

Silicone Anti-Stick #780-5240

RS Components

Chemwatch: 4876-89

Version No: 2.1.1.1

Material Safety Data Sheet according to NOHSC and ADG requirements

Print Date: 27/11/2013

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S.Local.AUS.EN

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

Product Identifier

| | |
|---------------------------------------|-------------------------------|
| Product name: | Silicone Anti-Stick #780-5240 |
| Chemical Name: | Not Applicable |
| Synonyms: | Manufacturer's Code: 780-5240 |
| 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 , Lubricants. |
|----------------------------------|---|

Details of the supplier of the safety data sheet

| | | |
|---------------------------------|--|---|
| Registered company name: | RS Components | RS Components |
| Address: | 25 Pavese 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]

| | |
|---------------|---|
| R51/53 | Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. |
| R38 | Irritating to skin. |
| R67 | Vapours may cause drowsiness and dizziness. |
| R12 | Extremely flammable. |
| R44 | Risk of explosion if heated under confinement. |

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: F+, Xi, N

Safety advice:

| | |
|------------|--|
| S09 | Keep container in a well ventilated place. |
| S15 | Keep away from heat. |
| S16 | Keep away from sources of ignition. No smoking. |
| S23 | Do not breathe gas/fumes/vapour/spray. |
| S24 | Avoid contact with skin. |
| S29 | Do not empty into drains. |
| S33 | Take precautionary measures against static discharges. |
| S35 | This material and its container must be disposed of in a safe way. |
| 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. |
| S41 | In case of fire and/or explosion, DO NOT BREATHE FUMES. |
| S43 | In case of fire use... |

| | |
|-----|--|
| S46 | If swallowed, seek medical advice immediately and show this container or label. |
| S51 | Use only in well ventilated areas. |
| S56 | Dispose of this material and its container at hazardous or special waste collection point. |
| S57 | Use appropriate container to avoid environmental contamination. |
| S61 | Avoid release to the environment. Refer to special instructions/Safety data sheets. |
| S64 | If swallowed, rinse mouth with water (only if the person is conscious). |

Other hazards

Inhalation and/or ingestion may produce health damage*.

May produce discomfort of the eyes and respiratory tract*.

Cumulative effects may result following exposure*.

Repeated exposure potentially causes skin dryness and cracking*.

SECTION 3 Composition / information on ingredients

Substances

See section below for composition of Mixtures

Mixtures

| CAS No | %[weight] | Name |
|-------------|-----------|--|
| 68920-06-9 | 30-60 | hydrocarbons, C7-C9 |
| 68476-85-7. | 30-60 | hydrocarbon propellant |

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:

- Avoid giving milk or oils.
- Avoid giving alcohol.
- Not considered a normal route of entry.
- If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomitus.

Indication of any immediate medical attention and special treatment needed

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:

- Liquid and vapour are highly flammable.
- Severe fire hazard when exposed to heat or flame.
- Vapour forms an explosive mixture with air.
- Severe explosion hazard, in the form of vapour, when exposed to flame or spark.
- Vapour may travel a considerable distance to source of ignition.
- Heating may cause expansion or decomposition with violent container rupture.
- 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.
- On combustion, may emit toxic fumes of carbon monoxide (CO).

& Combustion products include: carbon dioxide (CO₂), other pyrolysis products typical of burning organic material &

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

- **DO NOT allow clothing wet with material to stay in contact with skin**
- 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.
- Store in original containers in approved flammable liquid storage area.
- **DO NOT store in pits, depressions, basements or areas where vapours may be trapped.**
- No smoking, naked lights, heat or ignition sources.
- Keep containers securely sealed. Contents under pressure.
- Store away from incompatible materials.
- Store in a cool, dry, well ventilated area.
- Avoid storage at temperatures higher than 40 deg C.
- Store in an upright position.
- Protect containers against physical damage.
- Check regularly for spills and leaks.
- Observe manufacturer's storage and handling recommendations contained within this MSDS.

Conditions for safe storage, including any incompatibilities

Suitable container:

- Aerosol dispenser.
- Check that containers are clearly labelled.

