1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name	Acetylene, Dissolved
GHS Product Identifier	Acetylene (C_2H_2) dissolved in acetone
Chemical Name	Ethyne (Acetylene), dissolved in acetone within a porous mass
Synonyms	C_2H_2, Ethyne, Dissolved Acetylene, DA, Welding Acetylene
Recommended Use	Oxy-fuel cutting, welding and heating; chemical synthesis feedstock; carbon-black production.
Uses Advised Against	Do NOT use at gauge pressures above 150 kPa (1.5 bar). Do NOT use copper, silver or mercury alloys in contact with acetylene — explosive metal-acetylides can form. Do not decant or store horizontally.

Details of the supplier

Supplier Name	Puregas Aust Pty Ltd
Address	15-17 Distribution Drive, Mickleham VIC 3064, Australia
Telephone	1300 733 097
Email / Web	sales@puregas.com.au

Emergency telephone number(s)

24 hr Emergency	1300 733 097 (24 hours)
Fire / Ambulance / Police	000 (within Australia)
Poisons Information Centre	13 11 26 (Australia)

2. HAZARDS IDENTIFICATION

CLASSIFIED AS HAZARDOUS ACCORDING TO SAFE WORK AUSTRALIA CRITERIA.

CLASSIFIED AS DANGEROUS GOODS BY THE CRITERIA OF THE ADG CODE.

GHS Classification	Flammable Gases: Category 1A Gases Under Pressure: Dissolved Gas
Signal Word	DANGER

Pictograms: GHS02 (Flame — Flammable) + GHS04 (Gas Cylinder — gas under pressure)

Hazard statements

H220	Extremely flammable gas.
H230	May react explosively even in the absence of air.
H280	Contains gas under pressure; may explode if heated.

Precautionary statements

Prevention — P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Prevention — P202	Do not handle until all safety precautions have been read and understood.
Response — P377	Leaking gas fire: do not extinguish unless leak can be stopped safely.

Response — P381	Eliminate all ignition sources if safe to do so.
Storage — P410+P403	Protect from sunlight. Store in a well-ventilated place.
Disposal	Return cylinders to supplier — see Section 13.

Other hazards

Extremely wide flammable range in air (2.3 – 100 %). Acetylene can decompose explosively at elevated pressure without the need for an oxidiser. Asphyxiant in confined spaces if oxygen is displaced. Reacts with copper, silver and mercury to form sensitive metal-acetylide explosives.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient	CAS Number	EC Number	Content
Acetylene (Ethyne)	74-86-2	200-816-9	≥ 99 %
Acetone (solvent)	67-64-1	200-662-2	varies — held in porous mass

Acetylene is supplied dissolved in acetone within a porous-mass cylinder; small carry-over of acetone vapour with the gas is normal.

4. FIRST AID MEASURES

Eye contact	Not normally required. Flush with copious water if contamination is suspected.
Inhalation	Remove casualty to fresh air. If breathing is difficult, apply artificial respiration. Obtain medical attention.
Skin contact	Not normally required. Treat any frost burn from escaping gas with warm water.
Ingestion	Not a relevant route of exposure (gas).
First aid facilities	Eye-wash and safety shower should be available.
Most important symptoms	Headache, dizziness, drowsiness, breathing difficulty (asphyxiation at high concentrations).
Medical attention	Treat symptomatically.

5. FIRE FIGHTING MEASURES

Extinguishing media	STOP THE FLOW OF GAS FIRST. Use water fog or spray to cool cylinders from a protected location. Dry chemical or CO_2 for small fires once gas source is isolated.
Unsuitable media	None known once gas source is isolated.
Special hazards	Acetylene can decompose explosively under pressure or after prolonged heating, even without oxygen. A cylinder exposed to fire may continue to react internally for hours after the fire is out — keep cooling and monitoring well after apparent extinguishment.
Advice for firefighters	Wear full bunker gear and SCBA. Cool acetylene cylinders continuously with water from a protected location. If a cylinder has been heated significantly, evacuate to minimum 100 m and continue water cooling remotely for at least 12 h. Do not approach a heat-exposed acetylene cylinder.
Hazchem Code	2WE

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	Evacuate the area immediately. Eliminate ALL ignition sources (no smoking, no naked flames, no spark-producing tools, no mobile phones). Approach from upwind only. Use SCBA — do not enter confined spaces without atmospheric monitoring and rescue cover.
Environmental precautions	Prevent gas from entering sewers, basements, work pits and confined spaces where flammable mixtures could accumulate.

