Classified as HAZARDOUS according to criteria of NOHSC.

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name:	**Molytec Brake Cleaner**		
Product Type:	Brake Cleaner Spray		
Product Size:	500g Aerosol Part No. M807		
Proper Shipping Name:	Aerosol	UN No.: 1950	DG Class: 2.1
Sub Risk:	Nil	Hazchem Code: 2[T]E	Poisons Schedule: S6
Product Use:	Brake Cleaner/Degreaser		
Company Details:	Molytec Australia P/L 1/9 Steel St Capalaba QLD Australia 4157		
	Phone: 07 3245 2355	Fax: 07 3245 2499	

2. HAZARDS IDENTIFICATION

Hazard Category	**Xn**	Harmful
	F	Flammable
	N	Dangerous for the Environment
	Car. Cat 3	Substance with cause for concern for humans owing to possible carcinogenic effects but in respect of which the available information is not adequate for making a satisfactory assessment.
Risk Phrases	**R10**	Flammable
	R40	Limited evidence of a carcinogenic effect
	R51	Toxic to aquatic organisms
	R53	May cause long-term adverse effects to the aquatic environment
	R66	Repeated exposure may cause skin dryness or cracking
	R67	Vapours may cause drowsiness and dizziness
Safety Phrases	**S2**	Keep out of reach of children
	S23	Do not breathe vapours or spray mists
	S24/25	Avoid contact with skin and eyes
	S36/37	Wear suitable protective clothing and gloves
	S61	Avoid release to the environment. Refer to special instructions/Safety Data Sheets

3. COMPOSITION AND INFORMATION ON INGREDIENTS

Chemical Entity	CAS No.	Proportion, %	TWA (mg/m³)	STEL (mg/m³)
Perchloroethylene	127-18-4	>60	340	1020
Alkanes C_{3-4}	68475-59-2	<40	Not set	Not set

This is a commercial product whose exact ratio of components may vary slightly. Minor quantities of other non hazardous ingredients are also possible. The SWA TWA exposure value is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5 day working week. The STEL (Short Term Exposure Limit) is an exposure value that may be equalled (but should not be exceeded) for no longer than 15 minutes and should not be repeated more than 4 times per day. There should be at least 60 minutes between successive exposures at the STEL. The term "peak "is used when the TWA limit, because of the rapid action of the substance, should never be exceeded, even briefly

4. FIRST AID MEASURES

You should call The Poisons Information Centre if you feel that you may have been poisoned, burned or irritated by this product. The number is 13 1126 from anywhere in Australia (0800 764 766 in New Zealand) and is available at all times. Have this MSDS with you when you call.

Inhalation: No first aid measures normally required. However, if inhalation has occurred, and irritation has developed, remove to fresh air and observe until recovered. If irritation becomes painful or persists more than about 30 minutes, seek medical advice.

Skin Contact: Gently blot away excess liquid. Wash gently and thoroughly with water (use non-abrasive soap if necessary) for 5 minutes or until chemical is removed.

Eye Contact: No effects expected. If irritation does occur, flush contaminated eye(s) with lukewarm, gently flowing water for 5 minutes or until the product is removed. Obtain medical advice if irritation becomes painful or lasts more than a few minutes. Take special care if exposed person is wearing contact lenses.

Ingestion: If product is swallowed or gets in mouth, do NOT induce vomiting; wash mouth with water and give some water to drink. If symptoms develop, or if in doubt contact a Poisons Information Centre or a doctor.

5. FIRE FIGHTING MEASURES

Fire and Explosion Hazards: This product is classified as flammable. There is little risk of an explosion from this product if commercial quantities are involved in a fire. Violent steam generation or eruption may occur upon application of direct water stream on hot liquids. Vapours from this product are heavier than air and may accumulate in sumps, pits and other low-lying spaces, forming potentially explosive mixtures. They may also flash back considerable distances.
Fire decomposition products from this product may be toxic if inhaled. Take appropriate protective measures.

Extinguishing Media: Suitable extinguishing media are carbon dioxide, dry chemical, foam, water fog. Water fog or fine spray is the preferred medium for large fires. Try to contain spills, minimise spillage entering drains or water courses.

