

Anti Spatter #780-5316

RS Components

Chemwatch: 4876-16

Version No: 2.1.1.1

Material Safety Data Sheet according to NOHSC and ADG requirements

Print Date: 23/10/2013

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S.Local.AUS.EN

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

Product Identifier

Product name:	Anti Spatter #780-5316
Chemical Name:	Not Applicable
Synonyms:	Not Available
Proper shipping name:	AEROSOLS
Chemical formula:	Not Applicable
Other means of identification:	Not Available
CAS number:	Not Applicable

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

Relevant identified uses:	Application is by spray atomisation from a hand held aerosol pack , Welding products.
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Details of the supplier of the safety data sheet

Registered company name:	RS Components	RS Components
Address:	25 Pavesi Street Smithfield 2164 NSW Australia	Units 30 & 31, 761 Great South Road Penrose 1006 Auckland New Zealand
Telephone:	+1 300 656 636	+64 9 526 1600
Fax:	+1 300 656 696	+64 9 579 1700
Website:	Not Available	www.rsnewzealand.com
Email:	Not Available	Not Available

Emergency telephone number

Association / Organisation:	Not Available	Not Available
Emergency telephone numbers:	1800 039 008 (24 hours),+61 3 9573 3112	Not Available
Other emergency telephone numbers:	1800 039 008 (24 hours),+61 3 9573 3112	Not Available

SECTION 2 Hazards identification

Classification of the substance or mixture

HAZARDOUS SUBSTANCE. DANGEROUS GOODS. According to the Criteria of NOHSC, and the ADG Code.

Poisons Schedule:

Risk Phrases ^[1]

R44	Risk of explosion if heated under confinement.
R40(3)	Limited evidence of a carcinogenic effect.
R22	Harmful if swallowed.
R38	Irritating to skin.

Legend: 1. Classified by Chemwatch; 2. Classification drawn from HSIS ; 3. Classification drawn from EC Directive 1272/2008 - Annex VI

Label elements



Relevant risk statements are found in section 2

Indication(s) of danger:	Xn
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Safety advice:

S03	Keep in a cool place.
S13	Keep away from food, drink and animal feeding stuffs.
S15	Keep away from heat.
S23	Do not breathe gas/fumes/vapour/spray.
S36	Wear suitable protective clothing.
S37	Wear suitable gloves.
S38	In case of insufficient ventilation, wear suitable respiratory equipment.
S40	To clean the floor and all objects contaminated by this material, use water and detergent.
S46	If swallowed, seek medical advice immediately and show this container or label.
S51	Use only in well ventilated areas.
S53	Avoid exposure - obtain special instructions before use.
S56	Dispose of this material and its container at hazardous or special waste collection point.
S64	If swallowed, rinse mouth with water (only if the person is conscious).

Other hazards

Inhalation and/or skin contact may produce health damage*.

Cumulative effects may result following exposure*.

May affect fertility*.

May produce discomfort of the respiratory system*.

Repeated exposure potentially causes skin dryness and cracking*.

Vapours potentially cause drowsiness and dizziness*.

May be harmful to the foetus/ embryo*.

Eye contact may produce serious damage*.

SECTION 3 Composition / information on ingredients

Substances

See section below for composition of Mixtures

Mixtures

CAS No	%[weight]	Name
75-09-2	>75	methylene chloride
124-38-9	1-5	carbon dioxide

SECTION 4 First aid measures

Description of first aid measures

Eye Contact:

If aerosols come in contact with the eyes:

- Immediately hold the eyelids apart and flush the eye continuously for at least 15 minutes 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.
- Transport to hospital or doctor without delay.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Skin Contact:

If solids or aerosol mists are deposited upon the skin:

- Flush skin and hair with running water (and soap if available).
- Remove any adhering solids with industrial skin cleansing cream.
- **DO NOT use solvents.**
- Seek medical attention in the event of irritation.

