

Safety Data Sheet

Product name: Chloroform

CAS No.: 67-66-3

Prepared in accordance with GB/T 16483, GB/T 17519

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

>Product identifier

- Product name: Chloroform
- CBnumber: CB5413313
- CAS: 67-66-3
- EINECS Number: 200-663-8
- Synonyms: chloroform,CHCl₃

>Relevant identified uses of the substance or mixture and uses advised against

- Relevant identified uses: For R&D use only. Not for medicinal, household or other use.
- Uses advised against: none

>Company Identification

- Company: Linyi Tuohui New Materials Co., Ltd.
- Address: Room A6159, 6F, Building 1, Linyi Software Park, No.6 Yihe Road, Zhimadun Subdistrict, Yishui New Area, Linyi City, Shandong Province, China
- Telephone: +86 176 6460 5089 (Manager Niu) / +86 130 4664 1786 (Manager Li)
- Email: nathan@tuohui-chem.com
- WhatsApp: +86 176 6460 5089
- Emergency telephone: +86 176 6460 5089

SECTION 2: Hazards identification

>GHS Label elements, including precautionary statements

- Symbol(GHS)



- Signal word Danger

Precautionary statements

P202 Do not handle until all safety precautions have been read and understood.

P210 Keep away from heat/sparks/open flames/hot surfaces. — No smoking.

P233 Keep container tightly closed.

P240 Ground/bond container and receiving equipment.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308+P313 IF exposed or concerned: Get medical advice/attention.

Hazard statements

H225 Highly Flammable liquid and vapour

H319 Causes serious eye irritation

H336 May cause drowsiness or dizziness

H351 Suspected of causing cancer

H373 May cause damage to organs through prolonged or repeated exposure

SECTION 3: Composition/information on ingredients

>Substance

- Product name: Chloroform
- Synonyms: chloroform, CHCl_3
- CAS: 67-66-3
- EC number: 200-663-8
- MF: CHCl_3
- MW: 119.38

SECTION 4: First aid measures

>4.1 Description of first-aid measures

General advice

First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled

After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower. Consult a physician.

In case of eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

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

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11

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

No data available

SECTION 5: Firefighting measures

>5.1 Extinguishing media**Unsuitable extinguishing media**

For this substance/mixture no limitations of extinguishing agents are given.

>5.2 Special hazards arising from the substance or mixture

Carbon oxides

Hydrogen chloride gas

>5.3 Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

>5.4 Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

>NFPA 704

2

0

SECTION 6: Accidental release measures

>6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

>6.2 Environmental precautions

Do not let product enter drains.

>6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb). Dispose of properly. Clean up affected area.

>6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

>7.1 Precautions for safe handling

Advice on safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

>7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Storage class

Storage class (TRGS 510): 6.1D: Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

>7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

>8.1 Control parameters

Ingredients with workplace control parameters Derived No Effect Level (DNEL)

['Worker DNEL,\nlongterm', 'inhalation', 'Systemic effects', '2,5 mg/m3']	['Worker DNEL,\nlongterm', 'dermal', 'Systemic effects', '']	['Worker DNEL,\nlongterm', 'inhalation', 'Local effects', '2,5 mg/m3']	['Consumer DNEL,\nlongterm', 'inhalation', 'Systemic effects', '0,18 mg/m3']
--	---	---	---

Predicted No Effect Concentration (PNEC)

['Fresh water sediment', '0,45 mg/kg']	['Sea water', '0,015 mg/l']	['Sea sediment', '0,09 mg/kg']	['Aquatic intermittent release', '0,133 mg/l']	['Soil', '0,56 mg/kg']	['Sewage treatment plant', '0,048 mg/l']
--	--------------------------------------	--------------------------------------	---	------------------------------	--

>8.2 Exposure controls

Personal protective equipment

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

Full contact

Material: Fluorinated rubber

Minimum layer thickness: 0,7 mm

Break through time: 480 min

Material tested: Vitoject (KCL 890 / Aldrich Z677698, Size M)

Splash contact

Material: Fluorinated rubber

Minimum layer thickness: 0,7 mm

Break through time: 480 min

Material tested: Vitoject (KCL 890 / Aldrich Z677698, Size M) data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection

protective clothing

Respiratory protection

required when vapours/aerosols are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: Filter type AX

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

Control of environmental exposure

Do not let product enter drains.

