

LE 4046 Quinplex Synthetic Food Grade Oil

Lubrication Engineers NZ Ltd

Chemwatch Hazard Alert Code: 2

Chemwatch: 1386080

Issue Date: 01/11/2019

Version No: 4.1.1.1

Print Date: 23/01/2020

Safety Data Sheet according to HSNO Regulations

S.GHS.NZL.EN

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

Product Identifier

Product name	LE 4046 Quinplex Synthetic Food Grade Oil
Synonyms	Not Available
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains 1-decene)
Other means of identification	Not Available

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

Relevant identified uses	Lubricant.
--------------------------	------------

Details of the supplier of the safety data sheet

Registered company name	Lubrication Engineers NZ Ltd
Address	11F Piermark Drive North Harbour Industrial Estate Albany, Auckland New Zealand
Telephone	+64 09 415 9411
Fax	+64 09 4158411
Website	Not Available
Email	Not Available

Emergency telephone number

Association / Organisation	Lubrication Engineers NZ Ltd
Emergency telephone numbers	+64 21 3385487
Other emergency telephone numbers	Not Available

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

Considered a Hazardous Substance according to the criteria of the New Zealand Hazardous Substances New Organisms legislation. Classified as Dangerous Goods for transport purposes.

CHEMWATCH HAZARD RATINGS


	Min	Max
Flammability	1	1
Toxicity	1	1
Body Contact	2	2
Reactivity	1	1
Chronic	0	0

0 = Minimum
 1 = Low
 2 = Moderate
 3 = High
 4 = Extreme

Classification ^[1]	Acute Toxicity (Oral) Category 5, Skin Corrosion/Irritation Category 2, Chronic Aquatic Hazard Category 2
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	6.1E (oral), 6.3A, 9.1B

LE 4046 Quinplex Synthetic Food Grade Oil

Label elements

Hazard pictogram(s)	
---------------------	---

SIGNAL WORD	WARNING
-------------	----------------

Hazard statement(s)

H303	May be harmful if swallowed.
H315	Causes skin irritation.
H411	Toxic to aquatic life with long lasting effects.

Precautionary statement(s) Prevention

P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.

Precautionary statement(s) Response

P312	Call a POISON CENTER/doctor/physician/first aider/if you feel unwell.
P321	Specific treatment (see advice on this label).
P391	Collect spillage.
P302+P352	IF ON SKIN: Wash with plenty of water.

Precautionary statement(s) Storage

Not Applicable

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
872-05-9	>90	<u>1-decene</u>
122-39-4	0.0015	<u>diphenylamine</u>
140-88-5	0.00065	<u>ethyl acrylate</u>
65-85-0	NotSpec	<u>benzoic acid</u>

SECTION 4 FIRST AID MEASURES

Description of first aid measures

Eye Contact	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> ▶ Wash out immediately with fresh running water. ▶ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. ▶ Seek medical attention without delay; if pain persists or recurs seek medical attention. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	<p>If skin contact occurs:</p> <ul style="list-style-type: none"> ▶ 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. <p>For thermal burns:</p> <ul style="list-style-type: none"> ▶ Decontaminate area around burn. ▶ Consider the use of cold packs and topical antibiotics. <p>For first-degree burns (affecting top layer of skin)</p> <ul style="list-style-type: none"> ▶ Hold burned skin under cool (not cold) running water or immerse in cool water until pain subsides.

