

SECTION 1: IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING**1.1. Product identifier****Product name** : Acetylene, dissolved**Trade name** : Acetylene**Additional identification**

Chemical name : acetylene (ethyne)

Chemical formula : C₂H₂

INDEX No. : 601-015-00-0

CAS-No. : 74-86-2

EC No. : 200-816-9

REACH Registration No. : 01-2119457406-36-0041
UK-01-3758468859-4-0001**1.2. Relevant identified uses of the substance or mixture and uses advised against****Identified uses:**

- Industrial and professional. Perform risk assessment prior to use.
- Fuel gas for welding, cutting, heating, brazing and soldering applications. Use as a fuel Use for electronic component manufacture. Using gas alone or in mixtures for the calibration of analysis equipment. Using gas as feedstock in chemical processes. Formulation of mixtures with gas in pressure receptacles. Metal coating by spray gun. Lubrication of moulds for the manufacture of glass bottles.
- Consumer use.
- Fuel gas for welding, cutting, heating, brazing and soldering applications.

Uses advised against

- Contact supplier for more information on uses.
- Uses other than those listed above are not supported.

1.3. Details of the supplier of the safety data sheet**Supplier** : Pro Gases UK
28 Forth Street, Bootle
Liverpool, L20 8JW**Telephone** : 0151 922 1118**E-mail** : info@progasesuk.com**1.4. Emergency telephone number: +44 (0) 127356 9048****SECTION 2: HAZARDS IDENTIFICATION****2.1. Classification of the substance or mixture**

Classification according to Regulation (EC) No 1272/2008 as amended.

Physical Hazards

Flammable gas	Category 1	H220: Extremely flammable gas.
Chemically unstable gases	Category A	H230: May react explosively even in the absence of air.
Gases under pressure	Dissolved gas	H280: Contains gas under pressure; may explode if heated.

2.2. Label Elements**Signal Word** : **Danger****Hazard Statement(s)**

- 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**General** : None**Prevention:**

- P202: Do not handle until all safety precautions have been read and understood.
- P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Response:

- P377: Leaking gas fire: Do not extinguish unless leak can be stopped safely.
- P381: In case of leakage, eliminate all ignition sources.

Storage:

- P403: Store in a well-ventilated place.

Disposal

- P501: Dispose of cylinder via gas supplier only; cylinder contains a porous material which in some cases contains asbestos.

2.3. Other hazards

For safety reasons, acetylene is dissolved in a solvent, either acetone (CAS No, 67-64-1) or N,N-dimethylformamide (DMF) (CAS No. 68-12-2). A small quantity of the solvent (as an impurity) may be carried over with the acetylene as it is used.

The concentration of the solvent in the gas is below the limit which could affect the classification of the acetylene.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Chemical name	: acetylene (ethyne)
INDEX No.	: 601-015-00-0
CAS-No.	: 74-86-2
EC No.	: 200-816-9
REACH Registration No.	: 01-2119457406-36-0041 UK-01-3758468859-4-0001

Purity

100%

The purity of the substance in this section is used for classification only and does not represent the actual purity of the substance as supplied, for which other documentation should be consulted.

Trade name: Acetylene

Chemical name	: acetylene (ethyne)
Chemical formula	: C ₂ H ₂
Concentration	: 100%
CAS-No.	: 74-86-2
REACH Registration No.	: 01-2119457406-36-0041 UK-01-3758468859-4-0001
M-Factor:	
Notes	

The concentrations of the components in the SDS header, product name on page one and in section 3.2 are in mol due to regulatory requirements. All concentrations are nominal.

This substance has workplace exposure limit(s).

PBT: persistent, bioaccumulative and toxic substance.

vPvB: very persistent and very bioaccumulative substance.

SECTION 4: FIRST AID MEASURES

General:

In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Remove victim to uncontaminated area wearing self-contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.

4.1. Description of first aid measures

Inhalation:

In high concentrations may cause asphyxiation. Symptoms may include loss of mobility/consciousness. Victim may not be aware of asphyxiation. Remove victim to uncontaminated area wearing self-contained breathing apparatus. Keep victim warm and rested. Call a doctor. Apply artificial respiration if breathing stopped.

