

## SAFETY DATA SHEET

# 2037

### 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

#### 1.1 Product identifier

**Product name** BETWEEN 1.15 AND 11% AMMONIA, BALANCE ARGON  
**Synonym(s)** 2037 - SDS NUMBER • PRODUCT CODE: 292 • SPECIAL GAS MIXTURE

#### 1.2 Uses and uses advised against

**Use(s)** CALIBRATION • INDUSTRIAL APPLICATIONS

#### 1.3 Details of the supplier of the product

**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)  
**Website** <http://www.boc.com.au>

#### 1.4 Emergency telephone number(s)

**Emergency** 1800 653 572 (24/7) (Australia only)

### 2. HAZARDS IDENTIFICATION

#### 2.1 Classification of the substance or mixture

CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA

**GHS classification(s)** Aquatic Toxicity (Acute): Category 2  
Skin Corrosion/Irritation: Category 1B  
Acute Toxicity: Inhalation: Category 4  
Gases Under Pressure: Compressed gas

#### 2.2 Label elements

**Signal word** DANGER

**Pictogram(s)**



#### Hazard statement(s)

H280 Contains gas under pressure; may explode if heated.  
H314 Causes severe skin burns and eye damage.  
H332 Harmful if inhaled.  
H401 Toxic to aquatic life.

#### Prevention statement(s)

P260 Do not breathe dust/fume/gas/mist/vapours/spray.  
P264 Wash thoroughly after handling.  
P271 Use only outdoors or in a well-ventilated area.  
P273 Avoid release to the environment.  
P280 Wear protective gloves/protective clothing/eye protection/face protection.

**PRODUCT NAME BETWEEN 1.15 AND 11% AMMONIA, BALANCE ARGON****Response statement(s)**

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
P303 + P361 + P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.  
P304 + P340 IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P310 Immediately call a POISON CENTER or doctor/physician.  
P321 Specific treatment is advised - see first aid instructions.  
P363 Wash contaminated clothing before reuse.

**Storage statement(s)**

P405 Store locked up.  
P410 + P403 Protect from sunlight. Store in a well-ventilated place.

**Disposal statement(s)**

P501 Dispose of contents/container in accordance with relevant regulations.

**2.3 Other hazards**

Asphyxiant. Effects are proportional to oxygen displacement.

---

**3. COMPOSITION/ INFORMATION ON INGREDIENTS**

---

**3.1 Substances / Mixtures**

Ingredient	CAS Number	EC Number	Content (v/v)
AMMONIA	7664-41-7	231-635-3	1.15 to 11%
ARGON	7440-37-1	231-147-0	Remainder

---

**4. FIRST AID MEASURES**

---

**4.1 Description of 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. Remove contaminated clothing and check there is no obstruction to the airway. If breathing is weak or has ceased, give artificial respiration. Further treatment should be symptomatic and supportive. Consult doctor and recommend admission to hospital for observation. 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.

**First aid facilities** Eye wash facilities and safety shower are recommended.

**4.2 Most important symptoms and effects, both acute and delayed**

Corrosive. Over exposure to low levels may result in irritation with coughing and bronchospasm. Acute exposure to high levels may result in pulmonary oedema and asphyxiation.

**4.3 Immediate medical attention and special treatment needed**

Obtain medical assistance. Treat with a corticosteroid spray as soon as possible after inhalation.

---

**5. FIRE FIGHTING MEASURES**

---

**5.1 Extinguishing media**

Use water fog to cool containers from protected area. Note that ammonia is readily absorbed by water and the resultant ammonia solution is alkaline. Prevent contamination of drains or waterways, absorb runoff with sand or similar.

**5.2 Special hazards arising from the substance or mixture**

Non flammable.

**5.3 Advice for firefighters**

Temperatures in a fire may cause cylinders to rupture. Cool cylinders or containers exposed to fire by applying water from a protected location. Remove cool cylinders from the path of the fire. Evacuate the area if unable to keep cylinders cool. Do not approach cylinders or containers suspected of being hot.

#### 5.4 Hazchem code

2RE

2 Fine Water Spray.

R Wear liquid-tight chemical protective clothing and breathing apparatus. Dilute spill and run-off.

E Evacuation of people in and around the immediate vicinity of the incident should be considered.

## 6. ACCIDENTAL RELEASE MEASURES

### 6.1 Personal precautions, protective equipment and emergency procedures

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 all sources of ignition. Consider the risk of potentially explosive atmospheres.