Fire Fighting: If a significant quantity of this product is involved in a fire, call the fire brigade. There is a danger of a violent reaction or explosion if significant quantities of this product are involved in a fire. Recommended personal protective equipment is full fire kit and breathing apparatus. Cool closed, undamaged containers exposed to fire with water spray.

Flash point: -17°C, (propellant)

5. FIRE FIGHTING MEASURES …continued

Upper Flammability Limit: 9.6%
Lower Flammability Limit: 1.5%
Autoignition temperature: 494°C to 600°C (propane/butane blend propellant)
Flammability Class: Flammable
Note that Perchloroethylene does not readily burn. The flammability status of this aerosol product is therefore not clear. However, treat it as a flammable liquid and use the figures and precautions mentioned above.

6. ACCIDENTAL RELEASE MEASURES

This product is sold in small packages, and the accidental release from one of these is not usually a cause for concern. For minor spills, clean up, rinsing to sewer and put empty container in garbage. Although no special protective clothing is normally necessary because of occasional minor contact with this product, it is good practice to wear impermeable gloves when handling chemical products. In the event of a major spill, prevent spillage from entering drains or water courses and call emergency services.

7. HANDLING AND STORAGE

Handling: Keep exposure to this product to a minimum, and minimise the quantities kept in work areas. Check Section 8 of this MSDS for details of personal protective measures, and make sure that those measures are followed. The measures detailed below under "Storage" should be followed during handling in order to minimise risks to persons using the product in the workplace. Also, avoid contact or contamination of product with incompatible materials listed in Section 10.

Storage: This product is a Scheduled Poison. Observe all relevant regulations regarding sale, transport and storage of this schedule of poison. Store in a cool, well ventilated area, and make sure that surrounding electrical devices and switches are suitable. Check containers and valves periodically for leaks. If you keep more than 25kg of flammable gases, you are probably required to license the premises or notify your Dangerous Goods authority. If you have any doubts, we suggest you contact your Dangerous Goods authority in order to clarify your obligations. Check packaging - there may be further storage instructions on the label.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

The following Australian Standards will provide general advice regarding safety clothing and equipment:

Respiratory equipment:	**AS/NZS 1715**
Protective Gloves:	**AS 2161**
Occupational Protective Clothing:	**AS/NZS 4501 set 2008**
Industrial Eye Protection:	**AS1336** and **AS/NZS 1337**
Occupational Protective Footwear:	**AS/NZS2210**

SWA Exposure Limits	**TWA (mg/m^3)**	**STEL (mg/m^3)**
Perchloroethylene	340	1020

No special equipment is usually needed when occasionally handling small quantities. The following instructions are for bulk handling or where regular exposure in an occupational setting occurs without proper containment systems.

Ventilation: This product should only be used in a well ventilated area. If natural ventilation is inadequate, use of a fan is suggested.
Eye Protection: Eye protection such as protective glasses or goggles is recommended when this product is being used.
Skin Protection: You should avoid contact even with mild skin irritants. Therefore you should wear suitable impervious elbow-length gloves and facial protection when handling this product. See below for suitable material types.
Protective Material Types: We suggest that protective clothing be made from the following materials: nitrile, neoprene.
Respirator: Usually, no respirator is necessary when using this product. However, if you have any doubts consult the Australian Standard mentioned above. Otherwise, not normally necessary.
Safety deluge showers should, if practical, be provided near to where this product is being used.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Description & colour:Clear, colourless liquid.
Odour: Characteristic odour.
Boiling Point: 121°C at 100kPa (Perchloroethylene)
Freezing/Melting Point: No specific data. Liquid at normal temperatures.
Volatility: Slowly volatile at 100°C, but completely volatile at higher temperatures.
Vapour Pressure: 400Kpa at 25°C (propane/butane blend propellant)
Vapour Density: >1
Specific Gravity: 1.62 (Perchloroethylene)
Water Solubility: Slightly soluble.
pH: No data.
Odour Threshold: No data.
Evaporation Rate: No data.
Coeff Oil/water Distribution: No data
Autoignition temp: 494°C to 600°C (propane/butane blend propellant)
Flammability Limits: 1.5% to 9.6%

10. STABILITY AND REACTIVITY

Reactivity: This product is unlikely to react or decompose under normal storage conditions. However, if you have any doubts, contact the supplier for advice on shelf life properties.

