BOC
A Member of The Linde Group

SAFETY DATA SHEET

 # 0048

Product Name **PESTIGAS SYN**

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Supplier name	**BOC LIMITED (AUSTRALIA)**
Address	10 Julius Avenue, North Ryde, NSW, 2113, AUSTRALIA
Telephone	131 262, (02) 8874 4400
Fax	132 427 (24 hours)
Emergency	1800 653 572 (24/7) (Australia only)
Web site	http://www.boc.com.au/
Synonym(s)	0048 - SDS NUMBER • PRODUCT CODES: 175, 288
Use(s)	INSECTICIDE • SPACE SPRAY
SDS date	08 January 2014

2. HAZARDS IDENTIFICATION

NOT CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

RISK PHRASES

None allocated

SAFETY PHRASES

None allocated

CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE

UN number	1968	**DG division**	2.2
Packing group	None Allocated	**Subsidiary risk(s)**	None Allocated
Hazchem code	2TE		

3. COMPOSITION/ INFORMATION ON INGREDIENTS

Ingredient	Identification	Classification	Content
ACETONE	CAS: 67-64-1 EC: 200-662-2	F;R11 Xi;R36 Xi;R66 Xn;R67	4%
ALLETHRIN	CAS: 584-79-2 EC: 209-542-4	Xn;R20/22 N;R50/53	0.3%
CARBON DIOXIDE	CAS: 124-38-9 EC: 204-696-9	Not Available	95%
PHENOTHRIN	CAS: 26002-80-2 EC: 247-404-5	Not Available	0.7%

4. FIRST AID MEASURES

Eye Cold burns: Immediately flush with tepid water or with sterile saline solution. Hold eyelids apart and irrigate for 15 minutes. Seek medical attention.

Inhalation If inhaled, remove from contaminated area. To protect rescuer, use an Air-line respirator or Self Contained Breathing Apparatus (SCBA). Apply artificial respiration if not breathing. Give oxygen if available. For advice, contact a Poison Information Centre on 13 11 26 (Australia Wide) or a doctor.

Skin Cold burns: Remove contaminated clothing and gently flush affected areas with warm water (30°C) for 15 minutes. Apply sterile dressing and treat as for a thermal burn. For large burns, immerse in warm water for 15 minutes. DO NOT apply any form of direct heat. Seek immediate medical attention.

Ingestion Due to product form and application, ingestion is considered unlikely.

Advice to doctor Treat for asphyxia and cold burns.

5. FIRE FIGHTING MEASURES

Flammability Non flammable. Exposure to fire may cause containers to rupture/explode.

Fire and explosion Temperatures in a fire may cause cylinders to rupture. Cool cylinders or containers exposed to fire by applying water from a protected location. Do not approach cylinders or containers suspected of being hot. Remove cool cylinders from the path of the fire. Evacuate the area if unable to keep cylinders cool. Ensure work area is thoroughly ventilated before re-entry.

Extinguishing Stop flow of gas if safe to do so, such as by slowly closing the cylinder valve.

Hazchem code 2TE

- 2 Water Fog (or fine water spray if fog unavailable)
- T Self Contained Breathing apparatus and protective gloves.
- E Evacuation of people in the vicinity of the incident should be considered.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions If the cylinder is leaking, evacuate area of personnel. Inform manufacturer/supplier of leak. Use personal protective equipment as detailed in Section 8 of this SDS.

Environmental precautions Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous.

Methods of cleaning up Carefully move material to a well ventilated remote area, then allow to discharge if safe to do so. Do not attempt to repair leaking valve or cylinder safety devices.

References See Sections 8 and 13 for exposure controls and disposal.

7. STORAGE AND HANDLING

Storage Do not store near incompatible materials. Cylinders should be stored below 45°C in a secure area, upright and restrained to prevent cylinders from falling. Cylinders should also be stored in a dry, well ventilated area constructed of non-combustible material with firm level floor (preferably concrete), away from areas of heavy traffic and emergency exits.

