

Carter Dencorub Cream

Hazard Alert Code:
HIGH

Chemwatch Material Safety Data Sheet (REVIEW)

Version No: 2.0

Chemwatch 23936

Issue Date: 15-Oct-2010

CD 2011/1

NC317TCP

Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME

Carter Dencorub Cream

SYNONYMS

"analgesic cream"

PRODUCT NUMBERS

80059

PRODUCT USE

Rubefacient for temporary pain relief from muscular aches and sprains. Rub into the affected part until absorbed by the skin.

SUPPLIER

Company: Church & Dwight Pty Ltd

Address:

Unit 1/108 Old Pittwater road

Brookvale

NSW, 2100

Australia

Telephone: +61 2 8978 7878

Telephone: 1800 222 099

Fax: +61 2 8978 7889

Section 2 - HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE

HAZARDOUS SUBSTANCE. NON-DANGEROUS GOODS. According to NOHSC Criteria, and ADG Code.

CHEMWATCH HAZARD RATINGS

	Min	Max
Flammability:	1	
Toxicity:	1	
Body Contact:	3	
Reactivity:	0	
Chronic:	0	

Min/Nil=0
Low=1
Moderate=2
High=3
Extreme=4



POISONS SCHEDULE

S6

RISK

- Irritating to respiratory system and skin.
- Risk of serious damage to eyes.
- Harmful: danger of serious damage to health by prolonged exposure through inhalation.
- Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- Skin contact may produce health damage*.
- Cumulative effects may result following exposure*.
- Limited evidence of a carcinogenic effect*.
- Possible skin sensitiser*.

* (limited evidence).

SAFETY

- Wear suitable protective clothing.
- Use only in well ventilated areas.
- Keep container in a well ventilated place.
- To clean the floor and all objects contaminated by this material, use water.
- Keep away from food, drink and animal feeding stuffs.
- If swallowed, IMMEDIATELY contact Doctor or Poisons Information Centre (show this container or label).

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
methyl salicylate	119-36-8	20

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petrolatum	8009-03-8.	1-20
stearic acid	57-11-4	1-20
white wax		1-20
paraffin wax	8002-74-2	1-20
propylene glycol stearate		1-20
triethanolamine	102-71-6	1-20
glycerol	56-81-5	1-20
camphor	76-22-2	1-20
lanolin	8006-54-0	<1
salicylic acid	69-72-7	<1
mineral oil	Not avail.	<1
eucalyptus oil	92502-70-0	<1
isobornyl acetate	125-12-2	<1
menthol	89-78-1	<1
water	7732-18-5	30-60

Section 4 - FIRST AID MEASURES

SWALLOWED

-
- Immediately give a glass of water.
- First aid is not generally required. If in doubt, contact a Poisons Information Centre or a doctor.

EYE

- If this product comes in contact with the eyes:
 - Wash out immediately with fresh running water.
 - Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
 - Seek medical attention without delay; if pain persists or recurs seek medical attention.
 - Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

INHALED

-
- If fumes or combustion products are inhaled remove from contaminated area.
- Other measures are usually unnecessary.

NOTES TO PHYSICIAN

- Treat symptomatically.

Section 5 - FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

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

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 course.
- Use water delivered as a fine spray to control fire and cool adjacent area.
- Avoid spraying water onto liquid pools.
- Do not approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.

FIRE/EXPLOSION HAZARD

-
- 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).

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- May emit acrid smoke.
 - Mists containing combustible materials may be explosive.
- Other combustion products include: carbon dioxide (CO₂).

FIRE INCOMPATIBILITY

-
- Avoid reaction with oxidising agents

HAZCHEM

None

Personal Protective Equipment

Gloves, boots (chemical resistant).

Section 6 - ACCIDENTAL RELEASE MEASURES

MINOR SPILLS

-
- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Control personal contact by using protective equipment.
- Contain and absorb spill with sand, earth, inert material or vermiculite.
- Wipe up.
- Place in a suitable, labelled container for waste disposal.

MAJOR SPILLS

-
- Clear area of personnel and move upwind.
- Slippery when spilt.
- 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 course.
- No smoking, naked lights or ignition sources.
- Increase ventilation.
- Stop leak if safe to do so.
- Water spray or fog may be used to disperse / absorb vapour.
- Contain or absorb with sand, earth or vermiculite.
- Collect recoverable product into labelled containers for recycling.
- Collect solid residues and seal in labelled drums for disposal.
- Wash area with detergent and water and prevent runoff into drains.
- After clean up operations, decontaminate and launder all protective clothing and equipment before storing and re-using.
- If contamination of drains or waterways occurs, advise emergency services.

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

Section 7 - HANDLING AND STORAGE

PROCEDURE FOR HANDLING

-
- Limit all unnecessary personal contact.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately.
- Use good occupational work practice.
- Observe manufacturer's storing and handling recommendations.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

SUITABLE CONTAINER

-
- Packaging as recommended by manufacturer.
- Check that containers are clearly labelled

STORAGE INCOMPATIBILITY

- Avoid storage with oxidisers.

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STORAGE REQUIREMENTS

-
- 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 storing and handling recommendations.

Store below 30 deg C.

SAFE STORAGE WITH OTHER CLASSIFIED CHEMICALS



X: Must not be stored together

O: May be stored together with specific preventions

+: May be stored together

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m ³	STEL ppm	STEL mg/m ³	Peak ppm	Peak mg/m ³	TWA F/CC	Notes
Australia Exposure Standards	methyl salicylate (Methyl alcohol)	200	262	250	328				Sk
Australia Exposure Standards	paraffin wax (Paraffin wax (fume))		2						
Australia Exposure Standards	triethanolamine (Triethanolamine)		5						Sen
Australia Exposure Standards	glycerol (Glycerin mist (a))		10						(see Chapter 14)
Australia Exposure Standards	camphor (Camphor, synthetic)	2	12	3	19				

The following materials had no OELs on our records

- lanolin: CAS:8006-54-0 CAS:8020-84-6 CAS:68424-58-8
- salicylic acid: CAS:69-72-7
- eucalyptus oil: CAS:92502-70-0 CAS:84625-32-1 CAS:8000-48-4 CAS:91771-68-5 CAS:85203-56-1
- isobornyl acetate: CAS:125-12-2
- menthol: CAS:89-78-1 CAS:2216-51-5 CAS:1490-04-6 CAS:15356-60-2
- water: CAS:7732-18-5

EMERGENCY EXPOSURE LIMITS

Material	Revised IDLH Value (mg/m ³)	Revised IDLH Value (ppm)
methyl salicylate	1667	6,000
camphor 2717	200 [Unch]	

MATERIAL DATA

EUCALYPTUS OIL:

GLYCEROL:

ISOBORNYL ACETATE:

MENTHOL:

PARAFFIN WAX:

STEARIC ACID:

■ Sensory irritants are chemicals that produce temporary and undesirable side-effects on the eyes, nose or throat. Historically occupational exposure standards for these irritants have been based on observation of workers' responses to various airborne concentrations. Present day expectations require that nearly every individual should be protected against even minor sensory irritation and exposure standards are established using uncertainty factors or safety factors of 5 to 10 or more. On occasion animal no-observable-effect-levels (NOEL) are used to determine these limits where human results are unavailable. An additional

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approach, typically used by the TLV committee (USA) in determining respiratory standards for this group of chemicals, has been to assign ceiling values (TLV C) to rapidly acting irritants and to assign short-term exposure limits (TLV STELs) when the weight of evidence from irritation, bioaccumulation and other endpoints combine to warrant such a limit. In contrast the MAK Commission (Germany) uses a five-category system based on intensive odour, local irritation, and elimination half-life. However this system is being replaced to be consistent with the European Union (EU) Scientific Committee for Occupational Exposure Limits (SCOEL); this is more closely allied to that of the USA.