Conditions to Avoid: This product should be kept in a cool place, preferably below 30°C. Containers should be kept dry. Keep containers and surrounding areas well ventilated.

Incompatibilities: Strong acids, strong bases, strong oxidising agents.

Fire Decomposition: Combustion forms carbon dioxide, and if incomplete, carbon monoxide and smoke. Water is also formed. May form hydrogen chloride gas, other compounds of chlorine. Carbon monoxide poisoning produces headache, weakness, nausea, dizziness, confusion, dimness of vision, disturbance of judgment, and unconsciousness followed by coma and death.

Polymerisation: This product will not undergo polymerisation reactions.

11. TOXICOLOGICAL INFORMATION

Carcinogen Status:
SWA: Perchloroethylene is classified by SWA as a Class 3 Carcinogen, possibly carcinogenic to humans.
NTP: Perchloroethylene is classified by NTP as reasonably anticipated to be carcinogenic to humans.
IARC: Perchloroethylene is classed 2a by IARC - probably carcinogenic to humans.

Ingredient	Risk Phrases
Perchloroethylene	Conc>=1%: Xn; R40

The major route of absorption of Perchloroethylene (PCE) is through the Lung: 80% to 90% of inhaled vapour is absorbed. Skin exposure can appreciably increase absorption. For example, immersion of one thumb in PCE gives an exposure equivalent to breathing about 10 ppm. Additionally, exercising while exposed increases uptake by 50% to 300% or more as compared to a resting state. The excretion of PCE is mostly (80-98%) through exhalation of the unchanged compound through the lung. About 2% of an absorbed dose is metabolized to trichloroacetic acid (TCA), which is excreted in the urine. TCA, because of its binding to serum albumin, can be detected in the blood or urine for a fairly long time, and has a half-life of about three days. It is important to note that the metabolism of PCE to trichloroacetic acid is inhibited by ethanol use; thus, a low TCA level cannot be used to assure safe exposure levels of PCE if the victim also uses alcohol. The half-life of PCE in the blood is not simply determined. Initially, within a few hours of typical occupational exposure, the concentration of PCE measured in blood or expired air drops rapidly, with a half-life of just a few hours. However, one or two days after exposure has ceased, the decline of PCE levels measured in the same way becomes much slower, with a half-life approaching 3 days. There is more fat storage of PCE than other chlorinated solvents such as trichloroethylene or methyl chloroform. This may be responsible for its complex excertion behaviour. Due to this fat storage, repeated exposures generally give rise to higher blood levels of PCE as measured a few days after exposure, than do single exposures. Perchloroethylene has been shown to increase the rate of spontaneously occurring malignant tumours in certain laboratory rats and mice. Other long-term inhalation studies in rats failed to show tumourigenic response. Epidemiology studies are limited and have not established an association between perchloroethylene exposure and cancer. Perchloroethylene is not believed to pose a measurable carcinogenic risk to man when handled as recommended.
Birth defects are unlikely. Exposures having no effect on the mother should have no effect on the foetus. Did not cause birth defects in animals, other effects were seen in the foetus only at doses which caused toxic effects to the mother.

POTENTIAL HEALTH EFFECTS

Major Health Hazards: limited evidence of a carcinogenic effect, repeated exposure may cause skin dryness or cracking, vapours may cause drowsiness and dizziness.

Acute Inhalation: In confined or poorly ventilated areas vapours can readily accumulate and can cause unconsciousness and death. Dizziness may occur at 200 ppm; progressively higher levels may also cause nasal irritation, nausea, incoordination, drunkenness; and over 1000 ppm, unconsciousness and death. A single brief (minutes) inhalation exposure to levels above 6000 ppm may be immediately fatal. Based on structural analogy and/or equivocal data in animals, excessive exposure may potentially increase sensitivity to epinephrine and increase myocardial irritability (irregular heartbeats.) Alcohol consumed before or after exposure may increase adverse effects.

Skin: Short single exposure not likely to cause significant skin irritation. Prolonged or repeated exposure may cause skin irritation, even a burn. A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts.

