genetic damage or cancer. It is harmful to the foetus at sufficient doses, although this is at levels that are harmful to the mother.
2-bromo-2-nitropropan-1,3-diol	Chemical with the aliphatic nitro group (-C-NO2) have been added to a list of DNA-reactive subgroups recognised by the National Toxicological Program (NTP, U.S. Dept Health and Human Services) for possible carcinogenic activity.
sodium xylenesulfonate	Toxicological data is available and well documented for representative toluene, xylene and cumene sulfonates (including sodium, potassium, ammounium and calcium salts). These data show that hydrotropes have low toxicity for all routes, do not cause genetic damage, show no evidence of causing cancer in long-term skin studies, and have not caused birth defects, developmental defects or reduced fertility. <
benzyl acetate	Neoplastic by RTECS criteria This is a member or analogue of a group of benzyl derivatives generally regarded as safe (GRAS), based partly on their self-limiting properties as flavouring substances in food. In humans and other animals, they are rapidly absorbed, broken down and excreted, with a wide safety margin. They also lack significant potential to cause genetic toxicity and mutations. The intake of benzyl derivatives as natural components of traditional foods is actually higher than the intake as intentionally added flavouring substances. Aryl alkyl alcohol simple acid ester derivates (AAASAE) have a low level of acute toxicity. Repeat-dose toxicity tests did not show significant toxicity. Testing did not show any evidence of AAASAE to have potential to cause cancer, mutations or genetic toxicity. At expected exposure levels, there is no evidence that AAASAE causes adverse effects on reproduction or development. In general there are currently no safety concerns regarding AAASAE at current levels of use and exposure. The aryl alkyl alcohol (AAA) fragrance ingredients have diverse chemical structures, with similar metabolic and toxicity profiles. The AAA fragrances demonstrate low acute and subchronic toxicity by skin contact and swallowing. At concentrations likely to be encountered by consumers, AAA fragrance ingredients are non-irritating to the skin. The potential for eye irritation is minimal. With the exception of benzyl alcohol, phenethyl and 2-phenoxyethyl AAA alcohols, testing in humans indicate that AAA fragrance ingredients generally have no or low sensitization potential. Available data indicate that the potential for photosensitization is low. Testing suggests that at current human exposure levels, this group of chemicals does not cause maternal or developmental toxicity. Animal testing shows no cancer-causing evidence, with little or no genetic toxicity. It has been concluded that these materials would not present a safety concern at current levels of use, as fragrance ingredients.
d-limonene	Tumorigenic by RTECS criteria Epoxidation of double bonds is a common bioactivation pathway for alkenes. The allylic epoxides formed were found to be sensitizing. Research has shown that conjugated dienes in or in conjunction with a six-membered ring are prohaptens, while related dienes containing isolated double bonds or an acrylic conjugated diene were weak or non-sensitising. Monomethyltin chloride, thioglycolate esters, and tall oil ester reaction product: Monomethyltin trichloride (MMTC, CAS RN: 993-16-8), monomethyltin tris[2-ethylhexylmercaptoacetate (MMT (EHTG; MMT (2-EHMA), CAS RN: 57583-34-3), monomethyltin tris[isooctylmercaptoacetate (MMT(IOTG), CAS RN: 54849-38-6) and methyltin reverse ester tallate reaction product (TERP, CAS RNs: 201687-58-3, 201687-57-2, 68442-12-6, 151436-98-5) are considered one category of compounds for mammalian studies via the oral route. The justification for this category is based on structural similarities and the demonstrated rapid conversion of all of the esters to the MMTC when placed in simulated mammalian gastric contents [0.07M HCl] under physiological conditions. For the MMT(EHTG) >90% conversion to MMTC occurred within 0.5 hours. For TERP, 68% of the monomethyltin portion of the compound was converted to MMTC within 1 hour. Thus, MMTC is the appropriate surrogate for mammalian toxicology studies via the oral route. TERP is a reaction product of MMTC and dimethyltin dichloride (DMTC), Na2S, and tall oil fatty acid [a mixture of carboxylic acids, predominantly C-18]. The reaction product is a mixture of carboxylic esters and includes short oligomers of mono/dimethyltins bridged by sulfide groups. Although the tall oil component of TERP is not structurally similar to EHTG, TERP s conversion to MMTC justifies its inclusion. While the contribution of the various ligands to the overall toxicity may vary, the contribution is expected to be small relative to that of the MMTC. Further, the EHTG ligand from MMT(EHTG) is likely to be more toxic than the oleic or linoleic acid from TERP so inclusion of TERP in the category is a rather conservative approach. The other possible degradate of tall oil and EHTG is 2-mercaptoethanol (2-ME), and it is common to both ligands. Data for MMT(EHTG) and MMT(IOTG) are used interchangeably because they are isomers differing only slightly in the structure of the C-8 alcohol of the mercaptoester ligand. In addition, the breakdown products of MMT(EHTG) and MMT(IOTG) are the thioglycolate esters (EHTG and IOTG), which have the common degradates, thioglycolic acid and C-8 alcohols (either 2-ethylhexanol or isooctanol). EHTG and IOTG also have similar physicochemical and toxicological properties. The chemistry of the alkyl organotins has been well studied. For organotins, like MMT(EHTG), the alkyl groups are strongly bound to tin and remain bound to tin under most reaction conditions. However, other ligands, such as carboxylates or sulfur based ligands (EHTG), are more labile and are readily replaced under mild reaction conditions. To assess the reactivity of

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MMT(EHTG) under physiological conditions simulating the mammalian stomach, an in-vitro hydrolysis test was performed. This in vitro test provides chemical information that strongly suggests both the probable in vivo metabolic pathway and the toxicokinetics of the MMT(EHTG) substance. This result verifies that under physiological conditions MMT(EHTG) is rapidly and essentially completely converted to the corresponding monomethyltin chloride, MMTC.
Acute toxicity:
The majority of toxicology studies were conducted with commercial mixtures having high monoalkyltin to dialkyltin ratios.
Gastric hydrolysis studies were conducted with TERP and MMT(EHTG) in which simulated gastric fluid [0.07M HCl under physiological conditions] converted these substances to methyltin chloride and the respective organic acids. Based on data for DMTC and DMT esters the dermal penetration of MMTC and its esters is expected to be low.
Oral:
Acute oral LD50 values for MMTC, MMT(EHTG), MMT(IOTG), and TERP indicated low to moderate toxicity; the most reliable data place the LD50s in the range of 1000 mg/kg.
The acute oral LD50 of MMT(2-EHMA) was 880 mg/kg in rats. Clinical observations included depression, comatose, piloerection, eye squinting, hunched posture, laboured breathing, ataxia, faecal/urine stains, and masticatory movement. No gross pathological changes were reported in surviving animals.
Dermal
Acute dermal LD50 values were =1000 mg/kg bw, and inhalation LC50 was >200 mg/L. MMTC was corrosive to skin and assumed corrosive to eyes.
The acute dermal LD50 of MMT(2-EHMA) in rabbits was 1000 (460 to 2020) mg/kg for females and 2150 (1000 to 4620) mg/kg for males. There were no deaths at 215 and 464 mg/kg, 0/2 males and 1/2 females died at 1000 mg/kg and 1/2 males and 2/2 females died at 2150 mg/kg. All animals died at 4640 and 10 000 mg/kg. A variety of clinical abnormalities were observed and disappeared in surviving animals by the end of the exposure period. Clinical signs included death, uncoordinated movements, shaking, and hypersensitivity to external stimuli.
Gross necropsy results for animals that died during the study included irritated intestines; blanched stomach; reddened lungs; pale or congested kidneys; and oral, ocular and/or nasal discharges
Inhalation:
The acute inhalation LC50 of MMT(2-EHMA) was 240 mg/L.
The study reported an acute inhalation LC50 of 240 (212 to 271) mg/L in a 1-hr aerosol exposure to male and female rats. The mortality rate was 2/10, 6/10, 9/10 and 10/10 animals at dose levels of 200, 250, 300 and 250 mg/L/hr, respectively. Gross findings included blood in lungs, dark spleen, pale kidneys, fluid in the chest cavity, and heart failure. The slope of the dose-response curve was 1.22 (1.04 to 1.43).
Irritation:
MMT(IOTG)/(EHTG) are irritating to skin, but not to eyes.
Sensitisation:
No data on sensitization are available on MMT(EHTG/(IOTG), but the hydrolysis products EHTG or IOTG are sensitizers. No primary irritation data were available for TERP, but it was a sensitizer in the mouse Local Lymph Node Assay.
Topical application with 5, 25 and 50 % v/v MMT(2-EHMA) elicited a stimulation index (SI) of 2.13, 7.25 and 9.05, respectively in a local lymph node assay (OECD 429), thus the material is a sensitiser.
Repeat dose toxicity:
There are no repeated-dose studies for the category members via the dermal or inhalation routes.
In a 90-day repeated dose oral study of MMTC, treatment-related changes were limited to the high dose group (750 ppm in diet; 50 mg/kg bw/d with some gender-related variation). Organ weight changes (adrenal, kidney, thymus, spleen, brain, epididymides), haematology, clinical chemistry, and urinalysis changes were noted, but histopathology only confirmed effects in the thymus and brain. The critical toxic effects were neurotoxicity and thymic atrophy. Both sexes had decreased cortex/medulla ratios in the thymus. In the brain there was loss of perikarya of neuronal cells in the pyramidal layer of the Hippocampus CA1/2 in both sexes, and in males there was loss of perikarya in the piriform cortex. The NOAEL was 150 ppm (10 mg/kg bw/d). Another 90-day dietary study using MMTC showed increased relative kidney weights and slight to moderate epithelial hyperplasia of the bladder in females at the lowest dose (NOAEL <20 ppm in diet [<1-3.6 mg/kg bw/d]) and additional effects including increased relative thymus weights in females and urinalysis results in both sexes at higher doses.
A 90-day dietary study with dose levels of 30, 100, 300, and 1000 ppm TERP in the diet resulted in slightly decreased food intake, body and organ weight changes, and decreased specific gravity of the urine at the highest dose. The NOAEL was 300 ppm in diet (equivalent to 15 mg/kg bw/d). A 28-day gavage study using TERP showed changes in clinical chemistry and slight differences in haematology at 150 mg/kg bw/d and higher. The NOAEL was 50 mg/kg bw/d.
The effects of MMT(IOTG) were evaluated in a 90-day dietary study using doses of 100, 500, and 1500 ppm (decreased from 2500 ppm) in the diet. Based on clinical chemistry effects at 500 ppm and other effects at higher doses, the NOAEL was 100 ppm in diet (approximately 6-21 mg/kg bw/d).
Neurotoxicity:
In a guideline 90-day subchronic dietary study conducted in Wistar rats, effects occurred at the high dose of 750 ppm MMT(2-EHMA, (equivalent to 49.7 mg/kg bw/day in males and 53.6 mg/kg bw/day in females), which consisted of changes in neurobehavioral parameters and associated brain histopathology. The NOAEL was the next lower dose of 150 ppm (equivalent to 9.8 mg/kg bw/day in males and 10.2 mg/kg bw/day in females
Immunotoxicity:
Immune function was assessed in male Sprague-Dawley rats exposed to the mixture of organotins used in PVC pipe production. Adult male rats were given drinking water for 28 d containing a mixture of dibutyltin dichloride (DBTC), dimethyltin dichloride (DMTC), monobutyltin trichloride (MBT), and monomethyltin trichloride (MMT) in a 2:2:1:1 ratio, respectively, at 3 different concentrations (5:5:2.5:2.5, 10:10:5:5, or 20:20:10:10 mg organotin/L). Rats were also exposed to MMT alone (20 or 40 mg MMT/L) or plain water as a control. Delayed-type hypersensitivity, antibody synthesis, and natural killer cell cytotoxicity were evaluated in separate endpoint groups immediately after exposure ended.
The evaluated immune functions were not affected by the mixture or by MMT alone. The data suggest that immunotoxicity is unlikely to result from the concentration of organotins present in drinking water delivered via PVC pipes, as the concentrations used were several orders of magnitude higher than those expected to leach from PVC pipes
Genotoxicity:

