

## Technical Data Sheet (TDS)

### 1. Product Overview

- Product Name: Acetylene
- English Name: Acetylene; Ethyne
- CAS Number: 74-86-2
- Formula: C<sub>2</sub>H<sub>2</sub>
- Molecular Weight: 26.04 g/mol
- Product Characteristics: Colorless gas with a faint garlic-like odor (when impure). Highly flammable and reactive alkyne. Dissolved in acetone for safe storage. Suitable for welding, cutting, and chemical synthesis.

### 2. Technical Specifications

Item	Specification
Physical State	Compressed gas (dissolved in acetone)
Purity (GC)	≥ 98.5%
Impurity (Ethylene)	≤ 0.5%
Impurity (Methane)	≤ 0.3%
Water Content	≤ 20 ppm
Oxygen Content	≤ 0.05%
Phosphine Content	≤ 0.01%
Boiling Point (1 atm)	-84.0°C
Melting Point	-80.8°C
Density (Gas, 20°C, 1 atm)	1.17 kg/m <sup>3</sup>
Flammability	Highly flammable
Explosive Limits (v/v)	2.5-82.0%
Flash Point	-17.7°C

### 3. Product Advantages

1. High Combustion Temperature: Ideal for welding and cutting metals.
2. Strong Reactivity: Versatile intermediate for organic synthesis (e.g., vinyl chloride).
3. Safe Storage: Dissolved in acetone to prevent decomposition at high pressure.
4. Reliable Quality: Strict control of toxic impurities (e.g., phosphine) meets safety standards.

### 4. Application Fields

- Industrial Welding/Cutting: Metal fabrication and repair.
- Chemical Synthesis: Precursor for vinyl chloride, acetaldehyde, and acrylic acid.
- Laboratory Research: Analytical reagent and reaction gas.
- Lighting: Acetylene lamps (specialized use).

### 5. Usage Methods

- Dosage: Adjust according to application (controlled by flow meter for welding; mass flow meter for synthesis).

- Application: Use with welding torches or closed reaction systems; ensure proper pressure regulation.
- Optimal Conditions: Operate in well-ventilated areas; avoid high pressure (> 1.5 MPa) and ignition sources.

## 6. Packaging & Storage

- Packaging Specifications: 40L steel cylinders (filled with porous material and acetone), 100L steel cylinders.
- Storage Conditions: Store in cool, dry, well-ventilated warehouses (temperature  $\leq 30^{\circ}\text{C}$ ). Keep cylinders upright, secured, and away from heat, sparks, and oxidizers.
- Shelf Life: 18 months (unopened, under specified storage conditions).
- Transportation: Classified as flammable gas; transport per hazardous goods regulations.

## 7. Safety & Protection

- Highly flammable and explosive: No smoking near storage/use areas; prohibit open flames.
- Wear appropriate PPE: Safety glasses, flame-resistant clothing, and gas leak detectors.
- Avoid cylinder impact; do not use damaged cylinders.
- In case of leakage, evacuate area, ventilate, and eliminate ignition sources.

## 8. Quality Assurance

- Manufactured under ISO 9001 quality management system.
- Each batch is accompanied by a COA for compliance verification.
- Provide technical support for welding equipment selection and safety operation.