

# Safety Data Sheet

According to the Hazardous Products Regulation

Trade name: Acetylene

Product Form: Substance

Print date: 11.1.2019

Revision date: 11.1.2022

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## SECTION 1: Product and company identification

### 1.1 Product identifier

<b>Product Form</b>	<b>Substance</b>
<b>Name</b>	<b>Acetylene</b>
<b>CAS No</b>	<b>74-86-2</b>
<b>Formula</b>	<b>C<sub>2</sub>H<sub>2</sub></b>
<b>Other means of identification</b>	<b>Acetylene, ethine, ethyne, narylene</b>
<b>Product group</b>	<b>Core Products</b>



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## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

#### GHS-CA Classification

Flam. Gas 1      H220

Dissolved Gas    H280

### 2.2. GHS Label elements, Including precautionary statements

#### GHS – CA Labeling

#### Hazard pictograms



GHS02



GHS04

Signal word: **Danger**

Hazard statement: **Extremely Flammable Gas**

**MAY REACT EXPLOSIVELY EVEN IN THE ABSENCE OF AIR AT ELEVATED PREASURE AND/OR TEMPRATURE.**

**CONTAINS GAS UNDER PREASURE: MAY EXPLODE IF HEATED MAY DISPLACE OXYGEN AND CAUSE RAPID SUFFOCATION.**

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### Precautionary statements

**Do not handle until all safety precautions have been read and understood. Keep away from heat, Hot surfaces, Sparks, Open flames and any other ignition sources. No smoking.**

**Use and store only outdoors or in a well-ventilated area. Leaking gas fire: Do not extinguish, unless leak can be stopped safely in case of leakage, Eliminate all ignition sources.**

**Dispose of contents/container in accordance with container supplier/owner instructions protect from sunlight when ambient temperature exceeds 52 C or (125 F) Use a back-flow preventative device in the piping. Close valve after each use and when empty fusible plugs in the top, bottom, or valve melt at 98 C to 107 C (208 F to 224 F). Do not discharge at pressure above 15 PSI (103KPA). Use only with equipment rated for cylinder pressure never put cylinders into unventilated areas of passenger's vehicles.**

### 2.3 Other hazards

Other hazards not contributing to the classification

For safety reasons, The Acetylene is dissolved in Acetone (CAS no. 67-64-1; Flam.Liq.2, Eye Irrit. STOT SE 3.) in the gas container. Vapour of the solvent is carried away as impurity when the Acetylene is extracted from the gas container. The concentration limits to change the classification of the Acetylene.

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## SECTION 3. Composition/information on ingredients

### 3.1 Substances

Name	CAS No.	%(Vol.)	Common Name (Synonyms)
Acetylene (Main constituent)	(CAS No) 74-86-2	100	Ethyne/Acetylene, Dissolved/Acetylene (liquefied)/Ethine

### 3.2 Mixtures

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**Not Applicable.**

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### Section 4: First Aid Measures

#### 4.1. Description of first aid measures

##### First aid measures inhalation

Remove victim to uncontaminated area wearing self contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.

##### First aid measures after skin contact

The liquid may cause frostbite. For exposure to liquid, immediately warm frostbite area with warm water not to exceed 105°F (41°C). Water temperature should be tolerable to normal skin. Maintain skin warming for at least 15 minutes or until normal coloring and sensation have returned to the affected area. In case of massive exposure, remove clothing while showering with warm water. Seek medical evaluation and treatment as soon as possible.

##### First aid measures after eye contact

Immediately flush eyes thoroughly with water for at least 15 minutes. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are flushed thoroughly. Contact an ophthalmologist immediately. Get immediate medical attention.

##### First aid measures after ingestion

Ingestion is not considered a potential route of exposure.

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

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No additional information available.

### 4.3 Immediate medical attention and special treatment needed, if necessary

Other medical advice or treatment

Obtain medical assistance.

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## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

See below. See CGA Pamphlet SB-4, Handling Acetylene Cylinders in Fire Situations, for further information.

#### Unsuitable extinguishing media

No additional information available

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

#### Hazardous combustion products

### 5.3 Specific hazards arising from the hazardous product

#### Fire hazard

If venting or leaking gas catches fire, do not extinguish flames. Flammable vapors may spread from leak, creating an explosive reignition hazard. Vapors can be ignited by pilot lights, other flames, smoking, sparks, heaters, electrical equipment, static discharge, or other ignition sources at locations distant from product handling point. Explosive atmospheres may linger. Before entering an area, especially a confined area, check the atmosphere with an appropriate device.