LE 4046 Quinplex Synthetic Food Grade Oil

	<ul style="list-style-type: none"> ‣ Use compresses if running water is not available. ‣ Cover with sterile non-adhesive bandage or clean cloth. ‣ Do NOT apply butter or ointments; this may cause infection. ‣ Give over-the counter pain relievers if pain increases or swelling, redness, fever occur. <p>For second-degree burns (affecting top two layers of skin)</p> <ul style="list-style-type: none"> ‣ Cool the burn by immerse in cold running water for 10-15 minutes. ‣ Use compresses if running water is not available. ‣ Do NOT apply ice as this may lower body temperature and cause further damage. ‣ Do NOT break blisters or apply butter or ointments; this may cause infection. ‣ Protect burn by cover loosely with sterile, nonstick bandage and secure in place with gauze or tape. <p>To prevent shock: (unless the person has a head, neck, or leg injury, or it would cause discomfort):</p> <ul style="list-style-type: none"> ‣ Lay the person flat. ‣ Elevate feet about 12 inches. ‣ Elevate burn area above heart level, if possible. ‣ Cover the person with coat or blanket. ‣ Seek medical assistance. <p>For third-degree burns Seek immediate medical or emergency assistance.</p> <p>In the mean time:</p> <ul style="list-style-type: none"> ‣ Protect burn area cover loosely with sterile, nonstick bandage or, for large areas, a sheet or other material that will not leave lint in wound. ‣ Separate burned toes and fingers with dry, sterile dressings. ‣ Do not soak burn in water or apply ointments or butter; this may cause infection. ‣ To prevent shock see above. ‣ For an airway burn, do not place pillow under the person's head when the person is lying down. This can close the airway. ‣ Have a person with a facial burn sit up. ‣ Check pulse and breathing to monitor for shock until emergency help arrives.
Inhalation	<ul style="list-style-type: none"> ‣ If fumes or combustion products are inhaled remove from contaminated area. ‣ Lay patient down. Keep warm and rested. ‣ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. ‣ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. ‣ Transport to hospital, or doctor, without delay.
Ingestion	<ul style="list-style-type: none"> ‣ For advice, contact a Poisons Information Centre or a doctor at once. ‣ Urgent hospital treatment is likely to be needed. ‣ 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. ‣ Transport to hospital or doctor without delay.

Indication of any immediate medical attention and special treatment needed

For acute or short term repeated exposures to petroleum distillates or related hydrocarbons:

- Primary threat to life, from pure petroleum distillate ingestion and/or inhalation, is respiratory failure.
- Patients should be quickly evaluated for signs of respiratory distress (e.g. cyanosis, tachypnoea, intercostal retraction, obtundation) and given oxygen. Patients with inadequate tidal volumes or poor arterial blood gases (pO₂ 50 mm Hg) should be intubated.
- Arrhythmias complicate some hydrocarbon ingestion and/or inhalation and electrocardiographic evidence of myocardial injury has been reported; intravenous lines and cardiac monitors should be established in obviously symptomatic patients. The lungs excrete inhaled solvents, so that hyperventilation improves clearance.
- A chest x-ray should be taken immediately after stabilisation of breathing and circulation to document aspiration and detect the presence of pneumothorax.
- Epinephrine (adrenalin) is not recommended for treatment of bronchospasm because of potential myocardial sensitisation to catecholamines. Inhaled cardioselective bronchodilators (e.g. Alupent, Salbutamol) are the preferred agents, with aminophylline a second choice.
- Lavage is indicated in patients who require decontamination; ensure use of cuffed endotracheal tube in adult patients. [Ellenhorn and Barceloux: Medical Toxicology]

SECTION 5 FIREFIGHTING MEASURES**Extinguishing media**

- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.

Do not use water jets.

Special hazards arising from the substrate or mixture

LE 4046 Quinplex Synthetic Food Grade Oil

Fire Incompatibility	<ul style="list-style-type: none"> ▶ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result
-----------------------------	--

Advice for firefighters

Fire Fighting	<ul style="list-style-type: none"> ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ Wear full body protective clothing with breathing apparatus. ▶ Prevent, by any means available, spillage from entering drains or water course. ▶ Use water delivered as a fine spray to control fire and cool adjacent area.
Fire/Explosion Hazard	<ul style="list-style-type: none"> ▶ Combustible. ▶ Slight fire hazard when exposed to heat or flame. ▶ Heating may cause expansion or decomposition leading to violent rupture of containers. ▶ On combustion, may emit toxic fumes of carbon monoxide (CO). <p>Combustion products include: carbon dioxide (CO₂) other pyrolysis products typical of burning organic material.</p>

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	<p>Environmental hazard - contain spillage.</p> <ul style="list-style-type: none"> ▶ Clean up all spills immediately. ▶ Avoid breathing vapours and contact with skin and eyes. ▶ Control personal contact with the substance, by using protective equipment. ▶ Contain and absorb spill with sand, earth, inert material or vermiculite. <p>Slippery when spilt.</p>
Major Spills	<p>Environmental hazard - contain spillage. Moderate hazard.</p> <ul style="list-style-type: none"> ▶ Clear area of personnel and move upwind. ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ Wear breathing apparatus plus protective gloves. <p>Slippery when spilt.</p>