Handling Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Do not drag, drop, slide or roll cylinders. The uncontrolled release of a gas under pressure may cause physical harm. Use a suitable hand truck for cylinder movement.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m³	ppm	mg/m³
Acetone	SWA (AUS)	500	1185	1000	2375
Carbon dioxide	SWA (AUS)	5000	9000	30000	54000
Carbon dioxide in coal mines	SWA (AUS)	12500	22500	30000	54000

Biological limits

Ingredient	Reference	Determinant	Sampling Time	BEI
ACETONE	ACGIH BEI	Acetone in urine	End of shift	-
	ACGIH BEI	Aniline released from haemoglobin in blood	End of shift	-
	ACGIH BEI	p-Aminophenol in urine	End of shift	50 mg/L

Engineering controls Avoid inhalation. Store in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended. The manufacturer recommends to maximise the effectiveness of this product, it should be applied with artificial and natural ventilation closed. Hand held applications should commence at the furthest point from the exit and continue as the operator moves away from the spray drift towards the exit. Entry should be barred to areas in which fixed nozzle spraying occurs during spraying. Ventilation should be re-opened 2 hours after spraying has ceased.

PPE

Eye / Face Wear safety glasses.

Hands Wear leather or cotton gloves.

Body Wear coveralls and safety boots. When using large quantities or where heavy contamination is likely, wear coveralls.

Respiratory Where an inhalation risk exists, wear Self Contained Breathing Apparatus (SCBA) or an Air-line respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	COLOURLESS GAS (LIQUEFIED UNDER PRESSURE)
Odour	CHRYSANTHEMUM-LIKE ODOUR
Flammability	NON FLAMMABLE
Flash point	NOT RELEVANT
Boiling point	NOT AVAILABLE
Melting point	NOT AVAILABLE
Evaporation rate	NOT APPLICABLE
pH	NOT APPLICABLE
Vapour density	NOT AVAILABLE
Specific gravity	NOT APPLICABLE
Solubility (water)	0.759 cm^3/cm^3 (Carbon dioxide)
Vapour pressure	6300 kPa @ 25°C (Approximately)
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
% Volatiles	100 %
Density	1.53 (Air = 1)
Critical temperature	31°C (Approximately)
Critical pressure	7380 kPa (Approximately)
Cylinder pressure (when full)	6300 kPa @ 25°C (Approximately)

10. STABILITY AND REACTIVITY

Chemical stability Stable under recommended conditions of storage.

Conditions to avoid Avoid shock, friction, heavy impact, heat, sparks, open flames and other ignition sources.

Material to avoid Moist carbon dioxide is corrosive, hence acid resistant materials are required (stainless steel). Certain properties of some plastics and rubbers may be affected by carbon dioxide, ie. embrittlement, leaching of plasticisers, etc. Dust of aluminium, chrome and manganese ignite and explode when heated in carbon dioxide. Incompatible with acrylaldehyde, aziridine, metal acetylides, sodium peroxide. Corrosive when moist.

Hazardous Decomposition Products This material will not decompose to form hazardous products other than that already present.

Hazardous Reactions Polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

Health Hazard Summary Asphyxiant gas. Severe frost-bite burns may result from exposure to cold vapour or liquid. Carbon dioxide concentrations of 3-5 % in air cause increased respiration and headache. Concentrations of

8-15% cause headache, nausea and vomiting which may lead to unconsciousness if not moved to open air and given oxygen. Inhalation of a mixture containing no oxygen may result in unconsciousness from the first breath and death may follow in minutes. Adverse health effects to long term exposure to carbon dioxide have not been reported. However, in environments such as submarines where exposure to levels of 0.5-1.0% may occur, specialist medical opinion should be sought on the effects of long term exposure. Escaping liquid from the cylinder can form a dry ice powder like snow and leave a liquid residue.

Eye Direct contact with evaporating liquid may result in cold burns, similar to frostbite injury, with possible permanent damage.

Inhalation Asphyxiant. Effects are proportional to oxygen displacement. Acts as a simple asphyxiant by displacing oxygen in the lungs thereby diminishing the supply of oxygen to the blood and tissues. Inhalation of tetrahydrofuran vapours during processing may result in anaesthesia and have adverse effects on the central nervous system.

Skin Direct contact with the liquefied material or escaping compressed gas may cause cold burns similar to frostbite injury.

Ingestion Ingestion is considered unlikely due to product form. Solid carbon dioxide will cause cold burns to mouth and throat.