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	In a guideline 90-day subchronic dietary study in rats,with MMT(2-EHMA), based on the changes in neurobehavioral parameters and associated brain histopathology that occurred at the high dose of 750 ppm (equivalent to 49.7 mg/kg bw/day in males and 53.6 mg/kg bw/day in females), as well as changes in haematology, clinical chemistry, urinalysis, organ weights, and pathology of the thymus at the same dose, the NOAEL was the next lower dose of 150 ppm (equivalent to 9.8 mg/kg bw/day in males and 10.2 mg/kg bw/day in females). The monomethyltin compounds as a class are not mutagenic in the Ames test. TERP was positive in a human lymphocyte assay. MMTC was equivocal for induction of micronucleated polychromatic erythrocytes (MPEs) in an in vivo rat micronucleus test (OECD 474). In this study a statistically significant increase in MPE was observed only at 24 h and not at 48 h after treatment and there was no dose-response. Based on these observations the overall conclusion is that MMTC does not have genotoxic potential. From the results obtained in a micronucleus test with MMT(2-EHMA), it was demonstrated that the substance was weakly genotoxic to bone marrow cells of rats and that the substance has the potential to induce damage to the mitotic spindle apparatus of the bone marrow target cells. Carcinogenicity: In a limited carcinogenicity study, MMT(EHTG) produced no compound-related macroscopic or microscopic changes in rats fed 100 ppm in the diet for two years. Toxicity to reproduction: In the reproductive satellite portion of the 90-day study using MMTC (with dose levels of 30, 150, and 750 ppm in the diet), post-implantation loss, decreased litter size and increased neonatal mortality occurred at 750 ppm (26-46 mg/kg bw/d for females). Maternal gestational body weights were transiently suppressed and other maternal toxicity was inferred from the repeated dose results at this dose. There were no malformations observed at any dose. The NOAEL for maternal toxicity, and reproductive, and foetotoxic effects was 150 ppm in the diet (6-12 mg/kg bw/d). SIDS Inital Assessment Profile (SIAM 23 2006) ECHA Registration Dossier for MMT(2-EHMA) (ethylhexyl 10-ethyl-4-[[2-[(2-ethylhexyl)oxy]-2-oxoethyl]thio]-4-methyl-7-oxo-8-oxa-3,5-dithia-4-stannatetradecanoate) d-Limonene is readily absorbed by inhalation and swallowing. Absorption through the skin is reported to the lower than by inhalation. It is rapidly distributed to different tissues in the body, readily metabolized and eliminated, primary through the urine. Limonene shows low acute toxicity by all three routes in animals. Limonene is a skin irritant in both experimental animals and humans. Limited data is available on the potential to cause eye and airway irritation. Autooxidised products of d-limonene have the potential to sensitise the skin. Limited data is available on the potential to cause respiratory sensitization in humans. Limonene will automatically oxidize in the presence of light in air, forming a variety of oxygenated monocyclic terpenes. When contact with these oxidation products occurs, the risk of skin sensitization is high. Limonene does not cause genetic toxicity of birth defects, and it is not toxic to the reproductive system.
coumarin	umarin is moderately toxic to the liver and kidneys of rodents, with a median lethal dose (LD50) of 293 mg/kg in the rat,[] a low toxicity compared to related compounds. Coumarin is hepatotoxic in rats, but less so in mice. Rodents metabolize it mostly to 3,4-coumarin epoxide, a toxic, unstable compound that on further differential metabolism may cause liver cancer in rats and lung tumors in mice] Humans metabolize it mainly to 7-hydroxycoumarin, a compound of lower toxicity, and no adverse affect has been directly measured in humans.[The German Federal Institute for Risk Assessment has established a tolerable daily intake (TDI) of 0.1 mg coumarin per kg body weight, but also advises that higher intake for a short time is not dangerous.[] The Occupational Safety and Health Administration (OSHA) of the United States does not classify coumarin as a carcinogen for humans European health agencies have warned against consuming high amounts of cassia bark, one of the four main species of cinnamon, because of its coumarin content] According to the German Federal Institute for Risk Assessment (BFR), 1 kg of (cassia) cinnamon powder contains about 2.1 to 4.4 g of coumarin.] Powdered cassia cinnamon weighs 0.56 g/cm3,[33] so a kilogram of cassia cinnamon powder equals 362.29 teaspoons. One teaspoon of cassia cinnamon powder therefore contains 5.8 to 12.1 mg of coumarin, which may be above the tolerable daily intake value for smaller individuals.[32] However, the BFR only cautions against high daily intake of foods containing coumarin. Its repor] specifically states that Ceylon cinnamon (Cinnamomum verum) contains "hardly any" coumarin he European Regulation (EC) No 1334/2008 describes the following maximum limits for coumarin: 50 mg/kg in traditional and/or seasonal bakery ware containing a reference to cinnamon in the labeling, 20 mg/kg in breakfast cereals including muesli, 15 mg/kg in fine bakery ware, with the exception of traditional and/or seasonal bakery ware containing a reference to cinnamon in the labeling, and 5 mg/kg in desserts. An investigation from the Danish Veterinary and Food Administration in 2013 shows that bakery goods characterized as fine bakery ware exceeds the European limit (15 mg/kg) in almost 50% of the cases.[34] The paper also mentions tea as an additional important contributor to the overall coumarin intake, especially for children with a sweet habit. Coumarin was banned as a food additive in the United States in 1954, largely because of the hepatotoxicity results in rodent] Coumarin is currently listed by the Food and Drug Administration (FDA) of the United States among "Substances Generally Prohibited From Direct Addition or Use as Human Food," according to 21 CFR 189.130,[36][37] but some natural additives containing coumarin, such as the flavorant sweet woodruff are allowed "in alcoholic beverages only" under 21 CFR 172.510. In Europe, popular examples of such beverages are Maiwein, white wine with woodruff, and Zubrówka, vodka flavoured with bison grass. umarin is subject to restrictions on its use in perfumery,[39] as some people may become sensitized to it, however the evidence that coumarin can cause an allergic reaction in humans is disputed nor neurological dysfunction was found in children exposed to the anticoagulants acenocoumarol or phenprocoumon during pregnancy. A group of 306 children were tested at ages 7–15 years to determine subtle neurological effects from anticoagulant exposure. Results showed a dose–response relationship between anticoagulant exposure and minor neurological dysfunction. Overall, a 1.9 (90%) increase in minor neurological dysfunction was observed for children exposed to these anticoagulants, which are collectively referred to as "coumarins." In conclusion, researchers stated, "The results suggest that coumarins have an influence on the development of the brain which can lead to mild neurologic dysfunctions in children of school age. Alcoholic beverages sold in the European Union are limited to a maximum of 10 mg/L coumarin by law. Cinnamon flavor is generally cassia bark steam-distilled to concentrate the cinnamaldehyde, for example, to about 93%. Clear cinnamon-flavored alcoholic beverages generally test negative for coumarin, but if whole cassia bark is used to make mulled wine, then coumarin shows up at significant levels Laboratory (in vitro) and animal studies show, exposure to the material may result in a possible risk of irreversible effects, with the possibility of producing mutation.

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alpha-amylcinnamaldehyde	Animal testing suggests that the toxicity through swallowing cinnamyl aldehyde derivatives is very low. The potential for toxicity through skin exposure is similarly low. Cinnamaldehyde and its alkyl-substituted derivatives do not directly cause mutations or genetic damage. However, animal testing suggests that they may result in poor development of the skull and kidney in the foetus. These substances are generally regarded as safe. Cinnamyl derivatives are natural components of certain foods, and are found in greater amounts there than in flavouring substances. They are rapidly absorbed, broken down and eliminated in the human body, and do not have significant potential to cause genetic toxicity and mutations.
linalool	The terpenoid hydrocarbons are found in needle trees and deciduous plants. This category of chemicals shows very low acute toxicity. They are ecreted in the urine. They are unlikely to cause genetic damage, but animal testing shows that they do cause increased rates of kidney cancer. They have low potential to cause reproductive and developmental toxicity. With few exceptions* (see below), there are no safety concerns regarding certain cyclic and non-cyclic terpene alcohols **, as fragrance ingredients, under present declared levels of use and exposure, because - They have low acute toxicity - No significant toxicity was observed in repeat dose toxicity tests - They were not found to cause mutations or genetic toxicity - Substances in this group are processed similarly in the body - There is no indication of persistent breakdown products causing severe toxicity - They practically do not irritate the skin - They have a generally low potential for sensitization - The margin of safety is more than 100 times the maximum daily exposure. *Safety concerns exist for the following substances for the following reasons: - 6,7-dihydrogeraniol, hydroabietyl alcohol and 2-isopropyl-2-decahydronapthalenol are potent skin sensitisers. - Farnesol is a weak sensitizer. - Scalerol and linalool may contain impurities and/or oxidation products that are strong sensitisers. - No sensitization test results were available for 2(10)-pinen-3-ol, 2,6-dimethyloct-3,5-dien-2-ol, and 3,7-dimethyl-4,6-octadien-3-ol. These materials should be regarded as potential sensitizers until tested. ** The common characteristic structural element of acyclic -noncyclic- and cyclic terpene alcohols is the typically branched isoprene unit 2-methyl-1,3-butadiene Current opinion holds that there are no safety concerns regarding the branched chain unsaturated non-cyclic alcohols, as fragrance ingredients, at current declared levels of use and exposure; however, use of these materials at higher maximum levels of skin or whole-body exposure requires re-evaluation. At current declared levels of use, there was no evidence or only minimal evidence of skin irritation in humans. Sensitising hydroperoxides may be formed by contact with air. It should be ensured that oxidation reactions are prevented in the end product. The use of these materials under the declared levels of use and exposure will not induce sensitization. These compounds generally have low acute toxicity. The branched chain, unsaturated alcohols tested had low whole-body toxicity after repeated application. In animals, repeated exposure at high doses caused liver changes and kidney damage. There was little or no evidence of adverse effects on fertility or development. Data on cancer-causing potential is not available, but they are not of primary concern. Alkyl alcohols of chain length C6-13 are absorbed from skin, when inhaled or swallowed but show evidence of little harm. They are broken down and rapidly excreted by the body.
triethylamine	Inhalation (human) TCLo: 12mg/m3/11W contin.Skin (rabbitmild Overexposure to most of these materials may cause adverse health effects. Many amine-based compounds can cause release of histamines, which, in turn, can trigger allergic and other physiological effects, including constriction of the bronchi or asthma and inflammation of the cavity of the nose. Whole-body symptoms include headache, nausea, faintness, anxiety, a decrease in blood pressure, rapid heartbeat, itching, reddening of the skin, urticaria (hives) and swelling of the face, which are usually transient. There are generally four routes of possible or potential exposure: inhalation, skin contact, eye contact, and swallowing. Inhalation: Inhaling vapours may result in moderate to severe irritation of the tissues of the nose and throat and can irritate the lungs. Higher concentrations of certain amines can produce severe respiratory irritation, characterized by discharge from the nose, coughing, difficulty in breathing and chest pain. Chronic exposure via inhalation may cause headache, nausea, vomiting, drowsiness, sore throat, inflammation of the bronchi and lungs, and possible lung damage. Repeated and/or prolonged exposure to some amines may result in liver disorders, jaundice and liver enlargement. Some amines have been shown to cause kidney, blood and central nervous system disorders in animal studies. While most polyurethane amine catalysts are not sensitisers, some certain individuals may also become sensitized to amines and my experience distress while breathing, including asthma-like attacks, whenever they are subsequently exposed to even very small amounts of vapours. Once sensitized, these individuals must avoid any further exposure to amines. Chronic overexposure may lead to permanent lung injury, including reduction in lung function, breathlessness, chronic inflammation of the bronchi, and immunologic lung disease. Products with higher vapour pressures may reach higher concentrations in the air, and this increases the likelihood of worker exposure. Inhalation hazards are increased when exposure to amine catalysts occurs in situations that produce aerosols, mists or heated vapours. Such situations include leaks in fitting or transfer lines. Medical conditions generally aggravated by inhalation exposure include asthma, bronchitis and emphysema. Skin contact: Skin contact with amine catalysts poses a number of concerns. Direct skin contact can cause moderate to severe irritation and injury, from simple redness and swelling to painful blistering, ulceration, and chemical burns. Repeated or prolonged exposure may also result in severe cumulative skin inflammation. Skin contact with some amines may result in allergic sensitization. Sensitised persons should avoid all contact with amine catalysts. Whole-body effects resulting from the absorption