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

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Safe handling	<p>The conductivity of this material may make it a static accumulator., A liquid is typically considered nonconductive if its conductivity is below 100 pS/m and is considered semi-conductive if its conductivity is below 10 000 pS/m., Whether a liquid is nonconductive or semi-conductive, the precautions are the same., A number of factors, for example liquid temperature, presence of contaminants, and anti-static additives can greatly influence the conductivity of a liquid.</p> <ul style="list-style-type: none"> ▶ Containers, even those that have been emptied, may contain explosive vapours. ▶ Do NOT cut, drill, grind, weld or perform similar operations on or near containers. ▶ DO NOT allow clothing wet with material to stay in contact with skin ▶ Electrostatic discharge may be generated during pumping - this may result in fire. ▶ Ensure electrical continuity by bonding and grounding (earthing) all equipment. ▶ Restrict line velocity during pumping in order to avoid generation of electrostatic discharge (<=1 m/sec until fill pipe submerged to twice its diameter, then <= 7 m/sec). ▶ Avoid splash filling. ▶ 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.
Other information	<p>Consider storage under inert gas.</p> <ul style="list-style-type: none"> ▶ Store in original containers. ▶ Keep containers securely sealed. ▶ No smoking, naked lights or ignition sources. ▶ Store in a cool, dry, well-ventilated area.

Conditions for safe storage, including any incompatibilities

LE 4046 Quinplex Synthetic Food Grade Oil

Suitable container	<ul style="list-style-type: none"> ▶ Metal can or drum ▶ Packaging as recommended by manufacturer. ▶ Check all containers are clearly labelled and free from leaks.
Storage incompatibility	<ul style="list-style-type: none"> ▶ The various oxides of nitrogen and peroxyacids may be dangerously reactive in the presence of alkenes. BREATHERICK L.: Handbook of Reactive Chemical Hazards ▶ Avoid reaction with strong Lewis or mineral acids. ▶ Reaction with halogens requires carefully controlled conditions. ▶ Free radical initiators should be avoided. <p>-The interaction of alkenes and alkynes with nitrogen oxides and oxygen may produce explosive addition products; these may form at very low temperatures and explode on heating to higher temperatures (the addition products from 1,3-butadiene and cyclopentadiene form rapidly at -150 C and ignite or explode on warming to -35 to -15 C). These derivatives ("pseudo- nitrosites") were formerly used to characterise terpene hydrocarbons.</p> <p>-Exposure to air must be kept to a minimum so as to limit the build-up of peroxides which will concentrate in bottoms if the product is distilled. The product must not be distilled to dryness if the peroxide concentration is substantially above 10 ppm (as active oxygen) since explosive decomposition may occur.</p> <ul style="list-style-type: none"> ▶ Avoid reaction with oxidising agents



+ X + O + + +

- X — Must not be stored together
- O — May be stored together with specific precautions
- + — May be stored together

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)	diphenylamine	Diphenylamine	10 mg/m3	Not Available	Not Available	Not Available
New Zealand Workplace Exposure Standards (WES)	ethyl acrylate	Ethyl acrylate	Not Available	Not Available	5 ppm / 20 mg/m3	(sen) - Sensitiser

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
diphenylamine	Diphenylamine	30 mg/m3	180 mg/m3	220 mg/m3
ethyl acrylate	Ethyl acrylate	Not Available	Not Available	Not Available
benzoic acid	Benzoic acid	15 mg/m3	170 mg/m3	830 mg/m3

Ingredient	Original IDLH	Revised IDLH
1-decene	Not Available	Not Available
diphenylamine	Not Available	Not Available
ethyl acrylate	300 ppm	Not Available
benzoic acid	Not Available	Not Available

OCCUPATIONAL EXPOSURE BANDING

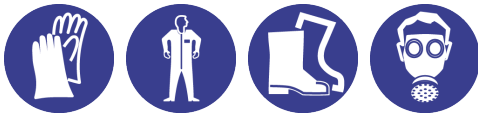
Ingredient	Occupational Exposure Band Rating	Occupational Exposure Band Limit
1-decene	E	≤ 0.1 ppm
benzoic acid	E	≤ 0.01 mg/m ³

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	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.
Personal protection	
Eye and face protection	<ul style="list-style-type: none"> ▶ 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.
Skin protection	See Hand protection below
Hands/feet protection	<ul style="list-style-type: none"> ▶ Wear chemical protective gloves, e.g. PVC. ▶ Wear safety footwear or safety gumboots, e.g. Rubber <p>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.</p> <p>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.</p> <p>Personal hygiene is a key element of effective hand care.</p>
Body protection	See Other protection below
Other protection	<ul style="list-style-type: none"> ▶ Overalls. ▶ P.V.C. apron. ▶ Barrier cream.

