



# MATERIAL SAFETY DATA SHEET



## ACETYLENE

### 1 CHEMICAL PRODUCT & COMPANY IDENTIFICATION

Product name	Acetylene, dissolved
Chemical name/formula	Acetylene / C <sub>2</sub> H <sub>2</sub>
Company identification	See header and footer
Emergency phone no.	See footer

### 2 COMPOSITION / INFORMATION ON INGREDIENTS

Substance/Preparation	Substance
Components Impurities	Contains no other components or impurities, which will influence the classification of the product.
CAS No.	74-86-2

### 3 HAZARDS IDENTIFICATION

General	<ul style="list-style-type: none"><li>▶ Dissolved gas.</li><li>▶ Extremely flammable.</li></ul>
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### 4 FIRST-AID MEASURES

Inhalation	<ul style="list-style-type: none"><li>▶ In high concentrations may cause asphyxiation. Symptoms may include loss of mobility or consciousness. Victim may not be aware of asphyxiation.</li><li>▶ In low concentrations, may cause narcotic effects. Symptoms may include dizziness, headache, nausea and loss of co-ordination.</li><li>▶ Remove victim to uncontaminated area wearing self-contained breathing apparatus. Keep victim warm and rested.</li><li>▶ Call a doctor. Apply artificial respiration if breathing stopped.</li></ul>
Skin/Eye contact	<ul style="list-style-type: none"><li>▶ May cause temporary irritation to the eyes and dermatitis to the skin upon repeated exposures.</li></ul>
Ingestion	<ul style="list-style-type: none"><li>▶ Ingestion is not considered a potential route of exposure.</li></ul>

### 5 FIRE-FIGHTING MEASURES

Specific hazards	<ul style="list-style-type: none"><li>▶ Exposure to fire may cause containers to rupture or explode.</li></ul>
Hazardous combustion products	<ul style="list-style-type: none"><li>▶ Incomplete combustion may form carbon monoxide.</li></ul>
Suitable extinguishing media	<ul style="list-style-type: none"><li>▶ All known extinguishants can be used.</li></ul>
Specific methods	<ul style="list-style-type: none"><li>▶ If possible, stop flow of product.</li><li>▶ Move container away or cool with water from a protected position.</li><li>▶ Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous or explosive re-ignition may occur.</li><li>▶ Extinguish any other fire.</li></ul>
Special protective Equipment (for fire fighters)	<ul style="list-style-type: none"><li>▶ In confined space, use a self-contained breathing apparatus.</li></ul>

### 6 ACCIDENTAL RELEASE MEASURES

Personal precautions	<ul style="list-style-type: none"><li>▶ Evacuate area.</li><li>▶ Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.</li><li>▶ Ensure adequate air ventilation.</li><li>▶ Eliminate ignition sources.</li><li>▶ Post warning notices.</li></ul>
Environmental precautions	<ul style="list-style-type: none"><li>▶ Try to stop release.</li></ul>
Clean up methods	<ul style="list-style-type: none"><li>▶ Ventilate area</li></ul>

### 7 HANDLING & STORAGE

General	<ul style="list-style-type: none"><li>▶ Ensure equipment is adequately earthed.</li><li>▶ Avoid contact with pure copper, mercury, silver and brass with greater than 70% copper.</li><li>▶ Suck back of water into the container must be prevented. Do not allow back-feed into container.</li><li>▶ Purge air from system before introducing gas.</li><li>▶ Use only properly specified equipment, which is suitable for this product, its supply pressure and temperature.</li><li>▶ Keep away from ignition sources (including static discharges).</li><li>▶ Segregate from oxidant gases and other oxidants in store.</li><li>▶ Keep container below 50°C in a well-ventilated place.</li><li>▶ Refer to "safe handling, transport and storage of compressed gas cylinder" or contact AIG if in doubt.</li></ul>
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### 8 EXPOSURE CONTROLS & PERSONAL PROTECTION

Exposure limit value	<ul style="list-style-type: none"><li>▶ None</li></ul>
Personal protection	<ul style="list-style-type: none"><li>▶ Ensure adequate ventilation.</li><li>▶ Wear suitable hand, body and head protection. Wear goggles with suitable filter lenses when use is cutting or welding.</li><li>▶ Do not smoke while handling product.</li></ul>