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	of the amines though skin exposure may include headaches, nausea, faintness, anxiety, decrease in blood pressure, reddening of the skin, hives, and facial swelling. These symptoms may be related to the pharmacological action of the amines, and they are usually temporary. Eye contact: Amine catalysts are alkaline and their vapours are irritating to the eyes, even at low concentrations. Direct contact with liquid amine may cause severe irritation and tissue injury, and the “burning” may lead to blindness. Contact with solid products may result in mechanical irritation, pain and corneal injury. Exposed persons may experience excessive tearing, burning, inflammation of the conjunctiva, and swelling of the cornea, which manifests as a blurred or foggy vision with a blue tint, and sometimes a halo phenomenon around lights. These symptoms are temporary and usually disappear when exposure ends. Some people may experience this effect even when exposed to concentrations that do not cause respiratory irritation. Ingestion: Amine catalysts have moderate to severe toxicity if swallowed. Some amines can cause severe irritation, ulcers and burns of the mouth, throat, gullet and gastrointestinal tract. Material aspirated due to vomiting can damage the bronchial tubes and the lungs. Affected people may also experience pain in the chest or abdomen, nausea, bleeding of the throat and gastrointestinal tract, diarrhea, dizziness, drowsiness, thirst, collapse of circulation, coma and even death.
EDTA tetrasodium salt	* Sigma Aldrich - for the dihydrate For ethylendiaminetetraacetic acid (EDTA) and its salts: EDTA is a strong organic acid, with a high affinity for alkaline-earth ions (for example, calcium and magnesium) and heavy-metal ions (such as lad and mercury), resulting in highly stable chelate complexes. The ability of EDTA to complex is used commercially to either promote or inhibit chemical reactions, depending on application. EDTA and its salts are expected to be absorbed by the lungs and the gastrointestinal tract; absorption through skin is unlikely. They cause mild skin irritation, and severe eye irritation. The greatest risk in the human body will occur when the EDTA attempts to scavenge the trace metals used and required by the body. The binding of divalent and trivalent cations by EDTA can cause mineral deficiencies, such as zinc deficiency. These appear to be responsible for all of the known pharmacological effects. EDTA and its salts are mostly eliminated through the urine, with 5% eliminated via the bile, along with the metal ions which are bound to it. Trisodium EDTA has not been found to cause cancer. EDTA and its salts are not likely to cause harm to children and infants at levels likely to be encountered.
nitrilotriacetic acid, trisodium salt	Nitrilotriacetic acid and its water-soluble metal complexes occur in household detergents and drinking water. Their ability to chelate metal ions accounts for the toxicity. They may cause cancer of the kidney, bladder and urinary tract in some experimental animals but no foetal or genetic damage has been recorded. They do not cause skin sensitisation or irritation but may accumulate in the foetal skeleton. In humans, they are poorly absorbed from the intestines and rapidly excreted in the urine. **WARNING:** This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans.
white mineral oil (petroleum)	Oral (rat) TCLo: 92000 mg/kg/92D-Cont. Generally the toxicity and irritation is of low order. White oils and highly/solvent refined oils have not shown the long term risk of skin cancer that follows persistent skin contamination with some other mineral oils, due in all probability to refining that produces low content of both polyaromatics (PAH) and benz-alpha-pyrenes (BaP) For highly and severely refined distillate base oils: In animal studies, the acute, oral, semilethal dose is >5g/kg body weight and the semilethal dose by skin contact is >2g/kg body weight. The semilethal concentration for inhalation is 2.18 to >4 mg/L. The materials have varied from “non-irritating” to “moderately irritating” when tested for skin and eye irritation. Testing for sensitisation has been negative. The effects of repeated exposure vary by species; in animals, effects to the testes and lung have been observed, as well as the formation of granulomas. In animals, these substances have not been found to cause reproductive toxicity or significant increases in birth defects. They are also not considered to cause cancer, mutations or chromosome aberrations. The materials included in the Lubricating Base Oils category are related from both process and physical-chemical perspectives; The potential toxicity of a specific distillate base oil is inversely related to the severity or extent of processing the oil has undergone, since: • The adverse effects of these materials are associated with undesirable components, and • The levels of the undesirable components are inversely related to the degree of processing; • Distillate base oils receiving the same degree or extent of processing will have similar toxicities; • The potential toxicity of residual base oils is independent of the degree of processing the oil receives. • The reproductive and developmental toxicity of the distillate base oils is inversely related to the degree of processing. Unrefined & mildly refined distillate base oils contain the highest levels of undesirable components, have the largest variation of hydrocarbon molecules and have shown the highest potential cancer-causing and mutation-causing activities. Highly and severely refined distillate base oils are produced from unrefined and mildly refined oils by removing or transforming undesirable components. In comparison to unrefined and mildly refined base oils, the highly and severely refined distillate base oils have a smaller range of hydrocarbon molecules and have demonstrated very low mammalian toxicity. Testing of residual oils for mutation-causing and cancer-causing potential has shown negative results, supporting the belief that these materials lack biologically active components or the components are largely non-bioavailable due to their molecular size. Toxicity testing has consistently shown that lubricating base oils have low acute toxicities. Numerous tests have shown that a lubricating base oil s mutagenic and carcinogenic potential correlates with its 3-7 ring polycyclic aromatic compound (PAC) content, and the level of DMSO extractables (e.g. IP346 assay), both characteristics that are directly related to the degree/conditions of processing.
Screenwash -10°C Bubblegum & sodium xylenesulfonate	For alkyl sulfates; alkane sulfonates and alpha-olefin sulfonates Most chemicals of this category are not defined substances, but mixtures of homologues with different alkyl side chains. Common physical and/or biological pathways result in structurally similar breakdown products, and are, together with the surfactant properties, responsible for similar environmental behavior and essentially identical hazard profiles with regard to human health. Acute toxicity: These substances are well absorbed after ingestion; penetration through the skin is however, poor. After absorption, these chemicals are distributed mainly to the liver.