Recommended material(s)

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:

"Forsberg Clothing Performance Index".

The effect(s) of the following substance(s) are taken into account in the **computer-generated** selection:

LE 4046 Quinplex Synthetic Food Grade Oil

Material	CPI
BUTYL	A
PVA	A
TEFLON	A
BUTYL/NEOPRENE	C
VITON/NEOPRENE	C

* CPI - Chemwatch Performance Index

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to Dangerous Choice for other than short term immersion

NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -

* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

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)

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

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Colorless liquid with hydrocarbon like odour; partly mixes with water.		
Physical state	Liquid	Relative density (Water = 1)	0.84
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	Not Available
pH (as supplied)	6-8	Decomposition temperature	Not Available
Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	46.23 @40C
Initial boiling point and boiling range (°C)	Not Available	Molecular weight (g/mol)	Not Applicable
Flash point (°C)	276	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Not Applicable	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Available	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	Not Available	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Not Available	Gas group	Not Available
Solubility in water	Partly miscible	pH as a solution (1%)	Not Available
Vapour density (Air = 1)	<1	VOC g/L	Not Available

SECTION 10 STABILITY AND REACTIVITY

Reactivity	See section 7
Chemical stability	<ul style="list-style-type: none"> ▶ 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	<p>The material can cause respiratory irritation in some persons. The body's response to such irritation can cause further lung damage.</p> <p>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.</p> <p>Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual.</p> <p>Inhalation of high concentrations of gas/vapour causes lung irritation with coughing and nausea, central nervous depression with headache and dizziness, slowing of reflexes, fatigue and inco-ordination.</p> <p>Central nervous system (CNS) depression may include general discomfort, symptoms of giddiness, headache, dizziness, nausea, anaesthetic effects, slowed reaction time, slurred speech and may progress to unconsciousness. Serious poisonings may result in respiratory depression and may be fatal.</p>
Ingestion	<p>Accidental ingestion of the material may be damaging to the health of the individual.</p> <p>Alkenes are generally of low toxicity but they are considered aspiration hazards.</p> <p>Central nervous system (CNS) depression may include general discomfort, symptoms of giddiness, headache, dizziness, nausea, anaesthetic effects, slowed reaction time, slurred speech and may progress to unconsciousness. Serious poisonings may result in respiratory depression and may be fatal.</p>
Skin Contact	<p>This material can cause inflammation of the skin on contact in some persons.</p> <p>The material may accentuate any pre-existing dermatitis condition</p> <p>Repeated exposure may cause skin cracking, flaking or drying following normal handling and use.</p> <p>Medium sized alkenes can cause skin irritation and sloughing, especially in long-term exposure.</p> <p>Open cuts, abraded or irritated skin should not be exposed to this material</p> <p>Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.</p>

LE 4046 Quinplex Synthetic Food Grade Oil

	Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.
Eye	Although the liquid is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (as with windburn).
Chronic	Long-term exposure to respiratory irritants may result in airways disease, involving difficulty breathing and related whole-body problems. Substance accumulation, in the human body, may occur and may cause some concern following repeated or long-term occupational exposure. Oral administration of C20-24 alkenes has not been shown to exhibit significant toxicity in humans.
LE 4046 Quinplex Synthetic Food Grade Oil	TOXICITY
	Dermal (None) LD50: 10145 mg/kg ^[2]
	Oral (None) LD50: 10145 mg/kg ^[2]
1-decene	IRRITATION
	Not Available
diphenylamine	TOXICITY
	dermal (rat) LD50: >2000 mg/kg ^[1]
	Oral (rat) LD50: >2000 mg/kg ^[1]
ethyl acrylate	IRRITATION
	Eye: no adverse effect observed (not irritating) ^[1]
	Skin: no adverse effect observed (not irritating) ^[1]
benzoic acid	TOXICITY
	Dermal (rabbit) LD50: >2000 mg/kg ^[2]
	Oral (rat) LD50: 1120 mg/kg ^[2]
benzoic acid	IRRITATION
	Eye (rabbit): 1204 ppm/7h
	Eye (rabbit): 45 mg - mild
benzoic acid	IRRITATION
	Skin (rabbit): 10 mg/24h - mild
	Skin (rabbit): 500 mg open - mild
benzoic acid	IRRITATION
	Eye (rabbit): 100 mg - SEVERE
	Eye: adverse effect observed (irritating) ^[1]
benzoic acid	IRRITATION
	Skin (human): 22 mg/3d - moderate
	Skin (rabbit): 500 mg/24h - mild
benzoic acid	IRRITATION
	Skin: adverse effect observed (irritating) ^[1]
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