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### 5.4 Special protective equipment and precautions for fire fighters

#### Fire fighting instructions

Evacuate all personnel from the danger area. Use self-contained breathing apparatus (SCBA) and protective clothing. Immediately cool containers with water from maximum distance. Stop flow of gas if safe to do so, while continuing cooling water spray. Remove ignition sources if safe to do so. Remove containers from area of fire if safe to do so. On-site fire brigades must comply with their provincial and local fire code regulations.

#### Protection during fire fighting

Compressed gas: asphyxiant. Suffocation hazard by lack of oxygen

#### Special protective equipment for fire fighters

Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters.

#### Specific methods

Use fire control measures appropriate for the surrounding fire. Exposure to fire and heat radiation may cause gas containers to rupture. Cool endangered containers with water spray jet from a protected position. Prevent water used in emergency cases from entering sewers and drainage systems Stop flow of product if safe to do so Use water spray or fog to knock down fire fumes if possible Continue water spray from protected position until container stays cool.

Acetylene containers are provided with pressure relief devices designed to vent contents when exposed to elevated temperature.

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### SECTION 6: Accidental release measures

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

##### General measures

Wear self-contained breathing apparatus when entering area unless atmosphere is proven to be safe. Evacuate area. Ensure adequate ventilation. Stop leak if safe to do so

#### 6.2 Methods and material for containment and cleaning up

##### For containment

Prevent runoff from contaminating the surrounding environment.

#### 6.3 References to other sections

For further information refer to section 8: Exposure controls/personal protection

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### SECTION 7: Handling and storage

#### 7.1 Precautions for safe handling

: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use only non-sparking tools. Use only explosion-proof equipment. Wear leather safety gloves and safety shoes when handling cylinders. Protect cylinders from physical damage; do not drag, roll, slide or drop. While moving cylinder, always keep in place removable valve cover. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders. Never insert an object (e.g, wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Slowly open the valve. If the valve is hard to



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open, discontinue use and contact your supplier. Close the container valve after each use; keep closed even when empty. Never apply flame or localized heat directly to any part of the container. High temperatures may damage the container and could cause the pressure relief device to fail prematurely, venting the container contents. For other precautions in using this product, see section 16.

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

#### Storage conditions

Store only where temperature will not exceed 125°F (52°C). Post "No Smoking" or "Open Flames" signs in storage and use areas. There must be no sources of ignition. Separate packages and protect against potential fire and/or explosion damage following appropriate codes and requirements (e.g., NFPA 30, NFPA 55, NFPA 70, and/or NFPA 221 in the U.S.) or according to requirements determined by the Authority Having Jurisdiction (AHJ). Always secure containers upright to keep them from falling or being knocked over. Install valve protection cap, if provided, firmly in place by hand when the container is not in use. Store full and empty containers separately. Use a first-in, first-out inventory system to prevent storing full containers for long periods. For other precautions in using this product, see section 16 OTHER PRECAUTIONS FOR HANDLING, STORAGE, AND USE: When handling product under pressure, use piping and equipment adequately designed to withstand the pressures to be encountered. Never work on a pressurized system. Use a back flow preventive device in the piping. Gases can cause rapid suffocation because of oxygen deficiency; store and use with adequate ventilation. If a leak occurs, close the container valve and blow down the system in a safe and environmentally correct manner in compliance with all international, federal/national, state/provincial, and local laws; then repair the leak. Never place a container where it may become part of an electrical circuit.

#### Storage area

Acetylene trailers are designed and intended for outdoor use. Acetylene storage in excess of 2.500 cu ft (70.79 cubic meters) is prohibited in buildings and other occupancies.

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### **SECTION 8: Exposure controls/personal protection**

#### **8.1 Control parameters**

No additional information available.

#### **8.2 Appropriate engineering controls**

An explosion-proof local exhaust system or a mechanical system is acceptable if it can prevent oxygen deficiency and keep hazardous fumes and gases below all applicable exposure limits in the worker's breathing area. During welding, ensure that there is adequate ventilation to keep worker exposure below applicable limits for fumes, gases, and other by-products of welding. Do not breathe fumes or gases. Short-term overexposure to fumes may cause dizziness, nausea, and dryness or irritation of the nose, throat, and eyes, or may cause other similar discomfort.

#### **Individual protection measures/personal protective equipment**

##### **Personal protective equipment**

In case of splash hazard use safety glasses, Face shield and gloves.



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#### **Hand protection**

Wear work gloves when handling containers. Wear heavy rubber gloves where contact with product may occur.