Inhalation:

If aerosols, fumes or combustion products are inhaled:

- Remove to fresh air.
- 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.
- If breathing is shallow or has stopped, ensure clear airway and apply resuscitation, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
- Transport to hospital, or doctor.

Ingestion:

- Not considered a normal route of entry.
- Avoid giving milk or oils.
- Avoid giving alcohol.

Indication of any immediate medical attention and special treatment needed

for poisons (where specific treatment regime is absent):

BASIC TREATMENT

- Establish a patent airway with suction where necessary.
- Watch for signs of respiratory insufficiency and assist ventilation as necessary.
- Administer oxygen by non-rebreather mask at 10 to 15 L/min.
- Monitor and treat, where necessary, for pulmonary oedema.
- Monitor and treat, where necessary, for shock.
- Anticipate seizures.
- **DO NOT use emetics.** Where ingestion is suspected rinse mouth and give up to 200 ml water (5 ml/kg recommended) for dilution where patient is able to swallow, has a strong gag reflex and does not drool.

ADVANCED TREATMENT

- Consider orotracheal or nasotracheal intubation for airway control in unconscious patient or where respiratory arrest has occurred.
- Positive-pressure ventilation using a bag-valve mask might be of use.
- Monitor and treat, where necessary, for arrhythmias.
- Start an IV D5W TKO. If signs of hypovolaemia are present use lactated Ringers solution. Fluid overload might create complications.
- Drug therapy should be considered for pulmonary oedema.
- Hypotension with signs of hypovolaemia requires the cautious administration of fluids. Fluid overload might create complications.
- Treat seizures with diazepam.
- Proparacaine hydrochloride should be used to assist eye irrigation.

BRONSTEIN, A.C. and CURRANCE, P.L.

EMERGENCY CARE FOR HAZARDOUS MATERIALS EXPOSURE: 2nd Ed. 1994

for intoxication due to Freons/ Halons;

A: Emergency and Supportive Measures

- Maintain an open airway and assist ventilation if necessary
- Treat coma and arrhythmias if they occur. Avoid (adrenaline) epinephrine or other sympathomimetic amines that may precipitate ventricular arrhythmias. Tachyarrhythmias caused by increased myocardial sensitisation may be treated with propranolol, 1-2 mg IV or esmolol 25-100 microgm/kg/min IV.
- Monitor the ECG for 4-6 hours

B: Specific drugs and antidotes:

- There is no specific antidote

C: Decontamination

- Inhalation; remove victim from exposure, and give supplemental oxygen if available.
- Ingestion; (a) Prehospital: Administer activated charcoal, if available. **DO NOT** induce vomiting because of rapid absorption and the risk of abrupt onset CNS depression. (b) Hospital: Administer activated charcoal, although the efficacy of charcoal is unknown. Perform gastric lavage only if the ingestion was very large and recent (less than 30 minutes)

D: Enhanced elimination:

- There is no documented efficacy for diuresis, haemodialysis, haemoperfusion, or repeat-dose charcoal.

POISONING and DRUG OVERDOSE, Californian Poison Control System Ed. Kent R Olson; 3rd Edition

- Do not administer sympathomimetic drugs unless absolutely necessary as material may increase myocardial irritability.
- No specific antidote.
- Because rapid absorption may occur through lungs if aspirated and cause systematic effects, the decision of whether to induce vomiting or not should be made by an attending physician.
- If lavage is performed, suggest endotracheal and/or esophageal control.
- Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach.
- Treatment based on judgment of the physician in response to reactions of the patient

Treat symptomatically.

SECTION 5 Firefighting measures

Extinguishing media

SMALL FIRE:

- Water spray, dry chemical or CO₂

LARGE FIRE:

- Water spray or fog.