Eye contact:

Adverse effects not expected from this product.

Skin 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

Respiratory arrest.

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

Hazards : None.

Treatment : None.

SECTION 5: FIREFIGHTING MEASURES

General Fire Hazards : Heat may cause the containers to explode.

5.1. Extinguishing media

Suitable extinguishing media : Water Spray or Fog
Dry powder. Foam.

Unsuitable extinguishing media : Carbon dioxide.

5.2. Special hazards arising from the substance or mixture

Substance or mixture:

Fire or excessive heat may produce hazardous decomposition products. When involved in a fire, acetylene can begin to decompose, breaking down into its constituent elements of hydrogen and carbon. The decomposition reaction is exothermic and produces heat. Acetylene cylinders are designed to contain and inhibit decomposition of acetylene, however, if left unchecked decomposition could lead to cylinder failure. Acetylene may continue to be a hazard after a external fire has been extinguished, due to the decomposition of the acetylene within the cylinder, and requires specific operational procedures.

Hazardous Combustion Products:

If involved in a fire the following toxic and/or corrosive fumes may be produced by thermal decomposition: carbon monoxide

5.3. Advice for firefighters

Special firefighting procedures:

In case of fire: Stop leak if safe to do so. Do not extinguish flames at leak because possibility of uncontrolled explosive re-ignition exists. Continue water spray from protected position until container stays cool. Use extinguishants to contain the fire. Isolate the source of the fire or let it burn out. Acetylene cylinders that have been heated, damaged by fire or subjected to a flash back must not be moved until it has been demonstrated that there is no decomposition of the acetylene within the cylinder. Acetylene cylinders should be cooled with a water spray and a hazard zone designated around them. Water cooling should be continued for at least one hour. After a minimum of one hour of water cooling the cylinder's temperature should be checked to see if it has been effectively cooled. Effectively cooled means bringing the cylinder shell temperature down to ambient temperature. The "Wetting test" and/or thermal imaging equipment should be used to

ascertain if the cylinder shell has been effectively cooled. When effective cooling of the cylinder shell has been achieved, water cooling should be stopped.

The cylinder should still not be moved for a further one hour, during this time temperature checks of the cylinder shell should be made every 15 minutes. If any increase in temperature is observed a further one-hour continuous water cooling should be applied to the cylinder before its temperature is re-checked. When the cylinder shell temperature remains at ambient temperature for one hour without being water cooled, and is not leaking, the cylinder may be moved.

Special protective equipment for firefighters:

Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Guideline: EN 469 Protective clothing for firefighters. Performance requirements for protective clothing for firefighting. EN 15090 Footwear for firefighters. EN 659 Protective gloves for firefighters. EN 443 Helmets for firefighting in buildings and other structures. EN 137 Respiratory protective devices - Self-contained open circuit compressed air breathing apparatus with full face mask - Requirements, testing, marking.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures:

Evacuate area. Provide adequate ventilation. Consider the risk of potentially explosive atmospheres. In case of leakage, eliminate all ignition sources. Monitor the concentration of the released product. Prevent from entering sewers, basements and workpits, or any place where its accumulation can be dangerous. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. EN 137 Respiratory protective devices - Self-contained open circuit compressed air breathing apparatus with full face mask - Requirements, testing, marking.

6.2. Environmental Precautions

Prevent further leakage or spillage if safe to do so.

6.3. Methods and material for containment and cleaning up:

Provide adequate ventilation. Eliminate sources of ignition.

6.4. Reference to other sections:

Refer to sections 8 and 13.