Storage incompatibility:

- Avoid reaction with oxidising agents
- 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 | hydrocarbon propellant | LPG (liquefied petroleum gas) | 1800 (mgm3) / 1000 (ppm) | Not Available | Not Available | Not Available |

Emergency Limits

| Ingredient | TEEL-0 | TEEL-1 | TEEL-2 | TEEL-3 |
|------------------------|-----------|-----------|-----------|-----------|
| hydrocarbon propellant | 1000(ppm) | 2000(ppm) | 2000(ppm) | 2000(ppm) |

| Ingredient | Original IDLH | Revised IDLH |
|------------------------|-------------------|------------------|
| hydrocarbon propellant | 19,000 [LEL](ppm) | 2,000 [LEL](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.
- The clothing worn by process operators insulated from earth may develop static charges far higher (up to 100 times) than the minimum ignition energies for various flammable gas-air mixtures. This holds true for a wide range of clothing materials including cotton.
- Avoid dangerous levels of charge by ensuring a low resistivity of the surface material worn outermost.

BREThERICK: Handbook of Reactive Chemical Hazards.

Thermal hazards:

Recommended material(s):

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:

"Forsberg Clothing Performance Index".

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

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Respiratory protection:

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

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

Not Available

| Material | CPI |
|----------|-----|
|----------|-----|

* 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.

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

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

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

SECTION 9 Physical and chemical properties

Information on basic physical and chemical properties

Appearance

Colourless highly flammable liquid aerosol with a solvent odour; insoluble in water.

| | | | |
|--|----------------|---|------------------|
| Physical state | Liquid | Relative density (Water = 1) | 0.775 @ 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 Applicable | Decomposition temperature | Not Available |
| Melting point / freezing point (°C) | Not Available | Viscosity (cSt) | Not Available |
| Initial boiling point and boiling range (°C) | 94 | Molecular weight (g/mol) | Not Applicable |
| Flash point (°C) | -4 | Taste | Not Available |
| Evaporation rate | Not Available | Explosive properties | Not Available |
| Flammability | Not Available | Oxidising properties | Not Available |
| Upper Explosive Limit (%) | 9.4 | Surface Tension (dyn/cm or mN/m) | Not Available |
| Lower Explosive Limit (%) | 1.1 | Volatile Component (%vol) | Not Available |
| Vapour pressure (kPa) | Not Available | Gas group | Not Available |
| Solubility in water (g/L) | Immiscible | pH as a solution(1%) | Not Applicable |
| 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.

Central nervous system (CNS) depression may include nonspecific discomfort, symptoms of giddiness, headache, dizziness, nausea, anaesthetic effects, slowed reaction time, slurred speech and may progress to unconsciousness. Serious poisonings may result in respiratory depression and may be fatal.

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.

Acute effects from inhalation of high concentrations of vapour are pulmonary irritation, including coughing, with nausea; central nervous system depression - characterised by headache and dizziness, increased reaction time, fatigue and loss of co-ordination

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

High inhaled concentrations of mixed hydrocarbons may produce narcosis characterised by nausea, vomiting and lightheadedness. Inhalation of aerosols may produce severe pulmonary oedema, pneumonitis and pulmonary haemorrhage. Inhalation of petroleum hydrocarbons consisting substantially of low molecular weight species (typically C2-C12) may produce irritation of mucous membranes, incoordination, giddiness, nausea, vertigo, confusion, headache, appetite loss, drowsiness, tremors and anaesthetic stupor. Massive exposures may produce central nervous system depression with sudden collapse and deep coma; fatalities have been recorded. Irritation of the brain and/or apnoeic anoxia may produce convulsions. Although recovery following overexposure is generally complete, cerebral micro-haemorrhage of focal post-inflammatory scarring may produce epileptiform seizures some months after the exposure. Pulmonary episodes may include chemical pneumonitis with oedema and haemorrhage. The lighter hydrocarbons may produce kidney and neurotoxic effects. Pulmonary irritancy increases with carbon chain length for paraffins and olefins. Alkenes produce pulmonary oedema at high concentrations. Liquid paraffins may produce anaesthesia and depressant actions leading to weakness, dizziness, slow and shallow respiration, unconsciousness, convulsions and death. C5-7 paraffins may also produce polyneuropathy. Aromatic hydrocarbons accumulate in lipid rich tissues (typically the brain, spinal cord and peripheral nerves) and may produce functional impairment manifested by nonspecific symptoms such as nausea, weakness, fatigue and vertigo; severe exposures may produce inebriation or unconsciousness. Many of the petroleum hydrocarbons are cardiac sensitisers and may cause ventricular fibrillations.