Special hazards arising from the substrate or mixture

Fire Incompatibility:

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

Advice for firefighters

Fire Fighting:

- Alert Fire Brigade and tell them location and nature of hazard.
- May be violently or explosively reactive.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water course.
- If safe, switch off electrical equipment until vapour fire hazard removed.
- Use water delivered as a fine spray to control fire and cool adjacent area.
- **DO NOT** approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.
- Equipment should be thoroughly decontaminated after use.

Fire/Explosion Hazard:

- Non combustible.
- Not considered to be a significant fire risk.
- Heating may cause expansion or decomposition leading to violent rupture of containers.
- Aerosol cans may explode on exposure to naked flames.
- Rupturing containers may rocket and scatter burning materials.
- Hazards may not be restricted to pressure effects.
- May emit acrid, poisonous or corrosive fumes.
- Decomposes on heating and may emit toxic fumes of carbon monoxide (CO).

Contains low boiling substance: Closed containers may rupture due to pressure buildup under fire conditions.

SECTION 6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

Minor Spills:

- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Wear protective clothing, impervious gloves and safety glasses.
- Shut off all possible sources of ignition and increase ventilation.
- Wipe up.
- If safe, damaged cans should be placed in a container outdoors, away from all ignition sources, until pressure has dissipated.
- Undamaged cans should be gathered and stowed safely.

Major Spills:

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- May be violently or explosively reactive.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water courses
- 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.
- Absorb or cover spill with sand, earth, inert materials or vermiculite.
- If safe, damaged cans should be placed in a container outdoors, away from ignition sources, until pressure has dissipated.
- Undamaged cans should be gathered and stowed safely.
- Collect residues and seal in labelled drums for disposal.

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

SECTION 7 Handling and storage

Precautions for safe handling

Safe handling

- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of exposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.
- **DO NOT enter confined spaces until atmosphere has been checked.**
- Avoid smoking, naked lights or ignition sources.
- Avoid contact with incompatible materials.
- **When handling, DO NOT eat, drink or smoke.**
- **DO NOT incinerate or puncture aerosol cans.**

- **DO NOT spray directly on humans, exposed food or food utensils.**
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately.
- Use good occupational work practice.
- Observe manufacturer's storage and handling recommendations contained within this MSDS.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions are maintained.

Other information

- Keep dry to avoid corrosion of cans. Corrosion may result in container perforation and internal pressure may eject contents of can

Conditions for safe storage, including any incompatibilities

Suitable container:

- **DO NOT use aluminium or galvanised containers**
- Aerosol dispenser.
- Check that containers are clearly labelled.

Storage incompatibility:

- Avoid reaction with oxidising agents

Methylene chloride

- is a combustible liquid under certain circumstances even though there is no measurable flash point and it is difficult to ignite
- its is flammable in ambient air in the range 12-23%; increased oxygen content can greatly enhance fire and explosion potential
- contact with hot surfaces and elevated temperatures can form fumes of hydrogen chloride and phosgene
- reacts violently with active metals, aluminium, lithium, methanol,, peroxydisulphuryl difluoride, potassium, potassium tert-butoxide, sodium
- forms explosive mixtures with nitric acid
- is incompatible with strong oxidisers, strong caustics, alkaline earths and alkali metals
- attacks some plastics, coatings and rubber
- may generate electrostatic charge due to low conductivity
- Segregate from alcohol, water.
- Compressed gases may contain a large amount of kinetic energy over and above that potentially available from the energy of reaction produced by the gas in chemical reaction with other substances

Package Material Incompatibilities:

SECTION 8 Exposure controls / personal protection

Control parameters

Occupational Exposure Limits (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Australia Exposure Standards	methylene chloride	Methylene chloride	174 (mgm3) / 50 (ppm)	Not Available	Not Available	Not Available
Australia Exposure Standards	carbon dioxide	Carbon dioxide in coal mines / Carbon dioxide	9000 (mgm3) / 22500 (mgm3) / 5000 (ppm) / 12500 (ppm)	54000 (mgm3) / 30000 (ppm)	Not Available	Not Available

Emergency Limits

Ingredient	TEEL-0	TEEL-1	TEEL-2	TEEL-3
methylene chloride	25(ppm)	200(ppm)	560(ppm)	6900(ppm)
carbon dioxide	5000(ppm)	30000(ppm)	40000(ppm)	40000(ppm)

Ingredient	Original IDLH	Revised IDLH
methylene chloride	10,000 / 5,000(ppm)	2,000 / 2,300(ppm)
carbon dioxide	50,000(ppm)	40,000(ppm)

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.

Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.

Employers may need to use multiple types of controls to prevent employee overexposure.

General exhaust is adequate under normal 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:	Speed:
aerosols, (released at low velocity into zone of active generation)	0.5-1 m/s
direct spray, spray painting in shallow booths, gas discharge (active generation into zone of rapid air motion)	1-2.5 m/s (200-500 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.

Personal protection



Eye and face protection:

No special equipment for minor exposure i.e. when handling small quantities. **OTHERWISE:** For potentially moderate or heavy exposures:

- Safety glasses with side shields.
- **NOTE:** Contact lenses pose a special hazard; soft lenses may absorb irritants and **ALL** lenses concentrate them.

Skin protection:

See Hand protection below

Hand protection:

- No special equipment needed when handling small quantities.
- **OTHERWISE:**
- For potentially moderate exposures:
- Wear general protective gloves, eg. light weight rubber gloves.
- For potentially heavy exposures:
- Wear chemical protective gloves, eg. PVC. and safety footwear.

Body protection:

See Other protection below

Other protection:

No special equipment needed when handling small quantities. **OTHERWISE:**

- Overalls.
- Skin cleansing cream.
- Eyewash unit.
- Do not spray on hot surfaces.

Thermal hazards:

Recommended material(s):

1.PE/EVAL/PE 2.PVA 3.TEFLON

Respiratory protection:

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

SECTION 9 Physical and chemical properties

Information on basic physical and chemical properties

Appearance

Colourless liquid aerosol with a characteristic odour; insoluble in water.

Physical state	Liquid	Relative density (Water = 1)	1.123 @ 20 deg.C
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	>200
pH (as supplied)	Not Available	Decomposition temperature	Not Available
Melting point / freezing point (°C)	Not Available	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	38-42	Molecular weight (g/mol)	Not Applicable
Flash point (°C)	Not Available	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Not Available	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Available	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	Not Available	Volatile Component (%vol)	1180 g/l (VOC)
Vapour pressure (kPa)	Not Available	Gas group	Not Available
Solubility in water (g/L)	Immiscible	pH as a solution(1%)	Not Available
Vapour density (Air = 1)	Not Available		

SECTION 10 Stability and reactivity

Reactivity:

See section 7

Chemical stability:

- Elevated temperatures.
- Presence of open flame.
- 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:

Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by narcosis, reduced alertness, loss of reflexes, lack of coordination and vertigo. Inhalation of aerosols (mists, fumes), generated by the material during the course of normal handling, may be damaging to the health of the individual.

Limited evidence or practical experience suggests that the material may produce irritation of the respiratory system, in a significant number of individuals, following inhalation. In contrast to most organs, the lung is able to respond to a chemical insult by first removing or neutralising the irritant and then repairing the damage. The repair process, which initially evolved to protect mammalian lungs from foreign matter and antigens, may however, produce further lung damage resulting in the impairment of gas exchange, the primary function of the lungs. Respiratory tract irritation often results in an inflammatory response involving the recruitment and activation of many cell types, mainly derived from the vascular system.

Inhalation hazard is increased at higher temperatures.

Material is highly volatile and may quickly form a concentrated atmosphere in confined or unventilated areas. The vapour may displace and replace air in breathing zone, acting as a simple asphyxiant. This may happen with little warning of overexposure.