### 9 PHYSICAL & CHEMICAL PROPERTIES

Molecular weight	26
Melting point	-80.8°C
Boiling point	-84°C (sublimes)
Critical temperature	35°C
Relative density, gas	0.9 (air = 1)
Relative density, liquid	Not applicable
Vapour pressure @20°C	44 bar

## 9 PHYSICAL & CHEMICAL PROPERTIES (continue)

Solubility mg/l water	1185 mg/l
Appearance/Colour	Colourless gas
Odour	Garlic like. Poor warning properties at low concentration.
Auto-ignition temperature	325°C
Flammability range	2.4 – 88 volume % in air

## 10 STABILITY & REACTIVITY

General	<ul style="list-style-type: none"><li>▶ Can form explosive mixture with air.</li><li>▶ May decompose violently at high temperature and/or pressure or in the presence of a catalyst.</li><li>▶ Forms explosive acetylides with copper, silver and mercury. Do not use alloys containing more than 70% copper or 43% silver.</li><li>▶ Dissolved in a solvent supported in a porous mass.</li><li>▶ May react violently with oxidants.</li></ul>
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## 11 TOXICOLOGICAL INFORMATION

General	<ul style="list-style-type: none"><li>▶ No known toxicological effects from this product.</li></ul>
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## 12 ECOLOGICAL INFORMATION

General	<ul style="list-style-type: none"><li>▶ No known ecological effects from this product.</li></ul>
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## 13 DISPOSAL CONSIDERATIONS

General	<ul style="list-style-type: none"><li>▶ Do not discharge into areas where there is a risk of forming an explosive mixture with air.</li><li>▶ Waste gas should be flared through a suitable burner with a flash back arrestor.</li><li>▶ Do not discharge into any place where its accumulation could be dangerous.</li><li>▶ Contact AIG if guidance is required.</li></ul>
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## 14 TRANSPORT INFORMATION

UN No.	1001
Class/Division	2.1 (Flammable Gas)
Subsidiary risk	None
UN proper shipping name	Acetylene, dissolved
IMO/IATA shipping label	



Other transport information	<ul style="list-style-type: none"><li>▶ Avoid transport on vehicles where the load space is not separated from the driver's compartment.</li></ul>
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Other transport information	<ul style="list-style-type: none"><li>▶ Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency.</li><li>▶ Before transporting product containers, ensure that they are firmly secured and:<ul style="list-style-type: none"><li>▪ compliance with applicable regulations;</li><li>▪ cylinder valve is closed and not leaking;</li><li>▪ valve outlet cap nut or plug (where provided) is correctly fitted;</li><li>▪ valve protection device (where provided) is correctly fitted and</li><li>▪ there is adequate ventilation.</li></ul></li></ul>
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## 15 REGULATORY INFORMATION

General	<ul style="list-style-type: none"><li>▶ Singapore's Factories Act 2000, Sections 14, 34, 44 &amp; 60A.</li><li>▶ Singapore Standards:<ul style="list-style-type: none"><li>▪ CP 12:2000 Part 1</li><li>▪ CP 98:2003</li><li>▪ SS 152:2003</li><li>▪ SS 286:1984 Part 1 to Part 5</li></ul></li></ul>
Risk and safety phrases	<ul style="list-style-type: none"><li>▶ R5 – Heating may cause an explosion.</li><li>▶ R6 – Explosive with or without contact with air.</li><li>▶ R12 – Extremely flammable.</li><li>▶ S9 – Keep container in well-ventilated place.</li><li>▶ S16 – Keep away from ignition sources. No smoking.</li><li>▶ S33 – Take precautionary measures against static discharge.</li></ul>

## 16 OTHER INFORMATION

General	<ul style="list-style-type: none"><li>▶ Ensure all local regulations or legislations are observed.</li><li>▶ Ensure operators or user understand the flammability hazard of this gas.</li><li>▶ The hazard of asphyxiation is often overlooked and must be stressed before use.</li><li>▶ Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.</li><li>▶ Details given in this document are believed to be correct at the time of revising.</li><li>▶ Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted.</li><li>▶ This safety data sheet is for information purposes only and is subjected to change without notice.</li></ul>
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