Ingestion:

Accidental ingestion of the material may be damaging 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:

Evidence exists, or practical experience predicts, that the material either produces inflammation of the skin in a substantial number of individuals following direct contact, and/or produces significant 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.

The material may accentuate any pre-existing dermatitis condition. Repeated exposure may cause skin cracking, flaking or drying following normal handling and use.

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:

Limited evidence exists, or practical experience suggests, that the material may cause eye irritation in a substantial number of individuals and/or is expected to produce significant ocular lesions which are present twenty-four hours or more after instillation into the eye(s) of experimental animals. Repeated or prolonged eye contact may cause inflammation characterised by temporary redness (similar to windburn) of the conjunctiva (conjunctivitis); temporary impairment of vision and/or other transient eye damage/ulceration may occur.

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..

Petroleum hydrocarbons may produce pain after direct contact with the eyes. Slight, but transient disturbances of the corneal epithelium may also result. The aromatic fraction may produce irritation and lachrymation.

Chronic:

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.

Repeated or prolonged exposure to mixed hydrocarbons may produce narcosis with dizziness, weakness, irritability, concentration and/or memory loss, tremor in the fingers and tongue, vertigo, olfactory disorders, constriction of visual field, paraesthesias of the extremities, weight loss and anaemia and degenerative changes in the liver and kidney. Chronic exposure by petroleum workers, to the lighter hydrocarbons, has been associated with visual disturbances, damage to the central nervous system, peripheral neuropathies (including numbness and paraesthesias), psychological and neurophysiological deficits, bone marrow toxicities (including hypoplasia possibly due to benzene) and hepatic and renal involvement. Chronic dermal exposure to petroleum hydrocarbons may result in defatting which produces localised dermatoses. Surface cracking and erosion may also increase susceptibility to infection by microorganisms. One epidemiological study of petroleum refinery workers has reported elevations in standard mortality ratios for skin cancer along with a dose-response relationship indicating an association between routine workplace exposure to petroleum or one of its constituents and skin cancer, particularly melanoma. Other studies have been unable to confirm this finding.

| TOXICITY | IRRITATION |
|--------------------------------------|---------------|
| Silicone Anti-Stick #780-5240 | |
| Not Available | Not Available |
| hydrocarbons, C7-C9 | |
| Not Available | Not Available |
| hydrocarbon propellant | |
| Not Available | Not Available |

* Value obtained from manufacturer's msds unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances

HYDROCARBONS, C7-C9

No significant acute toxicological data identified in literature search.

Silicone Anti-Stick #780-5240, HYDROCARBON PROPELLANT

No significant acute toxicological data identified in literature search.

for Petroleum Hydrocarbon Gases:

In many cases, there is more than one potentially toxic constituent in a refinery gas. In those cases, the constituent that is most toxic for a particular endpoint in an individual refinery stream is used to characterize the endpoint hazard for that stream. The hazard potential for each mammalian endpoint for each of the petroleum hydrocarbon gases is dependent upon each petroleum hydrocarbon gas constituent endpoint toxicity values (LC50, LOAEL, etc.) and the relative concentration of the constituent present in that gas. It should also be noted that for an individual petroleum hydrocarbon gas, the constituent characterizing toxicity may be different for different mammalian endpoints, again, being dependent upon the concentration of the different constituents in each, distinct petroleum hydrocarbon gas.