SECTION 7: HANDLING AND STORAGE**7.1. Precautions for safe handling**

Only experienced and properly instructed persons should handle gases under pressure. Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Purge system with dry inert gas (e.g., helium or nitrogen) before gas is introduced and when system is placed out of service. Purge air from system before introducing gas. Containers, which contain or have contained flammable or explosive substances, must not be inserted with liquid carbon dioxide. Assess the risk of a potentially explosive atmosphere and the need for suitable equipment i.e., explosion-proof. Take precautionary measures against static discharges. Keep away from ignition sources (including static discharges). Provide electrical earthing of equipment and electrical equipment usable in explosive atmospheres. Use non-sparking tools. Refer to supplier's handling instructions. The substance must be handled in accordance with good industrial hygiene and safety procedures. Ensure the complete system has been (or is regularly) checked for leaks before use. Protect containers from physical damage; do not drag, roll, slide or drop. Do not remove or deface labels provided by the supplier for the identification of the container contents. When moving containers, even for short distances, use appropriate equipment e.g., trolley, hand truck, fork truck etc. Secure cylinders in an upright position at all times, close all valves when not in use. Provide adequate ventilation. Suckback of water into the container must be prevented. Do not allow back feed into the container. Avoid suckback of water, acid and alkalis. Keep container below 50°C in a well-ventilated place. Observe all regulations and local requirements regarding storage of containers. When using do not eat, drink or smoke. Store in accordance with local/regional/national/international regulations. Never use direct flame or electrical heating devices to raise the pressure of a container.

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. Damaged valves

should be reported immediately to the 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. Replace valve outlet caps or plugs and container caps where supplied as soon as container is disconnected from equipment. Keep container valve outlets clean and free from contaminants particularly oil and water. If user experiences any difficulty operating container valve discontinue use and contact supplier. Never attempt to transfer gases from one container to another. Container valve guards or caps should be in place. Avoid suckback of water, acid and alkalis. Solvent may accumulate in piping systems. For maintenance use appropriately chemically resistant gloves and goggles. Only equipment fitted with suitable means of preventing a 'flash back' should be fitted to the cylinders. Mechanical shock alone to a cold acetylene cylinder cannot initiate decomposition. 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:

All electrical equipment in the storage areas should be compatible with the risk of a potentially explosive atmosphere. Segregate from oxidant gases and other oxidants being stored. Containers should not be stored in conditions likely to encourage corrosion. Stored containers should be periodically checked for general conditions 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. Keep away from combustible material. Acetylene cylinders should be stored vertically. If a cylinder has been transported horizontally, it should be stood upright for a minimum of 1 hour prior to use. This will allow the acetone to evenly re-distribute within the cylinder and prevent acetone being carried into the flame during use causing a 'flame thrower' effect.

7.3. Specific end use(s)

None.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**8.1. Control Parameters****Occupational Exposure Limits**

None of the components have assigned exposure limits.

DNEL-Values

Critical component	acetylene (ethyne)	
Type	Worker - inhalative, long-term - systemic	Worker-inhalative, short-term - systemic
Value	2500 ppm	2500 ppm
Remarks	-	-

8.2. Exposure controls**Appropriate engineering controls**

Consider a work permit system e.g., for maintenance activities. Ensure adequate air ventilation. Provide adequate general and local exhaust ventilation. Keep concentrations well below lower explosion limits. Gas detectors should be used when quantities of flammable gases or vapours may be released. Provide adequate ventilation, including appropriate local extraction, to ensure that the defined occupational exposure limit is not exceeded. Systems under pressure should be regularly checked for leakages. Product to be handled in a closed system. Use only permanent leak tight installations (e.g., welded pipes). Take precautionary measures against static discharges.

Individual protection measures, such as personal protective equipment**General information**

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.

Keep self-contained breathing apparatus readily available for emergency use. Personal protective equipment for the body should be selected based on the task being performed and the risks involved. Refer

to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment. Do not eat, drink or smoke when using the product.

Eye/face protection:

Safety eyewear, goggles or face-shield to EN166 should be used to avoid exposure to liquid splashes. Wear eye protection to EN 166 when using gases.

Guideline: EN 166 Personal Eye Protection.

Skin protectionHand Protection:

Guideline: EN 388 Protective gloves against mechanical risks.

Additional Information: Wear working gloves while handling containers

Body protection:

Wear fire resistant or flame retardant clothing.

Guideline: ISO/TR 2801:2007 Clothing for protection against heat and flame --

General recommendations for selection, care and use of protective clothing.

