Safety Data Sheet

Prepared in accordance with Appendix Ⅱ of the REACH Regulation EC 1907/2006, Regulation (EC) 1272/2008 (CLP) and Regulation (EC) 453/2010.

1. Identification of the substance/preparation and of the company/undertaking

1.1. Product identifier:

Product name: 1-Chlorobutane

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

A transported isolated intermediate used only in strictly controlled conditions. Restrictions on use: Do NOT use it in an application which may contaminate food or do harm to human health.

1.3. Details of the supplier of the safety data sheet:

Company: Dakings Chemical (Shandong) Co., Ltd
Address: Moscow Road, Qingdao Qianwan Bonded Port Area, Shandong Pilot Free Trade Zone, China
TEL: +8617685872921
Email: sales@dakingschem.com

1.4 Emergency telephone number: +8617685872921

2. Hazards identification

2.1. Classification of the substance or mixture:

Main hazards: Flammable liquids -2

2.2. Label elements

.Hazard Picograms:

.Signal Word: Danger

.Hazard Statements:

H225: Highly flammable liquid and vapour.

.Precautionary Statements:

P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P233: Keep container tightly closed.

P240: Ground and bond container and receiving equipment.

P241: Use explosion-proof [electrical/ventilating/lighting] equipment.

P242: Use non-sparking tools.

P243: Take action to prevent static discharges.

P280: Wear protective gloves/protective clothing/eye protection/face protection.

Response Precautionary Statements:

P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P370+P378: In case of fire: Use foam, dry powder, carbon dioxide, dry sand to extinguish.

Storage precautionary statements：
P403+P235: Store in a well-ventilated place. Keep cool.

Disposal precautionary statements：
P501: Dispose of contents/container according to relevant local and national regulations.

2.3 Other hazards: not found.

3. Composition/information on ingredients

Product description: substance (√); preparation/mixture ( )

Ingredients/Components	CAS No.	EC No.	EC No. 1272/2008 Classification		67/548/EC Classification	% by weight
			Hazard Class and Category Code (s)	Hazard statement Code (s)		
1-Chlorobutane	109-69-3	203-696-6	Flam. Liq. 2	H225	R: 11 S: (2-)9-16-29	≥99.5%

4. First aid measures

4.1. Description of first aid measures:

.In the event of splashes or contact with eyes: Remove contact lenses if present and easy to do, continue rinsing. If irritation persists, seek medical care.

.In the event of splashes or contact with skin: Wash with soap and water. If skin irritation or a rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse.

.In the event of exposure by inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

.In the event of swallowing: Rinse mouth. Do not induce vomiting without professional instruction. Get medical attention immediately if discomfort occurs.

4.2. Most important symptoms/effects, acute and delayed: Acute effect: not found. Delayed effect: not found.

4.3. Indication of any immediate medical attention and special treatment needed: Treat according to symptoms.

5. Fire-fighting measures

5.1. Extinguishing Media: Foam, dry powder, carbon dioxide, drysand, etc. This product is highly flammable, as for a fire caused by surrounding ignition sources, choose proper extinguishers according to fire types. Seek advice from local fire-fighting authority.

Unsuitable Extinguishing Media: Discharging cylinder shape water from firehose may lead to spread fire to the surroundings.

5.2. Special hazards arising from the substance or mixture: Highly flammable liquid and vapour. Vapour may form flammable and explosive mixture with air. Toxic and corrosive fumes (hydrogen chloride, phosgene, etc.), hydrochloric acid may be generated from combustion.

5.3. Advice for firefighters:

For initial fire, use foam, dry powder, carbon dioxide, dry sand, etc.
For large fire, it is effective to use fire foam, etc. to shut off air supply.
Fire-fighters must wear self-contained breathing apparatus and full protective equipment (e.g. fire-retardant clothing).
Deny unnecessary entry to the place around the fire.
Remove containers from fire area if it can be done without risk.
Cool surrounding facilities, etc. with water spray.
Extinguish fire from upwind, and the fire extinguishing method should be appropriate to the situation in the surroundings.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures: Use proper personal protective equipment as indicated in Section 8.