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	In animals, signs of poisoning by mouth include lethargy, hair standing up, decreased motor activity and breathing rate, and diarrhea. Poisoning from skin contact caused irritation, tremor, tonic-clonic convulsions, breathing failure, and weight loss. The C-12-akyl sulfate sodium salt caused the greatest effect. In eye irritation tests, C-12 containing alkyl sulfates at greater than 10% concentration were severely irritating and produced irreversible effects on the cornea. With increasing alkyl chain length, the irritating potential decreases, and the longer species are only mildly irritant. Animal studies have not shown alkyl sulfates and C14-18 alpha-olefin sulfonates to cause skin sensitization. However there is anecdotal evidence to suggest sodium lauryl sulfate causes sensitization of the lung, resulting in hyperactive airway dysfunction and lung allergy, accompanied by fatigue, malaise and aching. Significant symptoms of exposure can persist for more than two years, and can be activated by a variety of non-specific environmental stimuli, such as exhaust, perfumes and passive smoking. Airborne sulfonates may be responsible for respiratory allergies, and in some cases, minor skin allergies. Repeated skin contact with some sulfonated surfactants has produced skin inflammation was sensitization in predisposed individuals. Repeat dose toxicity: The liver seems to be the only organ that is affected by repeated exposure, with elevated levels of liver enzymes, an increase in liver weight and enlargement of liver cells being seen. Genetic toxicity: Alkyl sulfates and alkyl-olefin sulfonates do not appear to cause mutations or genetic toxicity. Cancer-causing potential: Animal testing suggested that alkyl sulfates and alpha-olefin sulfonates do not have cancer-causing potential. Reproductive toxicity: In animal testing, these substances only caused harm to the foetus and/or offspring at levels which were toxic to the mother. Developmental toxicity: Alkane sulfonates are not considered to be toxic to development.
Screenwash -10°C Bubblegum & linalyl acetate	Cross-reactivity is also expected between ester derivatives and their parent alcohols, as the esters will be broken down by esterases in the skin. Esters of important contact allergens that can be activated by hydrolysis in the skin are isoeugenol acetate, eugenyl acetate and geranyl acetate all of which are known to be used as fragrance ingredients.
benzyl acetate & p-anisaldehyde	For certain benzyl derivatives: The members of this group are rapidly absorbed through the gastrointestinal tract, metabolised primarily in the liver, and excreted primarily in the urine either unchanged or as conjugates of benzoic acid derivatives. At high dose levels, gut micro-organisms may act to produce minor amounts of breakdown products. However, no adverse effects have been reported even at repeated high doses. Similarly, no effects were observed on reproduction, foetal development and tumour potential.
coumarin & alpha-amylcinnamaldehyde	Fragrance allergens act as haptens, low molecular weight chemicals that cause an immune response only when attached to a carrier protein. However, not all sensitizing fragrance chemicals are directly reactive, but require previous activation. A prehapten is a chemical that itself causes little or no sensitization, but is transformed into a hapten in the skin (bioactivation), usually via enzyme catalysis. It is not always possible to know whether a particular allergen that is not directly reactive acts as a prehapten or a prohapten , or both. Prohaptens: Compounds that are bioactivated in the skin and thereby form haptens are referred to prohaptens. The possibility of a prohapten being activated cannot be avoided by outside measures. Activation processes increase the risk for cross-reactivity between fragrance substances. Various enzymes play roles in both activating and deactivating prohaptens. Skin-sensitizing prohaptens can be recognized and grouped into chemical classes based on knowledge of xenobiotic bioactivation reactions, clinical observations and/or studies of sensitization. QSAR prediction: Prediction of sensitization activity of these substances is complex, especially for those substances that can act both as pre- and prohaptens.
allyl phenoxyacetate & triethylamine	The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.
methylal & sodium xylenesulfonate	No significant acute toxicological data identified in literature search.
methylal & 2-bromo-2-nitropropan-1,3-diol	Formaldehyde generators (releasers) are often used as preservatives. The maximum authorised concentration of free formaldehyde is 0.2% and must be labelled with the warning sign "contains formaldehyde" where the concentration exceeds 0.05%.The use of formaldehyde-releasing preservatives ensures that the level of free formaldehyde in the products is always low but sufficient to inhibit microbial growth - it disrupts metabolism to cause death of the organism. However there is a concern that formaldehyde generators can produce amines capable of causing cancers (nitrosamines) when used in formulations containing amines.
allyl alcohol & triethylamine & sodium hydroxide	The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.
Screenwash -10°C Bubblegum & d-limonene & linalyl acetate & linalool	Fragrance allergens act as haptens, which are small molecules that cause an immune reaction only when attached to a carrier protein. However, not all sensitizing fragrance chemicals are directly reactive, but some require previous activation. A prehapten is a chemical that itself causes little or no sensitization, but it is transformed into a hapten outside the skin by a chemical reaction (oxidation in air or reaction with light) without the requirement of an enzyme. For prehaptens, it is possible to prevent activation outside the body to a certain extent by different measures, for example, prevention of air exposure during handling and storage of the ingredients and the final product, and by the addition of suitable antioxidants. When antioxidants are used, care should be taken that they will not be activated themselves, and thereby form new sensitisers. Prehaptens: Most terpenes with oxidisable allylic positions can be expected to self-oxidise on air exposure. Depending on the stability of the oxidation products that are formed, the oxidized products will have differing levels of sensitization potential. Tests shows that air exposure of lavender oil increased the potential for sensitization. Prohaptens: Compounds that are bioactivated in the skin and thereby form haptens are referred to prohaptens. The possibility of a prohapten being activated cannot be avoided by outside measures. Activation processes increase the risk for cross-reactivity between fragrance substances. Various enzymes play roles in both activating and deactivating prohaptens. Skin-sensitizing

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	prohaptens can be recognized and grouped into chemical classes based on knowledge of xenobiotic bioactivation reactions, clinical observations and/or studies of sensitization. QSAR prediction: Prediction of sensitization activity of these substances is complex, especially for those substances that can act both as pre- and prohaptens.
benzyl acetate & d-limonene & coumarin & white mineral oil (petroleum)	The substance is classified by IARC as Group 3: **NOT** classifiable as to its carcinogenicity to humans. Evidence of carcinogenicity may be inadequate or limited in animal testing.
alpha-amylcinnamaldehyde & linalyl acetate & linalool & methylal & sodium hydroxide	The material may cause severe skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin. Repeated exposures may produce severe ulceration.
Screenwash -10°C Bubblegum & d-limonene & coumarin & alpha-amylcinnamaldehyde & linalyl acetate & linalool	Adverse reactions to fragrances in perfumes and fragranced cosmetic products include allergic contact dermatitis, irritant contact dermatitis, sensitivity to light, immediate contact reactions, and pigmented contact dermatitis. Airborne and connubial contact dermatitis occurs. Contact allergy is a lifelong condition, so symptoms may occur on re-exposure. Allergic contact dermatitis can be severe and widespread, with significant impairment of quality of life and potential consequences for fitness for work. If the perfume contains a sensitizing component, intolerance to perfumes by inhalation may occur. Symptoms may include general unwellness, coughing, phlegm, wheezing, chest tightness, headache, shortness of breath with exertion, acute respiratory illness, hayfever, asthma and other respiratory diseases. Perfumes can induce excess reactivity of the airway without producing allergy or airway obstruction. Breathing through a carbon filter mask had no protective effect. Occupational asthma caused by perfume substances, such as isoamyl acetate, limonene, cinnamaldehyde and benzaldehyde, tend to give persistent symptoms, even though the exposure is below occupational exposure limits. Prevention of contact sensitization to fragrances is an important objective of public health risk management. Hands: Contact sensitization may be the primary cause of hand eczema or a complication of irritant or atopic hand eczema. However hand eczema is a disease involving many factors, and the clinical significance of fragrance contact allergy in severe, chronic hand eczema may not be clear. Underarm: Skin inflammation of the armpits may be caused by perfume in deodorants and, if the reaction is severe, it may spread down the arms and to other areas of the body. In individuals who consulted a skin specialist, a history of such first-time symptoms was significantly related to the later diagnosis of perfume allergy. Face: An important manifestation of fragrance allergy from the use of cosmetic products is eczema of the face. In men, after-shave products can cause eczema around the beard area and the adjacent part of the neck. Men using wet shaving as opposed to dry have been shown to have an increased risk of allergic to fragrances. Irritant reactions: Some individual fragrance ingredients, such as citral, are known to be irritant. Fragrances may cause a dose-related contact urticaria (hives) which is not allergic; cinnamal, cinnamic alcohol and Myroxylon pereirae are known to cause hives, but others, including menthol, vanillin and benzaldehyde have also been reported. Pigmentary anomalies: Type IV allergy is responsible for “pigmented cosmetic dermatitis”, referring to increased pigmentation on the face and neck. Testing showed a number of fragrance ingredients were associated, including jasmine absolute, ylang-ylang oil, cananga oil, benzyl salicylate, hydroxycitronellal, sandalwood oil, geraniol and geranium oil. Light reactions: Musk ambrette produced a number of allergic reactions mediated by light and was later banned from use in Europe. Furocoumarins (psoralens) in some plant-derived fragrances have caused phototoxic reactions, with redness. There are now limits for the amount of furocoumarins in fragrances. Phototoxic reactions still occur, but are rare. General/respiratory: Fragrances are volatile, and therefore, in addition to skin exposure, a perfume also exposes the eyes and the nose / airway. It is estimated that 2-4% of the adult population is affected by respiratory or eye symptoms by such an exposure. It is known that exposure to fragrances may exacerbate pre-existing asthma. Asthma-like symptoms can be provoked by sensory mechanisms. A significant association was found between respiratory complaints related to fragrances and contact allergy to fragrance ingredients and hand eczema.
ethyl butyrate & benzyl acetate & p-anisaldehyde & ethyl butyl acetate & ethanol & methanol & 2-bromo-2-nitropropan-1,3-diol	The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.
d-limonene & coumarin & allyl phenoxyacetate & alpha-amylcinnamaldehyde & linalyl acetate & linalool & EDTA tetrasodium salt	The following information refers to contact allergens as a group and may not be specific to this product. Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions. The significance of the contact allergen is not simply determined by its sensitisation potential: the distribution of the substance and the opportunities for contact with it are equally important. A weakly sensitising substance which is widely distributed can be a more important allergen than one with stronger sensitising potential with which few individuals come into contact. From a clinical point of view, substances are noteworthy if they produce an allergic test reaction in more than 1% of the persons tested.
Screenwash -10°C Bubblegum & ethyl butyrate & benzyl acetate & p-anisaldehyde & ethyl butyl acetate & coumarin & alpha-amylcinnamaldehyde & linalyl acetate & methylal &	Asthma-like symptoms may continue for months or even years after exposure to the material ends. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur after exposure to high levels of highly irritating compound. Main criteria for diagnosing RADS include the absence of previous airways disease in a non-atopic individual, with sudden onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. Other criteria for diagnosis of RADS include a reversible airflow pattern on lung function tests, moderate to severe bronchial hyperreactivity on methacholine challenge testing, and the lack of minimal lymphocytic inflammation, without eosinophilia. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. On the other hand, industrial bronchitis is a disorder that occurs as a result

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allyl alcohol & triethylamine & sodium hydroxide & 2-bromo-2-nitropropan-1,3-diol & EDTA tetrasodium salt & nitrilotriacetic acid, trisodium salt & sodium xylenesulfonate	of exposure due to high concentrations of irritating substance (often particles) and is completely reversible after exposure ceases. The disorder is characterized by difficulty breathing, cough and mucus production.
linalyl acetate & linalool	Inhalational exposure of mice and man to linalool caused slight sedative effects but a dose dependent response characteristic could not be determined. It may irritate the digestive tract, skin, nose and the eyes but is not considered to be a sensitiser. It is equally shown to cause kidneys and liver damage but no genetic or reproductive defect was observed. Opinion holds that there are no safety concerns for linalool and the linalyl esters, as fragrance ingredients, under the present declared levels of use and exposure for the following reasons: · Linalool and the linalyl esters have a low order of acute toxicity. · No significant toxicity was observed in subchronic tests; it is concluded that these materials have dermal and oral NOAELS of 50 mg/kg/day or greater. · Based on a critical review of all available mutagenicity and genotoxicity studies,it has been determined that these materials are negative in short-term tests and therefore would have no significant potential to produce genotoxic effects. · The metabolic fate of linalool and the linalyl esters is either known or assumed from analogies with structurally related substances that indicate no production of toxic or persistent metabolites and the structural analogies indicate no concern. · Human dermatological studies show that these materials are not irritating, phototoxic or sensitizing. · These materials are used at low levels of exposure relative to doses that elicit adverse effects. The estimate for maximum systemic exposure by humans using cosmetic products is 0.3 mg/kg/ day for linalool and linalyl acetate and 0.1 mg/ kg/day or lower for the other linalyl esters. Using the NOAELs (50 mg/kg/day or greater) and the maximum exposure estimates and assuming 100% absorption,a margin of safety for the exposure of humans to linalool and the linalyl esters may conservatively be calculated as 167 times the maximum daily exposure for linalool and linalyl acetate (50 mg/kg/day 0.3 mg/kg/day for linalool or linalyl acetate=167) and 500 times the maximum daily exposure for the other individual linalyl esters (50 mg/kg/day / 0.1 mg/kg/day for the other individual linalyl esters=500). In general, linalool esters are hydrolyzed to their corresponding alcohol (linalool) and carboxylic acid. Hydrolysis is catalyzed by carboxylesterases or esterases . Tertiary alcohols such as linalool are metabolized primarily through conjugation with glucuronic acid and are excreted in the urine and to a lesser extent faeces. Alkyl or alkenyl substituents may undergo oxidation to form polar metabolites that may also be excreted free or in the conjugated form. Oxidation is mediated by cytochrome P-450 dependant mono-oxygenases. The carboxylic acids formed by hydrolysis of the linalyl esters included in this summary are all known to be easily and rapidly metabolized. The linear saturated carboxylic acids are metabolized normally as fatty acids that undergo beta-oxidation. The branched-chain carboxylic acids from linalyl isovalerate and isobutyrate are similarly oxidized,but the end product is acetone. The carboxylic acids from linalyl benzoate and phenylacetate are conjugated and excreted. The cinnamic acid from linalyl cinnamate is conjugated and excreted,or metabolized to benzoic acid. No sensitization was observed with linalool in guinea pig sensitization studies at concentrations up to 20%. With linalyl acetate at a concentration of 10%,weak to moderate sensitization effects were observed in guinea pig sensitization studies. Linalyl acetate was non-sensitizing when tested at 5% in these same guinea pig sensitization studies. No sensitization reactions were observed with linalyl isobutyrate and linalyl propionate (data were not available for the other linalyl esters) when tested at 8% in open epicutaneous tests in guinea pigs The Research Institute for Fragrance Materials (RIFM) Expert Panel For terpenoid tertiary alcohols and their related esters: These substances are metabolised in the liver and excreted primarily in the urine and faeces. A portion is also excreted unchanged. They have low short term toxicity when ingested or applied on the skin. However, repeated and long term use may cause dose dependent harm to both the foetus and mother. A member or analogue of a group of aliphatic and alicyclic terpenoid tertiary alcohols and structurally related substances generally regarded as safe. Animal testing suggests that the acute toxicity of tertiary alcohols and related esters is extremely low. Genetic toxicity: Tests on bacterial and animal cells showed no evidence of genetic toxicity or potential to cause mutations.