1-DECENE	No significant acute toxicological data identified in literature search. For olefins: Studies have shown that normal alpha olefins have little or no toxic effect on animals except if inhaled in high concentrations. They may produce minimal skin and eye irritation, but do not sensitise the skin. Exposure to very high levels of C6-C16 normal alpha olefin vapours caused central nervous system effects, including anaesthesia (loss of sensation). If C20+ products are heated, fumes may produce nausea and irritation of the upper airway.
DIPHENYLAMINE	Heating of substituted diphenylamines may generate vapours which can irritate the eyes and airways. Drying of skin and mucous membranes leading to irritation may occur with prolonged or repeated contact. Overexposure may cause skin and airway irritation with dizziness and flu-like symptoms. All show a slight to very low order of toxicity following oral or topical administration. Diphenylamine and all its substituted derivatives show slight to moderate acute toxicity. Overall, it is not considered to cause mutations or genetic toxicity. In animal testing, higher concentrations appear to reduce the number of viable offspring. ADI: 0.02 mg/kg/day NOEL: 1.5 mg/kg/day
ETHYL ACRYLATE	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. Where no "official" classification for acrylates and methacrylates exists, there have been cautious attempts to create classifications in the absence of contrary evidence. For example Monoalkyl or monoarylestere of acrylic acids should be classified as R36/37/38 and R51/53 Monoalkyl or monoaryl estere of methacrylic acid should be classified as R36/37/38 The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to

LE 4046 Quinplex Synthetic Food Grade Oil

	<p>irritants may produce conjunctivitis.</p> <p>WARNING: This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans. Tenth Annual Report on Carcinogens: Substance anticipated to be Carcinogen [National Toxicology Program: U.S. Dep. of Health & Human Services 2002]</p> <p>Based on the available oncogenicity data and without a better understanding of the carcinogenic mechanism the Health and Environmental Review Division (HERD), Office of Toxic Substances (OTS), of the US EPA previously concluded that all chemicals that contain the acrylate or methacrylate moiety (CH₂=CHCOO or CH₂=C(CH₃)COO) should be considered to be a carcinogenic hazard unless shown otherwise by adequate testing.</p> <p>This position has now been revised and acrylates and methacrylates are no longer <i>de facto</i> carcinogens.</p>
BENZOIC ACID	<p>The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.</p> <p>For benzoates: Benzyl alcohol, benzoic acid and its sodium and potassium salt have a common metabolic and excretion pathway. All but benzyl alcohol are considered to be unharmed and of low acute toxicity. They may cause slight irritation by oral, dermal or inhalation exposure except sodium benzoate which doesn't irritate the skin. Studies showed increased mortality, reduced weight gain, liver and kidney effects at higher doses, also, lesions of the brains, thymus and skeletal muscles may occur with benzyl alcohol. This is a member or analogue of a group of benzyl derivatives generally regarded as safe (GRAS), based partly on their self-limiting properties as flavouring substances in food. In humans and other animals, they are rapidly absorbed, broken down and excreted, with a wide safety margin. They also lack significant potential to cause genetic toxicity and mutations. The intake of benzyl derivatives as natural components of traditional foods is actually higher than the intake as intentionally added flavouring substances.</p> <p>Mutagenicity: Bacterial reverse mutation test (S. typhimurium): not mutagenic (OECD 471, EC B.13/14; Ames test) In vitro mammalian chromosome aberration (Chinese hamster fibroblasts): negative Reproductive toxicity: 4 generation study in rats: Oral NOAEL >500 mg/kg bw/day STOT single exposure: In a repeated inhalation study benzoic acid appeared to be irritating to the respiratory tract at high doses * DSM SDS</p>
DIPHENYLAMINE & ETHYL ACRYLATE & BENZOIC ACID	<p>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.</p>
ETHYL ACRYLATE & BENZOIC ACID	<p>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.</p>

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

	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
LE 4046 Quinplex Synthetic Food Grade Oil	Not Available	Not Available	Not Available	Not Available	Not Available
1-decene	LC50	96	Fish	>0.003mg/L	2
	EC50	48	Crustacea	>0.003mg/L	2
	EC50	72	Algae or other aquatic plants	>0.001mg/L	2
	NOEC	72	Algae or other aquatic plants	>=0.001mg/L	2
diphenylamine	LC50	96	Fish	3.287mg/L	3
	EC50	48	Crustacea	0.31mg/L	4
	EC50	72	Algae or other aquatic plants	0.048mg/L	1