The use of a quantity of material in an unventilated or confined space may result in increased exposure and an irritating atmosphere developing. Before starting consider control of exposure by mechanical ventilation.

WARNING: Intentional misuse by concentrating/inhaling contents may be lethal.

Acute intoxication by halogenated aliphatic hydrocarbons appears to take place over two stages. Signs of a reversible narcosis are evident in the first stage and in the second stage signs of injury to organs may become evident, a single organ alone is (almost) never involved.

Inhalation exposure may cause susceptible individuals to show change in heart beat rhythm i.e. cardiac arrhythmia. Exposures must be terminated.

Ingestion:

Accidental ingestion of the material may be harmful; animal experiments indicate that ingestion of less than 150 gram may be fatal or may produce serious damage to the health of the individual.

Not normally a hazard due to physical form of product. Considered an unlikely route of entry in commercial/industrial environments

Skin Contact:

The material produces severe skin irritation; evidence exists, or practical experience predicts, that the material either:

- produces severe inflammation of the skin in a substantial number of individuals following direct contact, and/or
- produces significant and severe inflammation when applied to the healthy intact skin of animals (for up to four hours), such inflammation being present twenty-four hours or more after the end of the exposure period.
- Skin irritation may also be present after prolonged or repeated exposure; this may result in a form of contact dermatitis (nonallergic). The dermatitis is often characterised by skin redness (erythema) and swelling (oedema) which may progress to blistering (vesiculation), scaling and thickening of the epidermis. At the microscopic level there may be intercellular oedema of the spongy layer of the skin (spongiosis) and intracellular oedema of the epidermis.

NOTE: Prolonged contact is unlikely, given the severity of response, but repeated exposures may produce severe ulceration.

Repeated exposure may cause skin cracking, flaking or drying following normal handling and use.

Skin contact with the material may damage the health of the individual; systemic effects may result following absorption. Spray mist may produce discomfort

Open cuts, abraded or irritated skin should not be exposed to this material

Entry into the blood-stream through, for example, cuts, abrasions, puncture wounds or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

Eye:

Direct contact with the eye may not cause irritation because of the extreme volatility of the gas; however concentrated atmospheres may produce irritation after brief exposures..

It has either been demonstrated or it is expected that when the material is applied to the eye(s) of animals, it produces severe ocular lesions which are present twenty-four hours or more after instillation.

Chronic:

On the basis, primarily, of animal experiments, concern has been expressed that the material may produce carcinogenic or mutagenic effects; in respect of the available information, however, there presently exists inadequate data for making a satisfactory assessment.

Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.

Principal route of occupational exposure to the gas is by inhalation.

Methylene chloride exposures cause liver and kidney damage in animals and this justifies consideration before exposing persons with a history of impaired liver function and/or renal disorders.

Chronic exposure may produce central nervous system damage including confusion, delusions, slurred speech, memory impairment, anxiety, focal seizures, encephalopathy and visual and auditory hallucinations. These effects are probably due to chronic carbon monoxide poisoning resulting from methylene chloride metabolism.

Two epidemiological studies of workers exposed to methylene chloride have been published. An excess in pancreatic tumours was noted in one study. Chronic exposure to methylene chloride (approximately 30-120 ppm TWA) did not appear to increase the risk of deaths arising from lung cancer or cardiovascular disease. A study from Zeneca's Central Toxicology Laboratory added further support to the claim that solvent methylene chloride is not a human carcinogen. This study supported a previous finding by the European Centre of Ecology and Toxicology (ECETOC) that methylene chloride induced-cancers, previously identified in mice, were a consequence of a unique metabolic pathway found only in mice.

