BOC Limited
ABN 95 000 029 729
10 Julius Avenue
NORTH RYDE NSW 2113
Tel +61 131 262
Fax +61 1300 728 990

MATERIAL SAFETY DATA SHEET

Product Name **HYDROGEN CYANIDE (PRODUCT OBSOLETE)**

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Supplier Name BOC LIMITED (AUSTRALIA)
Address 10 Julius Avenue, North Ryde NSW, 2113, AUSTRALIA
Telephone +61 131 262, (02) 8874 4400
Fax +61 132 427 (24 hours)
Emergency 1800 658 278 (A/H) (Australia only)

Synonyms CYCLON, HCN, HCN - ANHYDROUS, STABILIZED, HYDROCYANIC ACID, PRUSSIC ACID.

Uses CHEMICAL REAGENT, BY-PRODUCT OF SODIUM CYANIDE, FUMIGANT.

2. HAZARDS IDENTIFICATION

CLASSIFIED AS HAZARDOUS ACCORDING TO NOHSC CRITERIA
CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE

Risk And Safety Phrases Risk and Safety Phrases are standardised phrases allocated to Hazardous Substances. Risk phrases convey a general description of the physicochemical, environmental and health hazards of a substance. Safety phrases provide information on safe storage, handling, disposal, personal protection and first aid.

RISK PHRASES
R26 Very toxic by inhalation.

SAFETY PHRASES
S1/2 Keep locked up and out of reach of children.
S16 Keep away from sources of ignition - No smoking.
S36/37 Wear suitable protective clothing and gloves.
S38 In case of insufficient ventilation, wear suitable respiratory equipment.
S45 In case of accident or if you feel unwell, contact a doctor or Poisons Information Centre immediately (show the label where possible).
S7/9 Keep container tightly closed and in a well ventilated place.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient	Formula	Conc.	CAS No.
HYDROGEN CYANIDE	HCN	>60%	74-90-8

4. FIRST AID MEASURES

Eye Hold eyelids apart and flush continuously with water. Continue until advised to stop by the Poisons Information Centre, a doctor, or for at least 15 minutes. Keep patient calm.

Inhalation Leave area of exposure. Avoid becoming a casualty, wear an Air-line respirator or Self Contained Breathing Apparatus (SCBA). Give oxygen and if necessary, artificial respiration. Seek urgent medical attention.

Skin Remove contaminated clothing and gently flush affected areas with water. Product may penetrate skin and cause toxic systemic effects. Seek immediate medical attention. Launder clothing before reuse.

Ingestion For advice, contact a Poisons Information Centre on 13 11 26 (Australia Wide) or a doctor at once. Urgent hospital

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4. FIRST AID MEASURES cont.

treatment is likely to be needed.

Advice To Doctor Treat symptomatically.

5. FIRE FIGHTING MEASURES

Flammability Highly flammable liquid/gas. Forms explosive mixtures with air. May evolve highly toxic cyanide fumes when heated to decomposition. Can polymerise explosively at 50-60 C.Eliminate all ignition sources including cigarettes, open flames, spark producing switches/tools, heaters, naked lights, pilot lights, mobile phones etc. when handling.

Fire and Explosion Highly flammable liquid/gas. Evacuate area and contact emergency services. Highly toxic gases (cyanides) may be evolved when heated. Remain upwind and notify those down wind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers & nearby storage areas - severe explosion hazard when exposed to heat or flame.

Extinguishing Dry agent (non-alkaline), carbon dioxide or foam. Prevent contamination of drains or waterways, absorb runoff with sand or similar.

Hazchem Code 2WE

6. ACCIDENTAL RELEASE MEASURES

Spillage GAS CYLINDERS: If the cylinder is leaking, eliminate all potential ignition sources and evacuate area of personnel. Inform manufacturer/supplier of leak. Wear appropriate PPE and carefully move it to a well ventilated remote area, then allow to discharge. Do not attempt to repair leaking valve or cylinder safety devices. Only trained emergency personnel should undertake spill clean-up procedures.

7. HANDLING AND STORAGE

Handling Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas (eg. if container is damaged).

Storage Store secured (eg chained) upright in a cool (< 45 C), well ventilated area, removed from heat and ignition sources, alkalis, alcohols & hydrogen chloride, acetaldehyde, oxidisers, amines, ammonium chloride and foodstuffs. Ensure cylinders are protected from physical damage and valves closed when not in use. Always make use of old stock first. Do not store empty and full stock together.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Ventilation Do not inhale vapours. Use in well ventilated areas. In poorly ventilated areas, mechanical explosion proof extraction ventilation is recommended.Flammable/explosive vapours may accumulate in poorly ventilated areas. Maintain vapour levels below the recommended exposure standard.

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8. EXPOSURE CONTROLS / PERSONAL PROTECTION cont.

Exposure Standards

HYDROGEN CYANIDE (74-90-8)
ES-TWA : 10 ppm (11 mg/m3) Peak limitation; SKIN
WES-TWA : 10 ppm (11 mg/m3)

PPE Wear impervious coveralls, an Air-line respirator or Self Contained Breathing Apparatus (SCBA), rubber boots and insulated or leather gloves. Only experienced and trained person should use this product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: COLOURLESS GAS OR CLEAR COLOURLESS LIQUID
Odour: BITTER ALMOND ODOUR
pH: NOT AVAILABLE
Vapour Pressure: 742 mm Hg @ 25 C
Vapour Density: 0.94 (Air = 1)
Boiling Point: 25.6 C
Melting Point: - 13.4 C
Evaporation Rate: NOT AVAILABLE
Solubility (water): 1000 g/L
Specific Gravity: 0.699 - 0.901
% Volatiles: 100 %
Flammability: HIGHLY FLAMMABLE
Flash Point: - 17.8 C
Upper Explosion Limit: 41 %
Lower Explosion Limit: 6.0 %
Autoignition Temperature: 538 C

10. STABILITY AND REACTIVITY

Reactivity Incompatible with alkalis (eg. hydroxides), alcohols & hydrogen chloride, acetaldehyde, oxidisers, amines, ammonium chloride, heat and ignition sources. Can polymerise explosively at 50-60 C. Also incompatible with water, steam, acid or acid fumes (evolving toxic cyanide fumes).