LE 4046 Quinplex Synthetic Food Grade Oil

	BCF	768	Fish	0.0437mg/L	4
	NOEC	504	Crustacea	0.16mg/L	1
ethyl acrylate	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	1.1mg/L	2
	EC50	48	Crustacea	1.3mg/L	2
	EC50	72	Algae or other aquatic plants	1.71mg/L	2
	EC0	48	Crustacea	0.7mg/L	2
	NOEC	504	Crustacea	0.136mg/L	2
benzoic acid	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	LC50	96	Fish	44.6mg/L	2
	EC50	48	Crustacea	>120mg/L	2
	EC50	72	Algae or other aquatic plants	33mg/L	2
	BCF	24	Algae or other aquatic plants	0.05mg/L	4
	NOEC	72	Algae or other aquatic plants	0.11mg/L	2
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				

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Do NOT allow product to come in contact with surface waters or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.

Wastes resulting from use of the product must be disposed of on site or at approved waste sites.

When spilled this product may act as a typical oil, causing a film, sheen, emulsion or sludge at or beneath the surface of the body of water. The oil film on water surface may physically affect the aquatic organisms, due to the interruption of the oxygen transfer between the air and the water

Oils of any kind can cause:

- drowning of water-fowl due to lack of buoyancy, loss of insulating capacity of feathers, starvation and vulnerability to predators due to lack of mobility
- lethal effects on fish by coating gill surfaces, preventing respiration
- asphyxiation of benthic life forms when floating masses become engaged with surface debris and settle on the bottom and
- adverse aesthetic effects of fouled shoreline and beaches

In case of accidental releases on the soil, a fine film is formed on the soil, which prevents the plant respiration process and the soil particle saturation. It may cause deep water infestation.

Substances containing unsaturated carbons are ubiquitous in indoor environments. They result from many sources (see below). Most are reactive with environmental ozone and many produce stable products which are thought to adversely affect human health. The potential for surfaces in an enclosed space to facilitate reactions should be considered.

Source of unsaturated substances Unsaturated substances (Reactive Emissions) Major Stable Products produced following reaction with ozone.

For alkenes (olefins)

Environmental fate:

The potential for exposure of aquatic organisms to members of the higher olefins will be influenced by their physico-chemical properties. The predicted or measured water solubilities of these olefins range from 50 mg/L at 20 C for hexene to 0.00015 mg/L at 25 C for 1-octadecene, and to 6.33 [E-23] mg/L at 25 C for C54 alpha olefin, which suggests there is a lower potential for the larger olefins to be bioavailable to aquatic organisms due to their low solubilities. Their vapor pressures range from 230.6 hPa at 25 C for hexene to 0.00009 hPa at 25 C for 1-octadecene, and to 1.13 [E-16] hPa at 25 C for C54 alpha olefin, which suggests the shorter chain olefins will tend to partition to the air at a significant rate and not remain in the other environmental compartments for long periods of time; while the longer chain olefins will tend to partition primarily to water, soil or sediment, depending on water solubility and sorption behavior. The predicted soil adsorption coefficients (Koc) range from 149 for C6 to 230,800 for C18 and to 1.0 [E10] for C54, indicating increasing partitioning to soil/sediment with increasing carbon number.

DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
1-decene	LOW	LOW
diphenylamine	LOW (Half-life = 56 days)	Not Available
ethyl acrylate	LOW (Half-life = 14 days)	LOW (Half-life = 0.95 days)
benzoic acid	LOW	LOW

Bioaccumulative potential

Ingredient	Bioaccumulation
1-decene	HIGH (LogKOW = 5.7)
diphenylamine	LOW (BCF = 253)

LE 4046 Quinplex Synthetic Food Grade Oil

ethyl acrylate	LOW (LogKOW = 1.32)
benzoic acid	LOW (LogKOW = 1.87)

Mobility in soil

Ingredient	Mobility
1-decene	LOW (KOC = 1724)
diphenylamine	LOW (KOC = 1887)
ethyl acrylate	LOW (KOC = 11.85)
benzoic acid	LOW (KOC = 14.49)

SECTION 13 DISPOSAL CONSIDERATIONS

Waste treatment methods

Product / Packaging disposal	<p>Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked. A Hierarchy of Controls seems to be common - the user should investigate:</p> <ul style="list-style-type: none"> ▶ Reduction ▶ Reuse ▶ Recycling ▶ Disposal (if all else fails) <p>This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use.</p> <ul style="list-style-type: none"> ▶ DO NOT allow wash water from cleaning or process equipment to enter drains. ▶ It may be necessary to collect all wash water for treatment before disposal. ▶ In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. ▶ Where in doubt contact the responsible authority. ▶ Recycle wherever possible or consult manufacturer for recycling options. ▶ Consult State Land Waste Authority for disposal. ▶ Bury or incinerate residue at an approved site. ▶ Recycle containers if possible, or dispose of in an authorised landfill.
-------------------------------------	---



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.

