532323 Hot Wheels Rear View Beach Bomb
Griffiths Equipment Limited

Chemwatch Hazard Alert Code: **3**

Chemwatch: **5426-68**
Version No: **2.1.1.1**
Safety Data Sheet according to HSNO Regulations

Issue Date: **28/09/2020**
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S.GHS.NZL.EN

SECTION 1 Identification of the substance / mixture and of the company / undertaking

Product Identifier

Product name	532323 Hot Wheels Rear View Beach Bomb
Synonyms	532323
Other means of identification	Not Available

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

Relevant identified uses	Concentrated fragrance for manufacturing purposes only. Not for personal use in this form or concentration. Use according to manufacturer's directions.

Details of the supplier of the safety data sheet

Registered company name	**Griffiths Equipment Limited**
Address	19 Bell Ave, Mount Wellington Auckland 1060 New Zealand
Telephone	+64 9 525 4575
Fax	Not Available
Website	www.griffithsequipment.co.nz
Email	sales@griffithsequipment.co.nz

Emergency telephone number

Association / Organisation	**NZ NATIONAL POISONS CENTRE**
Emergency telephone numbers	0800 POISON or 0800 764-766
Other emergency telephone numbers	International: +64 3 479-7227

SECTION 2 Hazards identification

Classification of the substance or mixture

Classification [1]	Flammable Liquid Category 4, Skin Corrosion/Irritation Category 2, Serious Eye Damage Category 1, Skin Sensitizer Category 1, Reproductive Toxicity Category 2, Aspiration Hazard Category 1
Legend:	*1. Classified by Chemwatch; 2. Classification drawn from CCID EPA NZ; 3. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI*
Determined by Chemwatch using GHS/HSNO criteria	3.1D, 6.1E (aspiration), 6.3A, 8.3A, 6.5B (contact), 6.8B

Label elements

Hazard pictogram(s)	
Signal word	**Danger**

Hazard statement(s)

H227	Combustible liquid.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H317	May cause an allergic skin reaction.
H361	Suspected of damaging fertility or the unborn child.

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H304	May be fatal if swallowed and enters airways.

Precautionary statement(s) Prevention

P201	Obtain special instructions before use.
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P261	Avoid breathing dust/fumes.
P272	Contaminated work clothing should not be allowed out of the workplace.

Precautionary statement(s) Response

P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor/physician/first aider.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313	IF exposed or concerned: Get medical advice/ attention.
P321	Specific treatment (see advice on this label).
P331	Do NOT induce vomiting.
P370+P378	In case of fire: Use alcohol resistant foam or normal protein foam to extinguish.
P302+P352	IF ON SKIN: Wash with plenty of water.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.

Precautionary statement(s) Storage

P403	Store in a well-ventilated place.
P405	Store locked up.

Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.

SECTION 3 Composition / information on ingredients

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
90622-58-5	0.5-5	alkanes, C11-15-iso-
64742-47-8.	0.5-5	C14-20 aliphatics (<=2% aromatics)
106-24-1	0.5-5	geraniol
106-22-9	0.5-5	beta-citronellol
54464-57-2	0.5-5	2-acetyl-1,2,3,4,6,7,8-octahydrotetramethylnaphthalene
127-51-5	0.5-5	isomethyl-alpha-ionone
60-12-8	0.5-5	phenethyl alcohol
78-70-6	0.5-5	linalool
8000-41-7	0.5-5	alpha-terpineol
32210-23-4	0.5-5	4-tert-butylcyclohexyl acetate
34590-94-8	0.5-5	dipropylene glycol monomethyl ether
63500-71-0	0.5-1	tetrahydro-4-methyl-2-(2-methylpropyl)-2H-pyran-4-ol
151-05-3	0.5-1	alpha,alpha-dimethylphenethyl acetate
28219-60-5	0.5-1	2-methyl-4-(2,2,3-trimethyl-3-cyclopentenyl)-2-butenol
115-95-7	0.5-1	linalyl acetate
106-25-2	0.5-1	nerol
141-12-8	0.5-1	neryl acetate
88-41-5	0.5-1	2-tert-butylcyclohexyl acetate
91-64-5	0.5-1	coumarin
Not Available	balance	Ingredients determined not to be hazardous
Not Available		includes
24937-78-8	60-80	ethylene/ vinyl acetate copolymer

SECTION 4 First aid measures

Description of first aid measures

Eye Contact	If this product comes in contact with the eyes:

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	▸ Immediately hold eyelids apart and flush the eye continuously with 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. ▸ Continue flushing until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. ▸ Transport to hospital or doctor without delay. ▸ 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, aerosols or combustion products are inhaled remove from contaminated area. ▸ Other measures are usually unnecessary.
Ingestion	▸ If swallowed do **NOT** induce vomiting. ▸ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. ▸ Observe the patient carefully. ▸ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. ▸ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. ▸ Seek medical advice. ▸ If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomitus.

Indication of any immediate medical attention and special treatment needed

Any material aspirated during vomiting may produce lung injury. Therefore emesis should not be induced mechanically or pharmacologically. Mechanical means should be used if it is considered necessary to evacuate the stomach contents; these include gastric lavage after endotracheal intubation. If spontaneous vomiting has occurred after ingestion, the patient should be monitored for difficult breathing, as adverse effects of aspiration into the lungs may be delayed up to 48 hours.
Treat symptomatically.

SECTION 5 Firefighting measures

Extinguishing media

- Do NOT direct a solid stream of water or foam into burning molten material; this may cause spattering and spread the fire.
- Alcohol stable foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.
- Water spray or fog - Large fires only.

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

Advice for firefighters

Fire Fighting	▸ Alert Fire Brigade and tell them location and nature of hazard. ▸ Wear breathing apparatus plus protective gloves. ▸ Prevent, by any means available, spillage from entering drains or water courses. ▸ Use water delivered as a fine spray to control fire and cool adjacent area. ▸ **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. ▸ Equipment should be thoroughly decontaminated after use.
Fire/Explosion Hazard	▸ Combustible solid which burns but propagates flame with difficulty; it is estimated that most organic dusts are combustible (circa 70%) - according to the circumstances under which the combustion process occurs, such materials may cause fires and / or dust explosions. ▸ Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions). ▸ Avoid generating dust, particularly clouds of dust in a confined or unventilated space as dusts may form an explosive mixture with air, and any source of ignition, i.e. flame or spark, will cause fire or explosion. Dust clouds generated by the fine grinding of the solid are a particular hazard; accumulations of fine dust (420 micron or less) may burn rapidly and fiercely if ignited - particles exceeding this limit will generally not form flammable dust clouds; once initiated, however, larger particles up to 1400 microns diameter will contribute to the propagation of an explosion. ▸ In the same way as gases and vapours, dusts in the form of a cloud are only ignitable over a range of concentrations; in principle, the concepts of lower explosive limit (LEL) and upper explosive limit (UEL) are applicable to dust clouds but only the LEL is of practical use; - this is because of the inherent difficulty of achieving homogeneous dust clouds at high temperatures (for dusts the LEL is often called the "Minimum Explosible Concentration", MEC). ▸ When processed with flammable liquids/vapors/mists,ignitable (hybrid) mixtures may be formed with combustible dusts. Ignitable mixtures will increase the rate of explosion pressure rise and the Minimum Ignition Energy (the minimum amount of energy required to ignite dust clouds - MIE) will be lower than the pure dust in air mixture. The Lower Explosive Limit (LEL) of the vapour/dust mixture will be lower than the individual LELs for the vapors/mists or dusts. ▸ A dust explosion may release of large quantities of gaseous products; this in turn creates a subsequent pressure rise of explosive force capable of damaging plant and buildings and injuring people. ▸ Usually the initial or primary explosion takes place in a confined space such as plant or machinery, and can be of sufficient force to damage or rupture the plant. If the shock wave from the primary explosion enters the surrounding area, it will disturb any settled dust layers, forming a second dust cloud, and often initiate a much larger secondary explosion. All large scale explosions have resulted from chain reactions of this type. ▸ Dry dust can be charged electrostatically by turbulence, pneumatic transport, pouring, in exhaust ducts and during transport. ▸ Build-up of electrostatic charge may be prevented by bonding and grounding. ▸ Powder handling equipment such as dust collectors, dryers and mills may require additional protection measures such as explosion venting. ▸ All movable parts coming in contact with this material should have a speed of less than 1-meter/sec. ▸ A sudden release of statically charged materials from storage or process equipment, particularly at elevated temperatures and/ or pressure, may result in ignition especially in the absence of an apparent ignition source. ▸ One important effect of the particulate nature of powders is that the surface area and surface structure (and often moisture content) can vary widely from sample to sample, depending of how the powder was manufactured and handled; this means that it is virtually impossible to use flammability data published in the literature for dusts (in contrast to that published for gases and vapours).