All Hydrocarbon Gases Category members contain primarily hydrocarbons (i.e., alkanes and alkenes) and occasionally asphyxiant gases like hydrogen. The inorganic components of the petroleum hydrocarbon gases are less toxic than the C1 - C4 and C5 - C6 hydrocarbon components to both mammalian and aquatic organisms. Unlike other petroleum product categories (e.g. gasoline, diesel fuel, lubricating oils, etc.), the inorganic and hydrocarbon constituents of hydrocarbon gases can be evaluated for hazard individually to then predict the screening level hazard of the Category members

Acute toxicity: No acute toxicity LC50 values have been derived for the C1 -C4 and C5- C6 hydrocarbon (HC) fractions because no mortality was observed at the highest exposure levels tested (~ 5 mg/l) for these petroleum hydrocarbon gas constituents. The order of acute toxicity of petroleum hydrocarbon gas constituents from most to least toxic is:

C5-C6 HCs (LC50 > 1063 ppm) > C1-C4 HCs (LC50 > 10,000 ppm) > benzene (LC50 = 13,700 ppm) > butadiene (LC50 = 129,000 ppm) > asphyxiant gases (hydrogen, carbon dioxide, nitrogen).

Repeat dose toxicity: With the exception of the asphyxiant gases, repeated dose toxicity has been observed in individual selected petroleum hydrocarbon gas constituents. Based upon LOAEL values, the order of order of repeated-dose toxicity of these constituents from most toxic to the least toxic is:

Benzene (LOAEL .>=10 ppm) > C1-C4 HCs (LOAEL = 5,000 ppm; assumed to be 100% 2-butene) > C5-C6 HCs (LOAEL = 6,625 ppm) > butadiene (LOAEL = 8,000 ppm) > asphyxiant gases (hydrogen, carbon dioxide, nitrogen).

Genotoxicity:

In vitro: The majority of the Petroleum Hydrocarbon Gases Category components are negative for *in vitro* genotoxicity. The exceptions are: benzene and 1,3-butadiene, which are genotoxic in bacterial and mammalian *in vitro* test systems.

In vivo: The majority of the Petroleum Hydrocarbon Gases Category components are negative for *in vivo* genotoxicity. The exceptions are benzene and 1,3-butadiene, which are genotoxic in *in vivo* test systems

Developmental toxicity: Developmental effects were induced by two of the petroleum hydrocarbon gas constituents, benzene and the C5 -C6 hydrocarbon fraction. No developmental toxicity was observed at the highest exposure levels tested for the other petroleum hydrocarbon gas constituents tested for this effect. The asphyxiant gases have not been tested for developmental toxicity. Based on LOAEL and NOAEL values, the order of acute toxicity of these constituents from most to least toxic is:

Benzene (LOAEL = 20 ppm) > butadiene (NOAEL .>=1,000 ppm) > C5-C6 HCs (LOAEL = 3,463 ppm) > C1-C4 HCs (NOAEL >=5,000 ppm; assumed to be 100% 2-butene) > asphyxiant gases (hydrogen, carbon dioxide, nitrogen).

Reproductive toxicity: Reproductive effects were induced by only two petroleum hydrocarbon gas constituents, benzene and isobutane (a constituent of the the C1-C4 hydrocarbon fraction). No reproductive toxicity was observed at the highest exposure levels tested for the other petroleum hydrocarbon gas constituents tested for this effect. The asphyxiant gases have not been tested for reproductive toxicity. Based on LOAEL and NOAEL values, the order of reproductive toxicity of these constituents from most to least toxic is:

Benzene (LOAEL = 300 ppm) > butadiene (NOAEL .>=6,000 ppm) > C5-C6 HCs (NOAEL .>=6,521 ppm) > C1-C4 HCs (LOAEL = 9,000 ppm; assumed to be 100% isobutane) > asphyxiant gases (hydrogen, carbon dioxide, nitrogen)

| | | | |
|------------------------|----------------|-------------------------|----------------|
| Acute Toxicity: | Not Applicable | Carcinogenicity: | Not Applicable |
|------------------------|----------------|-------------------------|----------------|

| | | | |
|---|--------------------------------------|----------------------------------|---------------------------------|
| Skin Irritation/Corrosion: | Skin Corrosion/Irritation Category 2 | Reproductivity: | Not Applicable |
| Serious Eye Damage/Irritation: | Not Applicable | STOT - Single Exposure: | STOT - SE (Narcosis) Category 3 |
| Respiratory or Skin sensitisation: | Not Applicable | STOT - Repeated Exposure: | Not Applicable |
| Mutagenicity: | Not Applicable | Aspiration Hazard: | Not Applicable |