Other:

Wear safety shoes while handling containers

Guideline: ISO 20345 Personal protective equipment - Safety footwear.

Respiratory Protection

When allowed by a risk assessment Respiratory Protective Equipment (RPE) may be used. The selection of the Respiratory Protective Device (RPD) must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected RPD. Self-contained breathing apparatus (SCBA) or positive pressure airline with mask are to be used in oxygen-deficient atmospheres.

Guideline: EN 137 Respiratory protective devices - Self-contained open-circuit compressed air breathing apparatus with full face mask - Requirements, testing, marking.

Thermal hazards

No precautionary measures are necessary.

Hygiene measures

Specific risk management measures are not required beyond good industrial hygiene and safety procedures. Do not eat, drink or smoke when using the product.

Environmental exposure controls

For waste disposal, see section 13.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	
Physical state	: Gas
Form	: Dissolved gas
Colour	: Colourless
Odour	
	: Garlic-like odor
Odour Threshold	
	: Odour threshold is subjective and is inadequate to warn of over exposure.
pH	
	: Not applicable.
Melting Point	
	: -80.7 °C Experimental result, Key study
Boiling Point	
	: -84.7 °C (101.3 hPa) Experimental result, Key study
Sublimation Point	
	: Not applicable.
Critical Temp. (°C)	
	: 35.0 °C
Flash Point	
	: Not applicable to gases and gas mixtures.
Evaporation Rate	
	: Not applicable to gases and gas mixtures.
Flammability (solid, gas)	
	: Flammable gas
Flammability limit - upper (%)	
	: 99.99 %(V) Experimental result, Key study
Flammability limit – lower (%)	
	: 2.3 %(V)
Vapour pressure	
	: 4,535 kPa (22 °C) Experimental result, Key study
Vapour density (air=1)	
	: 0.91 AIR=1
Relative density	
	: 0.377 (25 °C)
Solubility(ies)	
Solubility in Water	: 1,200 mg/l (25 °C)
Partition coefficient (n-octanol/water)	
	: 0.37

Autoignition Temperature : 305 °C Experimental result, Key study

Decomposition Temperature : 635 °C

Viscosity

Kinematic viscosity : No data available.

Dynamic viscosity : 0.011 mPa.s

Explosive properties : Not applicable.

Oxidising Properties : Not applicable.

9.2. Other information

Molecular weight: 26.02 g/mol (C₂H₂)

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity:

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

10.2. Chemical Stability:

Stable under normal conditions.

10.3. Possibility of Hazardous Reactions:

Can form a potentially explosive atmosphere in air. May react violently with oxidants. Forms explosive acetylides with copper, silver and mercury. Do not use alloys containing more than 65% copper.

10.4. Conditions to Avoid:

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. High temperature High pressure May decompose violently at high temperature and/or pressure or in the presence of a catalyst.

10.5. Incompatible Materials:

Air and oxidisers. For material compatibility see latest version of ISO-11114. Avoid contact with pure copper, mercury, silver and brass with greater than 65% copper.

Do not use alloys containing more than 43% silver. For further information on safe use refer to EIGA "Code of Practice: Acetylene" IGC Doc 123.

10.6. Hazardous Decomposition Products:

Under normal conditions of storage and use, hazardous decomposition products should not be produced. If involved in a fire the following toxic and/or corrosive fumes may be produced by thermal decomposition: The following decomposition products may be produced: carbon monoxide

SECTION 11: TOXICOLOGICAL INFORMATION

General information : None.