Acute Toxicity	✕	**Carcinogenicity**	✕
Skin Irritation/Corrosion	✕	**Reproductivity**	✕
Serious Eye Damage/Irritation	✕	**STOT - Single Exposure**	✕
Respiratory or Skin sensitisation	✕	**STOT - Repeated Exposure**	✕
Mutagenicity	✕	**Aspiration Hazard**	✕

Legend: ✕ *– Data either not available or does not fill the criteria for classification*
✔ *– Data available to make classification*

11.2 Information on other hazards

11.2.1. Endocrine disrupting properties

No evidence of endocrine disrupting properties were found in the current literature.

Continued...

11.2.2. Other information

See Section 11.1

SECTION 12 ECOLOGICAL INFORMATION

12.1. Toxicity

Screenwash -10°C Bubblegum

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
Not Available	Not Available	Not Available	Not Available	Not Available

ethyl butyrate

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
EC50	48h	Crustacea	>100mg/l	2
NOEC(ECx)	672h	Fish	1.483mg/l	2
LC50	96h	Fish	>=100mg/l	2

benzyl acetate

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
EC50	48h	Crustacea	17mg/l	2
EC50	72h	Algae or other aquatic plants	92mg/l	2
NOEC(ECx)	672h	Fish	0.92mg/l	2
LC50	96h	Fish	3.48-4.6mg/l	4

d-limonene

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96h	Fish	0.46mg/l	2
EC50	48h	Crustacea	0.307mg/l	2
EC50	72h	Algae or other aquatic plants	0.214mg/l	2
NOEC(ECx)	0h	Algae or other aquatic plants	<0.05-1.5mg/L	4

p-anisaldehyde

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
EC50	48h	Crustacea	82.8mg/l	2
EC50	72h	Algae or other aquatic plants	68.4mg/l	2
NOEC(ECx)	504h	Crustacea	0.71mg/l	2
LC50	96h	Fish	148.32mg/l	2

ethyl butyl acetate

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
EC50	48h	Crustacea	36mg/l	2
EC50	72h	Algae or other aquatic plants	9.97mg/l	2
NOEC(ECx)	72h	Algae or other aquatic plants	5.23mg/l	2
LC50	96h	Fish	6.74mg/l	2

coumarin

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
EC50	48h	Crustacea	8.012mg/l	2
EC50	96h	Algae or other aquatic plants	1.452mg/l	2
NOEC(ECx)	1440h	Fish	0.119mg/l	2
LC50	96h	Fish	1.324mg/l	2

allyl phenoxyacetate

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
EC50	48h	Crustacea	2.07mg/l	2
EC50(ECx)	48h	Crustacea	2.07mg/l	2
EC50	72h	Algae or other aquatic plants	24.9mg/l	2

Continued...

	LC50	96h	Fish	0.133mg/l	2

alpha-amylcinnamaldehyde

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
EC50	48h	Crustacea	0.28mg/l	2
EC50	72h	Algae or other aquatic plants	1.18mg/l	2
EC50	96h	Algae or other aquatic plants	1.715mg/l	2
NOEC(ECx)	504h	Crustacea	0.041mg/l	2
LC50	96h	Fish	0.91mg/l	2

linalyl acetate

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
EC50	48h	Crustacea	10.8mg/l	2
EC50	72h	Algae or other aquatic plants	13.1mg/l	2
EC50	96h	Algae or other aquatic plants	13.1mg/l	2
NOEC(ECx)	72h	Algae or other aquatic plants	1mg/l	2
LC50	96h	Fish	11mg/l	2

linalool

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LC50	96h	Fish	<19.9mg/l	1
EC50	48h	Crustacea	20mg/l	1
NOEC(ECx)	96h	Fish	<3.5mg/l	1
EC50	96h	Algae or other aquatic plants	88.3mg/l	1

ethanol

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
EC50	48h	Crustacea	2mg/L	4
EC50	72h	Algae or other aquatic plants	275mg/l	2
LC50	96h	Fish	42mg/L	4
EC50	96h	Algae or other aquatic plants	<0.001mg/L	4
EC50(ECx)	96h	Algae or other aquatic plants	<0.001mg/L	4

methanol

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
EC50	48h	Crustacea	>10000mg/l	2
LC50	96h	Fish	290mg/l	2
EC50	96h	Algae or other aquatic plants	14.11-20.623mg/l	4
NOEC(ECx)	720h	Fish	0.007mg/L	4

methylal

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
EC50	48h	Crustacea	>1200mg/l	2
EC50	72h	Algae or other aquatic plants	9120mg/l	2
EC50	96h	Algae or other aquatic plants	874.12mg/l	2
NOEC(ECx)	720h	Algae or other aquatic plants	145.77mg/l	2
LC50	96h	Fish	>1000mg/l	2

allyl alcohol

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
EC50	48h	Crustacea	1.65mg/l	2
EC50	72h	Algae or other aquatic plants	2.25mg/l	2
EC50(ECx)	96h	Crustacea	0.25mg/l	1
LC50	96h	Fish	0.32mg/l	2

triethylamine

ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
BCF	1008h	Fish	<0.5	7

Continued...

	EC50	48h	Crustacea	17mg/l	2
	EC50	72h	Algae or other aquatic plants	6.8mg/l	2
	EC50	96h	Algae or other aquatic plants	1.167mg/l	2
	NOEC(ECx)	72h	Algae or other aquatic plants	1.1mg/l	2
	LC50	96h	Fish	24mg/l	2

sodium hydroxide	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	EC50	48h	Crustacea	34.59-47.13mg/l	4
	EC50(ECx)	48h	Crustacea	34.59-47.13mg/l	4
	LC50	96h	Fish	144-267mg/l	4

2-bromo-2-nitropropan-1,3-diol	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96h	Fish	10.274-14.454mg/L	4
	EC50	48h	Crustacea	1.1-3.52mg/L	4
	EC50	72h	Algae or other aquatic plants	0.026mg/l	2
	EC10(ECx)	72h	Algae or other aquatic plants	0.013mg/l	2
	EC50	96h	Algae or other aquatic plants	0.02-0.025mg/L	4

EDTA tetrasodium salt	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	EC50	48h	Crustacea	>100mg/l	2
	EC50	72h	Algae or other aquatic plants	1.01mg/l	1
	LC50	96h	Fish	>100mg/l	2
	NOEC(ECx)	72h	Algae or other aquatic plants	0.39mg/l	1

nitrilotriacetic acid, trisodium salt	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96h	Fish	>100mg/l	Not Available
	EC50(ECx)	48h	Crustacea	>100mg/l	Not Available
	EC50	48h	Crustacea	>100mg/l	Not Available
	EC50	72h	Algae or other aquatic plants	>91.5mg/l	2
	EC50	96h	Algae or other aquatic plants	180-320mg/l	1

sodium xylenesulfonate	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	EC50	48h	Crustacea	>400mg/l	1
	EC50	72h	Algae or other aquatic plants	~252mg/l	2
	EC50	96h	Algae or other aquatic plants	>=230mg/l	2
	NOEC(ECx)	72h	Algae or other aquatic plants	40mg/l	2

white mineral oil (petroleum)	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96h	Fish	>10000mg/L	2

Legend:	***Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data***

Harmful to aquatic organisms.
For Ethanol:

Continued...

log Kow: -0.31 to -0.32;
Koc 1: Estimated BCF= 3;
Half-life (hr) air: 144;
Half-life (hr) H2O surface water: 144;
Henry's atm m3 /mol: 6.29E-06;
BOD 5 if unstated: 0.93-1.67,63%
COD: 1.99-2.11,97%;
ThOD : 2.1.
Environmental Fate: Terrestrial - Ethanol quickly biodegrades in soil but may leach into ground water; most is lost by evaporation. Ethanol is expected to have very high mobility in soil. Volatilization of ethanol from moist soil surfaces is expected to be an important fate process. The potential for volatilization of ethanol from dry soil surfaces may exist. Biodegradation is expected to be an important fate process for ethanol based on half-lives on the order of a few days for ethanol in sandy soil/groundwater microcosms.
Atmospheric Fate: Ethanol is expected to exist solely as a vapour in the ambient atmosphere. Vapour-phase ethanol is degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 5 days. Ethanol readily degraded by reaction with photochemically produced hydroxy radicals; release into air will result in photodegradation and wet deposition.
Aquatic Fate: When released into water ethanol readily evaporates and is biodegradable. Ethanol is not expected to adsorb to suspended solids and sediment. Volatilization from water surfaces is expected and volatilization half-lives for a model river and model lake are 3 and 39 days, respectively. Bioconcentration in aquatic organisms is considered to be low. Hydrolysis and photolysis in sunlit surface waters is not expected to be an important environmental fate process for ethanol and is unlikely to be persistent in aquatic environments.
For Terpenes such as Limonene and Isoprene:
Atmospheric Fate: Contribute to aerosol and photochemical smog formation. When terpenes are introduced to the atmosphere, may either decrease ozone concentrations when oxides of nitrogen are low or, if emissions take place in polluted air (i.e. containing high concentrations of nitrogen oxides), leads to an increase in ozone concentrations. Lower terpenoids can react with unstable reactive gases and may act as precursors of photochemical smog therefore indirectly influencing community and ecosystem properties. The reactions of ozone with larger unsaturated compounds, such as the terpenes can give rise to oxygenated species with low vapour pressures that subsequently condense to form secondary organic aerosol.
Aquatic Fate: Complex chlorinated terpenes such as toxaphene (a persistent, mobile and toxic insecticide) and its degradation products were produced by photoinitiated reactions in an aqueous system, initially containing limonene and other monoterpenes, simulating pulp bleach conditions.
For 2-bromo-2-nitropropan-1,3-diol (Bronopol)
Environmental fate:
One hydrolysis study indicates that bronopol appears to hydrolyse slowly at acidic or neutral pH conditions. Bronopol decomposes in aqueous solution on exposure to light. Increases in temperature increase decomposition.
Ecotoxicity:
Bird LD50: mallard duck 510 mg/kg
Bird dietary LC50: quail 4488 ppm
Daphnia magna EC50 (48 h): 1.4 mg/l
Fish LC50: trout 41.5 ppm
DO NOT discharge into sewer or waterways.