CMR STATUS

CARCINOGEN

| | | |
|------------------------|--|----------|
| hydrocarbon propellant | Australia Exposure Standards - Carcinogens | Carc. 1B |
|------------------------|--|----------|

SECTION 12 Ecological information

Toxicity

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment for Petroleum Hydrocarbon Gases:

Environmental fate:

The environmental fate characteristics of petroleum hydrocarbon gases are governed by these physical-chemical attributes. All components of these gases will partition to the air where interaction with hydroxyl radicals is an important fate process. Hydrocarbons having molecular weights represented in these streams are inherently biodegradable, but their tendency to partition to the atmosphere would prevent their biotic degradation in water and soils. However, if higher molecular weight fractions of these streams enter the aquatic or terrestrial environment, biodegradation may be an important fate mechanism.

The majority of components making up hydrocarbon gases typically have low melting and boiling points. They also have high vapor pressures and low octanol/water partition coefficients. The aqueous solubilities of these substances vary, and range from approximately 22 parts per million to several hundred parts per million. The environmental fate characteristics of refinery gases are governed by these physical-chemical attributes. Components of the hydrocarbon gas streams will partition to the air, and photodegradation reactions will be an important fate process for many of the hydrocarbon components. The hydrocarbons in these mixtures are inherently biodegradable, but due to their tendency to partition to the atmosphere, biodegradation is not anticipated to be an important fate mechanism. However, if released to water or soil, some of the higher molecular weight fractions may become available for microbial attack. The inorganic gases are chemically stable and may be lost to the atmosphere or simply become involved in the environmental recycling of their atoms. Some show substantial water solubility, but their volatility eventually causes these gases to enter the atmosphere.

Substances in Refinery Gases that volatilise to air may undergo a gas-phase oxidation reaction with photochemically produced hydroxyl radicals (OH⁻). Atmospheric oxidation as a result of hydroxyl radical attack is not direct photochemical degradation, but rather indirect degradation. Indirect photodegradation of the hydrocarbon components in Refinery Gases can be an important fate process for these constituents. In general, half lives decrease with increasing carbon chain length. Half lives for this fraction of Refinery Gases ranged from 960 days (methane) to 0.16 days (butadiene). The constituents of the C5- C6 hydrocarbon fraction have photodegradation half-lives of approximately two days.

The hydrocarbon and non-hydrocarbon constituents in Refinery Gases do not contain the functional groups or chemical linkages known to undergo hydrolysis reactions. Therefore hydrolysis will not play an important role in the environmental fate for the components in Refinery Gas streams.

Biodegradation of the hydrocarbon components in refinery gases may occur in soil and water. Gaseous hydrocarbons are widespread in nature and numerous types of microbes have evolved which are capable of oxidizing these substances as their sole energy source. Although volatilization is the predominant behavior for these gases, sufficient aqueous solubility and bioavailability is exhibited by these compounds. The use of gaseous carbon sources for cell growth is common among autotrophic organisms. Higher chain length hydrocarbons typical of naphtha streams also are known to inherently biodegrade in the environment

Ecotoxicity:

Acute LC/EC50 values for the hydrocarbon components of these gas streams ranged roughly from 1 to 100 mg/L.

Although the LC/EC50 data for the individual gases illustrate the potential toxicity to aquatic organisms, aqueous concentrations from releases of these gases would likely not persist in the aquatic environment for a sufficient duration to elicit toxicity. Based on a simple conceptual exposure model analysis, emissions of petroleum hydrocarbon gases to the atmosphere would not likely result in acutely toxic concentrations in adjacent water bodies because such emissions will tend to remain in the atmosphere.

Several of the constituents in refinery gases were shown to be highly hazardous to aquatic organisms in laboratory toxicity tests where exposure concentrations can be maintained over time.

Hydrogen sulfide was shown to be the most toxic constituent to fish (LC50 ranged 0.007 to 0.2 mg/L) and invertebrates (EC50 ranged 0.022 to 1.07 mg/L), although several LC/EC50 values for ammonia also were below 1 mg/l for these organisms (0.083 to 4.6 mg/L and 0.53 to 22.8 mg/L, respectively).