OSHA (USA) concluded that exposure to sensory irritants can:

- cause inflammation
- cause increased susceptibility to other irritants and infectious agents
- lead to permanent injury or dysfunction
- permit greater absorption of hazardous substances and
- acclimate the worker to the irritant warning properties of these substances thus increasing the risk of overexposure.

MINERAL OIL:

PARAFFIN WAX:

PETROLATUM:

- for mineral oils (excluding metal working fluids), pure, highly and severely refined:

Human exposure to oil mist alone has not been demonstrated to cause health effects except at levels above 5 mg/m³ (this applies to particulates sampled by a method that does not collect vapour). It is not advisable to apply this standard to oils containing unknown concentrations and types of additive.

MENTHOL:

PARAFFIN WAX:

STEARIC ACID:

- It is the goal of the ACGIH (and other Agencies) to recommend TLVs (or their equivalent) for all substances for which there is evidence of health effects at airborne concentrations encountered in the workplace.

At this time no TLV has been established, even though this material may produce adverse health effects (as evidenced in animal experiments or clinical experience). Airborne concentrations must be maintained as low as is practically possible and occupational exposure must be kept to a minimum.

NOTE: The ACGIH occupational exposure standard for Particles Not Otherwise Specified (P.N.O.S) does NOT apply.

LANOLIN:

WATER:

- No exposure limits set by NOHSC or ACGIH.

CARTER DENCORUB CREAM:

- None assigned. Refer to individual constituents.

METHYL SALICYLATE:

- For methanol:

Odour Threshold Value: 4.2-5960 ppm (detection), 53.0-8940 ppm (recognition)

NOTE: Detector tubes for methanol, measuring in excess of 50 ppm, are commercially available.

Exposure at or below the recommended TLV-TWA is thought to substantially reduce the significant risk of headache, blurred vision and other ocular and systemic effects.

Odour Safety Factor (OSF)

OSF=2 (METHANOL).

STEARIC ACID:

- The stearates have a low order of acute and chronic toxicity. Intratracheal administration of relatively large doses in rats produce varying degrees of pulmonary damage. Acute, gross inhalation exposure has been associated with clinical pneumonitis. A case of "pneumoconiosis with probable heart failure" has been reported in a rubber worker occupationally exposed to zinc stearate dust for 29 years. Several cases of infants developing respiratory distress and in some instances, acute fatal pneumonitis on aspiration of zinc stearate powder, have been reported.

TRIETHANOLAMINE:

- for triethanolamine:

Exposure at or below the TLV-TWA is thought to minimise the potential for skin and eye irritation, and acute effects (including liver, kidney and nerve damage) and chronic effects (including cancer and allergic contact dermatitis).

Odour Safety Factor (OSF)

OSF=0.77 (triethanolamine).

for diethanolamine:

Odour Threshold: 2.6 ppm

The TLV-TWA is thought to be protective against the significant risk of eye damage and skin irritation.

Odour Safety Factor (OSF)

OSF=1.7 (DIETHANOLAMINE).

for monoethanolamine:

Odour threshold: 3-4 ppm.

Continuous exposure at 5 ppm produced only slight systemic effects. Intermittent exposure produces a lesser degree of toxicity in laboratory animals. This decreased toxicity is related to the rate of elimination;

the longer retained, the greater the toxicity. The TLV-TWA is thought to be protective against the risk of irritation and neuropathic effects.

Odour Safety Factor (OSF)

OSF=0.77 (ETHANOL AMINE).

GLYCEROL:

The mist is considered to be a nuisance particulate which appears to have little adverse effect on the lung and does not produce significant organic disease or toxic effects. OSHA concluded that the nuisance particulate limit would protect the worker from kidney damage and perhaps, testicular effects.

CAMPHOR:

- for camphor

Odour Threshold Value: 0.079 ppm (detection)

The TLV-TWA is thought to be protective against physical irritation of the eyes and nose and anosmia (loss of smell) which occurred in workers at concentrations above 2 ppm. Anosmia may occur in concentrations ranging from 35-194 mg/m³. In addition the limit is thought to be sufficiently low to prevent irritation of the central nervous system (which produces nausea,

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vomiting, excitement and confusion).

Odour Safety Factor(OSF)

OSF=7.4 (CAMPHOR).

LANOLIN:

CEL TWA: 5 mg/m³ (as oil mist vapours)

SALICYLIC ACID:

■ Airborne particulate or vapour must be kept to levels as low as is practicably achievable given access to modern engineering controls and monitoring hardware. Biologically active compounds may produce idiosyncratic effects which are entirely unpredictable on the basis of literature searches and prior clinical experience (both recent and past).

PERSONAL PROTECTION



EYE

■ No special equipment needed when handling small quantities.

- Safety glasses.

HANDS/FEET

■ No special equipment needed when handling small quantities.

OTHERWISE: Wear general protective gloves, eg. light weight rubber gloves.

OTHER

■ None required when handling small quantities.

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: water, glycerol, triethanolamine

■ Protective Material CPI *

NATURAL RUBBER

B

■ * 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.

RESPIRATOR

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

Breathing Zone Level ppm (volume)	Maximum Protection Factor	Half-face Respirator	Full-Face Respirator
1000	10	AK-AUS P	-
1000	50	-	AK-AUS P
5000	50	Airline *	-
5000	100	-	AK-2 P
10000	100	-	AK-3 P
	100+		Airline**

* - Continuous Flow ** - Continuous-flow or positive pressure demand.

The local concentration of material, quantity and conditions of use determine the type of personal protective equipment required. For further information consult site specific CHEMWATCH data (if available), or your Occupational Health and Safety Advisor.

ENGINEERING CONTROLS

■ General exhaust is adequate under normal operating conditions. If risk of overexposure exists, wear SAA approved respirator. Correct fit is essential to obtain adequate protection. Provide adequate ventilation in warehouse or closed storage areas. 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)

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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

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.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE

Smooth white glossy cream with a characteristic methyl salicylate odour; soluble in hot water.

PHYSICAL PROPERTIES

Liquid.

Mixes with water.

