SAFETY DATA SHEET

1-CHLOROBUTANE 99%

Compilation date: 23/10/2018

Revision No: 1

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

1.1. Product identifier

Product name: 1-CHLOROBUTANE 99%

CAS number: 109-69-3

EINECS number: 203-696-6

Product code: GPS1328

Synonyms: BUTYL CHLORIDE

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of substance / mixture: PC21: Laboratory chemicals.

1.3. Details of the supplier of the safety data sheet

Company name: Atom Scientific Ltd

2b East Tame Business Park

Hyde

Manchester

SK14 4GX

Tel: 0161 366 5123

Fax: 01704 337167

Email: technical@atomscientific.com

1.4. Emergency telephone number

Emergency tel: 07833453806

Section 2: Hazards identification

2.1. Classification of the substance or mixture

Classification under CLP: Flam. Liq. 2: H225; Asp. Tox. 1: H304; Aquatic Chronic 3: H412

Classification under CHIP: F: R11

Most important adverse effects: Highly flammable liquid and vapour. May be fatal if swallowed and enters airways.

Harmful to aquatic life with long lasting effects.

2.2. Label elements

Label elements under CLP:

Hazard statements: H225: Highly flammable liquid and vapour.

H304: May be fatal if swallowed and enters airways.

H412: Harmful to aquatic life with long lasting effects.

Signal words: Danger

Hazard pictograms: GHS02: Flame

GHS08: Health hazard

[cont...]

Precautionary statements: P210: Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P273: Avoid release to the environment.
P301+310: IF SWALLOWED: Immediately call a POISON CENTER or doctor.
P331: Do NOT induce vomiting.
P403: Store in a well-ventilated place.
P235: Keep cool.

2.3. Other hazards

Other hazards: This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

PBT: This product is not identified as a PBT/vPvB substance.

Section 3: Composition/information on ingredients

3.1. Substances

Chemical identity: 1-CHLOROBUTANE 99%

CAS number: 109-69-3

EINECS number: 203-696-6

Contains: Molecular Formula : C4H9Cl
Molecular Weight : 92.57 g/mol

Section 4: First aid measures

4.1. Description of first aid measures

Skin contact: Wash immediately with plenty of soap and water. Consult a doctor.

Eye contact: Bathe the eye with running water for 15 minutes.

Ingestion: Do not induce vomiting. Never give anything by mouth to an unconscious person. Wash out mouth with water. Consult a doctor.

Inhalation: Move to fresh air in case of accidental inhalation of vapours. If unconscious, check for breathing and apply artificial respiration if necessary. Consult a doctor.

4.2. Most important symptoms and effects, both acute and delayed

Skin contact: There may be mild irritation at the site of contact.

Eye contact: There may be irritation and redness.

Ingestion: May be fatal if swallowed and enters airways.

Inhalation: No data available.

Delayed / immediate effects: No data available.

[cont...]

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

Immediate / special treatment: No data available.

Section 5: Fire-fighting measures

5.1. Extinguishing media

Extinguishing media: Water spray. Alcohol resistant foam. Dry chemical powder. Carbon dioxide.

5.2. Special hazards arising from the substance or mixture

Exposure hazards: Not applicable.

5.3. Advice for fire-fighters

Advice for fire-fighters: Wear self-contained breathing apparatus.

Section 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions: Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Eliminate all sources of ignition. Evacuate the area immediately. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. Refer to section 8 of SDS for personal protection details.

6.2. Environmental precautions

Environmental precautions: Do not discharge into drains or rivers.

6.3. Methods and material for containment and cleaning up

Clean-up procedures: Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4. Reference to other sections

Reference to other sections: Refer to section 13 of SDS.

Section 7: Handling and storage

7.1. Precautions for safe handling

Handling requirements: Avoid contact with skin and eyes. Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking.Take measures to prevent the build up of electrostatic charge.

For precautions see section 2.2.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Store in cool, well ventilated area. Keep container tightly closed. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Suitable packaging: Not applicable.

[cont...]

7.3. Specific end use(s)

Specific end use(s): No special requirement.

Section 8: Exposure controls/personal protection

8.1. Control parameters

Workplace exposure limits: No data available.