### 6.2 Environmental precautions

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

### 6.3 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.

### 6.4 Reference to other sections

See Sections 8 and 13 for exposure controls and disposal.

## 7. HANDLING AND STORAGE

### 7.1 Precautions for safe 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. Use only in well-ventilated areas. When handling cylinders, use appropriate trolley. Do not drag or roll cylinders.

### 7.2 Conditions for safe storage, including any incompatibilities

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. Outside or detached storage preferred. Keep out of direct sunlight. Refer to AS/NZ 2022: Anhydrous Ammonia - Storage and Handling and AS 4332: The Storage and Handling of Gases in Cylinders.

### 7.3 Specific end use(s)

No information provided.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

### 8.1 Control parameters

#### Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Ammonia	SWA (AUS)	25	17	35	24
Argon	SWA (AUS)	Asphyxiant			

### Biological limits

No biological limit values have been entered for this product.

### 8.2 Exposure controls

**Engineering controls** Avoid inhalation. Use in well ventilated areas. Maintain vapour levels below the recommended exposure standard.

**PPE**

<b>Eye / Face</b>	Wear safety glasses.
<b>Hands</b>	Wear leather gloves.
<b>Body</b>	Wear coveralls and safety boots.
<b>Respiratory</b>	Wear a Type K (Ammonia) respirator. Where an inhalation risk exists, wear Self Contained Breathing Apparatus (SCBA) or an Air-line respirator.



## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information on basic physical and chemical properties

<b>Appearance</b>	COLOURLESS GAS
<b>Odour</b>	PUNGENT ODOUR
<b>Flammability</b>	NON FLAMMABLE
<b>Flash point</b>	NOT RELEVANT
<b>Boiling point</b>	NOT AVAILABLE
<b>Melting point</b>	NOT AVAILABLE
<b>Evaporation rate</b>	NOT APPLICABLE
<b>pH</b>	NOT APPLICABLE
<b>Vapour density</b>	0.597 (Air = 1) (Ammonia)
<b>Specific gravity</b>	NOT APPLICABLE
<b>Solubility (water)</b>	0.346 kg/kg (Ammonia)
<b>Vapour pressure</b>	NOT AVAILABLE
<b>Upper explosion limit</b>	NOT RELEVANT
<b>Lower explosion limit</b>	NOT RELEVANT
<b>Partition coefficient</b>	NOT AVAILABLE
<b>Autoignition temperature</b>	651°C (Ammonia)
<b>Decomposition temperature</b>	NOT AVAILABLE
<b>Viscosity</b>	NOT AVAILABLE
<b>Explosive properties</b>	NOT AVAILABLE
<b>Oxidising properties</b>	NOT AVAILABLE
<b>Odour threshold</b>	NOT AVAILABLE

### 9.2 Other information

<b>Critical temperature</b>	132.4°C (Ammonia)
<b>% Volatiles</b>	100 %

## 10. STABILITY AND REACTIVITY

### 10.1 Reactivity

Carefully review all information provided in sections 10.2 to 10.6.

### 10.2 Chemical stability

Stable under recommended conditions of storage.

### 10.3 Possibility of hazardous reactions

Polymerization will not occur.

### 10.4 Conditions to avoid

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

### 10.5 Incompatible materials

Ammonia is stable. Ammonia has potentially explosive or violent reactions with strong oxidisers, nitric acid, fluorine and nitrogen oxide. Ammonia forms explosive products with silver chloride, silver oxide, bromine, iodine and mercury. Ammonia is incompatible or has potentially hazardous reactions with silver, acetaldehyde, acrolein, boron, perchlorates, chlorine monoxide, chlorites, nitrogen tetroxide and sulphur. Ammonia is hygroscopic and will absorb moisture from the air to form an alkaline aqueous solution.

