# Acetylene, dissolved

**SAFETY DATA SHEET**

Revision date: 01/07/25

## 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### 1.1. Product identifier

**Product Name** : Acetylene, dissolved

**Other Names** : Ethyne

**Chemical Formula** : $C_2 H_2$

**REACH Registration No.** : LX468359-90

**EC No.** : 200-816-9

**CAS No.** : 74-86-2

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

#### Relevant identified uses

Industrial and professional. Perform risk assessment prior to use.

Fuel gas for welding, cutting, heating, brazing and soldering applications.

### 1.3. Details of the supplier of the SDS

**Company Identification** : Irish Oxygen Co Ltd, Waterfall Road, Cork

**Email** : sds@irishoxygen.com

### 1.4. Emergency telephone number

**Emergency Telephone** : 021-4541821 (Mon-Fri 08:30-17:30)

## 2. HAZARDS IDENTIFICATION

### 2.1. Classification of the Substance or Mixture

#### (a) Classification according to Regulation (EC) No 1272/2008/EC [CLP/GHS]

Flam. Gas 1

H220: Extremely flammable gas

Z:\sds

Press. Gas (Dissolved gas)

H280: Contains gas under pressure; may explode if heated

H230: May react explosively even in the absence of air

#### (b) Classification according to Directive 67/548/EEC & 1999/45/EC

F+ Extremely flammable

R5 Heating may cause an explosion

R6 Explosive with or without contact with air

R12 Extremely flammable

### 2.2. Label Elements

#### Hazard pictograms

GHS02 GHS04

#### Signal word

DANGER

#### 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/sparks/open flame/hot surfaces - No smoking

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

P381: Eliminate all ignition sources if safe to do so

***Storage***

P403: Store in a well-ventilated place.

***Disposal***

EIGA0779: Dispose of cylinder via gas supplier only; cylinder contains a porous material which in some cases contains asbestos

### 2.3. Other Hazards

None.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Substance/Mixture:** Substance

### 3.1. Substances

| | | |
|---|---|---|
| **Substance Name** | : | Acetylene, dissolved |
| **CAS No.** | : | 74-86-2 |
| **EC No.** | : | 200-816-9 |
| **Index No.** | : | 601-015-00-0 |
| **REACH Registration No.** | : | LX468359-90 |

Contains no other components or impurities which will influence the classification of the product.

The acetylene is dissolved in acetone in the gas receptacle. Vapour of the solvent is carried away as impurity when the acetylene is extracted from the gas receptacle. The concentration of the solvent vapour in the gas is lower than the concentration limits to change the classification of the acetylene.

### 3.2. Mixtures

Not applicable.

## 4. FIRST AID MEASURES

### 4.1. Description of first aid measures

#### Following 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.

#### Following skin contact

Adverse effects not expected from this product.

#### Following eye contact

Adverse effects not expected from this product.

#### Following Ingestion

Ingestion is not considered a potential route of exposure.

### 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. Indication of any immediate medical attention and special treatment needed

Obtain medical assistance.

## 5. FIRE-FIGHTING MEASURES

### 5.1. Extinguishing media

#### Suitable extinguishing media

Water

Foam

Dry powder

#### Unsuitable extinguishing media

Carbon dioxide

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

#### Specific hazards

Exposure to fire may cause containers to rupture/explode.

#### Hazardous combustion products

Incomplete combustion may form carbon monoxide.

### 5.3. Advice for fire-fighters

#### Specific methods

Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous/explosive re-ignition may occur. Extinguish any other fire.

If possible, stop flow of product.

Continue water spray from protected position until container stays cool.

Coordinate fire measure to the surrounding fire. Cool endangered containers with water spray jet from a protected position. Do not empty contaminated fire water into drains.

#### Special protective equipment for fire-fighters

In confined space use self-contained breathing apparatus.

## 6. ACCIDENTAL RELEASE MEASURES

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

Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe.

Ensure adequate air ventilation.

Eliminate ignition sources.

Evacuate area.