Methods of cleanup	If safe, close the cylinder valve. Otherwise carefully move the cylinder upright to a safe, open, well-ventilated area and allow gas to dissipate. Do not attempt to repair leaking valves — return to Puregas.

7. HANDLING AND STORAGE

Safe handling	Use only with regulators rated for acetylene, fitted with a flashback arrestor (per AS 4839). Never exceed 150 kPa (1.5 bar) gauge pressure downstream. Always keep cylinders upright — never lay horizontal (acetone solvent will exit). Open the valve no more than 1.5 turns so it can be closed rapidly. Do NOT use copper, silver or mercury alloys in contact with acetylene. Earth/bond transfer equipment.
Safe storage	Store cylinders upright in a dedicated, well-ventilated area, away from oxidisers (oxygen cylinders by at least 5 m or fire-rated barrier), ignition sources, and below 52 °C. Restrain cylinders. Comply with AS 4332 and AS 4839.
Specific end uses	Oxy-fuel cutting, welding and heating.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure standards (Safe Work Australia)

Ingredient	TWA (ppm)	TWA (mg/m³)	STEL (ppm)	Notes
Acetylene	—	—	—	Simple Asphyxiant
Acetone	500	1190	1000	

Engineering controls

Use only with adequate general or local exhaust ventilation. Use explosion-proof electrical equipment in transfer areas. Maintain acetylene-in-air concentration well below the lower explosive limit (2.3 %).

Personal protective equipment (PPE)

Eye / Face	Safety glasses with side shields; welding helmet with appropriate shade.
Hands	Leather welding gloves.
Body	Flame-retardant overalls, leather apron, safety boots.
Respiratory	Not normally required with adequate ventilation. Use SCBA in oxygen-deficient or high-acetylene atmospheres.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Colourless gas (dissolved in acetone in cylinder).
Odour	Garlic-like odour (impurity-derived); pure acetylene is odourless.
pH	Not applicable.
Boiling Point	−84 °C (sublimes).
Melting Point	−81 °C
Flash Point	−18 °C (lower than ambient).
Flammability	Extremely flammable gas.
Lower Explosive Limit	2.3 % v/v in air
Upper Explosive Limit	100 % v/v (can decompose without oxidiser at elevated pressure).
Vapour Pressure	~ 44 bar at 20 °C (free acetylene); cylinder pressure regulated by acetone-saturation equilibrium.
Vapour Density	0.90 (air = 1) — slightly lighter than air.

Auto-Ignition Temperature	305 °C
Decomposition Temperature	Decomposes explosively above ~ 200 kPa without oxidiser.
Solubility in Water	Slightly soluble; soluble in acetone.
Volatiles	100 %

10. STABILITY AND REACTIVITY

Reactivity	Extremely reactive. Forms shock-sensitive metal-acetylide explosives with copper, silver and mercury. Reacts violently with strong oxidisers and halogens.
Chemical stability	Stable when dissolved in acetone in the porous-mass cylinder and used below 150 kPa downstream gauge.
Hazardous reactions	Can decompose explosively at elevated pressure or temperature without oxidiser. Polymerises exothermically with copper, mercury, silver catalysts.
Conditions to avoid	Pressures above 150 kPa (1.5 bar) gauge in free form; heat above 52 °C; mechanical shock to heated cylinders; contact with incompatible metals.
Incompatible materials	Copper, silver, mercury and their alloys (forms acetylides); oxygen and other strong oxidisers (combustion); halogens (violent reaction).
Hazardous decomposition products	Carbon, hydrogen, traces of carbon monoxide; potential flame-front propagation in residual material.