12.2. Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
ethyl butyrate	LOW	LOW
benzyl acetate	LOW	LOW
d-limonene	HIGH	HIGH
p-anisaldehyde	LOW	LOW
ethyl butyl acetate	LOW	LOW
coumarin	LOW	LOW
allyl phenoxyacetate	LOW	LOW
alpha-amylcinnamaldehyde	LOW	LOW
linalyl acetate	HIGH	HIGH
linalool	HIGH	HIGH
ethanol	LOW (Half-life = 2.17 days)	LOW (Half-life = 5.08 days)
methanol	LOW	LOW
methylal	LOW	LOW
allyl alcohol	LOW (Half-life = 14 days)	LOW (Half-life = 0.92 days)
triethylamine	HIGH	HIGH
sodium hydroxide	LOW	LOW
2-bromo-2-nitropropan-1,3-diol	LOW	LOW

12.3. Bioaccumulative potential

Ingredient	Bioaccumulation

Continued...

ethyl butyrate	LOW (LogKOW = 1.85)
benzyl acetate	LOW (LogKOW = 1.96)
d-limonene	HIGH (LogKOW = 4.8275)
p-anisaldehyde	LOW (LogKOW = 1.76)
ethyl butyl acetate	LOW (LogKOW = 2.83)
coumarin	LOW (LogKOW = 1.39)
allyl phenoxyacetate	LOW (LogKOW = 2.46)
alpha-amylcinnamaldehyde	HIGH (LogKOW = 4.7)
linalyl acetate	MEDIUM (LogKOW = 3.93)
linalool	LOW (LogKOW = 2.97)
ethanol	LOW (LogKOW = -0.31)
methanol	LOW (BCF = 10)
methylal	LOW (LogKOW = 0)
allyl alcohol	LOW (LogKOW = 0.17)
triethylamine	LOW (BCF = 7.45)
sodium hydroxide	LOW (LogKOW = -3.88)
2-bromo-2-nitropropan-1,3-diol	LOW (LogKOW = -0.6408)
nitrilotriacetic acid, trisodium salt	LOW (LogKOW = -10.08)
sodium xylenesulfonate	LOW (LogKOW = -1.86)
white mineral oil (petroleum)	HIGH (LogKOW = 5.18)

12.4. Mobility in soil

Ingredient	Mobility
ethyl butyrate	LOW (KOC = 21.85)
benzyl acetate	LOW (KOC = 133.7)
d-limonene	LOW (KOC = 1324)
p-anisaldehyde	LOW (KOC = 23.26)
ethyl butyl acetate	LOW (KOC = 74.33)
coumarin	LOW (KOC = 146.1)
allyl phenoxyacetate	LOW (KOC = 199.9)
alpha-amylcinnamaldehyde	LOW (KOC = 2182)
linalyl acetate	LOW (KOC = 517.9)
linalool	LOW (KOC = 56.32)
ethanol	HIGH (KOC = 1)
methanol	HIGH (KOC = 1)
methylal	HIGH (KOC = 1)
allyl alcohol	HIGH (KOC = 1.325)
triethylamine	LOW (KOC = 107.2)
sodium hydroxide	LOW (KOC = 14.3)
2-bromo-2-nitropropan-1,3-diol	HIGH (KOC = 1)

12.5. Results of PBT and vPvB assessment

	P	B	T
Relevant available data	Not Available	Not Available	Not Available
PBT	✗	✗	✗
vPvB	✗	✗	Not Applicable

Continued...

PBT Criteria fulfilled?	No
vPvB	No

12.6. Endocrine disrupting properties

No evidence of endocrine disrupting properties were found in the current literature.

12.7. Other adverse effects

One or more ingredients within this SDS has the potential of causing ozone depletion and/or photochemical ozone creation.

SECTION 13 DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Product / Packaging disposal	• Containers may still present a chemical hazard/ danger when empty. • Return to supplier for reuse/ recycling if possible. Otherwise: • If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill. • Where possible retain label warnings and SDS and observe all notices pertaining to the product. Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked. A Hierarchy of Controls seems to be common - the user should investigate: • Reduction • Reuse • Recycling • Disposal (if all else fails) This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate. • **DO NOT** allow wash water from cleaning or process equipment to enter drains. • It may be necessary to collect all wash water for treatment before disposal. • In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. • Where in doubt contact the responsible authority. • Recycle wherever possible or consult manufacturer for recycling options. • Consult State Land Waste Authority for disposal. • Bury or incinerate residue at an approved site. • Recycle containers if possible, or dispose of in an authorised landfill.
Waste treatment options	Not Available
Sewage disposal options	Not Available

SECTION 14 TRANSPORT INFORMATION

Labels Required

Marine Pollutant	NO
HAZCHEM	Not Applicable

Land transport (ADR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

14.1. **UN number or ID number**	Not Applicable	
14.2. **UN proper shipping name**	Not Applicable	
14.3. **Transport hazard class(es)**	Class	Not Applicable
	Subsidiary Hazard	Not Applicable
14.4. **Packing group**	Not Applicable	
	Not Applicable	

Continued...

14.5. **Environmental hazard**	
14.6. **Special precautions for user**	Hazard identification (Kemler): Not Applicable Classification code: Not Applicable Hazard Label: Not Applicable Special provisions: Not Applicable Limited quantity: Not Applicable Transport Category: Not Applicable Tunnel Restriction Code: Not Applicable

Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

14.1. **UN number**	Not Applicable
14.2. **UN proper shipping name**	Not Applicable
14.3. **Transport hazard class(es)**	ICAO/IATA Class: Not Applicable ICAO / IATA Subsidiary Hazard: Not Applicable ERG Code: Not Applicable
14.4. **Packing group**	Not Applicable
14.5. **Environmental hazard**	Not Applicable
14.6. **Special precautions for user**	Special provisions: Not Applicable Cargo Only Packing Instructions: Not Applicable Cargo Only Maximum Qty / Pack: Not Applicable Passenger and Cargo Packing Instructions: Not Applicable Passenger and Cargo Maximum Qty / Pack: Not Applicable Passenger and Cargo Limited Quantity Packing Instructions: Not Applicable Passenger and Cargo Limited Maximum Qty / Pack: Not Applicable

Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

14.1. **UN number**	Not Applicable
14.2. **UN proper shipping name**	Not Applicable
14.3. **Transport hazard class(es)**	IMDG Class: Not Applicable IMDG Subsidiary Hazard: Not Applicable
14.4. **Packing group**	Not Applicable
14.5. **Environmental hazard**	Not Applicable
14.6. **Special precautions for user**	EMS Number: Not Applicable Special provisions: Not Applicable Limited Quantities: Not Applicable

Inland waterways transport (ADN): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

14.1. **UN number**	Not Applicable
14.2. **UN proper shipping name**	Not Applicable
14.3. **Transport hazard class(es)**	Not Applicable: Not Applicable

Continued...

14.4. **Packing group**	Not Applicable
14.5. **Environmental hazard**	Not Applicable
14.6. **Special precautions for user**	Classification code: Not Applicable Special provisions: Not Applicable Limited quantity: Not Applicable Equipment required: Not Applicable Fire cones number: Not Applicable

14.7. Maritime transport in bulk according to IMO instruments

14.7.1. Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

14.7.2. Transport in bulk in accordance with MARPOL Annex V and the IMSBC Code

Product name	Group
ethyl butyrate	Not Available
benzyl acetate	Not Available
d-limonene	Not Available
p-anisaldehyde	Not Available
ethyl butyl acetate	Not Available
coumarin	Not Available
allyl phenoxyacetate	Not Available
alpha-amylcinnamaldehyde	Not Available
linalyl acetate	Not Available
linalool	Not Available
ethanol	Not Available
methanol	Not Available
methylal	Not Available
allyl alcohol	Not Available
triethylamine	Not Available
sodium hydroxide	Not Available
2-bromo-2-nitropropan-1,3-diol	Not Available
EDTA tetrasodium salt	Not Available
nitrilotriacetic acid, trisodium salt	Not Available
sodium xylenesulfonate	Not Available
white mineral oil (petroleum)	Not Available

14.7.3.

Product name	Ship Type
ethyl butyrate	Not Available
benzyl acetate	Not Available
d-limonene	Not Available
p-anisaldehyde	Not Available
ethyl butyl acetate	Not Available
coumarin	Not Available
allyl phenoxyacetate	Not Available
alpha-amylcinnamaldehyde	Not Available
linalyl acetate	Not Available

Continued...

Product name	Ship Type
linalool	Not Available
ethanol	Not Available
methanol	Not Available
methylal	Not Available
allyl alcohol	Not Available
triethylamine	Not Available
sodium hydroxide	Not Available
2-bromo-2-nitropropan-1,3-diol	Not Available
EDTA tetrasodium salt	Not Available
nitrilotriacetic acid, trisodium salt	Not Available
sodium xylenesulfonate	Not Available
white mineral oil (petroleum)	Not Available

SECTION 15 REGULATORY INFORMATION

15.1. Safety, health and environmental regulations / legislation specific for the substance or mixture

ETHYL BUTYRATE IS FOUND ON THE FOLLOWING REGULATORY LISTS

- Europe EC Inventory
- European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)

BENZYL ACETATE IS FOUND ON THE FOLLOWING REGULATORY LISTS

- Europe EC Inventory
- European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)
- International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Not Classified as Carcinogenic

D-LIMONENE IS FOUND ON THE FOLLOWING REGULATORY LISTS

- EU REACH Regulation (EC) No 1907/2006 - Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles
- European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI
- Europe EC Inventory
- European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)
- International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Not Classified as Carcinogenic

P-ANISALDEHYDE IS FOUND ON THE FOLLOWING REGULATORY LISTS

- Europe EC Inventory
- European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)

ETHYL BUTYL ACETATE IS FOUND ON THE FOLLOWING REGULATORY LISTS

- Europe EC Inventory
- European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)

COUMARIN IS FOUND ON THE FOLLOWING REGULATORY LISTS

- Europe EC Inventory
- European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)
- FEI Equine Prohibited Substances List (EPSL)
- FEI Equine Prohibited Substances List - Banned Substances
- International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Not Classified as Carcinogenic

ALLYL PHENOXYACETATE IS FOUND ON THE FOLLOWING REGULATORY LISTS

- Europe EC Inventory
- European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)

ALPHA-AMYLCINNAMALDEHYDE IS FOUND ON THE FOLLOWING REGULATORY LISTS

- Europe EC Inventory
- European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)

LINALYL ACETATE IS FOUND ON THE FOLLOWING REGULATORY LISTS

- Europe EC Inventory
- European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)

LINALOOL IS FOUND ON THE FOLLOWING REGULATORY LISTS

Continued...