#### **10.6 Hazardous decomposition products**

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

---

### **11. TOXICOLOGICAL INFORMATION**

---

#### **11.1 Information on toxicological effects**

<b>Acute toxicity</b>	Harmful if inhaled. Extremely irritating and corrosive. Characteristic smell from 5 ppm and irritant effects usually provides good warning properties. Over exposure to low levels may result in irritation with coughing and bronchospasm. Acute exposure to high levels may result in pulmonary oedema and asphyxia. Delayed reaction including pulmonary oedema may occur up to 24 hours after exposure.
	AMMONIA LC50 (Inhalation): 2000 ppm / 4 hours (rat)
<b>Skin</b>	Causes severe burns. Contact may result in irritation, redness, pain, rash, dermatitis and possible burns.
<b>Eye</b>	Causes severe burns. Contact may result in irritation, lacrimation, pain, redness and corneal burns with possible permanent eye damage.
<b>Sensitization</b>	Not classified as causing skin or respiratory sensitisation. However, over exposure may cause respiratory sensitisation with asthma-like effects.
<b>Mutagenicity</b>	Not classified as a mutagen. However, some animal studies have shown possible evidence for mutagenic effects.
<b>Carcinogenicity</b>	Not classified as a carcinogen.
<b>Reproductive</b>	Not classified as a reproductive toxin.
<b>STOT – single exposure</b>	Over exposure may result in irritation to nose and throat. High level exposure may result in significant toxicity effects to the respiratory system. Symptoms include shortness of breath (dyspnoea), cyanosis, dizziness, headache, nausea, and a build up of fluids in the lungs (pulmonary oedema).
<b>STOT – repeated exposure</b>	Chronic exposure damages the respiratory system resulting in long-term shortness in breath (dyspnoea), persistent cough and obliterative bronchiolitis.
<b>Aspiration</b>	Not classified as causing aspiration.

---

### **12. ECOLOGICAL INFORMATION**

---

#### **12.1 Toxicity**

Toxic to aquatic organisms.

#### **12.2 Persistence and degradability**

No information provided.

#### **12.3 Bioaccumulative potential**

No information provided.

#### **12.4 Mobility in soil**

No information provided.

#### **12.5 Other adverse effects**

May cause pH changes in aqueous ecological systems.

---

### **13. DISPOSAL CONSIDERATIONS**

---

#### **13.1 Waste treatment methods**

<b>Waste disposal</b>	Cylinders should be returned to the manufacturer or supplier for disposal of contents.
<b>Legislation</b>	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)
14.1 UN Number	3304	3304	3304
14.2 Proper Shipping Name	COMPRESSED GAS, TOXIC, CORROSIVE, N.O.S. (Contains ammonia)	COMPRESSED GAS, TOXIC, CORROSIVE, N.O.S. (Contains ammonia)	COMPRESSED GAS, TOXIC, CORROSIVE, N.O.S. (Contains ammonia)
14.3 Transport hazard classes	2.3, 8	2.3, 8	2.3, 8
14.4 Packing Group	None Allocated	None Allocated	None Allocated

14.5 Environmental hazards No information provided

14.6 Special precautions for user

Hazchem code 2RE

GTEPG 2B8

EMS F-C, S-U

Other information Ensure cylinder is separated from driver and foodstuffs. Refer to Commonwealth, State and Territory Dangerous Goods Legislation which contain requirements which affect gas storage and transport.

## 15. REGULATORY INFORMATION

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

Poison schedule Classified as a Schedule 6 (S6) Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

The classifications and phrases listed below are based on the Approved Criteria for Classifying Hazardous Substances [NOHSC: 1008(2004)].

Hazard codes  
C Corrosive  
N Dangerous for the environment  
Xn Harmful

Risk phrases  
R20 Harmful by inhalation.  
R34 Causes burns.  
R51 Toxic to aquatic organisms.

Safety phrases  
S9 Keep container in a well ventilated place.  
S16 Keep away from sources of ignition - No smoking.  
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice  
S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.  
S45 In case of accident or if you feel unwell seek medical advice immediately (show the label where possible).  
S61 Avoid release to the environment. Refer to special instructions/safety data sheets.

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 withdrawal: regulator of suitable pressure and flow rating fitted to cylinder or manifold with low pressure gas distribution to equipment. Liquid withdrawal: appropriate refrigeration equipment or appropriate heat exchanger to vaporise the liquid.

**PRODUCT NAME BETWEEN 1.15 AND 11% AMMONIA, BALANCE ARGON****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
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
GHS	Globally Harmonized System
GTEPG	Group Text Emergency Procedure Guide
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m <sup>3</sup>	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
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
2.1	Standard SDS Review
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.

PRODUCT NAME    **BETWEEN 1.15 AND 11% AMMONIA, BALANCE ARGON**

Revision: 2.1

SDS date: 16 March 2015

**[ End of SDS ]**