TOXICITY	IRRITATION
Anti Spatter #780-5316	
Not Available	Not Available
methylene chloride	
Inhalation (rat) LC50: 88000 mg/m3/30 m	Eye(rabbit): 162 mg - moderate
Oral (rat) LD50: 1600 mg/kg	Eye(rabbit): 500 mg/24hr - mild
	Skin (rabbit): 100mg/24hr-moderate
	Skin (rabbit): 810 mg/24hr-SEVERE
Not Available	Not Available
carbon dioxide	
Not Available	Not Available

* Value obtained from manufacturer's msds

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

Anti Spatter #780-5316

The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

The material may produce severe skin irritation after prolonged or repeated exposure, and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) thickening of the epidermis.

Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis. Prolonged contact is unlikely, given the severity of response, but repeated exposures may produce severe ulceration.

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.

METHYLENE CHLORIDE

The material may produce moderate eye irritation leading to inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

The material may produce severe skin irritation after prolonged or repeated exposure, and may produce a contact dermatitis (nonallergic). This form of dermatitis is often characterised by skin redness (erythema) thickening of the epidermis.

Histologically there may be intercellular oedema of the spongy layer (spongiosis) and intracellular oedema of the epidermis. Prolonged contact is unlikely, given the severity of response, but repeated exposures may produce severe ulceration.

WARNING: This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans.

Acute Toxicity:	Acute Toxicity (Oral) Category 4	Carcinogenicity:	Carcinogen Category 2
Skin Irritation/Corrosion:	Skin Corrosion/Irritation Category 2	Reproductivity:	Not Applicable
Serious Eye Damage/Irritation:	Not Applicable	STOT - Single Exposure:	Not Applicable
Respiratory or Skin sensitisation:	Not Applicable	STOT - Repeated Exposure:	Not Applicable
Mutagenicity:	Not Applicable	Aspiration Hazard:	Not Applicable

CMR STATUS**CARCINOGEN**

methylene chloride	Australia Exposure Standards - Carcinogens	Carc. 2
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SKIN

methylene chloride	Australia Exposure Standards - Skin	Sk
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SECTION 12 Ecological information**Toxicity**

For methylene chloride:

log Kow: 1.25

log Koc: 1.68

log Kom: 1.44

Henry's atm m³/mol: 2.68E-03

BCF: 5

Environmental fate:

Methylene chloride is a volatile liquid, and tends to volatilise to the atmosphere from water and soil. The half-life of methylene chloride volatilisation from water has been found to be 21 minutes under experimental conditions but actual volatilisation from natural waters will depend on the rate of mixing, wind speed, temperature, and other factors. The Henry's law constant value (H) of 0.002 atm/m³/mol indicates that methylene chloride will volatilise rapidly from moist soil and water surfaces.

Methylene chloride is not strongly sorbed to soils or sediments. Based on its low soil organic carbon partitioning coefficient (Koc) of 25, methylene chloride is likely to be very highly mobile in soils and may be expected to leach from soils into groundwater.

Based on a reported log octanol/water partition coefficient (Kow) of 1.3 an estimated bioconcentration factor (BCF) of 2.3 was derived. There is no evidence of biomagnification, but because the estimated BCF is low, significant biomagnification of methylene chloride in aquatic food chains is not expected.

Air: The main degradation pathway for methylene chloride in air is its reaction with photochemically generated hydroxyl radicals. Thus, the atmospheric lifetime of methylene chloride may be predicted from the hydroxyl radical concentration in air and the rate of reaction. Most reported rates for hydroxyl radical reaction with methylene chloride range from 1.0 x10⁻¹³ to 1.5 x10⁻¹³ cm³/mol/sec, and estimates of average atmospheric hydroxyl radical concentration range from 2.5 x10⁺⁵ to 1x10⁺⁶ mol/cm³. Using this information, an average atmospheric lifetime for methylene chloride may be calculated to be 130 days. Because this degradation pathway is relatively slow, methylene chloride may become widely dispersed but is not likely to accumulate in the atmosphere. The small amount of methylene chloride which reaches the stratosphere (about 1%) may undergo direct photolytic degradation; however, photolysis in the troposphere is not expected. Reactions of methylene chloride with ozone or other common atmospheric species (e.g., oxygen atoms, chlorine atoms, and nitrate radicals) are not believed to contribute to its breakdown.