11.1. Information on toxicological effects

Acute toxicity – Oral Product	Based on available data, the classification criteria are not met.
Acute toxicity – Dermal Product	Based on available data, the classification criteria are not met.
Acute toxicity – Inhalation Product	Based on available data, the classification criteria are not met.
Skin Corrosion/ Irritation Product	Based on available data, the classification criteria are not met.
Serious Eye Damage/ Eye Irritation Product	Based on available data, the classification criteria are not met.
Respiratory or Skin Sensitisation Product	Based on available data, the classification criteria are not met.
Germ Cell Mutagenicity Product	Based on available data, the classification criteria are not met.
Carcinogenicity Product	Based on available data, the classification criteria are not met.
Reproductive toxicity Product	Based on available data, the classification criteria are not met.
Specific Target Organ Toxicity - Single Exposure Product	Based on available data, the classification criteria are not met.
Specific Target Organ Toxicity - Repeated Exposure Product	Based on available data, the classification criteria are not met.
Aspiration Hazard Product	Not applicable to gases and gas mixtures.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Acute toxicity Product	No ecological damage caused by this product.
Acute toxicity - Fish acetylene (ethyne)	LC 50 (Various, 96 h): 545 mg/l Remarks: QSAR QSAR, Supporting study
Acute toxicity – Aquatic Invertebrates acetylene (ethyne)	Based on available data, the classification criteria are not met.
Toxicity to microorganisms acetylene (ethyne)	EC 50 (Alga, 72 h): 57 mg/l

12.2. Persistence and Degradability Product

Not applicable to gases and gas mixtures

Biodegradation acetylene (ethyne)	50 % (3 d) Detected in water. QSAR, Supporting study
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12.3. Bioaccumulative Potential Product

The subject product is expected to biodegrade and is not expected to persist for long periods in an aquatic environment.

Bioconcentration Factor (BCF) acetylene (ethyne)	Bioconcentration Factor (BCF): 3 Aquatic sediment QSAR, Supporting study
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12.4. Mobility in Soil Product

Because of its high volatility, the product is unlikely to cause ground or water pollution.

12.5. Results of PBT and vPvB assessment Product

Not classified as PBT or vPvB.

12.6. Other Adverse Effects

No ecological damage caused by this product.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

General information:

Last revised date: 01.02.2022

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

Consult supplier for specific recommendations. 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. Dispose of cylinder via gas supplier only; cylinder contains a porous material which in some cases contains asbestos.

Disposal methods:

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. Dispose of container via supplier only. Discharge, treatment, or disposal may be subject to national, state, or local laws.

European Waste Codes

Container: 16 05 04*: gases in pressure containers (including halons) containing dangerous substances

SECTION 14: TRANSPORT INFORMATION**ADR****14.1. UN Number**

UN 1001

14.2. UN Proper Shipping Name

ACETYLENE, DISSOLVED

14.3. Transport Hazard Class(es)

Class	: 2
Label(s)	: 2.1
Hazard No. (ADR)	: 239
Tunnel restriction code	: (B/D)
Emergency Action Code	: 2SE

14.4. Packing Group:

-

14.5. Environmental hazards

Not applicable

14.6. Special precautions for user:

-

RID**14.1. UN Number**

UN 1001

14.2. UN Proper Shipping Name

ACETYLENE, DISSOLVED

14.3. Transport Hazard Class(es)

Class	: 2
Label(s)	: 2.1

14.4. Packing Group:

-

14.5. Environmental hazards

Not applicable

14.6. Special precautions for user

-

IMDG**14.1. UN Number**

UN 1001

14.2. UN Proper Shipping Name

ACETYLENE, DISSOLVED

14.3. Transport Hazard Class(es)

Class	: 2.1
Label(s)	: 2.1
EmS No.	: F-D, S-U

14.4. Packing Group:

-

14.5. Environmental hazards

Not applicable

Last revised date: 01.02.2022

14.6. Special precautions for user

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IATA**14.1. UN Number**

UN 1001

14.2. UN Proper Shipping Name

Acetylene, dissolved

14.3. Transport Hazard Class(es)

Class	: 2.1
Label(s)	: 2.1

14.4. Packing Group:

–

14.5. Environmental hazards

Not applicable

14.6. Special precautions for user

–

Other information

Passenger and cargo aircraft	: Forbidden.
Cargo aircraft only	: Allowed.

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Not applicable

Additional identification

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 they are firmly secured. Ensure that the container valve is closed and not leaking. Container valve guards or caps should be in place. Ensure adequate air ventilation.

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

Regulation (EC) No. 1907/2006 Annex XVII Substances subject to restriction on marketing and use:

Chemical name	: acetylene (ethyne)
CAS-No.	: 74-86-2
Concentration	: 100%

EU. Directive 2012/18/EU (SEVESO III) on major accident hazards involving dangerous substances, as amended.