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	▸ Autoignition temperatures are often quoted for dust clouds (minimum ignition temperature (MIT)) and dust layers (layer ignition temperature (LIT)); LIT generally falls as the thickness of the layer increases. Combustion products include: carbon monoxide (CO) carbon dioxide (CO2) aldehydes acrolein nitrogen oxides (NOx) other pyrolysis products typical of burning organic material. May emit clouds of acrid smoke **NOTE:** Burns with intense heat. Produces melting, flowing, burning liquid and dense acrid black smoke. May emit poisonous fumes. May emit corrosive fumes. **CARE**: Water in contact with hot liquid may cause foaming and a steam explosion with wide scattering of hot oil and possible severe burns. Foaming may cause overflow of containers and may result in possible fire.

SECTION 6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

See section 8

Environmental precautions

See section 12

Methods and material for containment and cleaning up

Minor Spills	▸ Clean up waste regularly and abnormal spills immediately. ▸ Avoid breathing dust and contact with skin and eyes. ▸ Wear protective clothing, gloves, safety glasses and dust respirator. ▸ Use dry clean up procedures and avoid generating dust. ▸ Vacuum up or sweep up. **NOTE:** Vacuum cleaner must be fitted with an exhaust micro filter (HEPA type) (consider explosion-proof machines designed to be grounded during storage and use). ▸ Dampen with water to prevent dusting before sweeping. ▸ Place in suitable containers for disposal.
Major Spills	**CARE**: Absorbent materials wetted with occluded oil must be moistened with water as they may auto-oxidize, become self heating and ignite. Some oils slowly oxidise when spread in a film and oil on cloths, mops, absorbents may autoxidise and generate heat, smoulder, ignite and burn. In the workplace oily rags should be collected and immersed in water. Moderate hazard. ▸ **CAUTION**: Advise personnel in area. ▸ Alert Emergency Services and tell them location and nature of hazard. ▸ Control personal contact by wearing protective clothing. ▸ Prevent, by any means available, spillage from entering drains or water courses. ▸ Recover product wherever possible. ▸ **IF DRY:** Use dry clean up procedures and avoid generating dust. Collect residues and place in sealed plastic bags or other containers for disposal. **IF WET:** Vacuum/shovel up and place in labelled containers for disposal. ▸ **ALWAYS:** Wash area down with large amounts of water and prevent runoff into drains. ▸ If contamination of drains or waterways occurs, advise Emergency Services.

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

SECTION 7 Handling and storage

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. ▸ **DO NOT** allow material to contact humans, exposed food or food utensils. ▸ 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. Launder contaminated clothing before re-use. ▸ 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 are maintained. ▸ Organic powders when finely divided over a range of concentrations regardless of particulate size or shape and suspended in air or some other oxidizing medium may form explosive dust-air mixtures and result in a fire or dust explosion (including secondary explosions) ▸ Minimise airborne dust and eliminate all ignition sources. Keep away from heat, hot surfaces, sparks, and flame. ▸ Establish good housekeeping practices. ▸ Remove dust accumulations on a regular basis by vacuuming or gentle sweeping to avoid creating dust clouds. ▸ Use continuous suction at points of dust generation to capture and minimise the accumulation of dusts. Particular attention should be given to overhead and hidden horizontal surfaces to minimise the probability of a "secondary" explosion. According to NFPA Standard 654, dust layers 1/32 in.(0.8 mm) thick can be sufficient to warrant immediate cleaning of the area. ▸ Do not use air hoses for cleaning. ▸ Minimise dry sweeping to avoid generation of dust clouds. Vacuum dust-accumulating surfaces and remove to a chemical disposal area. Vacuums with explosion-proof motors should be used. ▸ Control sources of static electricity. Dusts or their packages may accumulate static charges, and static discharge can be a source of ignition.

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	▸ Solids handling systems must be designed in accordance with applicable standards (e.g. NFPA including 654 and 77) and other national guidance. ▸ Do not empty directly into flammable solvents or in the presence of flammable vapors. ▸ The operator, the packaging container and all equipment must be grounded with electrical bonding and grounding systems. Plastic bags and plastics cannot be grounded, and antistatic bags do not completely protect against development of static charges. Empty containers may contain residual dust which has the potential to accumulate following settling. Such dusts may explode in the presence of an appropriate ignition source. ▸ Do NOT cut, drill, grind or weld such containers. ▸ In addition ensure such activity is not performed near full, partially empty or empty containers without appropriate workplace safety authorisation or permit.
Other information	Consider storage under inert gas. ▸ Store in original containers. ▸ Keep containers securely sealed. ▸ No smoking, naked lights or ignition sources. ▸ 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.

Conditions for safe storage, including any incompatibilities

Suitable container	▸ Polyethylene or polypropylene container. ▸ Packing as recommended by manufacturer. ▸ Check all containers are clearly labelled and free from leaks.
Storage incompatibility	▸ Avoid reaction with oxidising agents, bases and strong reducing agents. ▸ Avoid strong acids, acid chlorides, acid anhydrides and chloroformates.

SECTION 8 Exposure controls / personal protection

Control parameters

Occupational Exposure Limits (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
New Zealand Workplace Exposure Standards (WES)	C14-20 aliphatics (<=2% aromatics)	Oil mist, mineral	5 mg/m3	10 mg/m3	Not Available	om-Sampled by a method that does not collect vapour.
New Zealand Workplace Exposure Standards (WES)	dipropylene glycol monomethyl ether	Dipropylene glycol methyl ether	100 ppm / 606 mg/m3	909 mg/m3 / 150 ppm	Not Available	skin-Skin absorption

Emergency Limits

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
C14-20 aliphatics (<=2% aromatics)	Petroleum distillates; petroleum ether; includes clay-treated light naphthenic [64742-45-6]; low boiling [68477-31-6]; petroleum extracts [64742-06-9]; petroleum base oil [64742-46-7]; petroleum 50 thinner, petroleum spirits [64475-85-0], Soltrol, VM&P naphtha [8032-32-4]; Ligroine, and paint solvent; petroleum paraffins C5-C20 [64771-72-8]; hydrotreated light naphthenic [64742-53-6]; solvent refined light naphthenic [64741-97-5]; and machine coolant 1	1,100 mg/m3	1,800 mg/m3	40,000 mg/m3
alpha-terpineol	Alpha,alpha,4-trimethyl-3-cyclohexene-1-methanol, (S)-; (alpha-Terpineol)	59 mg/m3	650 mg/m3	1,000 mg/m3
dipropylene glycol monomethyl ether	Dipropylene glycol methyl ether	150 ppm	1700* ppm	9900** ppm
coumarin	Coumarin	0.88 mg/m3	9.7 mg/m3	58 mg/m3
ethylene/ vinyl acetate copolymer	Ethylene/vinyl acetate copolmer	30 mg/m3	330 mg/m3	2,000 mg/m3

Ingredient	Original IDLH	Revised IDLH
alkanes, C11-15-iso-	Not Available	Not Available
C14-20 aliphatics (<=2% aromatics)	2,500 mg/m3	Not Available
geraniol	Not Available	Not Available
beta-citronellol	Not Available	Not Available
2-acetyl-1,2,3,4,6,7,8-octahydrotetramethylnaphthalene	Not Available	Not Available
isomethyl-alpha-ionone	Not Available	Not Available
phenethyl alcohol	Not Available	Not Available
linalool	Not Available	Not Available
alpha-terpineol	Not Available	Not Available
4-tert-butylcyclohexyl acetate	Not Available	Not Available
dipropylene glycol monomethyl ether	600 ppm	Not Available
tetrahydro-4-methyl-2-(2-methylpropyl)-2H-pyran-4-ol	Not Available	Not Available
alpha,alpha-dimethylphenethyl acetate	Not Available	Not Available

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Ingredient	Original IDLH	Revised IDLH
2-methyl-4-(2,2,3-trimethyl-3-cyclopentenyl)-2-butenol	Not Available	Not Available
linalyl acetate	Not Available	Not Available
nerol	Not Available	Not Available
neryl acetate	Not Available	Not Available
2-tert-butylcyclohexyl acetate	Not Available	Not Available
coumarin	Not Available	Not Available
ethylene/ vinyl acetate copolymer	Not Available	Not Available