Water: Methylene chloride undergoes slow hydrolysis in water. The experimental half-life reported for the hydrolysis reaction, at neutral conditions, is approximately 18 months at 25 C. However, the rate of reaction varies greatly with changes in temperature and pH. A hydrolytic half-life of 14 days was reported for methylene chloride in acidic solutions at 80-150 C. This experimental value, when extrapolated to 25 C, is about 700 years. Different mechanisms of hydrolyses may be responsible for these two widely different values.

Both aerobic and anaerobic biodegradation may be an important fate process for methylene chloride in water. Methylene chloride has been observed to undergo degradation at a rapid rate under aerobic conditions. Reported total methylene chloride loss was 100% after 7 days in a static culture flask biodegradability screening test.

Sediment and Soil: The rate of biodegradation was found to be dependent on soil type, substrate concentration, and redox state of the soil. Methylene chloride biodegradation has been reported to occur under both aerobic conditions and anaerobic conditions. The biodegradation of methylene chloride appears to be accelerated by the presence of elevated levels of organic carbon.

Methylene chloride has a low tendency to absorb to soil; therefore, there is a potential for leaching to groundwater. Also, because of the high vapor pressure, volatilisation to air is also a likely fate process from dry soil. Its high Henry's law constant (0.002 atm/m³/mol) indicates that volatilization from moist soil is also likely.

DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
Not Available	Not Available	Not Available

Bioaccumulative potential

Ingredient	Bioaccumulation
Not Available	Not Available

Mobility in soil

Ingredient	Mobility
Not Available	Not Available

SECTION 13 Disposal considerations**Waste treatment methods****Product / Packaging disposal:**

- **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.
- Consult State Land Waste Management Authority for disposal.
- Discharge contents of damaged aerosol cans at an approved site.
- Allow small quantities to evaporate.
- **DO NOT incinerate or puncture aerosol cans.**
- Bury residues and emptied aerosol cans at an approved site.

SECTION 14 Transport information**Labels Required:**

Marine Pollutant: NO

HAZCHEM: 2YE

Land transport (ADG)

UN number	1950	Packing group	Not Available
UN proper shipping name	AEROSOLS	Environmental hazard	No relevant data
Transport hazard class(es)	Class: 2	Special precautions for user	Special provisions 63 190 277 327
	Subrisk:		limited quantity See SP 277

Air transport (ICAO-IATA / DGR)



UN number	1950	Packing group	Not Available
UN proper shipping name	Aerosols, non-flammable	Environmental hazard	No relevant data
Transport hazard class(es)	ICAO/IATA Class: 2.2	Special precautions for user	Special provisions: A98A145A167A802
	ICAO / IATA Subrisk:		Cargo Only Packing Instructions: 203
	ERG Code: 2L		Cargo Only Maximum Qty / Pack: 150 kg
			Passenger and Cargo Packing Instructions: 203
			Passenger and Cargo Maximum Qty / Pack: 75 kg
			Passenger and Cargo Limited Quantity Packing Instructions: Y203
			Passenger and Cargo Maximum Qty / Pack: 30 kg G

Sea transport (IMDG-Code / GGVSee)



UN number	1950	Packing group	Not Available
UN proper shipping name	AEROSOLS, NON-FLAMMABLE	Environmental hazard	No relevant data
Transport hazard class(es)	IMDG Class: 2.2	Special precautions for user	EMS Number: F-D,S-U
	IMDG Subrisk:		Special provisions: 63 190 277 327 344 959
			Limited Quantities: SP277

Transport in bulk according to Annex II of MARPOL 73 / 78 and the IBC code

Source	Ingredient	Pollution Category	Residual Concentration - Outside Special Area (% w/w)	Residual Concentration
IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk	methylene chloride	D		