Decomposition Products May evolve highly toxic cyanide fumes when heated to decomposition.

11. TOXICOLOGICAL INFORMATION

Health Hazard Summary Highly toxic. Death may occur from exposure to gas concentrations of 100-200 ppm for periods of 30-60 minutes, or within seconds or minutes at higher vapour levels. Use safe work practices to avoid eye-skin contact and gas inhalation. Cyanide poisoning renders oxygen unavailable to cells/tissues, with subsequent death through asphyxiation.

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11. TOXICOLOGICAL INFORMATION cont.

Eye Irritant. Exposure may result in irritation.

Inhalation Highly toxic - asphyxiant. Acute exposure to the gas may range from mild respiratory tract irritation to death if levels are high enough. Symptoms of acute exposure include headache, dizziness, feeling of suffocation, nausea, vomiting, weakness and confusion.

Skin Irritant. Contact with the liquid may result in irritation, itching, "cyanide" rash, blisters, discolouration and cyanide poisoning, which may be fatal through absorption.

Ingestion Due to product form ingestion is not considered likely. However, ingestion of liquid may result in burns to the mouth and throat.

Toxicity Data HYDROGEN CYANIDE (74-90-8)
LC50 (Inhalation) : 160 ppm/30M (rat)
LD50 (Ingestion) : 3700 ug/kg (mouse)

12. ECOLOGICAL INFORMATION

Environment Limited ecotoxicity data was available for this product at the time this report was prepared. Ensure appropriate measures are taken to prevent this product from entering the environment.

13. DISPOSAL CONSIDERATIONS

Waste Disposal Return cylinder to manufacturer or supplier for recycling. Contact the manufacturer for additional information.

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

Transport Class 6.1 Toxic. Do not transport with chemicals of class; 1 (Explosives), 3 (Flammable liquids), 5.1 (Oxidising agents), 5.2 (Organic peroxides), 8 (Corrosives - where the Corrosive is an acid and the Toxic is a cyanide) and foodstuffs.

UN Number 1051
Shipping Name HYDROGEN CYANIDE, STABILIZED containing less than 3% water
DG Class 6.1
Subsidiary Risk(s) 3
Packing Group I
Hazchem Code 2WE

15. REGULATORY INFORMATION

AICS All chemicals listed on the Australian Inventory of Chemical Substances (AICS).

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15. REGULATORY INFORMATION cont.

Poison Schedule Classified as a Schedule 7 (S7) Poison using the criteria in the Standard for the Uniform Scheduling of Drugs and Poisons (SUSDP).

16. OTHER INFORMATION

Additional Information The use, handling and storage of cyanides is regulated by the Poisons Act, 1965 (in WA). The purchase, sale and use requires a license or permit.

The manufacturers of cyanide salts recommend the following items be available where cyanides are used: oxygen resuscitator, oxygen bottles, a clearly marked Cyanide Antidote kit containing an approved airway, elasticised tourniquet, indwelling intravenous cannulae, 20mL disposable syringes & needles, fluoride heparinised blood sample tubes, ampules of Kelocyanor (dicobolt edetate), a copy of the MSDS and a copy of the Worksafe Australia guide "Cyanide Poisoning" .

RESPIRATORS: In general the use of respirators should be limited and engineering controls employed to avoid exposure. If respiratory equipment must be worn ensure correct respirator selection and training is undertaken. Remember that some respirators may be extremely uncomfortable when used for long periods. The use of air powered or air supplied respirators should be considered where prolonged or repeated use is necessary.

ABBREVIATIONS:
mg/m3 - Milligrams per cubic metre
ppm - Parts Per Million
TWA/ES - Time Weighted Average or Exposure Standard.
CNS - Central Nervous System
NOS - Not Otherwise Specified
pH - relates to hydrogen ion concentration - this value will relate to a scale of 0 - 14, where 0 is highly acidic and 14 is highly alkaline.
CAS# - Chemical Abstract Service number - used to uniquely identify chemical compounds.
M - moles per litre, a unit of concentration.
IARC - International Agency for Research on Cancer.
PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this Chem Alert 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 Chem Alert report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.
COLOUR RATING SYSTEM: Chem Alert reports are assigned a colour rating of Green, Amber or Red for the purpose of providing users with a quick and easy means of determining the hazardous nature of a product. Safe handling recommendations are provided in all Chem Alert reports so as to clearly identify how users can control the hazards and thereby reduce the risk (or likelihood) of adverse effects. As a general guideline a Green colour rating indicates a low hazard, an Amber colour rating indicates a moderate hazard and a Red colour rating indicates a high hazard.

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16. OTHER INFORMATION cont.

Report Reviewed 1st January 2006

Date Printed 20th July 2006

Report Status Chem Alert reports are compiled as an independent source of information by RMT's scientific department. The information is based on the latest chemical and toxicological research, and in compliance with relevant standards, guidance notes and legislation (where applicable). The Chem Alert report is not intended as a replacement to the manufacturer's original MSDS that is provided to Chem Alert subscribers for convenience. In many instances, Chem Alert reports are compiled on behalf of manufacturers, in which case they serve as the "Manufacturer's MSDS" and are clearly identified as such on the relevant reports.

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