Occupational Exposure Banding

Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
geraniol	E	≤ 0.1 ppm
beta-citronellol	E	≤ 0.1 ppm
2-acetyl-1,2,3,4,6,7,8-octahydrotetramethylnaphthalene	E	≤ 0.1 ppm
isomethyl-alpha-ionone	D	> 0.1 to ≤ 1 ppm
phenethyl alcohol	E	≤ 0.1 ppm
linalool	E	≤ 0.1 ppm
alpha-terpineol	E	≤ 0.1 ppm
4-tert-butylcyclohexyl acetate	E	≤ 0.1 ppm
tetrahydro-4-methyl-2-(2-methylpropyl)-2H-pyran-4-ol	E	≤ 0.1 ppm
alpha,alpha-dimethylphenethyl acetate	E	≤ 0.01 mg/m³
2-methyl-4-(2,2,3-trimethyl-3-cyclopentenyl)-2-butenol	E	≤ 0.1 ppm
linalyl acetate	E	≤ 0.1 ppm
nerol	E	≤ 0.1 ppm
neryl acetate	E	≤ 0.1 ppm
2-tert-butylcyclohexyl acetate	E	≤ 0.1 ppm
coumarin	E	≤ 0.01 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.*	

Exposure controls

Appropriate engineering controls

Care: Atmospheres in bulk storages and even apparently empty tanks may be hazardous by oxygen depletion. Atmosphere must be checked before entry.

Requirements of State Authorities concerning conditions for tank entry must be met. Particularly with regard to training of crews for tank entry; work permits; sampling of atmosphere; provision of rescue harness and protective gear as needed
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.

Local exhaust ventilation usually required. If risk of overexposure exists, wear approved respirator. Correct fit is essential to obtain adequate protection. Supplied-air type respirator may be required in special circumstances. Correct fit is essential to ensure adequate protection.
An approved self contained breathing apparatus (SCBA) may be required in some situations.
Provide adequate ventilation in warehouse or closed storage area. Air contaminants generated in the workplace possess varying "escape" velocities which, in turn, determine the "capture velocities" of fresh circulating air required to effectively remove the contaminant.

Type of Contaminant:	Air Speed:
solvent, vapours, degreasing etc., evaporating from tank (in still air).	0.25-0.5 m/s (50-100 f/min.)
aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation)	0.5-1 m/s (100-200 f/min.)
direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 f/min.)
grinding, abrasive blasting, tumbling, high speed wheel generated dusts (released at high initial velocity into zone of very high rapid air motion).	2.5-10 m/s (500-2000 f/min.)

Within each range the appropriate value depends on:

Lower end of the range	Upper end of the range
1: Room air currents minimal or favourable to capture	1: Disturbing room air currents
2: Contaminants of low toxicity or of nuisance value only.	2: Contaminants of high toxicity

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	3: Intermittent, low production. | 3: High production, heavy use 4: Large hood or large air mass in motion | 4: Small hood-local control only Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point (in simple cases). Therefore the air speed at the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 1-2 m/s (200-400 f/min) for extraction of solvents generated in a tank 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed or used.
Personal protection	
Eye and face protection	▸ Safety glasses with side shields. ▸ Chemical goggles. ▸ 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], [AS/NZS 1336 or national equivalent]
Skin protection	See Hand protection below
Hands/feet protection	**NOTE:** ▸ The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact. ▸ Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed. For esters: ▸ Do NOT use natural rubber, butyl rubber, EPDM or polystyrene-containing materials. 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). · 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. ▸ When handling hot materials wear heat resistant, elbow length gloves. ▸ Rubber gloves are not recommended when handling hot objects, materials ▸ Protective gloves eg. Leather gloves or gloves with Leather facing Experience indicates that the following polymers are suitable as glove materials for protection against undissolved, dry solids, where abrasive particles are not present. ▸ polychloroprene. ▸ nitrile rubber. ▸ butyl rubber. ▸ fluorocaoutchouc. ▸ polyvinyl chloride. Gloves should be examined for wear and/ or degradation constantly.
Body protection	See Other protection below
Other protection	▸ Overalls. ▸ P.V.C apron. ▸ Barrier cream. ▸ Skin cleansing cream.

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	▸ Eye wash unit.

Respiratory protection

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

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required.
Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 10 x ES	A-AUS P2	-	A-PAPR-AUS / Class 1 P2
up to 50 x ES	-	A-AUS / Class 1 P2	-
up to 100 x ES	-	A-2 P2	A-PAPR-2 P2 ^

^ - Full-face
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)

- Respirators may be necessary when engineering and administrative controls do not adequately prevent exposures.
- The decision to use respiratory protection should be based on professional judgment that takes into account toxicity information, exposure measurement data, and frequency and likelihood of the worker's exposure - ensure users are not subject to high thermal loads which may result in heat stress or distress due to personal protective equipment (powered, positive flow, full face apparatus may be an option).
- Published occupational exposure limits, where they exist, will assist in determining the adequacy of the selected respiratory protection. These may be government mandated or vendor recommended.
- Certified respirators will be useful for protecting workers from inhalation of particulates when properly selected and fit tested as part of a complete respiratory protection program.
- Use approved positive flow mask if significant quantities of dust becomes airborne.
- Try to avoid creating dust conditions.

SECTION 9 Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Black solid with a characteristic odour.

Physical state	Solid	**Relative density (Water = 1)**	0.96
Odour	Not Available	**Partition coefficient n-octanol / water**	Not Available
Odour threshold	Not Available	**Auto-ignition temperature (°C)**	300
pH (as supplied)	Not Available	**Decomposition temperature**	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 Applicable
Flash point (°C)	Not Available	**Taste**	Not Available
Evaporation rate	Not Available	**Explosive properties**	Not Available
Flammability	Not Available	**Oxidising properties**	Not Available
Upper Explosive Limit (%)	Not Available	**Surface Tension (dyn/cm or mN/m)**	Not Applicable
Lower Explosive Limit (%)	Not Available	**Volatile Component (%vol)**	Not Available
Vapour pressure (kPa)	Not Available	**Gas group**	Not Available
Solubility in water	Not Available	**pH as a solution (1%)**	Not Available
Vapour density (Air = 1)	Not Available	**VOC g/L**	Not Available

SECTION 10 Stability and reactivity

Reactivity	See section 7
Chemical stability	▸ Unstable in the presence of incompatible materials. ▸ Product is considered stable. ▸ Hazardous polymerisation will not occur.
Possibility of hazardous reactions	See section 7
Conditions to avoid	See section 7
Incompatible materials	See section 7
Hazardous decomposition products	See section 5

SECTION 11 Toxicological information

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. Inhalation of dusts, generated by the material during the course of normal handling, may be damaging to the health of the individual.

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	Inhalation hazard is increased at higher temperatures.
Ingestion	Swallowing of the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis; serious consequences may result. (ICSC13733) Accidental ingestion of the material may be damaging to the health of the individual.
Skin Contact	This material can cause inflammation of the skin on contact in some persons. Molten material is capable of causing burns. 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	If applied to the eyes, this material causes severe eye damage.
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. Inhaling this product is more likely to cause a sensitisation reaction in some persons compared to the general population. Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population. Based on experience with animal studies, exposure to the material may result in toxic effects to the development of the foetus, at levels which do not cause significant toxic effects to the mother. 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. There has been some concern that this material can cause cancer or mutations but there is not enough data to make an assessment. Ample evidence from experiments exists that there is a suspicion this material directly reduces fertility. Intolerance to perfumes, by inhalation, may occur if the perfume contains a sensitizing principal. Symptoms may vary from general unwellness, coughing, phlegm, wheezing, chest tightness, headache, shortness of breath on exertion, acute respiratory illness, hayfever and other respiratory diseases, including asthma. Perfumes can induce overactivity of the airways without producing allergy or apparent airway obstruction. Carbon filter masks may not afford protection. Cases of workplace asthma induced by perfume substances, such as isoamyl acetate, limonene, cinnamaldehyde and benzaldehyde, tend to give persistent symptoms, even though the exposure is below workplace exposure limits. In animal testing, inhalation intolerance has occurred, with irritation of the lungs, reduced lung function and toxicity of the nervous system.