Try to stop release.

Consider the risk of potentially explosive atmospheres.

### 6.2. Environmental precautions

Try to stop release.

### 6.3. Methods and material for containment and cleaning up

Ventilate area.

### 6.4. Reference to other sections

See also sections 8 and 13.

## 7. HANDLING AND STORAGE

### 7.1. Precautions for safe handling

#### Safe use of the product

Take precautionary measures against static discharge.

Keep away from ignition sources (including static discharges).

Consider the use of non-sparking tools.

Do not smoke while handling product.

Assess the risk of potentially explosive atmospheres and the need for explosion proof equipment.

Avoid contact with pure copper, mercury, silver and brass with greater than 65% copper.

Do not use alloys containing more than 43% silver.

Do not allow backfeed into the container.

Avoid suckback of water, acid or alkalis.

Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.

Purge air from system before introducing gas.

Ensure the complete gas system has been (or is regularly) checked for leaks before use.

Solvent may accumulate in piping systems. For maintenance use appropriate resistant gloves (for acetone), eye goggles.

Only experienced and properly instructed persons should handle gases under pressure.

The substance must be handled in accordance with good industrial hygiene and safety procedures.

#### Safe handling of the gas receptacle

Do not remove or deface labels provided by the supplier for the identification of the cylinder contents.

Never attempt to transfer gases from one cylinder/container to another.

Never use direct flame or electrical heating devices to raise the pressure of a container.

Open valve slowly.

Do not remove valve guard from cylinder.

If user experiences any difficulty operating cylinder valve discontinue use and contact supplier.

Close container valve after each use and when empty, even if still connected to equipment.

Never attempt to repair or modify container valves or safety relief devices.

Damaged valves should be reported immediately to the supplier.

Keep container valve outlets clean and free from contaminates particularly oil and water.

Protect cylinders from physical damage; do not drag, roll, slide or drop.

When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders.

Do not allow backfeed into the container.

Suck back of water into the container must be prevented.

Operating pressure in piping should be limited to 1.5 bar (gauge) or less due to more stringent national regulations (with maximum diameter DN25).

Consider the use of flash back arrestors.

Refer to supplier's container handling instructions.

For further information on safe use refer to EIGA Code of Practice: Acetylene (IGC Doc 123).

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

Keep container below 50°C in a well ventilated place.

Segregate from oxidant gases and other oxidants in store.

Store containers in location free from fire risk and away from sources of heat and ignition.

Keep away from combustible materials.

All electrical equipment in the storage areas should be compatible with the risk of potentially explosive atmosphere.

Stored containers should be periodically checked for general condition and leakage.

Containers should not be stored in conditions likely to encourage corrosion.

Containers should be stored in the vertical position and properly secured to prevent toppling.

Container valve guards or caps should be in place.

Observe all regulations and local requirements regarding storage of containers.

### 7.3. Specific end use(s)

None.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Exposure controls

The substance is not classified for human health hazards or for environmental effects, and is not PBT or vPvB so that no exposure assessment or risk characterisation is required. For tasks where the intervention of workers is required, the substance must be handled in accordance with good industrial hygiene and safety procedures.

#### Appropriate engineering controls

Gas detectors should be used when flammable gases/vapours may be released.

Consider the use of a work permit system, e.g. for maintenance activities.

Systems under pressure should be regularly checked for leakages.

Provide adequate general and local ventilation.

#### Personal protective equipment

A risk assessment should be conducted and documented in each work area to assess the risks related to the use of the product and to select the PPE that matches the relevant risk. The following recommendations should be considered:

Wear suitable hand, body and head protection. Wear goggles with suitable filter lenses when use is cutting/welding.

Wear safety gloves and safety shoes when handling cylinders.

Wear safety glasses with side shields.

Consider the use of flame resistant anti-static safety clothing.