State	Non slump paste	Molecular Weight	Not applicable
Melting Range (°C)	Not available	Boiling Range (°C)	Not available
Solubility in water (g/L)	Miscible	Flash Point (°C)	Not available
pH (1% solution)	Not available	Decomposition Temp (°C)	Not available
pH (as supplied)	7.0-8.7	Autoignition Temp (°C)	Not available
Vapour Pressure (kPa)	Not available	Upper Explosive Limit (%)	Not available
Specific Gravity (water=1)	0.99-1.01	Lower Explosive Limit (%)	Not available
Relative Vapour Density (air=1)	Not available	Volatile Component (%vol)	Not available
Evaporation Rate	Not available		

Section 10 - CHEMICAL STABILITY

CONDITIONS CONTRIBUTING TO INSTABILITY

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-
- Presence of incompatible materials.
- Product is considered stable.
- Hazardous polymerisation will not occur.

For incompatible materials - refer to Section 7 - Handling and Storage.

Section 11 - TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS

ACUTE HEALTH EFFECTS

SWALLOWED

- The material is discomforting to the gastro-intestinal tract and may be harmful if swallowed. Considered an unlikely route of entry in commercial/industrial environments.

EYE

- The material is slightly discomforting to the eyes and is capable of causing a mild, temporary redness of the conjunctiva (similar to wind-burn), temporary impairment of vision and/ or other transient eye damage/ ulceration. The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

SKIN

- The material may be regarded as non-irritating and repeated exposure may cause sensitisation and/or allergic reactions. Irritation and skin reactions are possible with sensitive skin. 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.

INHALED

- The vapour is discomforting to the upper respiratory tract.

CHRONIC HEALTH EFFECTS

- Principal routes of exposure are usually by skin contact/eye contact inhalation of vapour.

TOXICITY AND IRRITATION

- unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

STEARIC ACID:

TRIETHANOLAMINE:

CAMPHOR:

SALICYLIC ACID:

EUCALYPTUS OIL:

MENTHOL:

METHYL SALICYLATE:

- Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. 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. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.

TRIETHANOLAMINE:

SALICYLIC ACID:

MENTHOL:

METHYL SALICYLATE:

- The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

SALICYLIC ACID:

METHYL SALICYLATE:

- For certain benzyl derivatives:

The members of this group are rapidly absorbed through the gastrointestinal tract, metabolised primarily in the liver, and excreted primarily in the urine either unchanged or as conjugates of benzoic acid derivatives. At high dose levels, gut micro-organisms may act to produce minor amounts of breakdown products. However, no adverse effects have been reported even at repeated high doses. Similarly, no effects were observed on reproduction, foetal development and tumour potential.

SALICYLIC ACID:

TRIETHANOLAMINE:

- 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.

PARAFFIN WAX:

PETROLATUM:

CARTER DENCORUB CREAM:

- Not available. Refer to individual constituents.

METHYL SALICYLATE:

TOXICITY

IRRITATION

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Oral (Rabbit) LD50: 1300 mg/kg

Skin (rabbit): 500 mg/24 h - Moderate

Subcutaneous (Rabbit) LD: 4250 mg/kg

Eye (rabbit): 500 mg/24 h - Mild

Oral (Guinea pig) LD50: 700 mg/kg

Subcutaneous (Guinea pig) LD: 1500 mg/kg

Oral (Rat) LD50: 1220 mg/kg

Oral (Mouse) LD50: 1110 mg/kg

Oral (Dog) LD50: 2100 mg/kg

Subcutaneous (Dog) LD: 2250 mg/kg

Oral (Rat) TDLo: 122 mg/kg

Inhalation (Rat) TClO: 18 mg/m³/4h

Oral (Human) LD: 506 mg/kg

Oral (Human) LD: 1329 mg/kg

Oral (Human) LD: 700 mg/kg

Oral (Human) LD: 355 mg/kg

Oral (Human) LD: 1480 mg/kg

Oral (Rat) LD50: 887 mg/kg

■ 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.

Not irritating to human skin at concentrations of 8% in mineral oil*

Not sensitising to human skin at concentrations of 8% in mineral oil*

Not sensitising to guinea pig (Magnusson and Kligman method) *

Not irritating to rabbits on ocular application *

Ames test: negative*

* Rhodia MSDS

PETROLATUM:

Nil reported

sev

Dermal (rabbit) TDLo: 100 ml/kg/30D-I

Tumorigenic effects.

TOXICITY

IRRITATION

STEARIC ACID:

Intravenous (rat) LD50: 21.5 mg/kg

Skin
(human):
75
mg/3d-I-
Mild

Intravenous (mouse) LD50: 23 mg/kg

Skin (rabbit):500 mg/24h-Moderate

Dermal (rabbit) LD50: >5000 mg/kg

■ 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.

Equivocal tumorigen by RTEC criteria

PARAFFIN WAX:

Skin
(rabbit):
500
mg/24
hr-Mild

Eye (rabbit): 100 mg/24 hr-Mild

sev#33wax

Tumorigenic in rats

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TRIETHANOLAMINE:

Oral (rat) LD50: 8000 mg/kg

Skin
(human):
15
mg/3d
(int)-Mild

Oral (rat) LD50: 4920 ul/kg

Skin (rabbit): 560 mg/24 hr- Mild

Dermal (rat) LD50: >16000 mg/kg

minor iritis,

Dermal (rabbit) LD50: 16 ml/kg *

minor conjunctival irritation

Intraperitoneal (rat) LD50: 1510 mg/kg

with significant discharge;

Oral (mouse) LD50: 5846 mg/kg

no corneal injury *

Intraperitoneal (mouse) LD50: 1450 mg/kg

Skin
(rabbit):
4 h
occluded

Oral (rabbit) LD50: 2200 mg/kg

no irritation *

Dermal (rabbit) LD50: >20000 mg/kg

Eye
(rabbit):
5.62 mg
-
SEVERE

Oral (g.pig) LD50: 2200 mg/kg

Eye (rabbit): 10 mg - Mild

Oral (rat) LD50: 5560 mg/kg (calc.)

Eye
(rabbit):
0.1 ml -

Oral (rat) LD50: 4.92 ml/kg (female) *

Oral (rat) LD50: 8.57 ml/kg (male) *

Oral (Guinea pig) LD50: 2200 mg/kg

■ Studies done show that triethanolamine is of low toxicity following high dose exposure by swallowing, skin contact or inhalation. It has not been shown to cause cancer, genetic defects, reproductive or developmental toxicity.

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.

NOTE: Substance has been shown to be mutagenic in at least one assay, or belongs to a family of chemicals producing damage or change to cellular DNA.

Lachrymation, diarrhoea, convulsions, urinary tract changes, changes in bladder weight, changes in testicular weight, changes in thymus weight, changes in liver weight, dermatitis after systemic exposure, kidney, ureter, bladder tumours recorded.

Equivocal tumourigen by RTECS criteria.