Chemical	: acetylene (ethyne)
CAS-No.	: 74-86-2
Lower-tier Requirements	: 5 t
Upper-tier Requirements	: 50 t

Directive 98/24/EC on the protection of workers from the risks related to chemical agents at work:

Chemical name	: acetylene (ethyne)
CAS-No.	: 74-86-2
Concentration	: 100%

National Regulations

Dangerous Substances and Explosive Atmospheres Regulations (DSEAR 2002 No. 2776). Management of Health and Safety at Work Regulations (1999 No. 3242). The Regulatory Reform (Fire Safety) Order 2005 (2005 No. 1541). Control of Substances Hazardous to Health Regulations (COSHH, 2002 No. 2677). Provision and Use of Work Equipment Regulations (PUWER, 1998 No. 2306). Personal Protective Equipment Regulations (1992 No. 2966). Control of Major Accident Hazards Regulations (COMAH, 2015 No. 483). Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations (EPS, 1996 No. 192). Pressure Systems Safety Regulations (PSSR, 2000 No. 128). Only products that comply with the food regulations (EC) No. 1333/2008 and (EU) No. 231/2012 and are labelled as such may be used as food additives.

Last revised date: 01.02.2022

This Safety Data Sheet has been produced to comply with Regulation (EU) 2015/830.

THE ACETYLENE SAFETY (ENGLAND AND WALES AND SCOTLAND) REGULATIONS 2014 No. 1639

15.2. Chemical safety assessment

CSA has been carried out.

SECTION 16: OTHER INFORMATION

Revision Information:

Not relevant.

Key literature references and sources for data:

Various sources of data have been used in the compilation of this SDS, they include but are not exclusive to:

Agency for Toxic Substances and Diseases Registry (ATSDR)

(<http://www.atsdr.cdc.gov/>).

European Chemical Agency: Guidance on the Compilation of Safety Data Sheets.

European Chemical Agency: Information on Registered Substances

<http://apps.echa.europa.eu/registered/registered-sub.aspx#search>

European Industrial Gases Association (EIGA) Doc. 169 "Classification and Labelling guide", as amended.

International Programme on Chemical Safety (<http://www.inchem.org/>)

ISO 10156:2010 Gases and gas mixtures - Determination of fire potential and oxidizing ability for the selection of cylinder valve outlets.

Matheson Gas Data Book, 7th Edition.

National Institute for Standards and Technology (NIST) Standard Reference Database Number 69.

The ESIS (European chemical Substances 5 Information System) platform of the former European Chemicals Bureau (ECB) ESIS (<http://ecb.jrc.ec.europa.eu/esis/>).

The European Chemical Industry Council (CEFIC) ERICards.

United States of America's National Library of Medicine's toxicology data network

TOXNET (<http://toxnet.nlm.nih.gov/index.html>)

Threshold Limit Values (TLV) from the American Conference of Governmental

Industrial Hygienists (ACGIH).

Substance specific information from suppliers.

Details given in this document are believed to be correct at the time of publication. EH40 (as amended) Workplace exposure limits.

Wording of the H-statements in sections 2 and 3

- H220 Extremely flammable gas
H230 May react explosively even in the absence of air.
H280 Contains gas under pressure; may explode if heated.

Training information:

Users of breathing apparatus must be trained. Ensure operators understand the flammability hazard.

Classification according to Regulation (EC) No 1272/2008 as amended.

Flam. Gas 1, H220

Chem. Unst. Gas A, H230

Press. Gas Diss. Gas, H280

Other information:

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

Ensure all national/local regulations are observed. Ensure equipment is adequately earthed. 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. Note: When the Product Name appears in the SDS header the decimal sign and its position comply with rules for the structure and drafting of international standards and is a comma on the line. As an example, 2,000 is two (to three decimal places) and not two thousand, whilst 1.000 is one thousand and not one (to three decimal places).

Last revised date:

Last revised date: 01.02.2022

01.02.2022

Disclaimer:

This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.