SECTION 9: Physical and chemical properties

>Information on basic physicochemical properties

- a) Physical state/liquid, clear
- b) Color/colorless
- c) Odor/sweet
- d) Melting point/freezing point/Melting point/ range: -63 °C
- e) Initial boiling point and boiling range/60,5 - 61,5 °C
- f) Flammability (solid, gas)/No data available
- g) Upper/lower flammability or explosive limits/No data available
- h) Flash point- Regulation (EC) No. 440/2008, Annex, A.9/does not flash
- i) Autoignition temperature/No data available
- j) Decomposition temperature/Distillable in an undecomposed state at normal pressure.
- k) pH/No data available
- l) Viscosity/Viscosity, kinematic: No data available
Viscosity, dynamic: No data available
- m) Water solubility/8,7 g/l at 23 °C - OECD Test Guideline 105
- n) Partition coefficient n-octanol/water/No data available

- o) Vapor pressure 210 hPa at 20 °C
- p) Density 1,492 g/mL at 25 °C
- Relative density 1.492 g/mL at 25 °C (lit.)
- q) Relative vapor density 4.1 (vs air)
- r) Particle characteristics No data available
- s) Explosive properties No data available
- t) Oxidizing properties none
- Solubility Miscible with diethyl ether, oils, ligroin, alcohol, carbon tetrachloride and carbon disulfide.
- Henry's Law Constant 1.07 at 2 °C, 1.49 at 6 °C, 1.79 at 10 °C, 3.02 at 18 °C, 4.02 at 25 °C, 5.20 at 30 °C, 7.60 at 40 °C, 11.1 at 50 °C, 14.8 at 60 °C (EPICS-SPME-GC, Grgényi et al., 2002))
- Dielectric constant 5.5 (0°C)

>9.2 Other safety information

Solubility in other solvents

organic solvent at 20 °C - miscible

Relative vapor density

4,12 - (Air = 1.0)

SECTION 10: Stability and reactivity

>10.1 Reactivity

No data available

>10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

Contains the following stabilizer(s): 2-methyl-2-butene ($\geq 0,001$ - $\leq 0,015$ %)

>10.3 Possibility of hazardous reactions

>10.4 Conditions to avoid

no information available

>10.5 Incompatible materials

various plastics, Rubber Strong oxidizing agents

>10.6 Hazardous decomposition products

In the event of fire: see section 5

SECTION 11: Toxicological information

>11.1 Information on toxicological effects

Acute toxicity

Oral: No data available

LD50 Oral - Rat - male - 908 mg/kg (OECD Test Guideline 401)

Acute toxicity estimate Oral - 908 mg/kg (ATE value derived from LD50/LC50 value)

Acute toxicity estimate Inhalation - 4 h - 3,1 mg/l - vapor (Calculation method)

LC50 Inhalation - Rat - 6 h - 9,17 mg/l - vapor

Acute toxicity estimate Inhalation - Expert judgment - 4 h - 3,1 mg/l - vapor

Dermal: No data available

Skin corrosion/irritation

Skin - Rabbit

Result: Irritating to skin. - 24 h

Remarks: (ECHA)

Remarks: Drying-out effect resulting in rough and chapped skin.

Skin - Rabbit

Result: slight irritation

Remarks: (IUCLID)

Serious eye damage/eye irritation

Eyes - Rabbit

Result: Irritating to eyes.

Remarks: (ECHA)

Remarks: (Regulation (EC) No 1272/2008, Annex VI)

Respiratory or skin sensitization

Maximization Test - Guinea pig

Result: negative (Regulation (EC) No. 440/2008, Annex, B.6)

Germ cell mutagenicity

Test Type: Ames test

Test system: Escherichia coli/Salmonella typhimurium

Metabolic activation: with and without metabolic activation

Result: negative

Remarks: (ECHA)

Test Type: unscheduled DNA synthesis assay

Test system: Liver

Metabolic activation: without metabolic activation

Result: negative

Remarks: (ECHA)

Test Type: Micronucleus test

Species: Rat

Cell type: Red blood cells (erythrocytes)

Application Route: Oral

Method: OECD Test Guideline 474

Result: negative

Test Type: unscheduled DNA synthesis assay

Species: Rat

Cell type: Liver cells

Application Route: Oral

Method: OECD Test Guideline 486

Result: negative

Test Type: in vivo assay

Species: Mouse

Application Route: Inhalation

Result: negative

Remarks: (ECHA)

Carcinogenicity

Suspected of causing cancer.

Reproductive toxicity

Suspected of damaging the unborn child.

Specific target organ toxicity - single exposure

May cause drowsiness or dizziness.

Specific target organ toxicity - repeated exposure

Oral - Causes damage to organs through prolonged or repeated exposure.