Dermal rabbit value quoted above is for occluded patch in male or female animals

* Union Carbide

GLYCEROL:

Oral (Rat) LD50: 12600 mg/kg

Oral (Guinea pig) LD50: 7750 mg/kg

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Oral (Human) TDLo: 1428 mg/kg

Intraperitoneal (Rat) LD50: 4420 mg/kg

Subcutaneous (Rat) LD50: 100 mg/kg

Intravenous (Rat) LD50: 5566 mg/kg

Oral (Mouse) LD50: 4090 mg/kg

Intraperitoneal (Mouse) LD50: 8700 mg/kg

Subcutaneous (Mouse) LD50: 91 mg/kg

Intravenous (Mouse) LD50: 4250 mg/kg

■ At very high concentrations, evidence predicts that glycerol may cause tremor, irritation of the skin, eyes, digestive tract and airway. Otherwise it is of low toxicity. There is no significant evidence to suggest that it causes cancer, genetic, reproductive or developmental toxicity.

CAMPHOR:**Oral (rat) LD50: 5000 mg/kg*** *[Bronson]

Intraperitoneal (rat) LD50: 956 mg/kg

Subcutaneous (rat) LD50: 3040 mg/kg

Intraperitoneal (mouse) LD50: 884 mg/kg

Subcutaneous (mouse) LD50: 3020 mg/kg

■ Camphor appears to have moderate acute oral toxicity, and a higher toxicity when inhaled. Long term inhalation may cause emphysema. There is no observed tumour potential. Reproductive toxicity studies were not available for camphor, however, in developmental toxicity studies, it demonstrated no foetal toxicity.

for (+/-) -camphor: [CAS No. 21368-68-3]

Nil reported

LANOLIN:

■ No data of toxicological significance identified in literature search.

SALICYLIC ACID:**Oral (man) LDLo: 50 mg/kg***

Oral (rat) LD50: 891 mg/kg

Eye (rabbit): 100 mg - SEVERE

Oral (rat) TDLo: 1400 mg/kg**

[*BDH], [**Extal]

Dermal (man) TDLo: 57 mg/kg

Intraperitoneal (Rat) LD50: 157 mg/kg

Oral (Mouse) LD50: 480 mg/kg

Intraperitoneal (Mouse) LD50: 300 mg/kg

Subcutaneous (Mouse) LD: 520 mg/kg

Intravenous (Mouse) LD50: 184 mg/kg

Oral (Cat) LD50: 400 mg/kg

Oral (Rabbit) LD50: 1300 mg/kgSkin
(rabbit):
500
mg/24h
- Mild

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MINERAL OIL:

■ Toxicity and Irritation data for petroleum-based mineral oils are related to chemical components and vary as does the composition and source of the original crude.

A small but definite risk of occupational skin cancer occurs in workers exposed to persistent skin contamination by oils over a period of years. This risk has been attributed to the presence of certain polycyclic aromatic hydrocarbons (PAH) (typified by benz[a]pyrene).

Petroleum oils which are solvent refined/extracted or severely hydrotreated, contain very low concentrations of both.

EUCALYPTUS OIL:

Oral (man) LDLo: 375 mg/kg

Oral (child) TClO: 218 mg/kg

Oral (rat) LD50: 2480 mg/kg

Dermal (rabbit) LD50: 2480 mg/kg

■ 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.

ISOBORNYL ACETATE:

Oral (Rat) LD50: 9050 mg/kg

Oral (Mouse) LD50: 3100 mg/kg

Somnolence, liver changes recorded.

MENTHOL:

Oral (rat) LD50: 3180 mg/kg

Oral (Mouse) LD50: 2750 mg/kg

Skin: Irritant *

Oral (Rat) LD50: 3300 mg/kg

Oral (Cat) LD50: 900 mg/kg

Subcutaneous (Mouse) LD50:
5500 mg/kg

Subcutaneous (Rat) LD50: 1750 mg/kg

Intraperitoneal (Mouse) LD50:
2000 mg/kg

Intraperitoneal (Rat) LD50: 1500 mg/kg

Intraperitoneal (Guinea pig) LD50:
4000 mg/kg

Intravenous (Cat) LD50: 34 mg/kg

Inhalation (Rat) TClO: 16

Skin
(rabbit):
500
mg/24h -
Moderate

Eye
(rabbit):
0.75 mg
-
SEVERE

Eye:
slight *

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mg/m³/4h

Oral (Mouse) LD50: 3400 mg/kg

Intraperitoneal (Mouse) LD50:
6600 mg/kg

Oral (Cat) LD50: 800 mg/kg

Intraperitoneal (Cat) LD50: 800
mg/kg

Intravenous (Cat) LD: 34 mg/kg

Intraperitoneal (Rat) LD50: 700
mg/kg

Intraperitoneal (Rat) LD: 1500 mg/kg

Intraperitoneal (Mouse) LD: 1800
mg/kg

Oral (Cat) LD: 1500 mg/kg

Intravenous (Cat) LD: 37 mg/kg

Bacterial mutagenicity (Ames) test: negative *

No evidence of carcinogenic, mutagenic or teratogenic effects

After inhalation ; mucosal irritation

After swallowing: gastric spasms, nausea, vomiting

Systemic effects: dizziness, ataxia (impaired locomotor coordination), tiredness, depressed respiration. Risk of methaemoglobin formation.

*Merck MSDS

WATER:

- No significant acute toxicological data identified in literature search.

CARCINOGEN

Triethanolamine International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs Group 3

Section 12 - ECOLOGICAL INFORMATION

PETROLATUM:

STEARIC ACID:

PARAFFIN WAX:

TRIETHANOLAMINE:

GLYCEROL:

CAMPHOR:

SALICYLIC ACID:

MINERAL OIL:

EUCALYPTUS OIL:

MENTHOL:

METHYL SALICYLATE:

- DO NOT discharge into sewer or waterways.

SALICYLIC ACID:

METHYL SALICYLATE:

- For certain benzyl derivatives:

Environmental fate:

All members of this group (benzyl, benzoate and 2-hydroxybenzoate (salicylate) esters) contain a benzene ring bonded directly to an oxygenated functional group (aldehyde or ester) that is hydrolysed and/or oxidised to a benzoic acid derivative:

Photodegradation: The calculated half lives for hydroxyl radical reactions range from 4.7 to 64.5 hours. The calculated photodegradation half-lives for three benzaldehyde derivatives in this chemical category are in the narrow range from 4.7 hours for m-methoxy-p-hydroxybenzaldehyde to 7.2 hours for the less substituted derivative benzaldehyde. The relative half-lives reflect the increased reactivity of a phenolic OH group. The half-lives for the aldehydes are shorter than those for the corresponding benzyl and benzoate esters in this category (12.7 for methyl benzoate to 64.5 hours for methyl p-methylbenzoate). Generally, the carboxylate function of the ester is more stable to reaction with hydroxyl radicals than The calculated half lives for hydroxyl radical reactions range from 4.7 to 64.5 hours. The calculated photodegradation half-lives for three benzaldehyde derivatives in this chemical category are in the narrow range from 4.7 hours for m-methoxy-phydroxybenzaldehyde to 7.2 hours for the less substituted derivative benzaldehyde . The relative half-lives reflect the increased reactivity of a phenolic OH group. The half-lives

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for the aldehydes are shorter than those for the corresponding benzyl and benzoate esters in this category (12.7 for methyl benzoate to 64.5 hours for methyl p-methylbenzoate). Generally, the carboxylate function of the ester is more stable to reaction with hydroxyl radicals than is the aldehyde function. The presence of an aromatic phenol function capable of undergoing ready hydrogen abstraction of the phenolic hydroxyl group decreases predicted photodegradation half-lives. Therefore, the methyl, pentyl and benzyl esters of 2-hydroxybenzoic acid have calculated half-lives of 11.6, 7.6, and 7.4 hours, respectively

Stability in Water: Benzaldehydes in this group cannot hydrolyse. However, they are likely to be slowly oxidized to their corresponding acids. The calculated hydrolysis half-lives for esters range from 20 days at pH 8 and 198 days at pH 7 for benzyl acetate to 1.1 years at pH 8 and 10.8 years at pH 7 for methyl p-methylbenzoate. Benzyl acetate, like several other benzyl esters, was shown to be 50% hydrolysed in 2 hours at pH 7.5 in the presence of pancreatin in an in vitro simulation experiment. These esters are all expected to be readily hydrolysed in vivo.

