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SDS reference: SDS-001-CLP

Safety Data Sheet
ALbee™ Flame Ace

2.1 : flammable gas.

DANGER

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

1.1. Product identifier

Trade name	:	ALbee™ Flame Ace.
SDS No.	:	SDS-001-CLP.
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	:	C_2H_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.
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 : Air Liquide UK Ltd.
Station Road, Coleshill, B46 1JY Birmingham United Kingdom.
01675 462424.
genenq.aluk@airliquide.com

1.4. Emergency telephone number

Emergency telephone number : 01675 462695.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

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

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 - In case of leakage, eliminate all ignition sources.
- Storage : P403 - Store in a well-ventilated place.
Store in a well-ventilated place.

2.3. Other hazards

: None.

SECTION 3: Composition/information on ingredients

3.1. Substance

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.

3.2. Mixture

: 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.

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: 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 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 reignition 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 : Do not breathe gas.
Avoid release of product into atmosphere.
The substance 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 regularily) 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).

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.

SECTION 7: Handling and storage (cont)

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)	
DNEL: Derived no effect level (Workers)	
Acute - systemic effects, inhalation	2675 mg/m³ 2500 ppm
Long-term - systemic effects, inhalation	2675 mg/m³ 2500 ppm

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 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.

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.

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	: Not applicable.
Melting point / Freezing point	: -80.8°C.
Boiling point	: -84°C.
Flash point	: Not applicable for gases and gas mixtures.
Evaporation rate	: Not applicable for gases and gas mixtures.
Flammability (solid, gas)	:
Explosive limits	: 2.3 - 100 vol %.
Vapour pressure [20°C]	: 44 bar(a).
Vapour pressure [50°C]	: Not applicable.
Relative density, liquid (water=1)	: Not applicable.
Relative density, gas (air=1)	: 0.9.
Water solubility	: 1185 mg/l.
Partition coefficient n-octanol/water (Log Kow)	: 0.37.
Auto-ignition temperature	: 305°C.
Decomposition temperature	: 635°C.
Viscosity	: Not applicable.
Explosive properties	: Not applicable.
Oxidising properties	: None.

9.2. Other information

Molar mass	: 26 g/mol.
Critical temperature [°C]	: 35°C.
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, Oxidiser.
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/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.
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.
EC50 48h - Daphnia magna [mg/l]	:	242 mg/l.
EC50 72h - Algae [mg/l]	:	57 mg/l.
LC50 96 h - Fish [mg/l]	:	545 mg/l.

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 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.
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 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.

SECTION 14: Transport information (cont)

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 96/82/EC	:	Listed.

National regulations

National legislation	:	Ensure all national/local regulations are observed.
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 453/2010.
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.
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.