532323 Hot Wheels Rear View Beach Bomb	**TOXICITY**	**IRRITATION**
	Not Available	Not Available

alkanes, C11-15-iso-	**TOXICITY**	**IRRITATION**
	Dermal (rabbit) LD50: >3200 mg/kg[2]	Not Available
	Inhalation (rat) LC50: >5.01 mg/l/4h[2]	
	Oral (rat) LD50: >10000 mg/kg[2]	

C14-20 aliphatics (<=2% aromatics)	**TOXICITY**	**IRRITATION**
	Dermal (rabbit) LD50: >5000 mg/kg[2]	Eye : Not irritating (OECD 405) *
	Inhalation (rat) LC50: >4951 mg/l/4hEyeNotirritating(OECD405)*[2]	Eye: no adverse effect observed (not irritating)[1]
	Oral (rat) LD50: =7400 mg/kg[2]	Skin : Not irritating (OECD 404)*
	Oral (rat) LD50: >5000 mg/kg[2]	Skin: adverse effect observed (irritating)[1]

geraniol	**TOXICITY**	**IRRITATION**
	Dermal (rabbit) LD50: >5000 mg/kg[2]	Eye: adverse effect observed (irritating)[1]
	Oral (rat) LD50: 2100 mg/kg[2]	Skin (guinea pig):100mg/24hSEVERE
	Oral (rat) LD50: 3600 mg/kg[2]	Skin (man): 16 mg/24h - SEVERE
		Skin (rabbit): 100 mg/24h-SEVERE
		Skin: adverse effect observed (irritating)[1]

beta-citronellol	**TOXICITY**	**IRRITATION**
	Dermal (rabbit) LD50: 2650 mg/kg[2]	Eye: adverse effect observed (irritating)[1]
	Oral (rat) LD50: 3450 mg/kg[2]	Skin (guin.pig): 100mg/24h-SEVERE
		Skin (man): 16 mg/48h - mod
		Skin (rabbit): 100 mg/24h-SEVERE
		Skin: adverse effect observed (irritating)[1]

2-acetyl-1,2,3,4,6,7,8-octahydrotetramethylnaphthalene	**TOXICITY**	**IRRITATION**
	Not Available	Not Available

isomethyl-alpha-ionone	**TOXICITY**	**IRRITATION**
	Oral (rat) LD50: >5000 mg/kg[2]	Eye: no adverse effect observed (not irritating)[1]
		Skin: no adverse effect observed (not irritating)[1]

Continued...

phenethyl alcohol	**TOXICITY**	**IRRITATION**
	Dermal (rabbit) LD50: 790 mg/kg[2]	Eye (rabbit): 0.75 mg/24h SEVERE
	dermal (rat) LD50: >5000 mg/kg[2]	Eye (rabbit): 12000 mg/10m mild
	Inhalation (rat) LC50: >4.63 mg/l/4H[2]	Eye: adverse effect observed (irritating)[1]
	Oral (rat) LD50: 1500 mg/kg[2]	Skin (rabbit): 100 mg/24h moderate
	Oral (rat) LD50: 1790 mg/kg[2]	Skin: no adverse effect observed (not irritating)[1]
linalool	**TOXICITY**	**IRRITATION**
	Dermal (rabbit) LD50: 5610 mg/kg[2]	Skin (guinea pig):100mg/24h-mild
	dermal (rat) LD50: 5610 mg/kg[2]	Skin (man): 16 mg/48h-mild
	Oral (mouse) LD50: =3000 mg/kg[2]	Skin (rabbit): 100 mg/24h-SEVERE
	Oral (rat) LD50: 2790 mg/kg[2]	Skin (rabbit): 500 mg/24h - mild
alpha-terpineol	**TOXICITY**	**IRRITATION**
	2900 mg/kg[2]	Eye: adverse effect observed (irritating)[1]
	Oral (mouse) LD50: 12.8 mg/kg[2]	Skin: adverse effect observed (irritating)[1]
	Oral (mouse) LD50: 2830 mg/kg[2]	
	Oral (rat) LD50: 5170 mg/kg[2]	
4-tert-butylcyclohexyl acetate	**TOXICITY**	**IRRITATION**
	Not Available	Skin (rabbit): 500 mg/24h mod
dipropylene glycol monomethyl ether	**TOXICITY**	**IRRITATION**
	Oral (rat) LD50: 5135 mg/kg[2]	Eye (human): 8 mg - mild
		Eye (rabbit): 500 mg/24hr - mild
		Skin (rabbit): 238 mg - mild
		Skin (rabbit): 500 mg (open)-mild
tetrahydro-4-methyl-2-(2-methylpropyl)-2H-pyran-4-ol	**TOXICITY**	**IRRITATION**
	Dermal (rabbit) LD50: >2000 mg/kg[2]	Eye; 100% non-irritating *
	Oral (rat) LD50: >5000 mg/kg[2]	Skin: 100% non-irritating *
		Skin: no adverse effect observed (not irritating)[1]
alpha,alpha-dimethylphenethyl acetate	**TOXICITY**	**IRRITATION**
	Oral (rat) LD50: 3300 mg/kg[2]	Eye: no adverse effect observed (not irritating)[1]
		Skin (rabbit): 500 mg/24h - mod
		Skin: adverse effect observed (irritating)[1]
2-methyl-4-(2,2,3-trimethyl-3-cyclopentenyl)-2-butenol	**TOXICITY**	**IRRITATION**
	Dermal (rabbit) LD50: >2000 mg/kg[2]	Eye: adverse effect observed (irritating)[1]
	Oral (rat) LD50: >5000 mg/kg[2]	Skin: no adverse effect observed (not irritating)[1]
linalyl acetate	**TOXICITY**	**IRRITATION**
	Dermal (rabbit) LD50: >5000 mg/kg[2]	Skin (guinea pig): 100mg/24h-mod
	Oral (mouse) LD50: 13360 mg/kg[2]	Skin (rabbit): 100 mg/24h-SEVERE
	Oral (rat) LD50: 13934 mg/kg[2]	
	Oral (rat) LD50: 14550 mg/kg[1]	
nerol	**TOXICITY**	**IRRITATION**
	Dermal (rabbit) LD50: >5000 mg/kg[2]	Eye: adverse effect observed (irritating)[1]
	Oral (rat) LD50: 4500 mg/kg[2]	Skin (rabbit): 500 mg/24h - mod
		Skin: adverse effect observed (irritating)[1]
neryl acetate	**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: no adverse effect observed (not irritating)[1]
	Oral (rat) LD50: >5000 mg/kg[2]	

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2-tert-butylcyclohexyl acetate	**TOXICITY**	**IRRITATION**
	Dermal (rabbit) LD50: >5000 mg/kg[2]	Eye: no adverse effect observed (not irritating)[1]
	Oral (rat) LD50: 4600 mg/kg[2]	Skin: no adverse effect observed (not irritating)[1]
coumarin	**TOXICITY**	**IRRITATION**
	Oral (rat) LD50: 293 mg/kg[2]	Not Available
ethylene/ vinyl acetate copolymer	**TOXICITY**	**IRRITATION**
	Not Available	Not Available
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*	