Biodegradation: All are readily and ultimately biodegradable using a standard OECD 301B test or 301F protocol. The parent acid benzoic acid, its sodium salt, and 2-hydroxybenzoic acid were all readily biodegradable in a COD (chemical oxygen demand) test. Since hydrolysis of the esters and ready oxidation of the aldehydes yields corresponding acid derivatives, the data on benzoic acid, its sodium salt, and 2-hydroxybenzoic acid validate the observations that the aldehydes and esters in this chemical category are readily biodegradable.

Ecotoxicity:

Experimental data indicate a low to moderate toxicity for the benzyl derivatives. Benzyl esters and 2-hydroxybenzoate esters (salicylates) exhibit higher acute toxicity to fish than do benzoate esters or benzaldehyde derivatives. Measured values for benzyl and salicylate esters are in the 1-5 mg/l range with salicylates being slightly more toxic. Benzoate ester and benzaldehyde derivatives exhibit 96-hour LC50 values above 10 mg/L

Benzaldehyde derivatives exhibit lower acute toxicity compared to the parent substance.

Fish LC50 (14-d): guppy 0.17 mg/l (benzaldehyde)

Fish LC50 (96 h): guppy 88-116 mg/l (m-methoxy-p-hydroxybenzaldehyde)

Fish LC50 (96 h): 13-23.5 mg/l (benzaldehyde, p-methoxybenzaldehyde, m-methoxy-p-hydroxybenzaldehyde; estimated values).

Acute toxicity for aquatic invertebrates parallels that for fish in the benzyl chemical category. Benzoate esters exhibit moderate experimental and calculated acute toxicity to invertebrates.

PARAFFIN WAX:

PETROLATUM:

METHYL SALICYLATE:

Marine Pollutant

Yes

■ May cause long-term adverse effects in the aquatic environment.

For methyl salicylate:

Half-life (hr) air : 138

Half-life (hr) H2O surface water : 3.2-528

BOD 5 55%

Environmental fate:

When released into the soil, methyl salicylate is expected to evaporate quickly or to leach into ground water; remaining material is readily biodegrade.

Methyl salicylate is readily biodegradable in water (half-life between 10 and 30 days)

With a log Kow of less than 3, methyl salicylate has an estimated bioconcentration factor (BCF) of less than 100. and is not expected to significantly bioaccumulate.

When released into the air, methyl salicylate is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. It is expected to be removed from the atmosphere to a moderate extent by wet deposition. When released into the air, this material is expected to have a half-life between 1 and 10 days.

PETROLATUM:

STEARIC ACID:

Fish LC50 (96hr.) (mg/l):

14

BOD 5 if unstated: 0.8-1.44,4%

COD: 30%

Anaerobic effects: sig degrad

Potential to bioaccumulate

log Pow >7

PARAFFIN WAX:

TRIETHANOLAMINE:

Fish LC50 (96hr.) (mg/l):

3500 (24hr)

Daphnia magna EC50 (48hr.) (mg/l):

2.5

Algae IC50 (72hr.) (mg/l):

1.8-47

log Kow (Sangster 1997):

-1

log Pow (Verschuereen 1983):

0.75428571

BOD20:

6.20%

ThOD:

2.04

■ for triethanolamine:

Koc : 3

Half-life (hr) air : 4

Henry's atm m3 /mol: 3.38E-19

BOD 5 if unstated: nil-0.17

COD : 1.5

ThOD : 2.04; 1.61 p/p

ThOD (measured) 1.52 mg/mg (Union Carbide)

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ThOD (calculated) 1.61 mg/mg (Union Carbide)

BCF : <1

Biodegradability: 96% DOC reduction (OECD Method 301E)

BOD; Day 5: 8%, Day 10: 9%, Day 20: 66%

Passes Sturm, AFNOR tests for biodegradability.

Reaches more than 70% mineralisation in OECD test for inherent biodegradability (Zahn-Wellens test)

Theoretical oxygen demand ThOD) is calculated at 1.61 p/p. Degradation is expected in the atmospheric environment within minutes to hours.

Log octanol/ water partition coefficient (log Kow) is estimated using the Pomona-Medchem structural fragment to be -1.746.

Potential for the mobility in soil is very high (Koc between 0 and 50).

Henry's Law Constant (H) is estimated to be 3.38E-19 atm.m3/mol (25 C)

Log soil organic carbon partition coefficient (log Koc) is estimated to be 0.48.

When released into soil the material is expected to degrade without significant evaporation. A half-life of between 1 to 10 days is expected.

Material has shown a potential to biodegrade. Attains >99% degradation in activated sludge in 24 hours. Attains >99% degradation in soil is 1-14 days.

Bioconcentration potential is low (BCF less than 100 or log Kow less than 3).

When released into water, the material is expected to degrade with a half-life of about 1 to 10 days. Because the material has a log octanol-water coefficient of less than 3 it is not expected to bioaccumulate.

Release to air is expected to produce photolytic degradation resulting in hydroxyl radicals. The material is expected to be removed from the atmosphere by dry and wet deposition (half-life between 1 and 10 days).

Environmental fate:

Transport: Due to the high water solubility and low vapour pressure of triethanolamine, it is likely to partition preferentially into the water phase from which volatilisation to the atmosphere is likely to be only a minor removal process. The low log Kow value indicates that bioaccumulation and adsorption onto soils/sediments is unlikely to occur.

Water: If released to water, triethanolamine should biodegrade. The half-life of this compound is expected to range from a few days to a few weeks depending on the degree of acclimation of the system. Bioconcentration in aquatic organisms, adsorption to suspended solids and sediments, and volatilization are not expected to be important fate processes in water. Triethanolamine does not decompose or hydrolyze in contact with water and there is no abiotic degradation

Biodegradation: Triethanolamine is readily biodegradable, possibly after a short acclimation period. The data indicate that triethanolamine is inherently biodegradable. Extensive removal due to biodegradation is to be expected in sewage treatment plants. In the ready biodegradation tests, triethanolamine was readily biodegradable in the AFNOR (97% degradation based on DOC removal), STURM (91% degradation based on CO2 evolution) and OECD Screening test (96% degradation based on DOC removal, but little degradation was observed in the MITI (14 day test; 2% removal based on BOD and Closed Bottle (0-9% removal based on BOD).

