



SAFETY DATA SHEET

Revised edition no : 0
Date : 6 / 12 / 2016
Supersedes : 0 / 0 / 0

Acetylene (dissolved)

SDS_C2H2



2.1 : Flammable gases

Danger



SECTION 1. Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name : Acetylene (dissolved)
SDS Nr : SDS_C2H2
Chemical description : Acetylene (dissolved)
CAS No :74-86-2
EC No :200-816-9
Index No :601-015-00-0
Registration-No. : 01-2119457406-36-
Chemical formula : C2H2

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. Test gas/Calibration gas. Laboratory use. Chemical reaction / Synthesis. Use as a fuel.
Contact supplier for more information on uses.

1.3. Details of the supplier of the safety data sheet

Company identification : STEELMAN GASES PVT LTD
Rajkot Highway,Vill. Shekpar
Surendranagar
info@steelmangas.com
www.steelmangas.com

1.4. Emergency telephone number

Emergency telephone number : +91 9978952152

SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

Hazard Class and Category Code Regulation EC 1272/2008 (CLP)

- **Physical hazards** : Explosive with or without contact with air - (CLP : EUH006) Flammable gases Category 1 - Danger - (CLP : Flam. Gas 1) - H220 Gases under pressure - Dissolved gas - Warning - (CLP : Press. Gas) - H280

Classification EC 67/548 or EC 1999/45 : F+; R12, R5,R6

2.2. Label elements

Labelling Regulation EC 1272/2008 (CLP)

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SECTION 2. Hazards identification (continued)

• Hazard pictograms



- Hazard pictograms code : GHS02 - GHS04
- Signal word : Danger
- Hazard statements : H220 - Extremely flammable gas.
H280 - Contains gas under pressure; may explode if heated.
EUH006 - Explosive with or without contact with air.
- Supplemental hazard information : P210 - Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
- Precautionary statements : P377 - Leaking gas fire : Do not extinguish, unless leak can be stopped safely.
P381 - Eliminate all ignition sources if safe to do so.
- Prevention : P403 - Store in a well-ventilated place.
- Response
- Storage

2.3. Other hazards : None.

SECTION 3. Composition/information on ingredients

3.1. Substance / 3.2. Mixture

| Substance name | Contents | CAS No, EC No, Index No Registration no | Classification(DSD) | Classification(CLP) |
|--------------------------|----------|----------------------------------------------------------|---------------------|-----------------------------------------------------------------------|
| Acetylene (dissolved) | 100 % | 74-86-2, 200-816-9, 601-015-00-0 01-2119457406-36- | F+; R12,R-5,R-6 | Flam. Gas 1 (H220), Press. Gas Dissolved (H280), Expl. (EUH006) |

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

For safety reasons, the acetylene is dissolved in acetone (Flam. Liq. 2, Eye Irrit. 2, STOT SE 3) or dimethylformamide (Repr. 1B, Acute

Tox. 4, Eye Irrit. 2) in the gas receptacle. Vapour of the solvent is carried away as impurity when the acetylene is ex

The cylinder contains a porous material which in some cases contains asbestos fibres. The asbestos fibres are encapsulated in the solid

porous material and are not released under normal conditions of use. See section 13 for the disposal of those cylinders

* 1: Listed in Annex IV / V REACH, exempted from registration.

* 2: Registration deadline not expired.

* 3: Registration not required: Substance manufactured or imported < 1t/y.

Full text of R-phrases see section 16. Full text of H-statements see section 16.

SECTION 4. First aid measures

4.1. Description of 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.
- Skin contact : Adverse effects not expected from this product.
- Eye contact : Adverse effects not expected from this product.
- 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

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SECTION 4. First aid measures (continued)

: Obtain medical assistance.

SECTION 5. Firefighting measures

5.1. Extinguishing media

- Suitable extinguishing media : Water spray or fog. Dry powder.
- Unsuitable extinguishing media : Do not use water jet to extinguish. 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 : Use fire control measures appropriate for the surrounding fire. Exposure to fire and heat radiation may cause gas receptacles to rupture. Cool endangered receptacles with water spray jet from a protected position. Prevent water used in emergency cases from If possible, stop flow of product. Continue water spray from protected position until container stays cool. Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous/explosive re-ignition may occur. Extinguish any other fire. Use water spray or fog to knock down fire fumes if possible.
- Special protective equipment for fire fighters : In confined space use self-contained breathing apparatus. Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask. Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters. Standard EN 469 - Protective clothing for firefighters. Standard - EN 659: Protective gloves for firefighters.

SECTION 6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

: Try to stop release. Consider the risk of potentially explosive atmospheres. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. Evacuate area. Ensure adequate air ventilation. Eliminate ignition sources.

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.