- European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI
- Europe EC Inventory
- European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)

ETHANOL IS FOUND ON THE FOLLOWING REGULATORY LISTS

- EU REACH Regulation (EC) No 1907/2006 - Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles
- European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI
- Europe EC Inventory
- European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)

METHANOL
IS FOUND ON THE FOLLOWING REGULATORY LISTS

- EU REACH Regulation (EC) No 1907/2006 - Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles
- EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)
- European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI
- EU European Chemicals Agency (ECHA) Community Rolling Action Plan (CoRAP) List of Substances
- Europe EC Inventory
- European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)
- Chemical Footprint Project - Chemicals of High Concern List

METHYLAL IS FOUND ON THE FOLLOWING REGULATORY LISTS

- Europe EC Inventory
- European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)

ALLYL ALCOHOL IS FOUND ON THE FOLLOWING REGULATORY LISTS

- EU REACH Regulation (EC) No 1907/2006 - Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles
- EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)
- European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI
- Europe EC Inventory
- European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)

TRIETHYLAMINE IS FOUND ON THE FOLLOWING REGULATORY LISTS

- EU REACH Regulation (EC) No 1907/2006 - Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles
- EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)
- European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI
- Europe EC Inventory
- European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)

SODIUM HYDROXIDE IS FOUND ON THE FOLLOWING REGULATORY LISTS

- European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI
- Europe EC Inventory
- European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)

2-BROMO-2-NITROPROPAN-1,3-DIOL IS FOUND ON THE FOLLOWING REGULATORY LISTS

- EU REACH Regulation (EC) No 1907/2006 - Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles
- European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI
- Europe EC Inventory
- European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)

EDTA TETRASODIUM SALT IS FOUND ON THE FOLLOWING REGULATORY LISTS

- European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI
- Europe EC Inventory
- European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)

NITRILOTRIACETIC ACID, TRISODIUM SALT IS FOUND ON THE FOLLOWING REGULATORY LISTS

- European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI
- Europe EC Inventory
- European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)
- Chemical Footprint Project - Chemicals of High Concern List
- International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
- International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 2B: Possibly carcinogenic to humans

SODIUM XYLENESULFONATE IS FOUND ON THE FOLLOWING REGULATORY LISTS

- Europe EC Inventory
- European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)

WHITE MINERAL OIL (PETROLEUM) IS FOUND ON THE FOLLOWING REGULATORY LISTS

- European Union Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens or mutagens at work
- Europe EC Inventory

Continued...

- European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)
- Chemical Footprint Project - Chemicals of High Concern List
- International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
- International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 1: Carcinogenic to humans
- International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Not Classified as Carcinogenic

This safety data sheet is in compliance with the following EU legislation and its adaptations - as far as applicable - : Directives 98/24/EC, - 92/85/EEC, - 94/33/EC, - 2008/98/EC, - 2010/75/EU; Commission Regulation (EU) 2020/878; Regulation (EC) No 1272/2008 as updated through ATPs.

Seveso Category	Not Available

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

ECHA SUMMARY

Ingredient	CAS number	Index No	ECHA Dossier
ethyl butyrate	105-54-4	Not Available	Not Available

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Flam. Liq. 3	GHS02; Wng	H226
2	Flam. Liq. 3; Eye Irrit. 2; Skin Irrit. 2; STOT SE 3; Aquatic Chronic 2; Acute Tox. 4	GHS02; GHS07; Wng; GHS09	H226; H319; H315; H335; H411; H312

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
benzyl acetate	140-11-4	Not Available	Not Available

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Aquatic Chronic 3		H412
2	Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; Aquatic Chronic 2; STOT SE 1; STOT RE 1; Acute Tox. 4	GHS09; GHS06; GHS08; Dgr; GHS02; GHS05	H315; H319; H335; H411; H370; H372; H302; H317; H361

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
d-limonene	5989-27-5	601-096-00-2, 601-029-00-7	Not Available

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Flam. Liq. 3; Asp. Tox. 1; Skin Irrit. 2; Skin Sens. 1; Aquatic Acute 1; Aquatic Chronic 1	GHS02; GHS08; GHS09; Dgr	H226; H304; H315; H317; H410
2	Flam. Liq. 3; Asp. Tox. 1; Skin Irrit. 2; Skin Sens. 1; Aquatic Acute 1; Aquatic Chronic 1; Eye Irrit. 2	GHS08; GHS09; Dgr; GHS01	H226; H304; H315; H317; H410; H319; H400
1	Flam. Liq. 3; Skin Irrit. 2; Skin Sens. 1; Aquatic Acute 1; Aquatic Chronic 1	GHS02; GHS07; GHS09; Wng	H226; H315; H317; H410
2	Flam. Liq. 3; Skin Irrit. 2; Skin Sens. 1; Aquatic Acute 1; Aquatic Chronic 1; Asp. Tox. 1; Eye Irrit. 2; Acute Tox. 4; Acute Tox. 1; Resp. Sens. 1; STOT SE 3	GHS02; GHS09; GHS08; Dgr; GHS06	H226; H315; H317; H410; H304; H400; H319; H312; H330; H334; H335

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
p-anisaldehyde	123-11-5	Not Available	Not Available

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Not Classified	Not Available	Not Available
2	Aquatic Chronic 3; Acute Tox. 4; STOT SE 3; Skin Sens. 1; Eye Dam. 1; Flam. Liq. 2; Skin Corr. 1; STOT SE 3; Muta.	GHS05; Dgr; GHS02; GHS08	H412; H302; H312; H314; H331; H318; H335; H317; H225; H336; H340; H360;

Continued...

	1A; Repr. 1B; STOT RE 1		H372

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
ethyl butyl acetate	123-66-0	Not Available	Not Available

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Flam. Liq. 3	GHS02; Wng	H226
2	Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; Flam. Liq. 2; Acute Tox. 4; Acute Tox. 4	GHS07; GHS02; Dgr	H315; H319; H335; H225; H302; H332

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
coumarin	91-64-5	Not Available	Not Available

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Acute Tox. 3; Acute Tox. 3; Skin Sens. 1; Acute Tox. 3; Aquatic Chronic 3	GHS06; Dgr	H301; H311; H317; H331; H412
2	Acute Tox. 3; Acute Tox. 3; Skin Sens. 1; Acute Tox. 3; Aquatic Chronic 3	GHS06; Dgr	H301; H311; H317; H331; H412
1	Acute Tox. 4; Skin Sens. 1	GHS07; Wng	H302; H317
2	Skin Sens. 1; STOT RE 2; Acute Tox. 3; Acute Tox. 3; Aquatic Chronic 2; Carc. 2; Acute Tox. 1; Skin Irrit. 2; Eye Dam. 1	GHS08; GHS06; Dgr; GHS09; GHS05	H317; H373; H311; H411; H351; H300; H315; H318; H330; H335; H341

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
allyl phenoxyacetate	7493-74-5	Not Available	Not Available

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Acute Tox. 4; Acute Tox. 4; Skin Irrit. 2; Skin Sens. 1	GHS07; Wng	H302; H312; H315; H317
2	Acute Tox. 4; Skin Sens. 1B; Aquatic Acute 1; Skin Irrit. 2; Acute Tox. 3; Acute Tox. 4; Eye Irrit. 2	GHS09; GHS06; Dgr	H302; H317; H400; H315; H311; H332; H319

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
alpha-amylcinnamaldehyde	122-40-7	Not Available	Not Available

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Skin Sens. 1; Aquatic Chronic 2	GHS07; GHS09; Wng	H317; H411
2	Skin Sens. 1; Aquatic Acute 1; Skin Irrit. 2; Eye Irrit. 2; Aquatic Chronic 1; STOT SE 3; STOT SE 2	GHS07; GHS09; Wng	H317; H400; H315; H319; H410; H335

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
linalyl acetate	115-95-7	Not Available	Not Available

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Skin Irrit. 2; Eye Irrit. 2	GHS07; Wng	H315; H319
2	Skin Irrit. 2; Skin Sens. 1B; Eye Irrit. 2; STOT SE 3; Aquatic Chronic 2	GHS07; Wng; GHS09	H315; H317; H319; H335; H411

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1	Skin Irrit. 2; Eye Irrit. 2	GHS07; Wng	H315; H319
2	Skin Irrit. 2; Eye Irrit. 2	GHS07; Wng	H315; H319

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
linalool	78-70-6	603-235-00-2, 603-235-00-2, 603-235-00-2	Not Available

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Skin Irrit. 2; Eye Irrit. 2	GHS07; Wng	H315; H319
2	Skin Irrit. 2; Eye Irrit. 2; Skin Sens. 1B	GHS07; Wng	H315; H319; H317
1	Skin Sens. 1B	GHS07; Wng	H317
2	Skin Corr. 1; Skin Sens. 1; Eye Dam. 1; STOT SE 3	GHS05; Dgr	H314; H317; H318; H335
1	Skin Irrit. 2; Skin Sens. 1B; Eye Irrit. 2	GHS07; Wng	H315; H317; H319
2	Skin Irrit. 2; Skin Sens. 1B; Eye Irrit. 2; STOT SE 3; Acute Tox. 4; Aquatic Chronic 2; Asp. Tox. 1; STOT SE 2	GHS09; GHS02; GHS08; Dgr	H315; H317; H319; H335; H332; H302; H411; H304

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
ethanol	64-17-5	603-002-00-5	Not Available

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Flam. Liq. 2	GHS02; Dgr	H225
2	Flam. Liq. 2; Carc. 1B; STOT SE 3; STOT RE 1; STOT SE 3; Muta. 1B; Repr. 1A; Met. Corr. 1; Skin Corr. 1B; Aquatic Acute 1; Aquatic Chronic 1; Acute Tox. 3; Acute Tox. 3; Acute Tox. 3; STOT SE 1; Skin Sens. 1; Eye Dam. 1	Dgr; GHS08; GHS01; GHS09; GHS05; GHS06	H225; H350; H411; H335; H304; H340; H336; H372; H315; H360; H318; H220; H301; H311; H331; H370; H317

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
methanol	67-56-1	603-001-00-X	Not Available

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Flam. Liq. 2; Acute Tox. 3; Acute Tox. 3; Acute Tox. 3; STOT SE 1	GHS02; GHS08; GHS06; Dgr	H225; H301; H311; H331; H370
2	Flam. Liq. 2; Acute Tox. 3; Acute Tox. 3; STOT SE 1; Eye Irrit. 2; Repr. 1B; STOT RE 1; Aquatic Acute 1; Aquatic Chronic 1; Skin Corr. 1A; STOT SE 3; STOT SE 3; Acute Tox. 2; Carc. 2	GHS08; GHS06; Dgr; GHS01; GHS05; GHS09	H301; H311; H370; H315; H319; H335; H360; H372; H336; H340; H350; H400; H410; H330; H224

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
methylal	109-87-5	Not Available	Not Available

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Flam. Liq. 2	GHS02; Dgr	H225
2	Flam. Liq. 2; Acute Tox. 4; STOT SE 2; Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; Acute Tox. 1; Skin Sens. 1; STOT SE 3	GHS02; Dgr; GHS08; GHS06	H225; H302; H371; H315; H319; H335; H310; H317; H336

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
allyl alcohol	107-18-6	603-015-00-6	Not Available

Continued...