Toxicity data

ACETONE (67-64-1)

LC50 (inhalation)	44000 mg/m³/4 hours (mouse)
LCLo (inhalation)	1600 ppm/4 hours (rat)
LD50 (ingestion)	3000 mg/kg (mouse)
LD50 (intraperitoneal)	1297 mg/kg (mouse)
LD50 (intravenous)	5500 mg/kg (rat)
LD50 (skin)	> 9400 uL/kg (guinea pig)
LDLo (ingestion)	8000 mg/kg (dog)
LDLo (intraperitoneal)	500 mg/kg (rat)
LDLo (intravenous)	1576 mg/kg (rabbit)
LDLo (skin)	20 mL/kg (rabbit)
LDLo (subcutaneous)	5000 mg/kg (guinea pig/dog)
TCLo (inhalation)	500 ppm (human)
TDLo (ingestion)	2857 mg/kg (man)

ALLETHRIN (584-79-2)

LC50 (inhalation)	> 2 g/m³ (mouse)
LCLo (inhalation)	13800 mg/m³/4 hour (rat)
LD50 (ingestion)	370 mg/kg (mouse)
LD50 (intraperitoneal)	38 mg/kg (mouse)
LD50 (skin)	1200 mg/kg (mouse)
LDLo (intravenous)	4 mg/kg (rat)
TDLo (ingestion)	21 g/kg/12 weeks intermittently (rat)

CARBON DIOXIDE (124-38-9)

LC50 (inhalation)	470000 ppm/30M (rat)
LCLo (inhalation)	9 pph/5M (human)

PHENOTHRIN (26002-80-2)

LD50 (ingestion)	10 g/kg (mouse)
LD50 (intraperitoneal)	> 5 g/kg (mouse)
LD50 (intravenous)	354 mg/kg (mouse)
LD50 (skin)	> 5 g/kg (mouse)
LD50 (subcutaneous)	> 5 g/kg (mouse)

12. ECOLOGICAL INFORMATION

Toxicity When discharged to the atmosphere in large quantities, carbon dioxide may contribute to the greenhouse effect.

Persistence and degradability Not applicable.

Bioaccumulative potential Not applicable.

Mobility in soil Not applicable.

Other adverse effects When discharged to the atmosphere, carbon dioxide may contribute to the greenhouse effect.

13. DISPOSAL CONSIDERATIONS

Waste disposal Cylinders should be returned to the manufacturer or supplier for disposal of contents.

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE

	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
UN number	1968	-	-
Proper shipping name	INSECTICIDE GAS, N.O.S.	-	-
DG class/ Division	2.2	-	-
Subsidiary risk(s)	None Allocated	-	-
Packing group	None Allocated	-	-
GTEPG	2C2		
Hazchem code	2TE		
Other information	Ensure cylinder is separated from driver and that outlet of relief device is not obstructed.		

15. REGULATORY INFORMATION

Poison schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Inventory Listing(s) **AUSTRALIA: AICS (Australian Inventory of Chemical Substances)**
All components are listed on AICS, or are exempt.

16. OTHER INFORMATION

Additional information The storage of significant quantities of gas cylinders must comply with AS4332 The storage and handling of gases in cylinders. The manufacturer reports that this product has a permit (Permit Number: PER2390) from the National Registration Authority for Agricultural & Veterinary Chemicals.

APPLICATION METHOD: Cylinder positioned vertically with valve at top. Portable cylinders connected to hand held spray gun or manifolded cylinders connected to fixed pipework distribution system with spray nozzles and controlled release. People, pets and domestic animals should be removed from the treatment area and food and water covered during, and for after 2 hours of spraying.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a ChemAlert report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Product Name **PESTIGAS SYN**

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CNS	Central Nervous System
EC No.	EC No - European Community Number
GHS	Globally Harmonized System
IARC	International Agency for Research on Cancer
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m^3	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
PEL	Permissible Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
REACH	Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TLV	Threshold Limit Value
TWA	Time Weighted Average

Revision history

Revision	Description
2.0	Standard SDS Review.
1.0	Initial SDS creation

Report status

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

Prepared by

Risk Management Technologies
5 Ventnor Ave, West Perth
Western Australia 6005
Phone: +61 8 9322 1711
Fax: +61 8 9322 1794
Email: info@rmt.com.au
Web: www.rmt.com.au.

Revision: 2
SDS Date: 08 January 2014

End of SDS