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SECTION 7. Handling and storage

7.1. Precautions for safe handling

Safe use of the product

: 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. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt. Avoid contact with pure copper, mercury, silver and brass with greater than 65% copper. Do not use alloys containing more than 43% silver. Take precautionary measures against static discharge. Purge air from system before introducing gas. Keep away from ignition sources (including static discharges). Do not smoke while handling product. Assess the risk of potentially explosive atmospheres and the need for explosion-proof equipment. Consider the use of only non-sparking tools. Ensure the complete gas system was (or is regularly) checked for leaks before use. Solvent may accumulate in piping systems. For maintenance use appropriate resistant gloves (specify for DMF or acetone), goggles. Avoid suck back of water, acid and alkalis. 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. For further information on safe use refer to EIGA code of practice acetylene (IGC Doc 123/ 04). Consider pressure relief device(s) in gas installations. Do not use alloys containing more than 43% silver.

Safe handling of the gas receptacle

: Refer to supplier's container handling instructions. Do not allow back feed into the container. 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. Leave valve protection caps in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use. If user experiences any difficulty operating cylinder valve discontinue use and contact supplier. 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 contaminants particularly oil and water. Replace valve outlet caps or plugs and container caps where supplied as soon as container is disconnected from equipment. Close container valve after each use and when empty, even if still connected to equipment. 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. Do not remove or deface labels provided by the supplier for the identification of the cylinder contents.

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. Containers should be stored in the vertical position and properly secured to prevent toppling. Stored containers should be periodically checked for general condition and leakage. Container valve guards or caps should be in place. Store containers in location free from fire risk and away from sources of heat and ignition. All electrical equipment in the storage areas should be compatible with the risk of a potentially explosive atmosphere. Observe all regulations and local requirements regarding storage of containers. Containers should not be stored in conditions likely to encourage corrosion. Keep away from combustible materials.

7.3. Specific end use(s)

: None.

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SECTION 8. Exposure controls/personal protection

8.1. Control parameters

Occupational Exposure Limits
Acetylene (dissolved)

: VME-CH [mg/m³] : 1080
: TWA BG 8h [mg/m³] : 20

DNEL: Derived no effect level (Workers)
Acetylene (dissolved)

: Inhalation-short term (systemic) [mg/m³] : 2675
: Inhalation-short term (systemic) [ppm] : 2500
: Inhalation-long term (systemic) [mg/m³] : 2675
: Inhalation-long term (systemic) [ppm] : 2500
: No data available.

PNEC: Predicted no effect concentration

8.2. Exposure controls

8.2.1. Appropriate engineering controls

: Gas detectors should be used when flammable gases/vapours may be released. Consider work permit system e.g. for maintenance activities. Systems under pressure should be regularly checked for leakages. Provide adequate general and local exhaust ventilation. The substance is not classified for human health hazards or for environment effects and it is not PBT or vPvB so that no exposure assessment or risk characterization is required. For tasks where the intervention of workers is required, the substance must

8.2.2. Individual protection measures
e.g. 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: PPE compliant to the recommended EN/ISO standards should be selected. Wear goggles with suitable filter lenses when use is cutting / welding.
: Wear safety glasses with side shields.

- Eye/face protection
- Skin protection
- Hand protection

: Wear working gloves when handling gas containers. Standard EN 388 - Protective gloves against mechanical risk.
: Consider the use of flame resistant anti-static safety clothing. Standard EN ISO 14116 - Limited flame spread materials. Standard EN ISO 1149-5 - Protective clothing: Electrostatic properties. Wear safety shoes while handling containers. Standard EN ISO 20345 - Personal protective equipment - Safety footwear.
: None necessary.
: None necessary.

- Other

- Respiratory protection
- Thermal hazards

8.2.3. Environmental exposure controls

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

SECTION 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. Poor warning properties at low concentrations.

Odour threshold

: Odour threshold is subjective and inadequate to warn for overexposure.

pH value

: Not applicable.

Molar mass [g/mol]

: 26

Melting point / Freezing point

: 11.1

Melting point [°C]

: -80.8

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SECTION 9. Physical and chemical properties (continued)

| | |
|-------------------------------------------------|----------------------------------------------|
| Boiling point [°C] | : -84 (s) |
| Critical temperature [°C] | : 35 |
| Flash point [°C] | : Not applicable for gases and gas-mixtures. |
| Evaporation rate (ether=1) | : Not applicable for gases and gas-mixtures. |
| Flammability range [vol% in air] | : 2.3 - 100 |
| Vapour pressure [20°C] | : 44 bar |
| Relative density, gas (air=1) | : 0.9 |
| Relative density, liquid (water=1) | : Not applicable. |
| Solubility in water [mg/l] | : 1185 |
| Partition coefficient n-octanol/water [log Kow] | : 0.37 |
| Auto-ignition temperature [°C] | : 305 |
| Decomposition point [°C] | : 635 |
| Viscosity at 20°C [mPa.s] | : 0.011 Not applicable. |
| Explosive Properties | : Not applicable. |
| Oxidising Properties | : None. |

9.2. Other information

Other information : None.