Ecotoxicity:

Material is practically non-toxic to aquatic organisms on an acute basis (LC50 >100 mg/l in most sensitive species)

Fish LC50 (96 h): fathead minnow (*Pimephales promelas*) 1800-11800 mg/l; fathead minnow 5600 mg/l (Union Carbide); bluegill (*Leuciscus idus*) 7930 mg/l; goldfish (*Carassius auratus*) 5000 mg/l

Daphnia magna LC50 (24 h): 1390 - 2038 mg/l

Daphnia magna LC50 (48 h): 947 mg/l (Union Carbide)

Algae LC50 (48 h): 750 mg/l

Brine shrimp LC50: (*Artemia salina*) 5600 mg/l

Maximum acceptable toxicant concentration (MATC): 22 mg/l

Algal growth inhibition (*Scenedesmus subspicatus*) EC50: 470-750 mg/l

Inhibition of bacteria in effluent: 50% inhibition: >10000 mg/l

Inhibitory concentration (IC50) is OECD "Activated Sludge, Respiration Inhibition Test" (Guideline 209) is >1000 mg/l.

GLYCEROL:

Algae IC50 (72hr.) (mg/l):	2900-10000
log Kow (Sangster 1997):	-1.76
log Pow (Verschueren 1983):	1.07692307
BOD5:	51%
COD:	95%
ThOD:	93%

■ For glycerol

log Kow : -2.66- -2.47

BOD 5: 0.617-0.87,31-51%

COD : 1.16,82-95%

ThOD : 1.217-1.56

Completely biodegradable.

Environmental fate:

Based on the relevant physical-chemical properties and the fact that glycerol is readily biodegradable, glycerol will partition primarily to water.

Biodegradability: Glycerol is considered to be readily biodegradable in the aquatic environment. Pre-adapted microorganisms can degrade glycerol rapidly under both aerobic and anaerobic conditions.

Bioaccumulation: Based on Log Kow -1.76, glycerol will have a low bioaccumulation potential and is not expected to bioaccumulate.

Photodegradation: The calculated half-life for the photo-oxidation (reaction with hydroxyl radicals) of glycerol in air is 6.8 hours (EPIWIN vs 3.04).

Stability in Water: Glycerol does not contain functional groups that are expected to react with water.

Transport between Environmental Compartments: From the EQC model (Mackay level III), it can be deduced that 100% of glycerol will end up in the water phase. Negligible amounts will be distributed towards soil, air and sediment

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Ecotoxicity:

Fish LC50: >5000 mg/l

Algae IC50: >2900 mg/l

Bacteria EC50: .10000 mg/l (Pseudomonas putida)

The weight of evidence indicates that glycerol is of low toxicity to aquatic organisms and this conclusion is supported by QSAR predictions. The lowest LC50 for fish is a 24-h LC50 of >5000 mg/l for Carassius auratus (Goldfish) and for aquatic invertebrates, a 24 h EC50 of >10000 mg/l for Daphnia magna is the lowest EC50. Several tests on algae are available, which suggest very low toxicity to a range of species, however their validity is uncertain. A QSAR prediction for the 96h EC50 to algae was 78000 mg/l. No toxicity towards the microorganism Pseudomonas putida was observed at 10000 mg/l after exposure for 16 hours. No long-term aquatic toxicity data is available. Screening studies are available on frog and carp embryos which indicate some effects on growth and hatching rates respectively at very high concentrations of glycerol, >7000 mg/l. However, their ecological relevance is not clear.

CAMPHOR:

Fish LC50 (96hr.) (mg/l):

110

■ Environmental fate:

Camphor is expected to quickly volatilise into the ambient air where it is expected to rapidly photodegrade. Therefore, the camphor residues that leach from the soil into water are not expected to be at concentrations that would pose a risk concern, especially to nontarget plant and animal species.

An estimate bioconcentration factor of 38 suggests the potential for bioconcentration of camphor in aquatic organisms is moderate. Ecotoxicity:

There were no deaths in sea lamprey (Petromyzon marinus) exposed to freshwater with a concentration of 5000 .ug/L (5 mg/L) of camphor for 24 hours, but stress behavior was observed.

Fish LC50 (96 h): Fathead minnow (Pimephales promelas) 110 mg/L (static bioassay); zebra fish (Brachydanio rerio) 35-50 mg/l.

LANOLIN:

SALICYLIC ACID:

log Pow (Verschueren 1983):

2.21/2.26

BOD5:

0.95 (41%)

COD:

1.58 (100%)

ThOD:

1.623

■ For salicylic acid:

log Kow : 0.35-2.26

BOD5: 0.95,41%

COD : 1.58,100%

ThOD : 1.623

BOD = 141%, 5 days

Environmental fate:

Due to the chemical structure of salicylic acid volatilisation and bioconcentration are not expected to be important environmental fate processes. Biodegradation is expected to be the dominant removal mechanism of salicylic acid from soil and water. It may also undergo photochemical degradation in sunlit environmental media.

In air, it is expected to exist in both the vapor and particulate phase. Vapor phase reaction with photochemically produced hydroxyl radicals may be important (estimated half-life of 1.2 days). Removal by wet and dry deposition can also occur..

This chemical is not likely to bioconcentrate.

Biodegradable

Ecotoxicity:

Daphnia EC50 (24 h): 180 mg/l

Algae EC50 (72 h): 60 mg/l

Dangerous to aquatic life in high concentrations.

MINERAL OIL:

EUCALYPTUS OIL:

■ Terpenes such as limonene and isoprene contribute to aerosol and photochemical smog formation. Emissions of biogenic hydrocarbons, such as the terpenes, to the atmosphere may either decrease ozone concentrations when oxides of nitrogen are low or, if emissions take place in polluted air (i.e. containing high concentrations of nitrogen oxides), leads to an increase in ozone concentrations. Lower terpenoids can react with unstable reactive gases and may act as precursors of photochemical smog therefore indirectly influencing community and ecosystem properties.

Complex chlorinated terpenes such as toxaphene (a persistent, mobile and toxic insecticide) and its degradation products, were produced by photoinitiated reactions in an aqueous system, initially containing limonene and other monoterpenes, simulating pulp bleach conditions.

The reactions of ozone with larger unsaturated compounds, such as the terpenes can give rise to oxygenated species with low vapour pressures that subsequently condense to form secondary organic aerosol.

