1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name: ACETYLENE
Synonym(s): 001 - SDS NUMBER • DISSOLVED ACETYLENE • ETHYNE • PRODUCT CODES: 040, 041

1.2 Uses and uses advised against

Uses: FUEL • 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 AUSTRALIAN WHS REGULATIONS

GHS classification(s): Gases Under Pressure: Dissolved gas
Flammable Gases: Category 1

2.2 Label elements

Signal word: DANGER
Pictogram(s):

Gases Under Pressure: Dissolved gas
Flammable Gases: Category 1

Hazard statement(s)
H220: Extremely flammable gas.
H280: Contains gas under pressure; may explode if heated.

Prevention statement(s)
P210: Keep away from heat/sparks/open flames/hot surfaces. No smoking.

Response statement(s)
P377: Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
P381: Eliminate all ignition sources if safe to do so.

Storage statement(s)
P410 + P403: Protect from sunlight. Store in a well-ventilated place.

Disposal statement(s)
None allocated.
### 2.3 Other hazards
Asphyxiant. Effects are proportional to oxygen displacement.

### 3. COMPOSITION/ INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS Number</th>
<th>EC Number</th>
<th>Content (v/v)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACETYLENE</td>
<td>74-86-2</td>
<td>200-816-9</td>
<td>&gt;98%</td>
</tr>
</tbody>
</table>

### 4. FIRST AID MEASURES

#### 4.1 Description of first aid measures

**Eye**
Adverse effects not expected from this product.

**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**
Adverse effects not expected from this product.

**Ingestion**
Ingestion is not considered a potential route of exposure.

**First aid facilities**
No information provided.

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

In high concentrations may cause asphyxiation. Symptoms may include loss of mobility / consciousness. Victim may not be aware of asphyxiation. In low concentrations may cause narcotic effects. Symptoms may include dizziness, headache, nausea and loss of co-ordination.

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

Treat for asphyxia.

### 5. FIRE FIGHTING MEASURES

#### 5.1 Extinguishing media

Stop flow of gas if safe to do so, such as by slowly closing the cylinder valve. If the gas source cannot be isolated, do not extinguish the flame, since re-ignition and explosion could occur. Await arrival of emergency services or manufacturer's advisor. Drench and cool cylinders with water spray from protected area at a safe distance. If it is absolutely necessary to extinguish the flame, use only a dry chemical powder extinguisher. Do not move cylinders for at least 24 hours. Avoid shock and bumps to cylinders.

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

Extremely flammable. Eliminate all ignition sources including cigarettes, open flames, spark producing switches/tools, heaters, naked lights, pilot lights, mobile phones etc. when handling.

#### 5.3 Advice for firefighters

Temperatures in a fire may cause cylinders to rupture and internal pressure relief devices to be activated. Cool cylinders or containers exposed to fire by applying water from a protected location. Do not approach cylinders or containers suspected of being hot. This material is capable of forming explosive mixtures in air.

#### 5.4 Hazchem code

2SE
- Fine Water Spray.
- Risk of violent reaction or explosion. Wear full fire kit and breathing apparatus. Dilute spill and run-off.
- 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 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. Never open an acetylene cylinder valve without the regulator attached. Gas regulator of suitable pressure and flow rating fitted to cylinder and manifold with low pressure gas distribution equipment which controls fuel gas mixture and flame. The regulator and other equipment must be compatible with the product and suited for the particular use. Never “sniff” acetylene as it may ignite spontaneously. Instead, carefully inspect the outlet and if there are any signs of dirt, blow it out with a jet of clean compressed air or nitrogen.

7.2 Conditions for safe storage, including any incompatibilities
Do not store near incompatible substances and sources of ignition. Cylinders should be stored: upright, prevented from falling, in a secure area; below 45°C, 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. Post “No Smoking or Open Flames” signs in the storage areas. Refer to applicable legislation on flammable storage quantity restrictions. Never transfer acetylene to another cylinder or other container.

7.3 Specific end use(s)
No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Reference</th>
<th>TWA</th>
<th>STEL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>ppm</td>
<td>mg/m³</td>
</tr>
<tr>
<td>Acetylene</td>
<td>SWA (AUS)</td>
<td>Asphyxiant</td>
<td></td>
</tr>
</tbody>
</table>

8.2 Exposure controls

Engineering controls
Provide suitable ventilation to minimise or eliminate exposure. Confined areas (e.g. tanks) should be adequately ventilated or gas tested. Flammable/explosive vapours may accumulate in poorly ventilated areas.