**Environmental exposure controls**

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

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on basic physical and chemical properties

**Appearance**

| | | |
|---|---|---|
| • **Physical state at 20°C / 101.3kPa** | : | Gas |
| • **Colour:** | : | Colourless |
| **Odour** | : | Garlic like.<br>Poor warning properties at low concentrations. |
| **Odour threshold** | : | Odour threshold is subjective and inadequate to warn for overexposure. |
| **Molar mass** | : | 26 g/mol |
| **Melting point / freezing point** | : | -80.8°C |
| **Boiling point (sublimation point)** | : | -83.8°C (s) |
| **Flash point** | : | Not applicable for gases and gas mixtures. |
| **Evaporation rate** | : | Not applicable for gases and gas mixtures. |
| **Upper/lower flammability or explosive limits** | : | 2.3% - 82% (%vol. in air) |
| **Vapour pressure** | : | 44 bar (at 20°C) |
| **Relative density, gas (air=1)** | : | 0.9 |
| **Solubility in water** | : | 1185 mg/l |
| **Auto-ignition temperature** | : | 305°C |
| **Decomposition temperature** | : | 635°C |
| **Viscosity** | : | 95 mPa.s (at 0°C) |

### 9.2. Other information

The upper explosive limit for acetylene is effectively 100% due to its inherent instability.

## 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 storage and handling conditions (see section 7).

### 10.3. Possibility of hazardous reactions

May decompose violently at high temperature and/or pressure or in the presence of a catalyst.

Can form explosive mixtures with air.

May react violently with oxidants.

### 10.4. Conditions to avoid

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

High temperature

High pressure

### 10.5. Incompatible materials

Forms explosive acetylides with copper, silver and mercury.

Do not use alloys containing more than 65% copper.

Do not use alloys containing more than 43% silver.

Air, Oxidiser.

For additional information on compatibility refer to ISO 11114.

### 10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## 11. TOXICOLOGICAL INFORMATION

No known toxicological effects from this product.

## 12. ECOLOGICAL INFORMATION

No known ecological damage caused by this product.

## 13. DISPOSAL CONSIDERATIONS

### 13.1. Waste treatment methods

Do not discharge into any place where its accumulation could be dangerous.

Contact supplier if guidance is required.

May be vented to atmosphere in a well ventilated place.

May be vented to atmosphere.

Do not discharge into areas where there is a risk of forming an explosive mixture.

### 13.2. Additional information

Dispose of cylinder via gas supplier only; Cylinder contains a porous material which in some cases contains asbestos.

## 14. TRANSPORT INFORMATION

| | | |
|---|---|---|
| **UN Number** | : | 1001 |
| **Proper shipping name** | : | ACETYLENE, DISSOLVED |
| **Class** | : | 2 |
| **Classification code** | : | 4 F |
| **Hazard labels** | : | 2.1 (Flammable gases) |

| | | |
|---|---|---|
| **Packing instructions** | : | P200 |
| **Hazard identification number** | : | 239 |
| **Tunnel restriction code** | : | B/D |
| **IMDG Emergency schedule-fire** | : | F-D |
| **IMDG Emergency schedule-spillage** | : | S-U |
| **Environmental hazards** | : | None |
| **Special provisions** | : | None |

### Other transport information

Avoid transport on vehicles where the load space is not separated from the driver's compartment.

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.

Before transporting product containers:

- Ensure that containers are firmly secured.
- Ensure cylinder valve is closed and not leaking.
- Ensure valve outlet cap nut or plug (where provided) is correctly fitted.
- Ensure valve protection device (where provided) is correctly fitted.
- Ensure there is adequate ventilation.
- Ensure compliance with applicable regulations.

## 15. REGULATORY INFORMATION

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

| | | |
|---|---|---|
| **Seveso Directive 96/82/EC** | : | Listed |
| **National legislation** | : | Ensure all national/local regulations are observed. |

## 16. OTHER INFORMATION

### 16.1. Training advices

The hazard of asphyxiation is often overlooked and must be stressed during operator training.

Ensure operators understand the flammability hazard.

### 16.2. Disclaimer

Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.

Details given in this document are believed to be correct at the time of going to press.

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.

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