



INTERNATIONAL INDUSTRIAL GASES LTD

Safety Data Sheet

Dissolved Compressed gases

Material Safety Data Sheet

Acetylene (Dissolved)

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1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Acetylene (Dissolved)

Manufacturer's Registered Office: 146 Andul Road, Howrah - 711103, India

Manufacturer's Website: www.iigas.com

Telephone Number: (+91 033) 2668 4725

2. HAZARDS IDENTIFICATION

Classification of the substance or mixture:

Physical hazards	Flammable gases, Category 1	H220
	Chemically unstable gases, Category A	H230
	Gases under pressure: Dissolved gas	H280

Note: Classification according to Regulation (EC) No. 1272/2008 [CLP]

Label elements:

Hazard pictograms (CLP)	  GHS02GHS04
Single word (CLP)	Danger
Hazard statement (CLP)	H220- Extremely flammable gas H280 - Contains gas under pressure; may explode if heated H230 - May react explosively even in the absence of air.
Precautionary statements (CLP) - Prevention - Response - Storage	- P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking - P377 - Leaking gas fire: Do not extinguish, unless leak can be stopped safely - P381 - Eliminate all ignition sources if safe to do so - P403 - Store in a well-ventilated place

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	Volume %	Chemical Formula
Acetylene (Dissolved)	74-86-2	100	C ₂ H ₂

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](#)

Dimethylformamide is on the Candidate List of Substances of Very High Concern (SVHC) that might be subject to authorization for future placing on the market and uses.

For safety reasons, the acetylene is dissolved in acetone (Flam. Liq. 2, Eye Irrit. 2, STOT SE 3) or dimethylformamide (Flam.Liq.3, 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 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 contains no other components or impurities which will influence the classification of the product.

4. 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.

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 [Refer to section 11](#)

Indication of any immediate medical attention and special treatment needed:

Obtain medical assistance

5. FIRE-FIGHTING MEASURES

Extinguishing media:

Suitable extinguishing media	Water spray or fog, Dry powder
Unsuitable extinguishing media	Carbon dioxide, Do not use water jet to extinguish

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

Advice for firefighters:

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 entering sewers and drainage systems. If possible, stop flow of product. Use water spray or fog to knock down fire fumes if possible. Move containers away from the fire area if this can be done without risk
Special protective equipment for fire fighters	Standard protective clothing and equipment (Self Contained Breathing Apparatus) for firefighters. Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask. Standard EN 469 - Protective clothing for firefighters. Standard - EN 659: Protective gloves for firefighters.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

Try to stop release. Evacuate area. Monitor concentration of released product. Wear self- contained breathing apparatus when entering area unless atmosphere is proved to be safe.

Ensure adequate air ventilation. Prevent from entering sewers, basements and work pits, or any place where its accumulation can be dangerous. Act in accordance with local emergency plan. Stay upwind.

Environmental precautions:

Try to stop release.

Methods and material for containment and cleaning up:

Ventilate area. See section 8 & 13.

7. HANDLING AND STORAGE

Safe use of the product:

The product must be handled in accordance with good industrial hygiene and safety procedures Only experienced and properly instructed persons should handle gases under pressure Consider pressure relief device(s) in gas installations Ensure the complete gas system was (or is regularly) checked for leaks before use Do not smoke while handling product Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt Avoid suck back of water, acid and alkalis Assess the risk of potentially explosive atmospheres and the need for explosion-proof equipment Purge air from system before introducing gas Take precautionary measures against static discharge Keep away from ignition sources (including static discharges)

Consider the use of only non-sparking tools Avoid contact with pure copper, mercury, silver and brass with greater than 65% copper Do not use alloys containing more than 43% silver 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 Solvent may accumulate in piping systems. For maintenance activities use appropriate resistant gloves, assess the necessity to use a respiratory filter device (specify gloves and filters for DMF or acetone use) and wear safety goggles. Avoid breathing the vapour of the solvent. Provide adequate ventilation For further information on safe use refer to EIGA code of practice acetylene (EIGA Doc 123) Do not breathe gas Avoid release of product into atmosphere.

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. Containers should be stored in the vertical position and properly secured to prevent them from falling over.

Conditions for safe storage, including any incompatibilities:

Observe all regulations and local requirements regarding storage of containers should not be stored in conditions likely to encourage corrosion Container valve guards or caps should be in place Containers should be stored in the vertical position and properly secured to prevent them from falling over Stored containers should be periodically checked for general condition and leakage Keep container below 50°C in a well-ventilated place Store containers in location free from fire risk and away from sources of heat and ignition Keep away from combustible materials Segregate from oxidant gases and other oxidants in store All electrical equipment in the storage areas should be compatible with the risk of a potentially explosive atmosphere.

“NO SMOKING” signs should be posted in storage and use areas. Containers of acetylene should be separated from flammable gas containers by a minimum distance of 20 ft.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Acetylene (dissolved) (74-86-2)	
DNEL: Derived no effect level (Workers)	
Acute - systemic effects, inhalation	2675 mg/m ³ 2500 ppm
Long-term - systemic effects, inhalation	2675 mg/m ³ 2500 ppm

Appropriate engineering controls:

Provide adequate general and local exhaust ventilation. Systems under pressure should be regularly checked for leakages. Ensure exposure is below occupational exposure limits (where available). Keep concentrations well below lower explosion limits Gas detectors should be used when flammable gases/vapours may be released 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 characterisation is required. For tasks here the intervention of workers is required, the substance must be handled in accordance with good industrial hygiene and safety procedures Consider the use of a work permit system e.g. for maintenance activities

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: Wear goggles with suitable filter lenses when use is cutting/welding PPE compliant to the recommended EN/ISO standards should be selected.