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Flam. Liq. 2; Acute Tox. 3; Acute Tox. 2; Skin Irrit. 2; Eye Irrit. 2A; Acute Tox. 2; STOT SE 3; Aquatic Acute 1; Aquatic Chronic 3	GHS02; GHS09; GHS06; Dgr	H225; H301; H310; H315; H319; H330; H335; H400; H412
2	Flam. Liq. 2; Acute Tox. 3; Acute Tox. 2; Skin Irrit. 2; Eye Irrit. 2A; Acute Tox. 2; STOT SE 3; Repr. 2; Aquatic Acute 1; Aquatic Chronic 3; STOT SE 3	GHS09; GHS06; Dgr; GHS08; GHS01	H225; H301; H310; H315; H319; H330; H335; H400; H361; H410; H370

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
triethylamine	121-44-8	612-004-00-5	Not Available

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Flam. Liq. 2; Acute Tox. 4; Acute Tox. 4; Skin Corr. 1A; Acute Tox. 4	GHS02; GHS05; Dgr	H225; H302; H312; H314; H332
2	Flam. Liq. 2; Acute Tox. 3; Skin Corr. 1A; Eye Dam. 1; STOT SE 3; STOT SE 3; Acute Tox. 3; Met. Corr. 1; Acute Tox. 2; Aquatic Chronic 3	GHS05; GHS06; Dgr; GHS01; GHS08	H225; H311; H314; H335; H318; H336; H301; H228; H330; H412

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
sodium hydroxide	1310-73-2	011-002-00-6	Not Available

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Skin Corr. 1A	GHS05; Dgr	H314
2	Skin Corr. 1A; Eye Dam. 1	GHS05; Dgr	H314
1	Skin Corr. 1A	GHS05; Dgr	H314
2	Met. Corr. 1; Skin Corr. 1A; Eye Dam. 1; STOT SE 3; Acute Tox. 4; Acute Tox. 4; Aquatic Chronic 3; STOT SE 1; Aquatic Acute 3	GHS05; Dgr; GHS06; GHS08	H290; H314; H318; H335; H412; H370; H312; H302; H402

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
2-bromo-2-nitropropan-1,3-diol	52-51-7	603-085-00-8	Not Available

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Acute Tox. 4; Acute Tox. 4; Skin Irrit. 2; Eye Dam. 1; STOT SE 3; Aquatic Acute 1	GHS09; GHS05; Dgr	H302; H312; H315; H318; H335; H400
2	Acute Tox. 3; Skin Irrit. 2; Eye Dam. 1; STOT SE 3; Aquatic Acute 1; Aquatic Chronic 1; Flam. Sol. 2; Self-react. C; Acute Tox. 2; Acute Tox. 2	GHS05; GHS09; GHS06; Dgr; GHS02	H301; H315; H318; H335; H400; H410; H228; H242; H310; H330

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
EDTA tetrasodium salt	64-02-8	607-428-00-2	Not Available

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Acute Tox. 4; Eye Dam. 1	GHS05; Dgr	H302; H318
2	Acute Tox. 4; Eye Dam. 1; Skin Irrit. 2; STOT SE 3; Acute Tox. 4; STOT RE 2	GHS05; Dgr; GHS08	H302; H318; H315; H335; H332; H373
1	Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2; STOT SE 3	GHS07; Wng	H302; H315; H319; H335

Continued...

2	Acute Tox. 4; Skin Irrit. 2; STOT SE 3; Eye Dam. 1; Acute Tox. 4; STOT RE 2; Aquatic Chronic 2	GHS05; Dgr; GHS08; GHS09	H302; H315; H335; H318; H332; H373; H411
1	Acute Tox. 4; Eye Dam. 1	GHS05; Dgr	H302; H318
2	Acute Tox. 4; Eye Dam. 1	GHS05; Dgr	H302; H318; H315; H335
1	Acute Tox. 4; Eye Dam. 1	GHS05; Dgr	H302; H318
2	Acute Tox. 4; Eye Dam. 1; Acute Tox. 4; STOT RE 2; STOT SE 2; Met. Corr. 1; Acute Tox. 4; Skin Sens. 1; Carc. 2; STOT SE 3; Skin Corr. 1; Aquatic Chronic 3	GHS05; Dgr; GHS08	H302; H318; H332; H373; H371; H312; H317; H351; H335; H314; H412

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
nitrilotriacetic acid, trisodium salt	5064-31-3	607-620-00-6	Not Available

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Acute Tox. 4; Eye Irrit. 2; Carc. 2	GHS08; Wng	H302; H319; H351
2	Acute Tox. 4; Eye Irrit. 2; Carc. 2; Skin Irrit. 2	GHS08; Wng	H302; H319; H351; H315
1	Acute Tox. 4; Eye Irrit. 2; Carc. 2	GHS08; Wng	H302; H319; H351
2	Eye Irrit. 2; Carc. 2; Met. Corr. 1; Acute Tox. 3; Aquatic Chronic 3	GHS08; GHS05; Dgr; GHS06	H319; H351; H290; H301; H412

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
sodium xylenesulfonate	1300-72-7	Not Available	Not Available

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Eye Irrit. 2	GHS07; Wng	H319
2	Eye Irrit. 2; Skin Irrit. 2; STOT SE 3	Wng; GHS08	H319; H315; H335; H400

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
white mineral oil (petroleum)	8042-47-5	Not Available	Not Available

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Not Classified	Not Available	Not Available
2	Asp. Tox. 1; Eye Irrit. 2; Acute Tox. 4; Muta. 2; STOT SE 2; STOT RE 1; Flam. Liq. 3; Skin Irrit. 2; Skin Sens. 1; Acute Tox. 4; Acute Tox. 4; Aquatic Acute 1; Aquatic Chronic 1	GHS08; Dgr; GHS02; GHS09	H304; H319; H341; H371; H372; H226; H315; H317; H312; H331; H302; H400; H410

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

National Inventory Status

National Inventory	Status
Australia - AIIC / Australia Non-Industrial Use	Yes
Canada - DSL	Yes
Canada - NDSL	No (ethyl butyrate, benzyl acetate, d-limonene, p-anisaldehyde, ethyl butyl acetate, coumarin, allyl phenoxyacetate, alpha-amylcinnamaldehyde, linalool, ethanol, methanol, methylal, allyl alcohol, triethylamine, sodium hydroxide, 2-bromo-2-nitropropan-1,3-diol, EDTA tetrasodium salt, nitrilotriacetic acid, trisodium salt, sodium xylenesulfonate, white mineral oil (petroleum))
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	Yes

Continued...

Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	Yes
Taiwan - TCSI	Yes
Mexico - INSQ	No (alpha-amylcinnamaldehyde)
Vietnam - NCI	Yes
Russia - FBEPH	No (ethyl butyl acetate)
Legend:	***Yes = All CAS declared ingredients are on the inventory*** ***No = One or more of the CAS listed ingredients are not on the inventory. These ingredients may be exempt or will require registration.***

SECTION 16 OTHER INFORMATION

Revision Date	04/04/2025
Initial Date	04/04/2025

SDS Version Summary

Version	Issue Date	Sections Updated
0.2	04/04/2025	Toxicological information - Chronic Health, Handling and storage - Handling Procedure, Ecological Information - Environmental, Toxicological information - Acute Health (inhaled), Handling and storage - Storage (storage incompatibility), Firefighting measures - Fire Fighter (extinguishing media), Firefighting measures - Fire Fighter (fire incompatibility), Composition / information on ingredients - Ingredients, Hazards identification - Classification, Identification of the substance / mixture and of the company / undertaking - Supplier Information

Full text Risk and Hazard codes

H220	Extremely flammable gas.
H224	Extremely flammable liquid and vapour.
H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H228	Flammable solid.
H242	Heating may cause a fire.
H290	May be corrosive to metals.
H300	Fatal if swallowed.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H302+H312	Harmful if swallowed or if contact with skin.
H302+H312+H332	Harmful if swallowed, in contact with skin or if inhaled.
H304	May be fatal if swallowed and enters airways.
H310	Fatal in contact with skin.
H311	Toxic in contact with skin.
H312	Harmful in contact with skin.
H312+H332	Harmful in contact with skin or if inhaled.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.

Continued...

H330	Fatal if inhaled.
H331	Toxic if inhaled.
H332	Harmful if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H340	May cause genetic defects.
H341	Suspected of causing genetic defects.
H350	May cause cancer.
H351	Suspected of causing cancer.
H360	May damage fertility or the unborn child.
H361	Suspected of damaging fertility or the unborn child.
H361d	Suspected of damaging the unborn child.
H370	Causes damage to organs.
H371	May cause damage to organs.
H372	Causes damage to organs through prolonged or repeated exposure.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H402	Harmful to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.
H413	May cause long lasting harmful effects to aquatic life.

Other information

Ingredients with multiple cas numbers

Name	CAS No
d-limonene	5989-27-5, 138-86-3
coumarin	91-64-5, 185056-83-1
linalyl acetate	115-95-7, 16509-46-9
linalool	78-70-6, 126-91-0, 126-90-9
ethanol	64-17-5, 2348-46-1
sodium hydroxide	1310-73-2, 12200-64-5
EDTA tetrasodium salt	64-02-8, 10378-23-1, 13235-36-4, 194491-31-1, 50809-35-3, 70699-53-5, 8013-51-2, 8023-21-0, 97928-93-3, 67401-50-7
nitrilotriacetic acid, trisodium salt	5064-31-3, 18662-53-8
sodium xylenesulfonate	1300-72-7, 30587-85-0

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

For detailed advice on Personal Protective Equipment, refer to the following EU CEN Standards:
EN 166 Personal eye-protection
EN 340 Protective clothing
EN 374 Protective gloves against chemicals and micro-organisms
EN 13832 Footwear protecting against chemicals
EN 133 Respiratory protective devices

Continued...

end of SDS