8.1. DNEL/PNEC Values

DNEL / PNEC No data available.

8.2. Exposure controls

Engineering measures: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Respiratory protection: Self-contained breathing apparatus must be available in case of emergency.

Hand protection: Full contact

Material: Fluorinated rubber

Minimum layer thickness: 0.7 mm

Break through time: 480 min Splash contact

Material: Fluorinated rubber

Minimum layer thickness: 0.7 mm

Break through time: 480 min

Eye protection: Face-shield. Safety glasses.

Skin protection: Complete suit protecting against chemicals. Flame retardant antistatic protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Environmental: Do not let product enter drains. Prevent from entering in public sewers or the immediate environment.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

State: Liquid

Odour: Stinging

Solubility in water: Slightly soluble

Boiling point/range°C: 77 - 78

Melting point/range°C: -123

Flammability limits %: lower: 1.8

upper: 10.1

Flash point°C: -12 - closed cup

Part.coeff. n-octanol/water: log Pow: 2.66

Autoflammability°C: 245

Vapour pressure: 106.8 hPa

Relative density: 0.886 g/cm3

9.2. Other information

Other information: Not applicable.

[cont...]

Section 10: Stability and reactivity

10.1. Reactivity

Reactivity: No data available.

10.2. Chemical stability

Chemical stability: Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions: No data available.

10.4. Conditions to avoid

Conditions to avoid: Heat. Flames. Sources of ignition.

10.5. Incompatible materials

Materials to avoid: Strong oxidising agents. Strong bases.

10.6. Hazardous decomposition products

Haz. decomp. products: Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas

Section 11: Toxicological information

11.1. Information on toxicological effects

Toxicity values:

Route	Species	Test	Value	Units
ORAL	RAT	LD50	2,670	mg/kg
INHALATION	RAT	4H LC50	7.74	mg/l

Relevant hazards for substance:

Hazard	Route	Basis
Aspiration hazard	-	Based on test data

Symptoms / routes of exposure

Skin contact: There may be mild irritation at the site of contact.

Eye contact: There may be irritation and redness.

Ingestion: May be fatal if swallowed and enters airways.

Inhalation: No data available.

Delayed / immediate effects: No data available.

Section 12: Ecological information

12.1. Toxicity

[cont...]

Ecotoxicity values:

Species	Test	Value	Units
FISH	96H LC50	75.6	mg/l
DAPHNIA	48H EC50	3,020	mg/l

12.2. Persistence and degradability

Persistence and degradability: No data available.

12.3. Bioaccumulative potential

Bioaccumulative potential: No data available.

12.4. Mobility in soil

Mobility: No data available.

12.5. Results of PBT and vPvB assessment

PBT identification: This product is not identified as a PBT/vPvB substance.

12.6. Other adverse effects

Other adverse effects: Harmful to aquatic organisms.

Section 13: Disposal considerations

13.1. Waste treatment methods

Disposal operations: Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

Recovery operations: Not applicable.

Disposal of packaging: Dispose of as unused product.

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

Section 14: Transport information

14.1. UN number

UN number: UN1127

14.2. UN proper shipping name

Shipping name: ADR/RID: CHLOROBUTANES

IMDG: CHLOROBUTANES

IATA: Chlorobutanes

14.3 Transport hazard class(es)

14.3. Transport hazard class(es)

Transport class: 3

[cont...]

14.4. Packing group

Packing group: 2

14.5. Environmental hazards

Environmentally hazardous: No **Marine pollutant:** No

14.6. Special precautions for user

Special precautions: No special precautions.

Section 15: Regulatory information

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

Specific regulations: This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.2. Chemical Safety Assessment

Chemical safety assessment: A chemical safety assessment has not been carried out for the substance or the mixture by the supplier.

Section 16: Other information

Other information

Other information: This safety data sheet is prepared in accordance with Commission Regulation (EU) No 453/2010.

* indicates text in the SDS which has changed since the last revision.

Phrases used in s.2 and 3: H225: Highly flammable liquid and vapour.

H304: May be fatal if swallowed and enters airways.

H412: Harmful to aquatic life with long lasting effects.

R11: Highly flammable.

Legal disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. This company shall not be held liable for any damage resulting from handling or from contact with the above product.