Eye/face protection	Wear safety glasses with side shields. Standard EN 166 - Personal eye-protection – specifications
Skin protection	Wear working gloves when handling gas containers. Standard EN 388 - Protective gloves against mechanical risk. Wear safety shoes while handling containers. Standard EN ISO 20345 - Personal protective equipment - Safety footwear.
Respiratory protection	Self-contained breathing apparatus (SCBA) or positive pressure airline with mask are to be used in oxygen-deficient atmospheres. Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.
Thermal hazards	None necessary.

Environmental exposure controls:

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Property	Value / Description
Physical state (at 20°C / 101.3 kPa)	Gas
Colour	Colourless
Odour	Garlic-like; poor warning properties at low concentrations
Odour threshold	Subjective and inadequate to warn of overexposure
pH value	Not applicable
Molar mass	26 g/mol
Melting point	-80.8 °C
Boiling point	-84 °C
Flash point	Not applicable for gases and gas mixtures
Critical temperature	35 °C
Evaporation rate (ether=1)	Not applicable for gases and gas mixtures
Flammability range	Not available
Vapour pressure (20°C)	44 bar(a)
Vapour pressure (50°C)	Not applicable
Relative density (gas, air=1)	0.9
Relative density (liquid, water=1)	Not applicable
Solubility in water	1185 mg/l
Partition coefficient (n-octanol/water)	0.37
Auto-ignition temperature	Not known
Decomposition point	635 °C
Viscosity (20°C)	Not applicable
Explosive properties	Not applicable
Oxidising properties	Not applicable

10. STABILITY AND REACTIVITY

Sub-section	Details / Description
Reactivity	No reactivity hazard other than the effects described in sub-sections below. Dissolved in a solvent supported in a porous mass.
Chemical stability	Stable under recommended handling and storage conditions (see Section 7).
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 mixtures with air. May react violently with oxidants.
Conditions to avoid	High temperature, high pressure. Keep away from heat, sparks, open flames, and hot surfaces. No smoking.
Incompatible materials	Forms explosive acetylides with copper, silver, and mercury. Do not use alloys containing more than 65% copper or more than 43% silver. Air and oxidisers are also incompatible. For additional compatibility information, refer to ISO 11114.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. TOXICOLOGICAL INFORMATION

Sub-section	Details / Description
Acute toxicity	Classification criteria are not met. Acetylene has low inhalation toxicity. The LOAEC for mild intoxication in humans with no residual effects is 100,000 ppm (107,000 mg/m ³).
Skin corrosion/irritation	No known effects from this product.
Serious damage/irritation eye	No known effects from this product.
Respiratory or skin sensitisation	No known effects from this product.
Germ cell mutagenicity	No known effects from this product.
Carcinogenicity	No known effects from this product.
Toxic for reproduction (fertility)	No known effects from this product.

Toxic for reproduction (unborn child)	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.

12. ECOLOGICAL INFORMATION

Sub-section	Details / Description
Toxicity: (Assessment)	Classification criteria are not met.
EC50 48h – Daphnia magna	242 mg/l
EC50 72h – Algae	57 mg/l
LC50 96h – Fish	545 mg/l
Persistence and degradability	Will rapidly degrade by indirect photolysis in air. Will not undergo hydrolysis.
Bioaccumulative potential	Not expected to bioaccumulate ($\log K_{ow} < 4$). Refer to Section 9.
Mobility in soil	Highly volatile; unlikely to cause ground or water pollution.
Results of PBT and vPvB assessment	Not classified as PBT or vPvB.
Other adverse effects	No effect on ozone layer or global warming.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods:

Contact supplier if guidance is required, 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. Do not discharge into any place where its accumulation could be dangerous. Ensure that the emission levels from local regulations or operating permits are not exceeded 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.

14. TRANSPORT INFORMATION

Sub-section	Details / Description
UN number	1001
UN proper shipping name	ACETYLENE, DISSOLVED
Transport hazard class(es)	Class 2 – Flammable Gas
Classification code	4F
Hazard identification number	239
Labels	2.1 Flammable Gas
Tunnel restriction code	Passage forbidden through tunnels of categories B, C, D, and E (tank carriage)
Packing group	Not applicable
Environmental hazards	None
Special precautions for user	Ensure adequate ventilation; secure cylinders; close valves; fit protection devices; avoid leaks. Do not transport in unventilated vehicles.
Transport in bulk (MARPOL/IBC Code)	Not applicable

15. REGULATORY INFORMATION

Sub-section	Details / Description
Safety, health and environmental regulations/legislation specific for the substance or mixture	Seveso Directive 2012/18/EU (Seveso III) – Listed and Covered.
National regulations	Ensure compliance with all national and local regulations.
Water hazard class (WGK)	–
Kenn-Nr.	1182
Chemical safety assessment	A Chemical Safety Assessment (CSA) has been carried out; exposure assessment not required.

16. OTHER INFORMATION

Indication of changes:

Revised safety data sheet in accordance with commission regulation (EU) No 2015/830.

Training advice:

The hazard of asphyxiation is often overlooked and must be stressed during operator training. Ensure operators understand the flammability hazard. Receptacle under pressure.

Further information:

This Safety Data Sheet has been established in accordance with the applicable European Union legislation. Classification in accordance with the calculation methods of Regulation (EC) 1272/2008 CLP.

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

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