

Danger**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier**

Trade name : Acetylene (dissolved)
SDS no : RS-C2H2-001
Chemical description : Acetylene (dissolved)
CAS No : 74-86-2
EC No : 200-816-9
EC 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
Test gas/Calibration gas
Laboratory use
Chemical reaction / Synthesis
Use as a fuel
Fuel gas for welding, cutting, heating, brazing and soldering applications
Contact supplier for more information on uses

1.3. Details of the supplier of the safety data sheet

Company identification : Messer Tehnogas AD
Banjicki put 62
11090 Beograd Serbia
+38 111 353 7210

1.4. Emergency telephone number

Emergency telephone number : 112 (24h) Elme Messer L +371 67355445

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****Classification according to Regulation (EC) No. 1272/2008 [CLP]**

Physical hazards Flam. Gas 1 H220
Chem. Unst. Gas A H230
Press. Gas (Diss.) H280

Full text of H-statements see section 16.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS02

GHS04

Signal word (CLP) :

Danger

Hazard statements (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 : 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 - Eliminate all ignition sources if safe to do so
- Storage : P403 - Store in a well-ventilated place

2.3. Other hazards

: None

SECTION 3: Composition/information on ingredients

3.1. Substances

| Name | Product identifier | % | Classification according to Regulation (EC) No. 1272/2008 [CLP] |
|-----------------------|--|-----|--|
| Acetylene (dissolved) | (CAS No) 74-86-2 (EC No) 200-816-9 (EC Index No) 601-015-00-0 (Registration-No.) 01-2119457406-36 | 100 | Flam. Gas 1, H220 Chem. Unst. Gas A, H230 Press. Gas (Diss.), H280 |

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.

Full text of H-statements see section 16.

3.2. Mixtures : Not applicable

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

- : Obtain medical assistance

SECTION 5: Fire-fighting 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 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
Do not extinguish a leaking gas flame unless absolutely necessary. Spontaneous/explosive re-ignition may occur. Extinguish any other fire
Continue water spray from protected position until container stays cool
Move containers away from the fire area if this can be done without risk
- Special protective equipment for fire fighters : In confined space use self-contained breathing apparatus
Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters
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

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures**

- : Try to stop release
Evacuate area
Consider the risk of potentially explosive atmospheres
Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe
Eliminate ignition sources
Ensure adequate air ventilation
Act in accordance with local emergency plan
Stay upwind

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

SECTION 7: Handling and storage**7.1. Precautions for safe handling**

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 backfeed 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

- : Observe all regulations and local requirements regarding storage of containers
- 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.

7.3. Specific end use(s)

: None.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

| Acetylene (dissolved) (74-86-2) | | |
|--|--------------------------------------|------------------------|
| OEL : Occupational Exposure Limits | | |
| Bulgaria | TWA (BG) OEL 8h [mg/m ³] | 20 mg/m ³ |
| Switzerland | TWA (CH) OEL 8h [mg/m ³] | 1080 mg/m ³ |
| | TWA (CH) OEL 8h [ppm] | 1000 ppm |

| 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 | |

PNEC (Predicted No-Effect Concentration) : No data available.

8.2. Exposure controls

8.2.1. Appropriate engineering controls

- : Provide adequate general and local exhaust ventilation
- Systems under pressure should be regularly checked for leakages
- 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 where 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

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:
- 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

- Hand protection

- : Wear working gloves when handling gas containers
- Standard EN 388 - Protective gloves against mechanical risk

- Other : 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
- Respiratory protection : None necessary
- Thermal hazards : None necessary

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 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 [°C] : 35 °C

Evaporation rate (ether=1) : Not applicable for gases and gas mixtures.

Flammability range : 2.3 - 100 vol %

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 [log Kow] : 0.37

Auto-ignition temperature : 305 °C

Decomposition point [°C] : 635 °C

Viscosity [20°C] : Not applicable.