PPE

<table>
<thead>
<tr>
<th>Body Part</th>
<th>Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye / Face</td>
<td>Wear safety glasses.</td>
</tr>
<tr>
<td>Hands</td>
<td>Wear leather or cotton gloves.</td>
</tr>
<tr>
<td>Body</td>
<td>Wear coveralls and safety boots.</td>
</tr>
<tr>
<td>Respiratory</td>
<td>If using product in a confined area, wear an Air-line respirator.</td>
</tr>
</tbody>
</table>
9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>COLOURLESS GAS</td>
</tr>
<tr>
<td>Odour</td>
<td>GARLIC-LIKE ODOUR</td>
</tr>
<tr>
<td>Flammability</td>
<td>EXTREMELY FLAMMABLE</td>
</tr>
<tr>
<td>Flash point</td>
<td>&lt; 23°C</td>
</tr>
<tr>
<td>Boiling point</td>
<td>-84°C</td>
</tr>
<tr>
<td>Melting point</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>NOT APPLICABLE</td>
</tr>
<tr>
<td>pH</td>
<td></td>
</tr>
<tr>
<td>Vapour density</td>
<td>0.906 (Air = 1)</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>NOT APPLICABLE</td>
</tr>
<tr>
<td>Solubility (water)</td>
<td>SOLUBLE</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>4700 kPa @ 25°C</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>80 % to 85 %</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>2.5 %</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>305°C</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Viscosity</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>NOT AVAILABLE</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>NOT AVAILABLE</td>
</tr>
</tbody>
</table>

9.2 Other information

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical temperature</td>
<td>36.3°C (dissolved in acetone and porous medium)</td>
</tr>
<tr>
<td>Cylinder pressure (when full)</td>
<td>1550 kPa @ 15°C</td>
</tr>
<tr>
<td>% Volatiles</td>
<td>100 %</td>
</tr>
<tr>
<td>Critical pressure</td>
<td>6,242 kPa</td>
</tr>
</tbody>
</table>

10. STABILITY AND REACTIVITY

10.1 Reactivity
Forms explosive acetylides with copper, silver and mercury. Do not use alloys containing more than 65% copper.

10.2 Chemical stability
Stable under recommended conditions of storage. However, sensitive to heat or shock and may become explosive.

10.3 Possibility of hazardous reactions
Polymerizes with evolution of heat. Avoid contact with curing agents, accelerators, and/or initiators.

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

10.5 Incompatible materials
Incompatible with oxidising agents (e.g. hypochlorites), copper, copper alloys (>70% copper), silver and mercury to form explosive acetylides. May decompose violently at high temperatures and/or pressures or in the presence of a catalyst. Hazardous by-products may be produced when this gas/gas mixture is used in welding, cutting and associated processes.

10.6 Hazardous decomposition products
May evolve toxic gases if heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

<table>
<thead>
<tr>
<th>Toxicity</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity</td>
<td>Based on available data, the classification criteria are not met.</td>
</tr>
<tr>
<td>Skin</td>
<td>Not classified as a skin irritant.</td>
</tr>
<tr>
<td>Eye</td>
<td>Not classified as an eye irritant.</td>
</tr>
<tr>
<td>Sensitization</td>
<td>Not classified as causing skin or respiratory sensitisation.</td>
</tr>
<tr>
<td>Mutagenicity</td>
<td>Not classified as a mutagen.</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>Not classified as a carcinogen.</td>
</tr>
</tbody>
</table>
PRODUCT NAME  ACETYLENE

Reproductive  Not classified as a reproductive toxin.
STOT – single exposure  Asphyxiant. Effects are proportional to oxygen displacement. Over exposure may result in dizziness, drowsiness, weakness, fatigue, breathing difficulties and unconsciousness.
STOT – repeated exposure  Not classified as causing organ effects from repeated exposure.
Aspiration  Not classified as causing aspiration.

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No ecological damage is expected to be caused by this product.

12.2 Persistence and degradability
This product is not readily biodegradable.

12.3 Bioaccumulative potential
This product is not expected to bioaccumulate.

12.4 Mobility in soil
Because of its high volatility, the product is unlikely to cause ground or water pollution.

12.5 Other adverse effects
No information provided.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods
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

<table>
<thead>
<tr>
<th>LAND TRANSPORT (ADG)</th>
<th>SEA TRANSPORT (IMDG / IMO)</th>
<th>AIR TRANSPORT (IATA / ICAO)</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.1 UN Number</td>
<td>1001</td>
<td>1001</td>
</tr>
<tr>
<td>14.2 Proper Shipping Name</td>
<td>ACETYLENE, DISSOLVED</td>
<td>ACETYLENE, DISSOLVED</td>
</tr>
<tr>
<td>14.3 Transport hazard class</td>
<td>2.1</td>
<td>2.1</td>
</tr>
<tr>
<td>14.4 Packing Group</td>
<td>None Allocated</td>
<td>None Allocated</td>
</tr>
</tbody>
</table>

14.5 Environmental hazards  No information provided
14.6 Special precautions for user

Hazchem code  2SE
GTEPG  2A1
EMS  F-D, S-U

Other information  Ensure cylinder is separated from driver and that outlet of relief device is not obstructed.
15. REGULATORY INFORMATION

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

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).

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
E  Explosive
F+ Extremely flammable

Risk phrases
R5 Heating may cause an explosion.
R6 Explosive with or without contact with air.
R12 Extremely Flammable.

Safety phrases
S9 Keep container in a well ventilated place.
S16 Keep away from sources of ignition - No smoking.
S33 Take precautionary measures against static discharges.

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. When using this gas/gas mixture for welding, cutting and associated processes, additional hazards may be generated by the process such as radiation, noise and fume. Risk assessments should be made for each activity to identify and quantify the individual hazards involved. Please refer to the relevant Safety Data Sheets for the welding consumables being used or, if available, the materials being welded.

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/m³  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  

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  

[ End of SDS ]