SECTION 15 Regulatory information

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

methylene chloride(75-09-2) is found on the following regulatory lists

"International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs", "International Council of Chemical Associations (ICCA) - High Production Volume List", "Australia Inventory of Chemical Substances (AICS)", "OECD List of High Production Volume (HPV) Chemicals", "Australia High Volume Industrial Chemical List (HVICL)", "Australia Exposure Standards", "Australia FAISD Handbook - First Aid Instructions, Warning Statements, and General Safety Precautions", "United Nations Consolidated List of Products Whose Consumption and/or Sale Have Been Banned, Withdrawn, Severely Restricted or Not Approved by Governments", "Australia Hazardous Substances Information System - Consolidated Lists", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Appendix I", "WHO Guidelines for Drinking-water Quality - Guideline values for chemicals that are of health significance in drinking-water", "Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (AQUA/1 to 6 - non-pesticide anthropogenic organics)", "Australia National Pollutant Inventory", "IMO IBC Code Chapter 17: Summary of minimum requirements", "GESAMP/EHS Composite List - GESAMP Hazard Profiles", "IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk", "FisherTransport Information", "Sigma-AldrichTransport Information", "Australia Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP) - Schedule 5", "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) - Appendix E (Part 2)", "Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (Domestic water supply - organic compounds)", "Australia Drinking Water Guideline Values For Physical and Chemical Characteristics", "Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm - Domestic water supply quality", "Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm (Aquatic habitat)", "Regulations concerning the International Carriage of Dangerous Goods by Rail - Table A: Dangerous Goods List - RID 2013 (English)", "International Maritime Dangerous Goods Requirements (IMDG Code) - Substance Index", "Australia Dangerous Goods Code (ADG Code) - Dangerous Goods List", "International Maritime Dangerous Goods Requirements (IMDG Code)", "Australia Dangerous Goods Code (ADG Code) - List of Emergency Action Codes", "International Air Transport Association (IATA) Dangerous Goods Regulations", "OSPAR National List of Candidates for Substitution - Norway", "WHO Guidelines for Drinking-water Quality - Chemicals for which guideline values have not been established", "Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (STOCK - inorganic chemicals)", "Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm (STOCK)", "Australia - Australian Capital Territory - Environment Protection Regulation: Ambient environmental standards (Domestic water supply - inorganic chemicals)", "Australia - Australian Capital Territory - Environment Protection Regulation: Pollutants entering waterways taken to cause environmental harm (IRRIQ)"

carbon dioxide(124-38-9) is found on the following regulatory lists

"Australia Inventory of Chemical Substances (AICS)", "OECD List of High Production Volume (HPV) Chemicals", "Australia High Volume Industrial Chemical List (HVICL)", "Australia Exposure Standards", "Australia Hazardous Substances Information System - Consolidated Lists", "Sigma-AldrichTransport Information", "Acros Transport Information", "CODEX General Standard for Food Additives (GSFA) - Additives Permitted for Use in Food in General, Unless Otherwise Specified, in Accordance with GMP", "Australia Australian Pesticides and Veterinary Medicines Authority (APVM) Record of approved active constituents", "International Numbering System for Food Additives", "Regulations concerning the International Carriage of Dangerous Goods by Rail - Table A: Dangerous Goods List - RID 2013 (English)", "International Maritime Dangerous Goods Requirements (IMDG Code) - Substance Index", "Australia Dangerous Goods Code (ADG Code) - Dangerous Goods List", "International Maritime Dangerous Goods Requirements (IMDG Code)", "Australia Dangerous Goods Code (ADG Code) - List of Emergency Action Codes", "International Air Transport Association (IATA) Dangerous Goods Regulations", "Australia Dangerous Goods Code (ADG Code) - Packing Instruction - Liquefied and Dissolved Gases"

SECTION 16 Other information

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.

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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