SECTION 14 TRANSPORT INFORMATION

Labels Required

	
Marine Pollutant	
HAZCHEM	•3Z

Land transport (UN)

UN number	3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains 1-decene)
Transport hazard class(es)	Class : 9 Subrisk : Not Applicable

LE 4046 Quinplex Synthetic Food Grade Oil

Packing group	III
Environmental hazard	Environmentally hazardous
Special precautions for user	Special provisions : 274; 331; 335; 375
	Limited quantity : 5 L

Air transport (ICAO-IATA / DGR)

UN number	3082
UN proper shipping name	Environmentally hazardous substance, liquid, n.o.s. * (contains 1-decene)
Transport hazard class(es)	ICAO/IATA Class : 9
	ICAO / IATA Subrisk : Not Applicable
	ERG Code : 9L
Packing group	III
Environmental hazard	Environmentally hazardous
Special precautions for user	Special provisions : A97 A158 A197
	Cargo Only Packing Instructions : 964
	Cargo Only Maximum Qty / Pack : 450 L
	Passenger and Cargo Packing Instructions : 964
	Passenger and Cargo Maximum Qty / Pack : 450 L
	Passenger and Cargo Limited Quantity Packing Instructions : Y964
	Passenger and Cargo Limited Maximum Qty / Pack : 30 kg G

Sea transport (IMDG-Code / GGVSee)

UN number	3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains 1-decene)
Transport hazard class(es)	IMDG Class : 9
	IMDG Subrisk : Not Applicable
Packing group	III
Environmental hazard	Marine Pollutant
Special precautions for user	EMS Number : F-A , S-F
	Special provisions : 274 335 969
	Limited Quantities : 5 L

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

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

HSR Number	Group Standard
HSR002624	N.O.S. (Subsidiary Hazard) Group Standard 2017
HSR002535	Gas Under Pressure Mixtures (Subsidiary Hazard) Group Standard 2017
HSR002596	Laboratory Chemicals and Reagent Kits Group Standard 2017
HSR002530	Cleaning Products (Subsidiary Hazard) Group Standard 2017
HSR002585	Fuel Additives (Subsidiary Hazard) Group Standard 2017
HSR002519	Aerosols (Subsidiary Hazard) Group Standard 2017
HSR002521	Animal Nutritional and Animal Care Products Group Standard 2017
HSR002606	Lubricants, Lubricant Additives, Coolants and Anti-freeze Agents (Subsidiary Hazard) Group Standard 2017
HSR002644	Polymers (Subsidiary Hazard) Group Standard 2017

Continued...

HSR002647	Reagent Kits Group Standard 2017
HSR002670	Surface Coatings and Colourants (Subsidiary Hazard) Group Standard 2017
HSR002638	Photographic Chemicals (Subsidiary Hazard) Group Standard 2017
HSR002565	Embalming Products (Subsidiary Hazard) Group Standard 2017
HSR002578	Food Additives and Fragrance Materials (Subsidiary Hazard) Group Standard 2017
HSR002558	Dental Products (Subsidiary Hazard) Group Standard 2017
HSR002684	Water Treatment Chemicals (Subsidiary Hazard) Group Standard 2017
HSR002573	Fire Fighting Chemicals Group Standard 2017
HSR100425	Pharmaceutical Active Ingredients Group Standard 2017
HSR002600	Leather and Textile Products (Subsidiary Hazard) Group Standard 2017
HSR002571	Fertilisers (Subsidiary Hazard) Group Standard 2017
HSR002648	Refining Catalysts Group Standard 2017
HSR002653	Solvents (Subsidiary Hazard) Group Standard 2017
HSR002544	Construction Products (Subsidiary Hazard) Group Standard 2017
HSR002549	Corrosion Inhibitors (Subsidiary Hazard) Group Standard 2017
HSR100757	Veterinary Medicine (Limited Pack Size, Finished Dose) Standard 2017
HSR100758	Veterinary Medicines (Non-dispersive Closed System Application) Group Standard 2017
HSR100759	Veterinary Medicines (Non-dispersive Open System Application) Group Standard 2017
HSR100580	Tattoo and Permanent Makeup Substances Group Standard 2017
HSR002612	Metal Industry Products (Subsidiary Hazard) Group Standard 2017
HSR002503	Additives, Process Chemicals and Raw Materials (Subsidiary Hazard) Group Standard 2017
HSR002552	Cosmetic Products Group Standard 2017