ALKANES, C11-15-ISO-	for C10 - C12 isoalkanes: The safety of isoparaffins as used in cosmetic products was reviewed by the Cosmetic Ingredient Review (CIR) Expert Panel. These ingredients function mostly as solvents and also function as emollients in the 0001% to 90% concentration range. The CIR Expert Panel has reviewed relevant animal and clinical data and concluded that these ingredients are safe in the present practices of use and concentration The CIR Expert Panel noted that most of the available data related to oral or inhalation exposure to isoparaffins, but the dermal and ocular exposure data that were available, suggested mild ocular irritation, mild-to-severe irritation, no sensitization or photosensitization, and no phototoxicity. No significant toxicity was identified in oral or inhalation exposure studies of the following end points: genotoxicity, reproductive and developmental toxicity, or carcinogenicity.Nephrotoxicity, however, was a concern. The Expert Panel noted the involvement of a2u-globulin in the mechanism for isoparaffin-induced nephrotoxicity/renal tubule cell proliferation in male rats of various strains in oral and inhalation exposure studies. Humans lack this protein and, thus, the Panel agreed that findings associated with the a2u-globulin protein in male rats were not relevant to humans.This view was consistent with the US EPA position that it was not possible for the agency to derive an oral RfD for chronic oral exposure or a reference concentration for chronic inhalation exposure to isooctane because the available studies were limited, in that they were designed to only investigate the endpoints specific to a2u-globulin-associated nephropathy. The EPA also concluded that there was inadequate evidence to assess the carcinogenic potential of isooctane, based on the absence of human epidemiological studies and chronic bioassays on this compound. However, the CIR Expert Panel noted that no significant tumor incidence was found following life-time dermal application of petrolatum (15% in isooctane) to mice and also found no evidence of any concern regarding carcinogenic potential from exposure to isoparaffins as used in cosmetics. The potential adverse effects of inhaled aerosols depend on the specific chemical species, the concentration and the duration of the exposure and their site of deposition within the respiratory system. In practice, aerosols should have at least 99% of their particle diameters in the 10 to 110 mm range and the mean particle diameter in a typical aerosol spray has been reported as ~38 mm. Particles with an aerodynamic diameter of <10 mm are respirable. After reviewing the positive acute and subchronic inhalation toxicity data the Expert Panel determined that isoparaffins can be used safely in hair sprays, because the product particle size is not respirable. International Journal of Toxicology 31 (Supplement 3) 269S-295S 2012
C14-20 ALIPHATICS (<=2% AROMATICS)	*Exxsol D 100 SDS
GERANIOL	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. Geraniol does have sensitising properties, but the response it exhibits tends to be weak and variable. Animal testing revealed an oral semi-lethal dose of more than 3.6 g/kg in rats and an acute semi-lethal dose via skin absorption of over 5.0 g/kg.
2-ACETYL-1,2,3,4,6,7,8-OCTAHYDROTETRAMETHYLNAPHTHALENE	The substance is an individual isomer of the fragrance ingredient OTNE [predominant isomer: 1-(1,2,3,4,5,6,7,8-octahydro-2,3,8,8-tetramethyl-2-naphthyl)ethan-1- one; synonyms - tetramethylacetyloctahydronaphthalene, Iso-E Super; other isomers: 1-(1,2,3,4,5,6,7,8-octahydro2,3,8,8,-tetramethyl-2-naphthyl)ethan-1-one, and 1,2,3,4,5,6,7,8-octahydro-2,3,8,8-tetramethyl-2-acetonaphthalenone]. A synthetic terpenoid considered to be a petroleum-derived aroma chemical No data were available regarding chemical disposition, metabolism, or toxicokinetics; acute, short term, subchronic, or chronic toxicity; synergistic or antagonistic activity; reproductive or teratological effects; carcinogenicity; genotoxicity; or immunotoxicity of OTNE Several compounds were considered as structural analogues of OTNE. Data are provided for the tetralin derivatives AHTN (CAS RN: 21145-77-7; Tonalide, 1-(5,6,7,8-tetrahydro-3,5,5,6,8,8 hexamethyl-2-naphthalenyl)ethanone) and AETT, (*CAS RN: 88-29-9; Versalide, 1-(3-ethyl-5,6,7,8-tetrahydro-5,5,8,8 tetramethyl-2-naphthalenyl)ethanone) which are also polycyclic synthetic musks. Both compounds have been detected in human adipose tissue and human milk. In one rat study, AHTN produced acute hepatic damage but in another had no adverse effects when administered to lactating rats beginning the third week of pregnancy at doses producing levels in the milk ~1000 times those reported in human milk. Administered by gavage at 50 mg/kg/day on gestation days 7 through 17, AHTN produced clinical signs and reduced weight gain and feed consumption in dams but had no adverse effect on embryo-fetal viability, growth, or morphology. In female rats, AETT induced classic degenerative changes in the liver and effects on the nucleolus and was neurotoxic. Effects included demyelination, hyperirritability, limb weakness, and gait abnormality that became severe ataxia. AHTN gave negative results in several genotoxicity studies (e.g., the Salmonella typhimurium/Escherichia coli plate incorporation and liquid preincubation assays and in vivo mouse micronucleus assays) Human Data is available ISO-E super (CAS RN: 54464-57-2): In dermatological patients, two cases of an allergic reaction towards Iso-E Super were observed on day 3 or 4 of application (patch test); however, this was not proved to be clinically relevant. Chronic exposure may result in permanent hypersensitivity] In a study with female mice, Iso E Super was positive in the local lymph node assay (LLNA) and irritancy assay (IRR), but negative in the mouse ear swelling test (MEST). The alkyl cyclic ketone (ACK) fragrance ingredients are a diverse group of structures with similar metabolic and toxicity profiles. ACK fragrance materials have low acute toxicity. Repeated exposure causes some adverse effects in biochemical tests and blood cell counts. They are not considered to be irritating to the skin of humans. In animals, mild to moderate eye irritation was seen; however, full recovery usually occurred. Human studies showed that ACK fragrance ingredients have low potential for sensitization. Phototoxicity and photosensitization were not demonstrated in humans. Developmental toxicity occurred only when toxicity also appeared in the mother. Tests showed that this group of substances did not cause genetic toxicity.
ISOMETHYL-ALPHA-IONONE	Beta-ionone is absorbed after oral exposure. Metabolism takes place mainly in the liver, and beta-ionone is excreted via urine. It produces abnormal liver, kidney and thyroid changes, and may cause depression and tremors. It causes dose dependent eye and skin irritation but no evidence of cancer-causing effect, nerve or genetic toxicity was observed. For ionones and rose ketones, when used as fragrance ingredients: Ionones have low to moderate toxicity if swallowed. Acute toxicity by skin contact is low. Animal testing has not shown subchronic

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	toxicity. Under intended conditions of use as fragrance ingredients, they do not have significant potential for genetic, reproductive or developmental toxicity. Ionones are non-irritating when used as fragrance ingredients, while the rose ketones have limited irritation potential in sensitive subjects. The ionones are considered to be without significant potential to sensitise the skin, while the rose ketones are sensitisers when present at concentrations greater than 0.2%. The safety margin is considered to be high. A member or analogue of a group of aliphatic and alicyclic terpenoid tertiary alcohols and structurally related substances generally regarded as safe. Most alicyclic substances used as flavour ingredients are mono- and bicyclic terpenes which occur naturally in a wide variety of foods. With the exception of pulegone, alicyclic substances show very low oral acute toxicity. In most subchronic studies performed on animals, no adverse effects were observed at any dose level.
PHENETHYL ALCOHOL	Unlike benzylic alcohols, the beta-hydroxyl group of the members of benzyl alkyl alcohols contributes to break down reactions but do not undergo phase II metabolic activation. Though structurally similar to cancer causing ethyl benzene, phenethyl alcohol is only of negligible concern due to limited similarity in their pattern of activity. This is a member or analogue of a group of phenethyl, aldehyde, acid and related acetals generally regarded as safe (GRAS), intended for use as flavouring ingredients, 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. Mutation mouse ascites tumour
DIPROPYLENE GLYCOL MONOMETHYL ETHER	For propylene glycol ethers (PGEs): Typical propylene glycol ethers include propylene glycol n-butyl ether (PnB); dipropylene glycol n-butyl ether (DPnB); dipropylene glycol methyl ether acetate (DPMA) and tripropylene glycol methyl ether (TPM). Testing of a wide variety of propylene glycol ethers has shown that propylene glycol-based ethers are less toxic than some ethers of the ethylene series. The common toxicities associated with the lower molecular weight homologues of the ethylene series, such as adverse effects on the reproductive organs, the developing embryo and foetus, blood or thymus gland, are not seen with the commercial-grade propylene glycol ethers. In the ethylene series, metabolism of the terminal hydroxyl group produces and alkoxyacetic acid. The reproductive and developmental toxicities of the lower molecular weight homologues in the ethylene series are due specifically to the formation of methoxyacetic and ethoxyacetic acids. Longer chain homologues in the ethylene series are not associated with reproductive toxicity, but can cause haemolysis in sensitive species, also through formation of an alkoxyacetic acid. The predominant alpha isomer of all the PGEs (which is thermodynamically favoured during manufacture of PGEs) is a secondary alcohol incapable of forming an alkoxypropionic acid. In contrast, beta-isomers are able to form the alkoxypropionic acids and these are linked to birth defects (and possibly, haemolytic effects). The alpha isomer comprises more than 95% of the isomeric mixture in the commercial product, and therefore PGEs show relatively little toxicity. One of the main metabolites of the propylene glycol ethers is propylene glycol, which is of low toxicity and completely metabolized in the body. As a class, PGEs have low acute toxicity via swallowing, skin exposure and inhalation. PnB and TPM are moderately irritating to the eyes, in animal testing, while the remaining members of this category caused little or no eye irritation. None caused skin sensitization. Animal testing showed that repeat dosing caused few adverse effects. Animal testing also shows that PGEs do not cause skin effects or reproductive toxicity. Commercially available PGEs have not been shown to cause birth defects. Available instance indicates that propylene glycol ethers are unlikely to possess genetic toxicity. The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.
TETRAHYDRO-4-METHYL-2-(2-METHYLPROPYL)-2H-PYRAN-4-OL	[OECD 401] [FHSA] [OECD 402] Skin: 8% non-irritating * Sub-acute toxicity (28 day, rat, gavage) NOAEL: 125 mg/kg/day * [OECD 407] Mutagenicity: Salmonella reversion; non-mutagenic [OECD 471] Metaphase analysis, human lymphocytes: non-mutagenic * Non-sensitising at 8%; non-photosensitising at 8% * * Firmenich MSDS
ALPHA,ALPHA-DIMETHYLPHENETHYL ACETATE	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.
2-METHYL-4-(2,2,3-TRIMETHYL-3-CYCLOPENTENYL)-2-BUTENOL	* Chemtex International SDS Indial Sandal Core
COUMARIN	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.
ALKANES, C11-15-ISO- & C14-20 ALIPHATICS (<=2% AROMATICS)	Animal studies indicate that normal, branched and cyclic paraffins are absorbed from the gastrointestinal tract and that the absorption of n-paraffins is inversely proportional to the carbon chain length, with little absorption above C30. With respect to the carbon chain lengths likely to be present in mineral oil, n-paraffins may be absorbed to a greater extent than iso- or cyclo-paraffins. The major classes of hydrocarbons are well absorbed into the gastrointestinal tract in various species. In many cases, the hydrophobic hydrocarbons are ingested in association with fats in the diet. Some hydrocarbons may appear unchanged as in the lipoprotein particles in the gut lymph, but most hydrocarbons partly separate from fats and undergo metabolism in the gut cell. The gut cell may play a major role in determining the proportion of hydrocarbon that becomes available to be deposited unchanged in peripheral tissues such as in the body fat stores or the liver.
GERANIOL & BETA-CITRONELLOL & 2-ACETYL-1,2,3,4,6,7,8-OCTAHYDROTETRAMETHYLNAPHTHALENE & ISOMETHYL-ALPHA-IONONE & PHENETHYL ALCOHOL & LINALOOL & ALPHA-TERPINEOL & ALPHA,ALPHA-DIMETHYLPHENETHYL ACETATE & 2-METHYL-4-(2,2,3-TRIMETHYL-3-CYCLOPENTENYL)-2-BUTENOL & LINALYL ACETATE & NEROL & NERYL ACETATE & COUMARIN	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.
GERANIOL & BETA-CITRONELLOL & PHENETHYL ALCOHOL & ALPHA-TERPINEOL & 4-TERT-BUTYLCYCLOHEXYL ACETATE & DIPROPYLENE GLYCOL MONOMETHYL ETHER & LINALYL ACETATE & NEROL & NERYL ACETATE & 2-TERT-BUTYLCYCLOHEXYL ACETATE & COUMARIN	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 of