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.
Occupants (exhaled breath, ski oils, personal care products)	Isoprene, nitric oxide, squalene, unsaturated sterols, oleic acid and other unsaturated fatty acids, unsaturated oxidation products	Methacrolein, methyl vinyl ketone, nitrogen dioxide, acetone, 6MHQ, geranyl acetone, 4OPA, formaldehyde, nonanol, decanal, 9-oxo-nonanoic acid, azelaic acid, nonanoic acid.
Soft woods, wood flooring, including cypress, cedar and silver fir boards, houseplants	Isoprene, limonene, alpha-pinene, other terpenes and sesquiterpenes	Formaldehyde, 4-AMC, pinoaldehyde, pinic acid, pinonic acid, formic acid, methacrolein, methyl vinyl ketone, SOAs

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		including ultrafine particles
Carpets and carpet backing	4-Phenylcyclohexene, 4-vinylcyclohexene, styrene, 2-ethylhexyl acrylate, unsaturated fatty acids and esters	Formaldehyde, acetaldehyde, benzaldehyde, hexanal, nonanal, 2-nonenal
Linoleum and paints/polishes containing linseed oil	Linoleic acid, linolenic acid	Propanal, hexanal, nonanal, 2-heptenal, 2-nonenal, 2-decenal, 1-pentene-3-one, propionic acid, n-butyric acid
Latex paint	Residual monomers	Formaldehyde
Certain cleaning products, polishes, waxes, air fresheners	Limonene, alpha-pinene, terpinolene, alpha-terpineol, linalool, linalyl acetate and other terpenoids, longifolene and other sesquiterpenes	Formaldehyde, acetaldehyde, glycoaldehyde, formic acid, acetic acid, hydrogen and organic peroxides, acetone, benzaldehyde, 4-hydroxy-4-methyl-5-hexen-1-al, 5-ethenyl-dihydro-5-methyl-2(3H)-furanone, 4-AMC, SOAs including ultrafine particles
Natural rubber adhesive	Isoprene, terpenes	Formaldehyde, methacrolein, methyl vinyl ketone
Photocopier toner, printed paper, styrene polymers	Styrene	Formaldehyde, benzaldehyde
Environmental tobacco smoke	Styrene, acrolein, nicotine	Formaldehyde, benzaldehyde, hexanal, glyoxal, N-methylformamide, nicotinaldehyde, cotinine
Soiled clothing, fabrics, bedding	Squalene, unsaturated sterols, oleic acid and other saturated fatty acids	Acetone, geranyl acetone, 6MHO, 40PA, formaldehyde, nonanal, decanal, 9-oxo-nonanoic acid, azelaic acid, nonanoic acid
Soiled particle filters	Unsaturated fatty acids from plant waxes, leaf litter, and other vegetative debris; soot; diesel particles	Formaldehyde, nonanal, and other aldehydes; azelaic acid; nonanoic acid; 9-oxo-nonanoic acid and other oxo-acids; compounds with mixed functional groups (=O, -OH, and -COOH)
Ventilation ducts and duct liners	Unsaturated fatty acids and esters, unsaturated oils, neoprene	C5 to C10 aldehydes
"Urban grime"	Polycyclic aromatic hydrocarbons	Oxidized polycyclic aromatic hydrocarbons
Perfumes, colognes, essential oils (e.g. lavender, eucalyptus, tea tree)	Limonene, alpha-pinene, linalool, linalyl acetate, terpinene-4-ol, gamma-terpinene	Formaldehyde, 4-AMC, acetone, 4-hydroxy-4-methyl-5-hexen-1-al, 5-ethenyl-dihydro-5-methyl-2(3H) furanone, SOAs including ultrafine particles
Overall home emissions	Limonene, alpha-pinene, styrene	Formaldehyde, 4-AMC, pinonaldehyde, acetone, pinic acid, pinonic acid, formic acid, benzaldehyde, SOAs including ultrafine particles

Abbreviations: 4-AMC, 4-acetyl-1-methylcyclohexene; 6MHQ, 6-methyl-5-heptene-2-one, 4OPA, 4-oxopentanal, SOA, Secondary Organic Aerosols

Reference: Charles J Weschler; Environmental Health Perspectives, Vol 114, October 2006.

ISOBORNYL ACETATE:

MENTHOL:

log Pow (Verschueren 1983):

3.25/3.27

COD:

87%

ThOD:

2.97

Readily biodegradable according to OECD criteria

Appreciable bioaccumulation is expected

log Kow: 3.25-3.27

COD: 87%

ThOD: 2.97

Nitrif. inhib.: nil at 100mg/L

Fish LC50 (96 h): P. promelas 418.9 mg/l

WATER:

Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
Carter Dencorub Cream	No Data Available	No Data Available		
methyl salicylate	LOW	No Data Available	LOW	MED

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petrolatum	No Data Available	No Data Available		
stearic acid	LOW	No Data Available	LOW	LOW
paraffin wax	No Data Available	No Data Available		
triethanolamine	LOW	No Data Available	LOW	HIGH
glycerol	LOW	No Data Available	LOW	HIGH
camphor	HIGH	No Data Available	LOW	MED
lanolin	No Data Available	No Data Available		
salicylic acid	LOW	No Data Available	LOW	HIGH
mineral oil	No Data Available	No Data Available		
eucalyptus oil	No Data Available	No Data Available		
isobornyl acetate	HIGH	No Data Available	LOW	MED
menthol	HIGH	No Data Available	LOW	HIGH

Section 13 - DISPOSAL CONSIDERATIONS

-
- Consult manufacturer for recycling options and recycle where possible .
- Consult State Land Waste Management Authority for disposal.
- Incinerate residue at an approved site.
- Recycle containers if possible, or dispose of in an authorised landfill.

Section 14 - TRANSPORTATION INFORMATION

HAZCHEM:

None (ADG7)

NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS: UN, IATA, IMDG

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Section 15 - REGULATORY INFORMATION

POISONS SCHEDULE

S6

REGULATIONS

Regulations for ingredients

methyl salicylate (CAS: 119-36-8) is found on the following regulatory lists;

"Australia Inventory of Chemical Substances (AICS)", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix E (Part 2)", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 4", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 6", "Australia Therapeutic Goods Administration (TGA) Substances that may be used as active ingredients in Listed medicines", "GESAMP/EHS Composite List - GESAMP Hazard Profiles", "IMO IBC Code Chapter 17: Summary of minimum requirements", "IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk", "International Council of Chemical Associations (ICCA) - High Production Volume List", "International Fragrance Association (IFRA) Survey: Transparency List", "OECD Representative List of High Production Volume (HPV) Chemicals"

petrolatum (CAS: 8009-03-8) is found on the following regulatory lists;

"Australia Hazardous Substances", "Australia Inventory of Chemical Substances (AICS)", "IMO IBC Code Chapter 17: Summary of minimum requirements", "International Fragrance Association (IFRA) Survey: Transparency List", "OECD Representative List of High Production Volume (HPV) Chemicals"

stearic acid (CAS: 57-11-4) is found on the following regulatory lists;

"Australia Inventory of Chemical Substances (AICS)", "International Council of Chemical Associations (ICCA) - High Production Volume List", "International Fragrance Association (IFRA) Survey: Transparency List", "OECD Representative List of High Production Volume (HPV) Chemicals"

paraffin wax (CAS: 8002-74-2, 12704-91-5, 105054-93-1, 105845-08-7, 115251-23-5, 115251-24-6, 12704-92-6, 12795-75-4, 160936-34-5, 37220-23-8, 37339-80-3, 39355-22-1, 39373-78-9, 51331-35-2, 54692-42-1, 57572-43-7, 57608-84-1, 58057-11-7, 64742-43-4, 64742-51-4, 68607-08-9, 68649-50-3, 70431-26-4, 72993-88-5, 72993-89-6, 72993-90-9, 8035-62-9, 8044-02-8, 8044-79-9, 9083-41-4) is found on the following regulatory lists;