Explosive Properties : Not applicable

Oxidising Properties : None

9.2. Other information

Other data : 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 react explosively even in the absence of air
- May decompose violently at high temperature and/or pressure or in the presence of a catalyst

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
- Air, Oxidisers
- 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**

- : Classification criteria are not met
- Acetylene has low inhalation toxicity, the LOAEC for mild intoxication in humans with no residual effects is 100 000ppm (107,000 mg/m³)
- There are no data on oral and dermal toxicity (studies are not technically feasible as the substance is a gas at room temperature)

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

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

SECTION 12: Ecological information**12.1. Toxicity**

- Assessment : Classification criteria are not met.

12.2. Persistence and degradability

- Assessment : Will rapidly degrade by indirect photolysis in air. Will not undergo hydrolysis.

12.3. Bioaccumulative potential

Assessment : Not expected to bioaccumulate due to the low log Kow (log Kow < 4). Refer to section 9.

12.4. Mobility in soil

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

12.5. Results of PBT and vPvB assessment

Assessment : Not classified as PBT or vPvB

12.6. Other adverse effects

Effect on the ozone layer : No known effects from this product

Effect on 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
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

List of hazardous waste codes (from Commission Decision 2001/118/EC)

: 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 14: Transport information**14.1. UN number**

UN-No. : 1001

14.2. UN proper shipping name

Transport by road/rail (ADR/RID) : ACETYLENE, DISSOLVED

Transport by air (ICAO-TI / IATA-DGR) : ACETYLENE, DISSOLVED

Transport by sea (IMDG) : ACETYLENE, DISSOLVED

14.3. Transport hazard class(es)

Labelling :



2.1 : Flammable gases

Transport by road/rail (ADR/RID)

Class : 2

Classification code : 4F

Hazard identification number : 239

Tunnel Restriction : B/D - Tank carriage : Passage forbidden through tunnels of category B, C, D and E. Other carriage : Passage forbidden through tunnels of category D and E

Transport by air (ICAO-TI / IATA-DGR)

Class / Div. (Sub. risk(s)) : 2.1

Transport by sea (IMDG)

Class / Div. (Sub. risk(s)) : 2.1

Emergency Schedule (EmS) - Fire : F-D

Emergency Schedule (EmS) - Spillage : S-U

14.4. Packing group

Transport by road/rail (ADR/RID) : Not applicable

Transport by air (ICAO-TI / IATA-DGR) : Not applicable

Transport by sea (IMDG) : Not applicable

14.5. Environmental hazards

Transport by road/rail (ADR/RID) : None.

Transport by air (ICAO-TI / IATA-DGR) : None.

Transport by sea (IMDG) : None.

14.6. Special precautions for user**Packing Instruction(s)**

Transport by road/rail (ADR/RID) : P200

Transport by air (ICAO-TI / IATA-DGR)

Passenger and Cargo Aircraft : Forbidden

Cargo Aircraft only : 200

Transport by sea (IMDG) : P200

Special transport precautions : 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 there is adequate ventilation
- 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.

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

: Not applicable.

SECTION 15: Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****EU-Regulations**

Restrictions on use : None

Seveso Directive : 2012/18/EU (Seveso III) : Listed

National regulations

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

Water hazard class (WGK) : nwg - Non-hazardous to water
Kenn-Nr. : 1182

15.2. Chemical safety assessment

: Refer to section 8.2
A CSA has been carried out
An exposure assessment does not need to be carried out for this product

SECTION 16: Other information

Indication of changes : Revised safety data sheet in accordance with commission regulation (EU) No 2015/830.
Training advice : Ensure operators understand the flammability hazard. The hazard of asphyxiation is often overlooked and must be stressed during operator training.
Further information : This Safety Data Sheet has been established in accordance with the applicable European Union legislation.

Full text of H- and EUH-statements

| | |
|--------------------|--|
| Chem. Unst. Gas A | Chemically Unstable gases, Category A |
| Flam. Gas 1 | Flammable gases, Category 1 |
| Press. Gas (Diss.) | Gases under pressure : Dissolved gas |
| H220 | Extremely flammable gas |
| H230 | May react explosively even in the absence of air |
| H280 | Contains gas under pressure; may explode if heated |

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

End of document