For isobutane:

Refrigerant Gas: Saturated Hydrocarbons have zero ozone depletion potential (ODP) and will photodegrade under atmospheric conditions. [Calor Gas]

Environmental Fate

Terrestrial fate: An estimated Koc value of 35 suggests that isobutane will have very high mobility in soil. Its very high Henry's Law constant, 4.08 atm-cu m/mole, (calculated from its vapor pressure and water solubility, high vapor pressure, 2611 mm Hg at 25 deg C, and low adsorptivity to soil indicate that volatilisation will be an important fate process from both moist and dry soil surfaces. Isobutane is biodegradable, especially under acclimated conditions, and may biodegrade in soil.

Aquatic fate: The estimated Koc value suggests that isobutane would not adsorb to sediment and particulate matter in the water column. Additional evidence that isobutane is not removed to sediment has been obtained from microcosm experiments. Isobutane will readily volatilise from water based on its estimated Henry's Law constant of 4.08 atm-cu m/mole. Estimated half-lives for a model river and model lake are 2.2 hr and 3.0 days, respectively. An estimated BCF value of 74 based on the log Kow suggests that isobutane will not bioconcentrate in aquatic organisms.

Results indicate that gas exchange is the dominant removal mechanism for isobutane gases from the water column following a hypothetical input. The volatilisation half-lives for isobutane from the water columns in natural estuaries are estimated to be 4.4 and 6.8 days at 20 and 10 deg C, respectively.

Isobutane also biodegrades in the microcosm at a rate that is slower than for n-butane and falls between propane and ethane in susceptibility. Biodegradation of isobutane initially occurs with a half-lives of 16-26 days at 20 deg C and 33-139 days at 10 deg C, significantly slower than the loss predicted by gas exchange from typical natural estuaries. However, after a lag of 2-4 weeks, the biodegradation rate increases markedly so that in the case of chronic inputs, biodegradation can become the dominant removal mechanism.

Atmospheric fate:: Isobutane is a gas at ordinary temperatures. It is degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is 6.9 days, assuming a hydroxyl radical concn of 5x10⁵ radicals per cubic cm. When isobutane was exposed to sunlight for 6 hr in a tedlar bag filled with Los Angeles air, 6% of the isobutane degraded. The air contained 4529 ppb-C hydrocarbons and 870 ppb of NOX. The tropospheric loss of volatile hydrocarbons such as isobutane by wet and dry deposition are believed to be of minor importance. Indeed, isobutane assimilated into precipitation may evaporate during transport as well as being reemitted into the atmosphere after deposition. Isobutane is a contributor to the production of PAN (peroxyacetyl nitrates) under photochemical smog conditions

For propane:

Environmental Fate

Terrestrial fate:: An estimated Koc value of 460 determined from a log Kow of 2.36 indicates that propane is expected to have moderate mobility in soil. Volatilisation of propane from moist soil surfaces is expected to be an important fate process given an estimated Henry's Law constant of 7.07x10⁻¹ atm-cu m/mole, derived from its vapor pressure, 7150 mm Hg, and water solubility, 62.4 mg/L. Propane is expected to volatilise from dry soil surfaces based upon its vapor pressure. Using cell suspensions of microorganisms isolated from soil and water, propane was oxidised to acetone within 24 hours, suggesting that biodegradation may be an important fate process in soil and sediment.

Aquatic fate: The estimated Koc value indicates that propane is expected to adsorb to suspended solids and sediment. Volatilisation from water surfaces is expected based upon an estimated Henry's Law constant. Using this Henry's Law constant volatilisation half-lives for a model river and model lake are estimated to be 41 minutes and 2.6 days, respectively. An estimated BCF of 13.1 using log Kow suggests the potential for bioconcentration in aquatic organisms is low. After 192 hr, the trace concentration of propane contained in gasoline remained unchanged for both a sterile control and a mixed culture sample collected from ground water contaminated with gasoline. This indicates that biodegradation may not be an important fate process in water.