11. TOXICOLOGICAL INFORMATION

Acute toxicity — inhalation	Simple asphyxiant at high concentrations. Pure acetylene has narcotic effects above ~ 10 %; > 30 % causes rapid loss of consciousness.
Skin contact	Not irritating to skin.
Eye contact	Not irritating.
Sensitisation	Not classified.
Mutagenicity	Not classified.
Carcinogenicity	Not classified.
Reproductive toxicity	Not classified.
STOT	Asphyxiant / narcotic at high concentrations.
Aspiration	Not classified.

12. ECOLOGICAL INFORMATION

Ecotoxicity	Not classified as harmful to aquatic life.
Persistence and degradability	Rapidly dissipates in air; not persistent.
Bioaccumulative potential	Not expected to bioaccumulate.
Mobility in soil	Volatile — evaporates.
Other adverse effects	May contribute to ground-level ozone formation; not an ozone-depleting substance.

13. DISPOSAL CONSIDERATIONS

Waste disposal	Return cylinders to Puregas — they contain residual acetone solvent and porous mass and must be processed by an authorised gas reseller. Do NOT dispose of acetylene cylinders to general or scrap-metal waste.
Legislation	Disposal must comply with Commonwealth, State and local environmental-protection and waste-management legislation.

14. TRANSPORT INFORMATION

CLASSIFIED AS DANGEROUS GOODS BY THE CRITERIA OF THE ADG CODE.

	Land (ADG)	Sea (IMDG/IMO)	Air (IATA/ICAO)
UN Number	1001	1001	1001
Proper Shipping Name	ACETYLENE, DISSOLVED	ACETYLENE, DISSOLVED	ACETYLENE, DISSOLVED
Transport Hazard Class	2.1	2.1	2.1
Packing Group	Not allocated	Not allocated	FORBIDDEN — passenger aircraft; cargo only with approval
Hazchem / EmS	2WE	F-D, S-U	—

Pictogram: Class 2.1 — Flammable Gas (transport label)

Special precautions: cylinders must be transported upright with valve protection in place; allow upright settling for at least 30 minutes before use after transport; segregate from oxidisers; vehicle must carry approved fire-fighting equipment per ADG.

15. REGULATORY INFORMATION

Safe Work Australia	Classified hazardous according to Safe Work Australia criteria (Globally Harmonised System — GHS).
Poisons Schedule (SUSMP)	No poisons schedule number allocated.
Inventory listings	AICS (Australian Inventory of Chemical Substances): all components listed or exempt.
Other Australian legislation	AS 4332 (Storage and handling of gases in cylinders); WHS Regulations; ADG Code; State environmental-protection legislation.

16. OTHER INFORMATION

Critical safety information	Never use acetylene above 150 kPa gauge pressure. Always fit a flashback arrestor (AS 4839). Keep cylinders upright.
Application method	Acetylene regulator + flashback arrestor → flexible hose → torch handpiece + flashback arrestor → cutting/welding tip.
PPE guidance	PPE recommendations above are a guide only.
Health effects from exposure	Depends on frequency, duration, ventilation and engineering controls.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
ADG	Australian Dangerous Goods Code
AICS	Australian Inventory of Chemical Substances
AS 4332	Australian Standard — Storage and handling of gases in cylinders
CAS #	Chemical Abstracts Service registry number
EC No.	European Community Number
GHS	Globally Harmonised System of Classification and Labelling of Chemicals

IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
IMDG/IMO	International Maritime Dangerous Goods Code / International Maritime Organisation
SCBA	Self-Contained Breathing Apparatus
STEL	Short-Term Exposure Limit
STOT	Specific Target Organ Toxicity
SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
SWA	Safe Work Australia
TWA	Time-Weighted Average

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End of Safety Data Sheet. The information in this SDS is provided in good faith and is believed to be accurate at the date of issue. No warranty is given as to its completeness or accuracy. The user is responsible for satisfying themselves as to the suitability and completeness of this information for their own particular use.