- Liver, Kidney

Aspiration hazard

Classified based on available data. For more details, see section 2

>11.2 Additional Information

Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Repeated dose toxicity - Rat - female - Oral - NOAEL (No observed adverse effect level) - 34

mg/kg

RTECS: FS9100000

Vomiting, Cough, irritant effects, Shortness of breath, respiratory arrest, narcosis, Dizziness, Nausea, agitation, spasms, inebriation, Headache, Stomach/intestinal disorders, ataxia (impaired locomotor coordination), cardiovascular disorders

Drying-out effect resulting in rough and chapped skin.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

>12.1 Toxicity

Toxicity to daphnia static test EC50 - *Crassostrea gigas* - 152,5 mg/l - 48 h and other aquatic

Remarks: (ECHA) invertebrates

Toxicity to algae static test ErC50 - *Chlamydomonas reinhardtii* (green algae) - 13,3 mg/l - 72 h

Remarks: (ECHA)

Toxicity to daphnia semi-static test NOEC - *Daphnia magna* (Water flea) - 6,3 mg/l - 21 and other aquatic d invertebrates(Chronic Remarks: (ECHA) toxicity)

>12.2 Persistence and degradability

No data available

>12.3 Bioaccumulative potential

>12.4 Mobility in soil

>12.5 Results of PBT and vPvB assessment

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.

>12.6 Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission

Delegated regulation (EU) 2017/2100 or Commission

Regulation (EU) 2018/605 at levels of 0.1% or higher.

>12.7 Other adverse effects

No data available

SECTION 13: Disposal considerations

>13.1 Waste treatment methods

No data available

SECTION 14: Transport information

>14.1 UN number

ADR/RID: 1888

IMDG: 1888

IATA: 1888

>14.2 UN proper shipping name

ADR/RID: CHLOROFORM

IMDG: CHLOROFORM

IATA: Chloroform

>14.3 Transport hazard class(es)

ADR/RID: 6.1

IMDG: 6.1

IATA: 6.1

>14.4 Packaging group

ADR/RID: III

IMDG: III

IATA: III

>14.5 Environmental hazards

ADR/RID: no

IMDG Marine pollutant: no

IATA: no

>14.6 Special precautions for user

Tunnel restriction code : (E)

Further information : No data available

>14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

SECTION 15: Regulatory information

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

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

Authorisations and/or restrictions on use

REACH - Restrictions on the manufacture, : Chloroform placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII) National legislation

Seveso III: Directive 2012/18/EU of the H2 ACUTE TOXIC

European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

H2 ACUTE TOXIC

Other regulations

Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

Take note of Dir 94/33/EC on the protection of young people at work.

>15.2 Chemical Safety Assessment

A Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

>Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

ADR - Agreement concerning the International Carriage of Dangerous Goods by Road

AIIC - Australian Inventory of Industrial Chemicals

ASTM - American Society for the Testing of Materials

bw - Body weight

CMR - Carcinogen, Mutagen or Reproductive Toxicant

DIN - Standard of the German Institute for Standardisation

DSL - Domestic Substances List (Canada)

ECx - Concentration associated with x% response

ELx - Loading rate associated with x% response

EmS - Emergency Schedule

ENCS - Existing and New Chemical Substances (Japan)

ErCx - Concentration associated with x% growth rate response

GHS - Globally Harmonized System

GLP - Good Laboratory Practice

IARC - International Agency for Research on Cancer
IATA - International Air Transport Association
IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
IC50 - Half maximal inhibitory concentration
ICAO - International Civil Aviation Organization
IECSC - Inventory of Existing Chemical Substances in China
IMDG - International Maritime Dangerous Goods
IMO - International Maritime Organization
ISHL - Industrial Safety and Health Law (Japan)
ISO - International Organisation for Standardization
KECI - Korea Existing Chemicals Inventory
LC50 - Lethal Concentration to 50 % of a test population
LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose)
MARPOL - International Convention for the Prevention of Pollution from Ships
n.o.s. - Not Otherwise Specified
NO(A)EC - No Observed (Adverse) Effect Concentration
NO(A)EL - No Observed (Adverse) Effect Level
NOELR - No Observable Effect Loading Rate
NZIoC - New Zealand Inventory of Chemicals
OECD - Organization for Economic Co-operation and Development
OPPTS - Office of Chemical Safety and Pollution Prevention
PBT - Persistent, Bioaccumulative and Toxic substance
PICCS - Philippines Inventory of Chemicals and Chemical Substances
(Q)SAR - (Quantitative) Structure Activity Relationship
REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
RID - Regulations concerning the International Carriage of Dangerous Goods by Rail
SADT - Self-Accelerating Decomposition Temperature
SDS - Safety Data Sheet
TCSI - Taiwan Chemical Substance Inventory
TECI - Thailand Existing Chemicals Inventory
TSCA - Toxic Substances Control Act (United States)
UN - United Nations
UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods
vPvB - Very Persistent and Very Bioaccumulative