6.2. Environmental Precautions: Keep cleaning run-offs out of municipal sewers and open bodies of water. Comply with local and national laws and regulations.

6.3. Methods and materials for containment and cleaning up:

Small spills: absorb spill with appropriate absorbent materials (e.g. clay, vermiculite, or dry and), then collect into a suitable container using spark-proof tools.

Large spills: block the flow of spill with earth or sand, then collect into suitable empty containers using spark –proof tools or pumping. Do not flush away residues with water. Remove contaminated soil and dispose of safely. Containers should be clearly marked for recycling or disposed as waste.

6.4. Reference to other sections:

For more information, please refer to Section 8 and Section 13.

7. Handling and storage

7.1. Precautions for safe handing:

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Keep container tightly closed.
Ground and bond container and receiving equipment.
Use explosion-proof [electrical/ventilating/lighting] equipment.
Use non-sparking tools.
Take action to prevent static discharges.
Wear protective gloves/protective clothing/eye protection/face protection.

7.2. Conditions for safe storage, including any in compatibilities: Store it in a well-ventilated, cool and dry store room. Avoid long-time direct contact of sunlight. The storeroom should be equipped with proper facilities for accidental fire.

7.3. Specific end use(s): Preliminary/intermediate product for organic syntheses.

7.4. Packing material: ISO Tank.

8. Exposure controls/personal protection

8.1. Control parameters: No data available

Ingredients	COSHH Workplace exposure limits	OSHA PEL-TWA	ACGIH TLV-TWA
No ingredients have exposure limits	Not available	Not available	Not available

8.2. Exposure controls:

Handle the product only under conditions where sufficient ventilation is provided.

Install eye washer and safety shower near handling and storage area.

8.2.1. Individual protection measures:

.Protection of Hands:

Recommend wearing protective gloves for industrial hygienic purpose.

.Protection of Eyes:

Wear safety glasses when liquid may splash.

.Respiratory Protection:

Use an approved respirator if exposure limits are exceeded or if irritation or other symptoms occur.

.Protection of Body:

Recommend wearing general working clothing.

.General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Wash hands before breaks and at the end of work.

Avoid contact with eyes and broken skin.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

General Information	
Form	Liquid
Colour	Colorless
Odour	Stinging
Ph value	No data available
Boiling range	77°C -78°C
Melting point/Melting range	-123°C
Flash point	-12 °C (Closed up)
Flammable/Explosive Limits-Lower Vol %	1.8%

Flammable/Explosive Limits-Upper Vol %	10.1%
Relative density	0.886g/cm^3 at 25°C
Relative vapour density	No data available
Vapour pressure	110hPa
Solubility	0.5g/l at 20°C (water)
n-octanol/Water partition coefficient	No data available
Self-igniting temperature	280°C
Decomposition temperature	No data available
Odour threshold value	No data available
Evaporation rate	No data available
Flammability (solid, gas, etc.)	This product is classified as highly flammable liquid.
Viscosity	No data available

9.2. Other information: Not available.

10. Stability and reactivity

10.1. Reactivity: No information available.

10.2. Chemical stability: This product is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3. Possibility of hazardous reactions:

The substance decomposes during heating or burning, producing toxic and corrosive fumes (hydrogen chloride, phosgene, etc.).

It reacts slowly with water to produce hydrochloric acid.

Oxidant and reacts violently with metal powders, pose a risk of fire or explosion.

The vapor is heavier than air and may travel along the ground; distant ignition possible.

As a result of flow, agitation, etc., electrostatic charges can be generated.

10.4. Conditions to avoid: Heating and combustion, flow, stirring.

10.5. Incompatible materials: Water, oxidizing agents, metal powders, aluminum, many plastics.

10.6. Hazardous decomposition products: Toxic and corrosive fumes (hydrogen chloride, phosgene, etc.), hydrochloric acid.

11. Toxicological information

11.1. Information on toxicological effects: The toxicity data of this product has not been determined by testing or research, but to our best knowledge and reference, this product is not toxic. The toxicity data shown below is for reference only.