Atmospheric fate:: According to a model of gas/particle partitioning of semivolatile organic compounds in the atmosphere and vapour pressure, propane is expected to exist solely as a gas in the ambient atmosphere. Gas-phase propane is degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 14 days, calculated from its rate constant of 1.15x10⁻¹² cu cm/molecule-sec at 25 deg C. Propane does not contain chromophores that absorb at wavelengths >290 nm and therefore is not expected to be susceptible to direct photolysis by sunlight.

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:

Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked. A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

- **DO NOT allow wash water from cleaning or process equipment to enter drains.**
- It may be necessary to collect all wash water for treatment before disposal.
- In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first.
- Where in doubt contact the responsible authority.
- 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



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: 2.1 | 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, flammable | Environmental hazard | No relevant data |
| Transport hazard class(es) | ICAO/IATA Class: 2.1 ICAO / IATA Subrisk: ERG Code: 10L | Special precautions for user | Special provisions: A145A167A802 |
| | | | Cargo Only Packing Instructions: 203 |
| | | | 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 | Environmental hazard | No relevant data |
| Transport hazard class(es) | IMDG Class: 2.1 IMDG Subrisk: | Special precautions for user | EMS Number: F-D,S-U |
| | | | Special provisions: 63 190 277 327 344 959 |
| | | | Limited Quantities: SP277 |

SECTION 15 Regulatory information

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

hydrocarbons, C7-C9(68920-06-9) is found on the following regulatory lists

"Australia Inventory of Chemical Substances (AICS)", "Regulations concerning the International Carriage of Dangerous Goods by Rail - Table A: Dangerous Goods List - RID 2013 (English)", "Australia Dangerous Goods Code (ADG Code) - Dangerous Goods List", "International Maritime Dangerous Goods Requirements (IMDG Code) - Substance Index", "Australia Dangerous Goods Code (ADG Code) - List of Emergency Action Codes", "International Air Transport Association (IATA) Dangerous Goods Regulations", "International Maritime Dangerous Goods Requirements (IMDG Code)", "Australia FAISD Handbook - First Aid Instructions, Warning Statements, and General Safety Precautions", "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 E (Part 2)", "OECD List of High Production Volume (HPV) Chemicals"

hydrocarbon propellant(68476-85-7.) is found on the following regulatory lists

"Australia Exposure Standards", "Australia - New South Wales -Work Health and Safety Regulation 2011 - Hazardous chemicals", "Australia - Tasmania - Work Health and Safety Regulations 2012 - Hazardous Chemicals at Major Hazard Facilities (and their Threshold Quantity) - Table 15.1", "Australia Work Health and Safety Regulations 2011 - Hazardous chemicals at major hazard facilities and their threshold quantity", "Australia Hazardous Substances Information System - Consolidated Lists", "Australia - Queensland Work Health and Safety Regulation - Hazardous chemicals at major hazard facilities (and their threshold quantity)", "International Chemical Secretariat (ChemSec) SIN List ("Substitute It Now!)", "OECD List of High Production Volume (HPV) Chemicals", "Australia High Volume Industrial Chemical List (HVICL)", "Australia Inventory of Chemical Substances (AICS)", "Australia - South Australia - Work Health and Safety Regulations 2012 - Schedule 15—Hazardous chemicals at major hazard facilities (and their threshold quantity) Table 15.1", "Australia - New South Wales - Work Health and Safety Regulation 2011 - Hazardous chemicals at major hazard facilities (and their threshold quantity) - Table 15.1", "Regulations concerning the International Carriage of Dangerous Goods by Rail - Table A: Dangerous Goods List - RID 2013 (English)", "Australia - Victoria Occupational Health and Safety Regulations - Schedule 9: Materials at Major Hazard Facilities (And Their Threshold Quantity) Table 1", "Australia Dangerous Goods Code (ADG Code) - Dangerous Goods List", "International Maritime Dangerous Goods Requirements (IMDG Code) - Substance Index", "Australia Dangerous Goods Code (ADG Code) - List of Emergency Action Codes", "Australia Dangerous Goods Code (ADG Code) - Packing Instruction - Liquefied and Dissolved Gases", "International Air Transport Association (IATA) Dangerous Goods Regulations - Prohibited List Passenger and Cargo Aircraft", "International Air Transport Association (IATA) Dangerous Goods Regulations", "International Maritime Dangerous Goods Requirements (IMDG Code)"

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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