#### **Eye protection**

Wear goggles and a face shield when transfilling or breaking transfer connections. Select in accordance with the current CSA standard Z94.3, "Industrial Eye and Face Protection", and any provincial regulations, local bylaws or guidelines.

#### **Skin and body protection**

As needed for welding, wear hand, head, and body protection to help prevent injury from radiation and sparks. (See ANSI Z49.1.) At a minimum, this includes welder's gloves and protective goggles, and may include arm protectors, aprons, hats, and shoulder protection as well as substantial clothing.

#### **Respiratory protection**

Respiratory protection: Use respirable fume respirator or air supplied respirator when working in confined space or where local exhaust or ventilation does not keep exposure below TLV. Select in accordance with provincial regulations, local bylaws or guidelines. Selection should be based on the current CSA standard Z94.4, "Selection, Care, and Use of Respirators." Respirators should also be approved by NIOSH and

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MSHA. For emergencies or instances with unknown exposure levels, use a self-contained breathing apparatus (SCBA).

### Thermal hazard protection

Wear cold insulating gloves when transfilling or breaking transfer connections.

### Enviromental exposure controls

Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.

### Other information

Other protection : Safety shoes for general handling at customer sites. Metatarsal shoes and cuffless trousers for cylinder handling at packaging and filling plants. Select in accordance with the current CSA standard Z195, "Protective Foot Wear", and any provincial regulations, local bylaws or guidelines. For working with flammable and oxidizing materials, consider the use of flame resistant anti-static safety clothing

## SECTION 9. Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Physical state	Gas
Appearance	Colourless gas
Molecular mass	26g/mol
Colour	Colourless
Odour	Garlic like (poor warning properties at low concentrations)
Odour threshold	No data available
PH	Not applicable
PH solution	No data available
Relative evaporation rate (butylacetate=1)	No data available

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<b>Relative evaporation rate (ether =1)</b>	<b>Not applicable</b>
<b>Melting point</b>	<b>-80.8 C</b>
<b>Freezing point</b>	<b>No data available</b>
<b>Boiling point</b>	<b>-84 C</b>
<b>Flash point</b>	<b>-17 C</b>
<b>Critical temperature</b>	<b>36 C</b>
<b>Auto ignition temperature</b>	<b>305 C</b>
<b>Decomposition temperature</b>	<b>635 C</b>
<b>Vapour pressure</b>	<b>4400 kPa</b>
<b>Vapour pressure at 50 C</b>	<b>No data available</b>
<b>Critical pressure</b>	<b>6138 kPa</b>
<b>Relative vapour density at 20 C</b>	<b>0.00117 (21.1)</b>
<b>Relative density</b>	<b>Not applicable</b>
<b>Relative density of saturated gas/air mixture</b>	<b>No data available</b>
<b>Density</b>	<b>0.0012 g/cm<sup>3</sup> (at 0 C)</b>
<b>Relative gas density</b>	<b>0.9</b>
<b>Solubility</b>	<b>Water 1185 mg/l</b>
<b>Log Pow</b>	<b>0.37</b>
<b>Log Kow</b>	<b>Not applicable</b>
<b>Viscosity, kinematic</b>	<b>Not applicable</b>
<b>Viscosity, dynamic</b>	<b>Not applicable</b>
<b>Viscosity, Kinematic (calculated value) (40 C)</b>	<b>No data available</b>

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<b>Explosive properties</b>	<b>Not applicable</b>
<b>Oxidizing properties</b>	<b>None</b>
<b>Flammability (solid gas)</b>	<b>2.5 – 100% vol.</b>

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## 9.2 Other information:

<b>Minimum ignition energy</b>	<b>=</b>
<b>Sublimation point</b>	<b>- -83.3 C</b>
<b>Gas Group</b>	<b>Dissolved Gas</b>

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No reactivity hazard other than the effects described in sub-sections below.

### 10.2 Chemical stability

Dissolved in a solvent supported in a porous mass. Stable under recommended handling and storage conditions (see section 7).

### 10.3 Possibility of hazardous reactions

May react explosively even in the absence of air. May decompose violently at high temperature and/or pressure or in the presence of a catalyst. Can form explosive mixture with air. May react violently with oxidants

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### 10.4 Conditions to avoid:

High temperature. High pressure. Keep away from heat/sparks/open flames/hot surfaces. – No smoking.

### 10.5 Incompatible materials:

Forms explosive acetylides with copper, silver and mercury. Do not use alloys containing more than 65% copper. Air, Oxidiser. Do not use alloys containing more than 43% silver.