Eye: If sprayed directly in the eye, this product will irritate. If spraying is prolonged, it may cause damage through frostbite.

Ingestion: Significant oral exposure is considered to be unlikely. However, this product may be irritating to mucous membranes but is unlikely to cause anything more than transient discomfort.

Chronic Inhalation: This product is carcinogenic by inhalation exposure. Vapours may cause drowsiness and dizziness.

Skin Contact: Repeated exposure may cause skin dryness or cracking.

Eye Contact: No data for health effects associated with long term eye exposure.

Ingestion: No data for health effects associated with long term ingestion.

12. ECOLOGICAL INFORMATION

Toxic to aquatic organisms, may cause long-term adverse effects to the aquatic environment. Chlorinated solvents have a relatively short life-time in the atmosphere. If spilt into water or soil, trichloroethylene will usually evaporate into the air, where it is quickly broken down. Perchloroethylene displays very slow biodegradation and responsible end-users will be very careful to avoid spillages.

13. DISPOSAL CONSIDERATIONS

Dispose of small quantities and empty containers by wrapping with paper and putting in garbage. For larger quantities, if recycling or reclaiming is not possible, use a commercial waste disposal service.

14. TRANSPORT INFORMATION

ADG Code: 1950, AEROSOLS
Hazchem Code: 2YE
Special Provisions: 63, 190, 277
Limited quantities: ADG 7 specifies a Limited Quantity value of 120mL for this class of product.
Dangerous Goods Class: Class 2.1: Flammable gases.
Packaging Method: P003

-Flammable gases shall not be loaded in the same vehicle or packed in the same freight container with:
- -Class 1 Explosives
- -Class 3 Flammable Liquids (where both flammable liquids & gases are in bulk)
- -Class 4.1 Flammable Solids
- -Class 4.2 Spontaneously Combustible substances
- -Class 4.3 Dangerous When Wet substances
- -Class 5.1 Oxidizing Agents
- -Class 5.2 Organic Peroxides
- -Class 7 Radioactive substances

-They may however be loaded in the same vehicle or packed in the same freight container with
- -Class 2.2 Non-flammable Non-Toxic gases
- -Class 3 Flammable liquids, except where both flammable liquids and flammable gases are in bulk
- -Class 6 Toxic substances
- -Class 8 Corrosive Substances
- -Class 9 Miscellaneous dangerous goods
- -Foodstuffs and foodstuff empties.

15. REGULATORY INFORMATION

AICS: All of the significant ingredients in this formulation are compliant with NICNAS regulations.
The following ingredient: Perchloroethylene, is mentioned in the SUSMP.

16. OTHER INFORMATION

Users should verify the currency of this data sheet if more than 5 years old. The information contained in this material safety data sheet is believed to be accurate on the date of issue and in accordance with the information available to us. Persons dealing with products referred to in this MSDS do so at their own risk. We accept no liability whatsoever for damage or injury however caused arising from use of this information or of suggestions contained herein.

POLICE AND FIRE BRIGADE: DIAL 000

For further safety information contact Denis Brown at MOLYTEC AUSTRALIA on:
Tel: (07) 3245 2355 Fax: (07) 3245 2499
P.O. Box 5357, Alexandra Hills, QLD, Australia, 4161

Disclaimer

The information contained within this MSDS applies only to the MOLYTEC product to which the sheet relates. The information provided is based on our best knowledge at the time of issue. The information contained within this MSDS is believed to be accurate and is given in good faith. However no warranty is made, either express or implied, regarding its accuracy or any liability arising out of the use of the information herein or the products supplied. When used in other preparations, formulations, or in mixtures, it is necessary to ascertain whether the classification of the hazards has changed. The attention of the user is drawn to the possibility of creating other hazards when the product is used for purposes other than that for which it was recommended. In such cases a reassessment may be necessary and should be made by the user.
This safety data sheet should only be used and reproduced in order that the necessary measures are taken relating to the protection of health and safety at work. It is the responsibility of the handlers to pass on the totality of the information contained within this document to any subsequent person(s) who will come in to contact with, handle or use this product in any way. They should check the adequacy of the information provided within this MSDS before passing it on to their customers / staff.

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