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	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.
GERANIOL & ISOMETHYL-ALPHA-IONONE	Allergic reactions involving the respiratory tract are usually due to interactions between IgE antibodies and allergens and occur rapidly. Allergic potential of the allergen and period of exposure often determine the severity of symptoms. Some people may be genetically more prone than others, and exposure to other irritants may aggravate symptoms. Allergy causing activity is due to interactions with proteins. Attention should be paid to atopic diathesis, characterised by increased susceptibility to nasal inflammation, asthma and eczema. Exogenous allergic alveolitis is induced essentially by allergen specific immune-complexes of the IgG type; cell-mediated reactions (T lymphocytes) may be involved. Such allergy is of the delayed type with onset up to four hours following exposure.
GERANIOL & LINALOOL & NEROL	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.
GERANIOL & BETA-CITRONELLOL & LINALOOL & NEROL	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.
GERANIOL & BETA-CITRONELLOL & LINALOOL & ALPHA-TERPINEOL & NEROL	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
GERANIOL & BETA-CITRONELLOL & NEROL & NERYL ACETATE	Citronellol, geraniol, nerol, and geranyl acetate are currently generally regarded as safe by the US FDA for their intended use as flavouring substances. They are ubiquitous in the plant kingdom. Terpenoid alcohol, formed in the gastrointestinal tract, as a result of hydrolysis, is rapidly absorbed, metabolised and excreted via the urine. It has no repeat dose effect, no genetic and cancer causing effect but may harm the unborn child of a pregnant woman.
GERANIOL & BETA-CITRONELLOL & 2-ACETYL-1,2,3,4,6,7,8-OCTAHYDROTETRAMETHYLNAPHTHALENE & ISOMETHYL-ALPHA-IONONE & PHENETHYL ALCOHOL & LINALOOL & ALPHA-TERPINEOL & ALPHA,ALPHA-DIMETHYLPHENETHYL ACETATE & LINALYL ACETATE & NEROL & NERYL ACETATE & COUMARIN	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.
GERANIOL & BETA-CITRONELLOL & 2-ACETYL-1,2,3,4,6,7,8-OCTAHYDROTETRAMETHYLNAPHTHALENE & ISOMETHYL-ALPHA-IONONE & LINALOOL & ALPHA-TERPINEOL & LINALYL ACETATE	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,

Continued...

& NEROL & NERYL ACETATE	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 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.
GERANIOL & LINALOOL & LINALYL ACETATE	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.
BETA-CITRONELLOL & LINALOOL & NEROL	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.
2-ACETYL-1,2,3,4,6,7,8-OCTAHYDROTETRAMETHYLNAPHTHALENE & ISOMETHYL-ALPHA-IONONE & ETHYLENE/ VINYL ACETATE COPOLYMER	No significant acute toxicological data identified in literature search.
PHENETHYL ALCOHOL & ALPHA,ALPHA-DIMETHYLPHENETHYL ACETATE & COUMARIN	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.
PHENETHYL ALCOHOL & 4-TERT-BUTYLCYCLOHEXYL ACETATE & DIPROPYLENE GLYCOL MONOMETHYL ETHER & NEROL	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.
PHENETHYL ALCOHOL & ALPHA,ALPHA-DIMETHYLPHENETHYL ACETATE	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.
LINALOOL & LINALYL ACETATE	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
LINALOOL & ALPHA-TERPINEOL & ALPHA,ALPHA-DIMETHYLPHENETHYL ACETATE & LINALYL ACETATE	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.

Continued...

	Genetic toxicity: Tests on bacterial and animal cells showed no evidence of genetic toxicity or potential to cause mutations. 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.
4-TERT-BUTYLCYCLOHEXYL ACETATE & 2-TERT-BUTYLCYCLOHEXYL ACETATE	There are no safety concerns regarding cyclic acetates under the present declared levels of use, for the reasons outlined below. Cyclic acetates have low acute toxicity. Cyclic acetates and cyclic alcohols also have low whole-body toxicity, after repeated application to skin. At concentrations encountered in current use, minimal, if any, skin irritation occurs. These substances have little or no sensitizing potential. Available data does not indicate that these substances cause genetic toxicity or mutations, so they are unlikely to cause cancer. They have a very wide safety margin.
LINALYL ACETATE & NERYL 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.

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*

SECTION 12 Ecological information

Toxicity

532323 Hot Wheels Rear View Beach Bomb

Endpoint	Test Duration (hr)	Species	Value	Source
Not Available	Not Available	Not Available	Not Available	Not Available

alkanes, C11-15-iso-

Endpoint	Test Duration (hr)	Species	Value	Source
EC50	48	Crustacea	<100mg/L	1

C14-20 aliphatics (<=2% aromatics)

Endpoint	Test Duration (hr)	Species	Value	Source
LC50	96	Fish	1.13mg/L	2
EC50	48	Crustacea	2mg/L	2
EC50	72	Algae or other aquatic plants	1.714mg/L	2
NOEL	504	Crustacea	0.163mg/L	2
LC50	96	Fish	>1-mg/L	2
EC50	48	Crustacea	>1-mg/L	2
EC50	72	Algae or other aquatic plants	>1-mg/L	2
NOEL	96	Algae or other aquatic plants	0.2mg/L	2

geraniol

Endpoint	Test Duration (hr)	Species	Value	Source
LC50	96	Fish	=9.8mg/L	1
EC50	48	Crustacea	10.8mg/L	2
EC50	72	Algae or other aquatic plants	13.1mg/L	2
EC10	72	Algae or other aquatic plants	3.77mg/L	2
NOEC	72	Algae or other aquatic plants	1mg/L	2

beta-citronellol

Endpoint	Test Duration (hr)	Species	Value	Source
LC50	96	Fish	14.66mg/L	2
EC50	48	Crustacea	17.48mg/L	2
EC50	72	Algae or other aquatic plants	2.4mg/L	2
EC20	72	Algae or other aquatic plants	1.1mg/L	2
NOEC	48	Crustacea	3.1mg/L	2