### 10.6 Hazardous decomposition products:

Thermal decomposition or burning may produce carbon monoxide, carbon dioxide, and hydrogen. The welding and cutting process may form reaction products such as carbon monoxide and carbon dioxide. Other decomposition products of normal operation originate from the volatilization, reaction, or oxidation of the material being worked.

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### SECTION 11: Toxicological information

#### 11.1 Information on toxicological effects

Acute Toxicity (oral)	Not classified
Acute toxicity (dermal)	Not classified
Acute toxicity (inhalation)	Not classified
Skin corrosion/irritation	Not classified pH: Not applicable.
Serious eye damage/irritation	Not classified pH: Not applicable.
Respiratory or skin sensitization	Not classified
Germ cell mutagenicity	Not classified
Carcinogenicity	Not classified
Reproductive toxicity	Not classified
Specific target organ toxicity (single exposure)	Not classified
Specific target organ toxicity (repeated exposure)	Not classified
Aspiration hazard	Not classified
Hydrocarbon	Yes

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### SECTION 12: Ecological information

#### 12.1 Toxicity

Ecology no known ecological damage has been caused by this product.

#### 12.2 Persistence and degradability

Acetylene persistence and degradability will rapidly degrade by indirect photolysis in air. Will not undergo hydrolysis.



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### 12.3 Bioaccumulative potential

#### Acetylene

Log Pow	0.37
Log Pow	Not applicable
Bioaccumulative potential	Not expected to bioaccumulate due to low log Kow

### 12.4 Mobility in soil

#### Acetylene

Mobility in soil	No data available.
Log Pow	0.37
Log Kow	Not applicable.
Ecology - soil	Because of its high volatility, the product is unlikely to cause ground or water pollution.

### 12.5 Other adverse effects

Effects to the ozone layer

No known effects from this product.

Effects on global warming

No known effects from this product.

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### SECTION 13: Disposal considerations

#### 13.1 Disposal methods

##### Waste disposal recommendations

Dispose of contents in accordance with local, regional, national and international regulations. Contact supplier for any special requirements.

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### SECTION 14: Transport information

#### 14.1 Shipping Requirements

Must be in accordance with TDG.

#### 14.2 TDG

UN-No. (TDG)	UN1001
TDG Primary Hazard Classes	2.1 - Class 2.1 - Flammable Gas
Proper shipping name	ACETYLENE, DISSOLVED
Explosive Limit and Limited Quantity Index	0
Passenger Carrying Ship Index	75 kg
Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index	Forbidden

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#### **14.3 Air and sea transportation**

##### **IMDG**

UN-No. (IMDG)	1001
Proper Shipping Name (IMDG)	ACETYLENE, DISSOLVED
Class (IMDG)	2 - Gases
MFAG-No	116

##### **IATA**

UN-No. (IATA)	1001
Proper Shipping Name (IATA)	Acetylene, dissolved
Class (IATA)	2

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#### **SECTION 15: Regulatory information**

##### **15.1 National regulations for Acetylene**

Listed on the Canadian DSL (Domestic Substances List)

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### **15.2 International Regulations Acetylene**

**Listed on the AICS (Australian Inventory of Chemical Substances)**

**Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)**

**Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)**

**Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory**

**Listed on the Korean ECL (Existing Chemicals List)**

**Listed on NZIoC (New Zealand Inventory of Chemicals)**

**Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)**

**Listed on the United States TSCA (Toxic Substances Control Act) inventory**

**Listed on INSQ (Mexican national Inventory of Chemical Substances)**

**Listed on CICR (Turkish Inventory and Control of Chemicals)**

### **15.3 Other information**

#### **NFPA Health Hazard**

Exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials.

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### **NFPA Fire Hazard**

Will rapidly or completely vaporize at normal pressure and temperature or is readily dispersed in air and will burn readily.

### **NFPA Reactivity**

Normally unstable and readily undergo violent decomposition but do not detonate. Also: may react violently with water or may form potentially explosive mixtures with water.

### **HMIS III Rating**

2 Moderate Hazard - Temporary or minor injury may occur.

### **Flammability**

Severe Hazard - Flammable gases, or very volatile flammable liquids with flash points below 73 F, and boiling points below 100 F. Materials may ignite spontaneously with air. (Class IA).

### **Physical**

Moderate Hazard - Materials that are unstable and may undergo violent chemical changes at normal temperature and pressure with low risk for explosion. Materials may react violently with water or form peroxides upon exposure to air.