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 violently with oxidants. Can form explosive mixture with air. May decompose violently at high temperature and/or pressure or in the presence of a catalyst. May react explosively even in the absence of air. |
| 10.4. Conditions to avoid | : Keep away from heat/sparks/open flames/hot surfaces. – No smoking. High temperature. High pressure. |
| 10.5. Incompatible materials | : Air, Oxidizer. 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. 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. |

SECTION 11. Toxicological information

11.1. Information on toxicological effects

| | |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Acute toxicity | : Acetylene has low inhalation toxicity; the LOAEC for mild intoxication in humans with no residual effects is 100.000ppm (107,000 mg/m ³). There are no data on oral and dermal toxicity (studies are not technically feasible as the substance is a gas at room temperature. Classification criteria are not met. |
| Skin corrosion/irritation | : No known effects from this product. |
| Serious eye damage/irritation | : No known effects from this product. |
| Respiratory or skin sensitisation | : No known effects from this product. |
| Carcinogenicity | : No known effects from this product. |
| Germ cell mutagenicity | : No known effects from this product. |
| Reproductive toxicity | : No known effects from this product. |
| STOT-single exposure | : No known effects from this product. |
| STOT-repeated exposure | : No known effects from this product. |
| Aspiration hazard | : Not applicable for gases and gas-mixtures. |

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SECTION 12. Ecological information

- 12.1. Toxicity**
EC50 48h - Daphnia magna [mg/l] : 242
EC50 72h Algae [mg/l] : 57
LC50-96 h - fish [mg/l] : 545
- 12.2. Persistence and degradability** : Will rapidly degrade by indirect photolysis in air. Will not undergo hydrolysis.
- 12.3. Bio accumulative potential** : Not expected to bio accumulate due to the low log Know (log Know < 4). Refer to section 9.
- 12.4. Mobility in soil** : Because of its high volatility, the product is unlikely to cause ground or water pollution.
- 12.5. Results of PBT and vPvB assessment** : Not classified as PBT or vPvB.
- 12.6. Other adverse effects**
- Effect on ozone layer : No known effects from this product.
Effect on the global warming : No known effects from this product.

SECTION 13. Disposal considerations

- 13.1. Waste treatment methods** : Avoid discharge to atmosphere. Do not discharge into areas where there is a risk of forming an explosive mixture with air. Waste gas should be flared through a suitable burner with flash back arrestor. Refer to the EIGA code of practice Doc.30 "Disposal of Gases", downloadable at <http://www.eiga.org> for more guidance on suitable disposal methods. Ensure that the emission levels from local regulations or operating permits are not exceeded.
- List of hazardous wastes : 16 05 04: Gases in pressure containers (including halons) containing dangerous substances.
- 13.2. Additional information** : Dispose of cylinder via gas supplier only; Cylinder contains a porous material which in some cases contains asbestos fibres and is saturated with a solvent (acetone or dimethylformamide).

SECTION 13. Disposal considerations (continued)

SECTION 14. Transport information

UN number : 1001
Labelling ADR, IMDG, IATA : 2.1 : Flammable gases



Land transport (ADR/RID)
H.I. nr : 239
UN proper shipping name : ACETYLENE, DISSOLVED
Transport hazard class(es) : 2
Classification code : 4 F
Packing Instruction(s) : P200
Tunnel Restriction : B/D Tank carriage: Passage forbidden through tunnels of category B, C, D and Another
Carriage: Passage forbidden through tunnels of category D and E
:None.

Environmental hazards
Sea transport (IMDG)
Proper shipping name : ACETYLENE, DISSOLVED
Class : 2.1
Emergency Schedule (EmS) - Fire : F-D
Emergency Schedule (EmS) - Spillage : S-U
IMDG-Marine pollutant : No

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Air transport (ICAO-TI / IATA-DGR)

Proper shipping name (IATA) : ACETYLENE, DISSOLVED
Class : 2.1
Passenger and Cargo Aircraft : DO NOT LOAD IN PASSENGER AIRCRAFT.
Cargo Aircraft only : Allowed.
Packing instruction - Cargo Aircraft : 200
Only

Special precautions for user

: 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.
: Not applicable.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

SECTION 15. Regulatory information

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

EU legislation

Restrictions on use : None.
Seveso directive 96/82/EC : Listed.

National legislation

National legislation : Ensure all national/local regulations are observed.

15.2. Chemical safety assessment

: CSA has been carried out. Refer to section 8.2.

SECTION 16. Other information

Indication of changes : Revised safety data sheet in accordance with commission regulation (EU) No 453/2010.

Training advice : Ensure operators understand the flammability hazard. The hazard of asphyxiation is often overlooked and must be stressed during operator training.

List of full text of R-phrases in section 3. : R5: Heating may cause an explosion.
R6: Explosive with or without contact with air.

List of full text of H-statements in section 3. : R12: Extremely flammable.
: EUH006 - Explosive with or without contact with air.
H220 - Extremely flammable gas.

Further information : H280 - Contains gas under pressure; may explode if heated.
: This Safety Data Sheet has been established in accordance with the applicable European Union legislation.

DISCLAIMER OF LIABILITY : 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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