

SAFETY DATA SHEET

1084

Product Name **BETWEEN 1.6 AND 14.6% ARSINE BALANCE ARGON**

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) 1084 - SDS NUMBER • BOC BETWEEN 1.6 AND 14.6% ARSINE BALANCE ARGON • PRODUCT CODES: 275, 292 • SPECIAL GAS MIXTURE
Use(s) ANALYTICAL REAGENT • CHEMICAL REAGENT • INDUSTRIAL APPLICATIONS • MANUFACTURING
SDS date 09 April 2013

2. HAZARDS IDENTIFICATION

CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

RISK PHRASES

R12 Extremely Flammable.
R26 Very toxic by inhalation.
R48/20 Harmful: danger of serious damage to health by prolonged exposure through inhalation.
R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

SAFETY PHRASES

S9 Keep container in a well ventilated place.
S16 Keep away from sources of ignition - No smoking.
S28 After contact with skin, wash immediately with plenty of water.
S33 Take precautionary measures against static discharges.
S36/37 Wear suitable protective clothing and gloves.
S45 In case of accident or if you feel unwell seek medical advice immediately (show the label where possible).
S60 This material and its container must be disposed of as hazardous waste.
S61 Avoid release to the environment. Refer to special instructions/safety data sheets.

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

UN number	1953	DG division	2.3
Packing group	None Allocated	Subsidiary risk(s)	2.1
Hazchem code	2PE		

3. COMPOSITION/ INFORMATION ON INGREDIENTS

Ingredient	Identification	Classification	Content
ARSINE	CAS: 7784-42-1 EC: 232-066-3	T+;R26 Xn;R48/20 F+;R12 N;R50/53	1.6 to 14.6%
ARGON	CAS: 7440-37-1 EC: 231-147-0	Not Available	85.4 to 98.4%

4. FIRST AID MEASURES

Eye	If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.
Inhalation	If inhaled, remove from contaminated area. To protect rescuer, use an Air-line respirator or Self Contained Breathing Apparatus (SCBA). Be aware of possible explosive atmospheres. 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	If skin or hair contact occurs, flush affected area with copious quantities of water. Use an emergency shower for large areas. Remove affected clothing as quickly as possible.
Advice to doctor	Basic life support measures. Treatment is aimed at haemolysis and acute tubular necrosis. Total replacement blood transfusion may be indicated, and prolonged artificial dialysis may also be helpful. BAL may be helpful. Dosage is 2.5 mg/kg body weight, repeated four to six times the first two days and reduced to twice daily for up to ten days.

5. FIRE FIGHTING MEASURES

Flammability	Highly flammable. May evolve toxic gases (arsenic, hydrogen) when heated to decomposition.
Fire and explosion	Evacuate area and contact emergency services. Toxic gases may be evolved in a fire situation. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Use waterfog to cool intact containers and nearby storage areas. Do not approach cylinders. This material is capable of forming explosive mixtures in air.
Extinguishing	Stop flow of gas if safe to do so. If safe, extinguish fire using dry chemical. Cool cylinders with water spray from protected area. Contact manufacturer for further advice.
Hazchem code	2PE 2 Water Fog (or fine water spray if fog unavailable) P Full protective equipment including Self Contained Breathing apparatus. 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. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Ensure adequate air ventilation. Eliminate ignition sources. Consider the risk of potentially explosive atmospheres.
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 sources of ignition or 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/m ³	ppm	mg/m ³
Argon	SWA (AUS)	Asphyxiant			
Arsine	SWA (AUS)	0.05	0.16	--	--

Biological limits

No biological limit allocated.

Engineering controls

Provide suitable ventilation to minimise or eliminate exposure. Confined areas (eg. tanks) should be adequately ventilated or gas tested. Maintain vapour levels below the recommended exposure standard.

PPE

Eye / Face

Wear safety glasses.

Hands

Wear leather gloves.

Body

Wear leather or safety boots and impervious coveralls.

Respiratory

Wear Self Contained Breathing Apparatus (SCBA) or an Air-line respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	COLOURLESS GAS
Odour	GARLIC ODOUR
Flammability	HIGHLY FLAMMABLE
Flash point	< 0°C
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)	0.23 cm ³ /cm ³ (Arsine)
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT AVAILABLE
Lower explosion limit	5.8 %
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	230°C (Arsine)
Viscosity	NOT AVAILABLE
Partition coefficient	NOT AVAILABLE
Cylinder pressure (when full)	13000 kPa @ 15°C
% Volatiles	100 %
Density	2.70 (Air = 1) (Arsine)

10. STABILITY AND REACTIVITY

Material to avoid	Arsine is a strong reducing agent and will react violently with oxidising agents such as fluorine, chlorine, nitric acid and nitrogen trichloride.
Hazardous Decomposition Products	May evolve toxic gases (arsenic, hydrogen) when heated to decomposition.
Hazardous Reactions	Polymerization will not occur.

11. TOXICOLOGICAL INFORMATION

Product Name BETWEEN 1.6 AND 14.6% ARSINE BALANCE ARGON

Health Hazard Summary	Very toxic by inhalation. Almost all toxic effects can be explained by haemolysis, that is, attack on the red blood cells. Damaging effects also occur in the heart, liver, and kidneys. Bone marrow depression and peripheral neuropathy have been reported in more severe cases and may develop months after poisoning. Arsenic and arsenic compounds are classified as carcinogenic to humans (IARC Group 1).	
Eye	Non irritant.	
Inhalation	Very toxic by inhalation. Onset of symptoms ranges from 20 minutes to 36 hours depending on concentration inhaled. Over exposure may result in general malaise, headache, nausea, vomiting, tightness in the chest and pain in the abdomen and loins. Urine will usually become red or darkened in colouration and skin will take on a bronze or jaundiced colouration. Tingling of the face and extremities may also occur. Respiration and pulse may become more rapid. Inhalation of 25 to 50 vppm for half an hour will be lethal. Concentrations of 250 vppm are instantly fatal.	
Skin	Non irritant.	
Ingestion	Ingestion is considered unlikely due to product form.	
Toxicity data	ARSINE (7784-42-1) LC50 (inhalation) 250 mg/m ³ /10 minutes (mouse) LCLo (inhalation) 25 ppm/30 minutes (human) TCLo (inhalation) 3 ppm (human)	

12. ECOLOGICAL INFORMATION

Toxicity	No information provided.
Persistence and degradability	No information provided.
Bioaccumulative potential	No information provided.
Mobility in soil	No information provided.
Other adverse effects	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

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	1953	-	-
Proper shipping name	COMPRESSED GAS, TOXIC, FLAMMABLE, N.O.S.	-	-
DG class/ Division	2.3	-	-
Subsidiary risk(s)	2.1	-	-
Packing group	None Allocated	-	-
Hazchem code	2PE		
Other information	Ensure cylinder is separated from driver and foodstuffs.		

15. REGULATORY INFORMATION

Poison schedule	Classified as a Schedule 7 (S7) 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.

APPLICATION METHOD: Gas regulator of suitable pressure and flow rating fitted to cylinder or manifold with low pressure gas distribution to equipment.

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.

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
	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
	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
	TLV	Threshold Limit Value
	TWA/OEL	Time Weighted Average or Occupational Exposure Limit

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.

Product Name **BETWEEN 1.6 AND 14.6% ARSINE BALANCE ARGON**

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End of SDS