1-DECENE IS FOUND ON THE FOLLOWING REGULATORY LISTS

GESAMP/EHS Composite List - GESAMP Hazard Profiles

IMO IBC Code Chapter 17: Summary of minimum requirements

IMO MARPOL (Annex II) - List of Noxious Liquid Substances Carried in Bulk
International Air Transport Association (IATA) Dangerous Goods Regulations

International Maritime Dangerous Goods Requirements (IMDG Code)

New Zealand Hazardous Substances and New Organisms (HSNO) Act -
Classification of ChemicalsNew Zealand Hazardous Substances and New Organisms (HSNO) Act -
Classification of Chemicals - Classification Data

New Zealand Inventory of Chemicals (NZIoC)

New Zealand Land Transport Rule; Dangerous Goods 2005 - Schedule 2
Dangerous Goods in Limited Quantities and Consumer CommoditiesUnited Nations Recommendations on the Transport of Dangerous Goods
Model Regulations**DIPHENYLAMINE IS FOUND ON THE FOLLOWING REGULATORY LISTS**

GESAMP/EHS Composite List - GESAMP Hazard Profiles

IMO IBC Code Chapter 17: Summary of minimum requirements

IMO MARPOL (Annex II) - List of Noxious Liquid Substances Carried in Bulk
International Air Transport Association (IATA) Dangerous Goods Regulations

International Maritime Dangerous Goods Requirements (IMDG Code)

New Zealand Hazardous Substances and New Organisms (HSNO) Act -
Classification of ChemicalsNew 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)

United Nations Recommendations on the Transport of Dangerous Goods
Model Regulations**ETHYL ACRYLATE IS FOUND ON THE FOLLOWING REGULATORY LISTS**

Chemical Footprint Project - Chemicals of High Concern List

GESAMP/EHS Composite List - GESAMP Hazard Profiles

IMO IBC Code Chapter 17: Summary of minimum requirements

IMO MARPOL (Annex II) - List of Noxious Liquid Substances Carried in Bulk

International Agency for Research on Cancer (IARC) - Agents Classified by
the IARC MonographsInternational Agency for Research on Cancer (IARC) - Agents Classified by
the IARC Monographs - Group 2B : Possibly carcinogenic to humans

International Air Transport Association (IATA) Dangerous Goods Regulations

International Air Transport Association (IATA) Dangerous Goods Regulations -
Prohibited List Passenger and Cargo Aircraft

International FOSFA List of Banned Immediate Previous Cargoes

International Maritime Dangerous Goods Requirements (IMDG Code)

New Zealand Hazardous Substances and New Organisms (HSNO) Act -
Classification of ChemicalsNew 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)

United Nations Recommendations on the Transport of Dangerous Goods
Model Regulations**BENZOIC ACID IS FOUND ON THE FOLLOWING REGULATORY LISTS**

LE 4046 Quinplex Synthetic Food Grade Oil

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)

Hazardous Substance Location

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

Hazard Class	Quantity beyond which controls apply for closed containers	Quantity beyond which controls apply when use occurring in 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 - AICS	Yes
Canada - DSL	Yes
Canada - NDSL	No (1-decene; benzoic acid; diphenylamine; ethyl acrylate)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	Yes
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	Yes
Taiwan - TCSI	Yes
Mexico - INSQ	No (1-decene)
Vietnam - NCI	Yes
Russia - ARIPS	Yes
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	01/11/2019
Initial Date	17/05/2017

SDS Version Summary

Version	Issue Date	Sections Updated
4.1.1.1	01/11/2019	One-off system update. NOTE: This may or may not change the GHS classification

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
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

This document is copyright.

Apart from any fair dealing for the purposes of private study, research, review or criticism, as permitted under the Copyright Act, no part may be reproduced by any process without written permission from CHEMWATCH.

TEL (+61 3) 9572 4700.