Ingredients	CAS number	LD 50/ LC 50 (Median lethal dose)
1-Chlorobutane	109-69-3	Acute toxicity (Oral) LD_{50}: 2,670 mg/kg (rat) Data source: SIDS (1997) Acute toxicity (Dermal) LD_{50}＞17,800mg/kg (rat) Data source: SIDS (1997) Acute toxicity (Inhalation, vapour) LClo: 8,000ppm/4h (rat) Data source: SIDS (1997)

.Serious eye damage/eye irritation: No classification for this product.

.Skin corrosion/irritation: No classification for this product.

.Respiratory /Skin sensitizer: No classification for this product.

.Germ cell mutagenicity: No classification for this product.

.Carcinogenicity: No classification for this product.

.Reproductive Toxicity: No classification for this product.

.STOT-single exposure: No classification for this product.

.STOT-repeated exposure: No classification for this product.

.Aspiration hazard: No classification for this product.

.Effects on or via lactation: No classification for this product.

12. Ecological information

12.1. Toxicity:

96h-LC_{50}: 120mg/L, fish (medaka) (SIDS, 2005)

24h-EC_{50}: 380 mg/L, crustaceans (daphnia magna) (SIDS, 2005)

72h-EbC50＞1,000 mg/L, algae (SIDS, 2005)

12.2. Persistence and Degradability: No data available for the whole product.

12.3. Bioaccumulative Potential: No information available.

12.4. Mobility in Soil: As it is liquid, it can move in soil.

12.5. Results of PBT and vPvB Assessment: No information available.

12.6. Other adverse effects: Not found.

13. Disposal considerations

13.1. Waste treatment methods:

Minimize the hazard of waste by the methods of neutralization and stabilization.

Any disposal practice must be in compliance with country, local, state, and federal laws and regulations.

After contents are completely removed, dispose of its container at hazardous or special waste collection point.

Paste a label on the container indicating the possible hazards of the waste.

14. Transport Information

ADR and RID / Air-Transportation- IATA/ICAO/Sea-Transportation-IMO/IMDG.:

.Proper Shipping Name: Chlorobutanes

.Hazard Class: 3

.UN Code: 1127

.Packing Group: II

.Assigned Pictogram:

.Marine Pollutant (Yes/No): No

.EMS NO.: F-E S-D

.Special precautions for user:
Check whether the package is completed or sealed before transporting; make sure no damage of packages and prevent goods from falling down during transporting; the transport vehicle should be equipped with facilities for fire-fighting and accidental release handling; do NOT transport this product together with incompatible substances; stay away from fire and areas of high temperature during stopovers.

.Transport in bulk according to Annex II of MARPOL 73/78 and IBC code: Not applicable

15. Regulatory information

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

.Candidate List of Substances of very high concern (SVHC) according to ECHA: Not listed.

.REACH Regulation Annex XVII Regulation List: Not listed.

.REACH Regulation Annex XIV Authorization List: Not listed.

.Germany – WGK: Not classified.

15.2. Chemical Safety Assessment: A Chemical Safety Assessment has not been carried out.

Other relevant regulations:

.Sara:

.Section 355 (extremely hazardous substances): Not listed.

.SARA 313: Not listed.

.Toxic Substances Control Act (TSCA): The ingredients with specific CAS numbers is listed in the TSCA inventory list.

.Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the ingredients are listed as Priority Pollutants under the CWA.

.Carcinogenicity categories: Not listed by EPA, NTP, ACGIH and IARC.

16. Other information

DISCLAIMER: Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

References:

EC No.1907/2006 (REACH)

EC No. 1272/2008 (CLP)

EC No. 453/2010

Full description of some acronyms:

CAS-Chemical Abstracts Service

EINECS-European Inventory of Existing Commercial Chemical Substances

IMO-International Maritime Organization

IMDG-International Maritime Dangerous Goods

IATA-International Air Transport Association

ICAO-International Civil Aviation Organization

TSCA-Toxic Substance Control Act

OSHA-Occupational Safety and Health Administration

ACGIH-American Conference of Governmental Industrial Hygienists

DFGOT-Occupational Toxicants Critical Data Evaluation for MAK Values and Classification of Carcinogens Vol. 1-20.
RTECS- Registry of Toxic Effects of Chemical Substances NIOSH CD-ROM

ECHA-European Chemicals Agency

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