"Australia Exposure Standards", "Australia Hazardous Substances", "Australia High Volume Industrial Chemical List (HVICL)", "GESAMP/EHS Composite List - GESAMP Hazard Profiles", "IMO IBC Code Chapter 17: Summary of minimum requirements", "IMO MARPOL 73/78 (Annex II) - List of Other Liquid Substances", "OECD Representative List of High Production Volume (HPV) Chemicals"

triethanolamine (CAS: 102-71-6) is found on the following regulatory lists;

"Australia Chemical Weapons (Prohibition) Act 1994 - Schedule 3", "Australia Exposure Standards", "Australia Hazardous Substances", "Australia Inventory of Chemical Substances (AICS)", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix E (Part 2)", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix F (Part 3)", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5", "Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (English)", "GESAMP/EHS Composite List - GESAMP Hazard Profiles", "IMO IBC Code Chapter 17: Summary of minimum requirements", "IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk", "International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs", "International Fragrance Association (IFRA) Survey: Transparency List", "OECD Representative List of High Production Volume (HPV) Chemicals", "The Australia Group Export Control List: Chemical Weapons Precursors"

glycerol (CAS: 56-81-5) is found on the following regulatory lists;

"Australia Exposure Standards", "Australia High Volume Industrial Chemical List (HVICL)", "Australia Inventory of Chemical Substances (AICS)", "Australia Therapeutic Goods Administration (TGA) Substances that may be used as active ingredients in Listed medicines", "CODEX General Standard for Food Additives (GSFA) - Additives Permitted for Use in Food in General, Unless Otherwise Specified, in Accordance with GMP", "GESAMP/EHS Composite List - GESAMP Hazard Profiles", "IMO IBC Code Chapter 18: List of products to which the Code does not apply", "IMO MARPOL 73/78 (Annex II) - List of Other Liquid Substances", "International Council of Chemical Associations (ICCA) - High Production Volume List", "International Fragrance Association (IFRA) Survey: Transparency List", "OECD Representative List of High Production Volume (HPV) Chemicals"

camphor (CAS: 76-22-2, 21368-68-3, 464-49-3, 464-48-2) is found on the following regulatory lists;

"Australia Exposure Standards", "Australia Hazardous Substances", "Australia Inventory of Chemical Substances (AICS)", "International Fragrance Association (IFRA) Survey: Transparency List"

lanolin (CAS: 8006-54-0, 8020-84-6, 68424-58-8) is found on the following regulatory lists;

"Australia Inventory of Chemical Substances (AICS)", "Australia Therapeutic Goods Administration (TGA) Substances that may be used as active ingredients in Listed medicines", "OECD Representative List of High Production Volume (HPV) Chemicals"

salicylic acid (CAS: 69-72-7) is found on the following regulatory lists;

"Australia Inventory of Chemical Substances (AICS)", "International Council of Chemical Associations (ICCA) - High Production Volume List", "International Fragrance Association (IFRA) Survey: Transparency List", "OECD Representative List of High Production Volume (HPV) Chemicals"

eucalyptus oil (CAS: 92502-70-0, 84625-32-1, 8000-48-4, 91771-68-5, 85203-56-1) is found on the following regulatory lists;

"Australia Inventory of Chemical Substances (AICS)"

isobornyl acetate (CAS: 125-12-2) is found on the following regulatory lists;

"Australia Inventory of Chemical Substances (AICS)", "International Fragrance Association (IFRA) Survey: Transparency List", "OECD Representative List of High Production Volume (HPV) Chemicals"

menthol (CAS: 89-78-1, 2216-51-5, 1490-04-6, 15356-60-2) is found on the following regulatory lists;

"Australia Inventory of Chemical Substances (AICS)", "Australia Therapeutic Goods Administration (TGA) Substances that may be

Carter Dencorub Cream

Hazard Alert Code:
HIGH

Chemwatch Material Safety Data Sheet (REVIEW)

Version No: 2.0

Chemwatch 23936

Issue Date: 15-Oct-2010

CD 2011/1

NC317TCP

used as active ingredients in Listed medicines", "International Council of Chemical Associations (ICCA) - High Production Volume List"

water (CAS: 7732-18-5) is found on the following regulatory lists;

"Australia Inventory of Chemical Substances (AICS)", "IMO IBC Code Chapter 18: List of products to which the Code does not apply", "International Fragrance Association (IFRA) Survey: Transparency List", "OECD Representative List of High Production Volume (HPV) Chemicals"

No data for Carter Dencorub Cream (CW: 23936)

No data for mineral oil (CAS: , Not avail)

Section 16 - OTHER INFORMATION

Denmark Advisory list for selfclassification of dangerous substances

Substance	CAS	Suggested codes	Carc3; R40 Xn; R22
methyl salicylate	119-36-8		
stearic acid	57-11-4		T; R25 N; R50
triethanolamine		102-71-6	R43 Xi; R38
camphor	76-22-2		Xn; R22 R52/53
camphor	21368-68-3		Xn; R22 R52/53
salicylic acid		69-72-7	Xn; R22

Ingredients with multiple CAS Nos

Ingredient Name	CAS
paraffin wax	8002-74-2, 12704-91-5, 105054-93-1, 105845-08-7, 115251-23-5, 115251-24-6, 12704-92-6, 12795-75-4, 160936-34-5, 37220-23-8, 37339-80-3, 39355-22-1, 39373-78-9, 51331-35-2, 54692-42-1, 57572-43-7, 57608-84-1, 58057-9, 8044-02-8, 8044-79-9, 9083-41-4
camphor	76-22-2, 21368-68-3, 464-49-3, 464-48-2
lanolin	8006-54-0, 8020-84-6, 68424-58-8
eucalyptus oil	92502-70-0, 84625-32-1, 8000-48-4, 91771-68-5, 85203-56-1
menthol	89-78-1, 2216-51-5, 1490-04-6, 15356-60-2

EXPOSURE STANDARD FOR MIXTURES

■ "Worst Case" computer-aided prediction of spray/ mist or fume/ dust components and concentration: ■ Composite Exposure Standard for Mixture (TWA) :5 mg/m³. ■ Operations which produce a spray/mist or fume/dust, introduce particulates to the breathing zone. If the breathing zone concentration of ANY of the components listed below is exceeded, "Worst Case" considerations deem the individual to be overexposed. Component Breathing Zone ppm Breathing Zone mg/m³ Mixture Conc (%)

Component	Breathing zone (ppm)	Breathing zone (mg/m ³)
Mixture Conc (%)	lanolin	5.0000
1.0		

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

A list of reference resources used to assist the committee may be found at:
www.chemwatch.net/references.

■ The (M)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.

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