2-acetyl-1,2,3,4,6,7,8-octahydrotetramethylnaphthalene

Endpoint	Test Duration (hr)	Species	Value	Source
Not Available	Not Available	Not Available	Not Available	Not Available

isomethyl-alpha-ionone

Endpoint	Test Duration (hr)	Species	Value	Source
LC50	96	Fish	5.495mg/L	2
EC50	48	Crustacea	1.45mg/L	2
EC50	72	Algae or other aquatic plants	2.89mg/L	2
NOEC	48	Crustacea	1.14mg/L	2

Continued...

phenethyl alcohol

Endpoint	Test Duration (hr)	Species	Value	Source
EC50	48	Crustacea	287.17mg/L	2
EC50	72	Algae or other aquatic plants	ca.490mg/L	2
EC0	48	Crustacea	=125mg/L	1
NOEC	96	Fish	100mg/L	1

linalool

Endpoint	Test Duration (hr)	Species	Value	Source
LC50	96	Fish	<19.9mg/L	1
EC50	48	Crustacea	=20mg/L	1
EC50	96	Algae or other aquatic plants	88.3mg/L	2
NOEC	96	Fish	<3.5mg/L	1

alpha-terpineol

Endpoint	Test Duration (hr)	Species	Value	Source
LC50	96	Fish	ca.12mg/L	2
EC50	48	Crustacea	10mg/L	2
EC50	72	Algae or other aquatic plants	>0.011mg/L	2
NOEC	72	Algae or other aquatic plants	>=0.011mg/L	2

4-tert-butylcyclohexyl acetate

Endpoint	Test Duration (hr)	Species	Value	Source
LC50	96	Fish	8.6mg/L	2
EC50	48	Crustacea	5.3mg/L	2
EC50	72	Algae or other aquatic plants	22mg/L	2
NOEC	72	Algae or other aquatic plants	6.8mg/L	2

dipropylene glycol monomethyl ether

Endpoint	Test Duration (hr)	Species	Value	Source
LC50	96	Fish	1-mg/L	2
EC50	48	Crustacea	1-930mg/L	2
EC50	72	Algae or other aquatic plants	6-999mg/L	2
NOEC	528	Crustacea	>=0.5mg/L	2

tetrahydro-4-methyl-2-(2-methylpropyl)-2H-pyran-4-ol

Endpoint	Test Duration (hr)	Species	Value	Source
LC50	96	Fish	354mg/L	2
EC50	48	Crustacea	ca.320mg/L	2
EC50	72	Algae or other aquatic plants	>94mg/L	2
EC100	48	Crustacea	1-250mg/L	2
NOEC	72	Algae or other aquatic plants	>94mg/L	2

alpha,alpha-dimethylphenethyl acetate

Endpoint	Test Duration (hr)	Species	Value	Source
LC50	96	Fish	ca.8.901mg/L	2
EC50	48	Crustacea	ca.15.4mg/L	2
EC50	96	Algae or other aquatic plants	ca.4.766mg/L	2
EC10	48	Crustacea	ca.10.1mg/L	2

2-methyl-4-(2,2,3-trimethyl-3-cyclopentenyl)-2-butenol

Endpoint	Test Duration (hr)	Species	Value	Source
EC50	48	Crustacea	0.036mg/L	2
EC50	72	Algae or other aquatic plants	0.702mg/L	2

linalyl acetate

Endpoint	Test Duration (hr)	Species	Value	Source
LC50	96	Fish	11mg/L	2
EC50	48	Crustacea	15mg/L	2
EC50	72	Algae or other aquatic plants	62mg/L	2
EC0	48	Crustacea	10mg/L	2
NOEC	72	Algae or other aquatic plants	9.6mg/L	2

nerol

Endpoint	Test Duration (hr)	Species	Value	Source
LC50	96	Fish	20.3mg/L	2
EC50	48	Crustacea	32.4mg/L	2

neryl acetate

Endpoint	Test Duration (hr)	Species	Value	Source
LC50	96	Fish	6mg/L	2
EC50	48	Crustacea	9.06mg/L	2

Continued...

2-tert-butylcyclohexyl acetate	**Endpoint**	**Test Duration (hr)**	**Species**	**Value**	**Source**
	LC50	96	Fish	5.6mg/L	2
	EC50	48	Crustacea	17mg/L	2
	EC50	72	Algae or other aquatic plants	4.2mg/L	2
	EC10	792	Fish	0.91mg/L	2
	NOEC	72	Algae or other aquatic plants	0.57mg/L	2
coumarin	**Endpoint**	**Test Duration (hr)**	**Species**	**Value**	**Source**
	LC50	96	Fish	1.324mg/L	2
	EC50	48	Crustacea	8.012mg/L	2
	EC50	96	Algae or other aquatic plants	1.452mg/L	2
	NOEC	72	Algae or other aquatic plants	0.431mg/L	2
ethylene/ vinyl acetate copolymer	**Endpoint**	**Test Duration (hr)**	**Species**	**Value**	**Source**
	Not Available	Not Available	Not Available	Not Available	Not Available
Legend:	*Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 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*				

DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
geraniol	LOW	LOW
beta-citronellol	LOW	LOW
isomethyl-alpha-ionone	HIGH	HIGH
phenethyl alcohol	LOW	LOW
linalool	HIGH	HIGH
alpha-terpineol	HIGH	HIGH
4-tert-butylcyclohexyl acetate	HIGH	HIGH
dipropylene glycol monomethyl ether	HIGH	HIGH
tetrahydro-4-methyl-2-(2-methylpropyl)-2H-pyran-4-ol	HIGH	HIGH
alpha,alpha-dimethylphenethyl acetate	HIGH	HIGH
linalyl acetate	HIGH	HIGH
nerol	LOW	LOW
neryl acetate	LOW	LOW
2-tert-butylcyclohexyl acetate	HIGH	HIGH
coumarin	LOW	LOW

Bioaccumulative potential

Ingredient	Bioaccumulation
alkanes, C11-15-iso-	HIGH (BCF = 100000)
C14-20 aliphatics (<=2% aromatics)	LOW (BCF = 159)
geraniol	LOW (LogKOW = 3.47)
beta-citronellol	MEDIUM (LogKOW = 3.91)
isomethyl-alpha-ionone	HIGH (LogKOW = 4.8411)
phenethyl alcohol	LOW (LogKOW = 1.36)
linalool	LOW (LogKOW = 2.97)
alpha-terpineol	LOW (LogKOW = 3.28)
4-tert-butylcyclohexyl acetate	MEDIUM (LogKOW = 4.4225)
dipropylene glycol monomethyl ether	LOW (BCF = 100)
tetrahydro-4-methyl-2-(2-methylpropyl)-2H-pyran-4-ol	LOW (LogKOW = 2.1605)
alpha,alpha-dimethylphenethyl acetate	LOW (LogKOW = 3.4431)
linalyl acetate	MEDIUM (LogKOW = 3.93)
nerol	LOW (LogKOW = 3.47)
neryl acetate	MEDIUM (LogKOW = 3.98)

Continued...

Ingredient	Bioaccumulation
2-tert-butylcyclohexyl acetate	MEDIUM (LogKOW = 4.4225)
coumarin	LOW (LogKOW = 1.39)

Mobility in soil

Ingredient	Mobility
geraniol	LOW (KOC = 70.79)
beta-citronellol	LOW (KOC = 70.79)
isomethyl-alpha-ionone	LOW (KOC = 1034)
phenethyl alcohol	LOW (KOC = 28.89)
linalool	LOW (KOC = 56.32)
alpha-terpineol	LOW (KOC = 57.85)
4-tert-butylcyclohexyl acetate	LOW (KOC = 517.4)
dipropylene glycol monomethyl ether	LOW (KOC = 10)
tetrahydro-4-methyl-2-(2-methylpropyl)-2H-pyran-4-ol	LOW (KOC = 10)
alpha,alpha-dimethylphenethyl acetate	LOW (KOC = 586.1)
linalyl acetate	LOW (KOC = 517.9)
nerol	LOW (KOC = 70.79)
neryl acetate	LOW (KOC = 604.3)
2-tert-butylcyclohexyl acetate	LOW (KOC = 528.1)
coumarin	LOW (KOC = 146.1)

SECTION 13 Disposal considerations

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. ▸ **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.

Ensure that the hazardous substance is disposed in accordance with the Hazardous Substances (Disposal) Notice 2017

Disposal Requirements

Packages that have been in direct contact with the hazardous substance must be only disposed if the hazardous substance was appropriately removed and cleaned out from the package. The package must be disposed according to the manufacturer's directions taking into account the material it is made of. Packages which hazardous content have been appropriately treated and removed may be recycled.
The hazardous substance must only be disposed if it has been treated by a method that changed the characteristics or composition of the substance and it is no longer hazardous.
DO NOT deposit the hazardous substance into or onto a landfill or a sewage facility.
Burning the hazardous substance must happen under controlled conditions with no person or place exposed to
(1) a blast overpressure of more than 9 kPa; or
(2) an unsafe level of heat radiation.
The disposed hazardous substance must not come into contact with class 1 or 5 substances.

SECTION 14 Transport information

Labels Required

Marine Pollutant	NO
HAZCHEM	Not Applicable

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

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

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

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

Not Applicable

SECTION 15 Regulatory information

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

Continued...

This substance is to be managed using the conditions specified in an applicable Group Standard

HSR Number	Group Standard
HSR002574	Food Additives and Fragrance Materials (Combustible) Group Standard 2017

alkanes, C11-15-iso- is found on the following regulatory lists

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
New Zealand Inventory of Chemicals (NZIoC)

C14-20 aliphatics (<=2% aromatics) is found on the following regulatory lists

Chemical Footprint Project - Chemicals of High Concern List
International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
New Zealand Approved Hazardous Substances with controls
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals
New Zealand Inventory of Chemicals (NZIoC)
New Zealand Workplace Exposure Standards (WES)

geraniol is found on the following regulatory lists

New Zealand Approved Hazardous Substances with controls
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data
New Zealand Inventory of Chemicals (NZIoC)

beta-citronellol is found on the following regulatory lists

New Zealand Approved Hazardous Substances with controls
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data
New Zealand Inventory of Chemicals (NZIoC)

2-acetyl-1,2,3,4,6,7,8-octahydrotetramethylnaphthalene is found on the following regulatory lists

New Zealand Inventory of Chemicals (NZIoC)

isomethyl-alpha-ionone is found on the following regulatory lists

New Zealand Inventory of Chemicals (NZIoC)

phenethyl alcohol is found on the following regulatory lists

New Zealand Approved Hazardous Substances with controls
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data
New Zealand Inventory of Chemicals (NZIoC)

linalool is found on the following regulatory lists

New Zealand Approved Hazardous Substances with controls
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data
New Zealand Inventory of Chemicals (NZIoC)

alpha-terpineol is found on the following regulatory lists

New Zealand Approved Hazardous Substances with controls
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data
New Zealand Inventory of Chemicals (NZIoC)

4-tert-butylcyclohexyl acetate is found on the following regulatory lists

New Zealand Inventory of Chemicals (NZIoC)

dipropylene glycol monomethyl ether is found on the following regulatory lists

New Zealand Approved Hazardous Substances with controls
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data
New Zealand Inventory of Chemicals (NZIoC)
New Zealand Workplace Exposure Standards (WES)

tetrahydro-4-methyl-2-(2-methylpropyl)-2H-pyran-4-ol is found on the following regulatory lists

New Zealand Inventory of Chemicals (NZIoC)

alpha,alpha-dimethylphenethyl acetate is found on the following regulatory lists

New Zealand Inventory of Chemicals (NZIoC)

2-methyl-4-(2,2,3-trimethyl-3-cyclopentenyl)-2-butenol is found on the following regulatory lists

New Zealand Inventory of Chemicals (NZIoC)

linalyl acetate is found on the following regulatory lists

New Zealand Approved Hazardous Substances with controls
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data
New Zealand Inventory of Chemicals (NZIoC)

nerol is found on the following regulatory lists

New Zealand Inventory of Chemicals (NZIoC)

neryl acetate is found on the following regulatory lists

New Zealand Inventory of Chemicals (NZIoC)

2-tert-butylcyclohexyl acetate is found on the following regulatory lists

New Zealand Inventory of Chemicals (NZIoC)

coumarin is found on the following regulatory lists

Continued...

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs
New Zealand Approved Hazardous Substances with controls
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals
New Zealand Hazardous Substances and New Organisms (HSNO) Act - Classification of Chemicals - Classification Data
New Zealand Inventory of Chemicals (NZIoC)

ethylene/ vinyl acetate copolymer is found on the following regulatory lists
New Zealand Inventory of Chemicals (NZIoC)

Hazardous Substance Location

Subject to the Health and Safety at Work (Hazardous Substances) Regulations 2017.

Hazard Class	Quantity (Closed Containers)	Quantity (Open Containers)
Not Applicable	Not Applicable	Not Applicable

Certified Handler

Subject to Part 4 of the Health and Safety at Work (Hazardous Substances) Regulations 2017.

Class of substance	Quantities
Not Applicable	Not Applicable

Refer Group Standards for further information

Tracking Requirements

Not Applicable

National Inventory Status

National Inventory	Status
Australia - AIIC	Yes
Australia - Non-Industrial Use	No (alkanes, C11-15-iso-; C14-20 aliphatics (<=2% aromatics); geraniol; beta-citronellol; 2-acetyl-1,2,3,4,6,7,8-octahydrotetramethylnaphthalene; isomethyl-alpha-ionone; phenethyl alcohol; linalool; alpha-terpineol; 4-tert-butylcyclohexyl acetate; dipropylene glycol monomethyl ether; tetrahydro-4-methyl-2-(2-methylpropyl)-2H-pyran-4-ol; alpha,alpha-dimethylphenethyl acetate; 2-methyl-4-(2,2,3-trimethyl-3-cyclopentenyl)-2-butenol; linalyl acetate; nerol; neryl acetate; 2-tert-butylcyclohexyl acetate; coumarin; ethylene/ vinyl acetate copolymer)
Canada - DSL	No (alkanes, C11-15-iso-; 2-methyl-4-(2,2,3-trimethyl-3-cyclopentenyl)-2-butenol)
Canada - NDSL	No (alkanes, C11-15-iso-; C14-20 aliphatics (<=2% aromatics); geraniol; beta-citronellol; 2-acetyl-1,2,3,4,6,7,8-octahydrotetramethylnaphthalene; isomethyl-alpha-ionone; phenethyl alcohol; linalool; alpha-terpineol; 4-tert-butylcyclohexyl acetate; dipropylene glycol monomethyl ether; tetrahydro-4-methyl-2-(2-methylpropyl)-2H-pyran-4-ol; alpha,alpha-dimethylphenethyl acetate; linalyl acetate; nerol; neryl acetate; 2-tert-butylcyclohexyl acetate; coumarin; ethylene/ vinyl acetate copolymer)
China - IECSC	No (phenethyl alcohol)
Europe - EINEC / ELINCS / NLP	No (tetrahydro-4-methyl-2-(2-methylpropyl)-2H-pyran-4-ol; ethylene/ vinyl acetate copolymer)
Japan - ENCS	No (2-acetyl-1,2,3,4,6,7,8-octahydrotetramethylnaphthalene)
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	No (alkanes, C11-15-iso-)
Taiwan - TCSI	Yes
Mexico - INSQ	No (2-methyl-4-(2,2,3-trimethyl-3-cyclopentenyl)-2-butenol)
Vietnam - NCI	Yes
Russia - ARIPS	No (2-methyl-4-(2,2,3-trimethyl-3-cyclopentenyl)-2-butenol)
Legend:	*Yes = All CAS declared ingredients are on the inventory* *No = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)*

SECTION 16 Other information

Revision Date	28/09/2020
Initial Date	28/09/2020

Other information

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.

Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average
PC—STEL: Permissible Concentration-Short Term Exposure Limit
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit。
IDLH: Immediately Dangerous to Life or Health Concentrations
OSF: Odour Safety Factor

Continued...

NOAEL :No Observed Adverse Effect Level
LOAEL: Lowest Observed Adverse Effect Level
TLV: Threshold Limit Value
LOD: Limit Of Detection
OTV: Odour Threshold Value
BCF: BioConcentration Factors
BEI: Biological Exposure Index