SAFETY DATA SHEETS

According to Globally Harmonized System of Classification and Labelling of Chemicals (GHS) - Sixth revised edition

1.Identification

1.1GHS Product identifier

Product name 4-Chlorotoluene

1.2Other means of identification

Product number

Other names P-Chlorotoluene;Para-Chlorotoluene

1.3Recommended use of the chemical and restrictions on use

Identified uses For industry use only.

Uses advised against no data available

1.4Supplier's details

Company Chemintel Technology Limited

Address Room 908 Xinghui Building,No.707 North Jianguo Road,Hangzhou,310004,China

Telephone 0571-86921969

1.5Emergency phone number

Emergency phone number 0571-86921969

Service hours Monday to Friday, 9am-5pm (Standard time zone: UTC/GMT +8 hours).

2.Hazard identification

2.1Classification of the substance or mixture

Acute toxicity - Inhalation, Category 4

Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 2

2.2GHS label elements, including precautionary statements

Pictogram(s)

Signal word Warning

Hazard statement(s) H332 Harmful if inhaled

H411 Toxic to aquatic life with long lasting effects

Precautionary statement(s)

Prevention P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P271 Use only outdoors or in a well-ventilated area.

P273 Avoid release to the environment.

Response P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

	P312 Call a POISON CENTER/doctor/…if you feel unwell.
	P391 Collect spillage.
Storage	none
Disposal	P501 Dispose of contents/container to ...

2.3Other hazards which do not result in classification

none

3.Composition/information on ingredients

3.1Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
4-Chlorotoluene	4-Chlorotoluene	106-43-4	none	100%

4.First-aid measures

4.1Description of necessary first-aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

Fresh air, rest.

In case of skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap.

In case of eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

If swallowed

Do NOT induce vomiting. Refer for medical attention .

4.2Most important symptoms/effects, acute and delayed

no data available

4.3Indication of immediate medical attention and special treatment needed, if necessary

no data available

5.Fire-fighting measures

5.1Extinguishing media

Suitable extinguishing media

If material on fire or involved in fire: Do not extinguish fire unless flow can be stopped or safely confined. Use water in flooding quantities as fog. Solid streams of water may spread fire. Cool all affected containers with flooding quantities of water. Apply water from as far a distance as possible. Use foam, dry chemical, or carbon dioxide. /Chlorotoluenes/

5.2Specific hazards arising from the chemical

no data available

5.3Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

6.Accidental release measures

6.1Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2Environmental precautions

Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Ventilation. Remove all ignition sources. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent. Then store and dispose of according to local regulations. Do NOT wash away into sewer.

6.3Methods and materials for containment and cleaning up

Pick up and arrange disposal. Sweep up and shovel. Keep in suitable, closed containers for disposal.

7.Handling and storage

7.1Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Avoid exposure - obtain special instructions before use.Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2Conditions for safe storage, including any incompatibilities

Fireproof. Separated from strong oxidants.

8.Exposure controls/personal protection

8.1Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

8.2Appropriate engineering controls

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

8.3Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Wear impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace. 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 EU Directive 89/686/EEC and the standard EN 374 derived from it.

Respiratory protection

Wear dust mask when handling large quantities.

Thermal hazards

no data available

9.Physical and chemical properties

Physical state	clear liquid
Colour	Colorless liquid
Odour	no data available
Melting point/ freezing point	41798ºC
Boiling point or initial boiling point and boiling range	162ºC
Flammability	Flammable. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit / flammability limit	no data available
Flash point	49ºC
Auto-ignition temperature	595°C
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	0.892 mPa-s @ 20°C
Solubility	SOL IN ALCOHOL, BENZENE
Partition coefficient n-octanol/water (log value)	Log Kow = 3.33
Vapour pressure	10 mm Hg (45 °C)
Density and/or relative density	1.07
Relative vapour density	4.38 (vs air)
Particle characteristics	no data available

10.Stability and reactivity

10.1Reactivity

no data available

10.2Chemical stability

Stable under recommended storage conditions.

10.3Possibility of hazardous reactions

SLIGHT, WHEN EXPOSED TO HEAT OR FLAME.

10.4Conditions to avoid

no data available

10.5Incompatible materials

Acids, alkalis, oxidizers, reducing materials, water.

10.6Hazardous decomposition products

no data available

11.Toxicological information

Acute toxicity

- Oral: no data available
- Inhalation: no data available
- Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

no data available

12.Ecological information

12.1Toxicity

- Toxicity to fish: no data available
- Toxicity to daphnia and other aquatic invertebrates: no data available
- Toxicity to algae: no data available
- Toxicity to microorganisms: no data available

12.2Persistence and degradability

In the Japanese MITI test, using an initial concn of 100 ppm 4-chlorotoluene, <30% of the theoretical BOD was reached in 14 days using an activated sludge inoculum(1,2). In the modified MITI test, using an initial concentration of 100 ppm 4-chlorotoluene, 0% of the theoretical BOD was reached in 14 days(3). A microbial blend of 10 different bacteria and 2 fungi was used to degrade 4-chlorotoluene at a concentration of 200 mg/l; complete biodegradation occurred in 3 days(4). Using the cultivation method, 4-chlorotoluene at 20 mg/l was 44% and 64% biodegraded in three days using a river water and a seawater inoculum, respectively(5). An isolated strain of Pseudomonas putida 39/D oxidized 4-chlorotoluene to (+)-cis-4-chloro-2,3-dihydroxy-1-methylcyclohexa-4,6-diene (6). 4-Chlorotoluene is metabolized via cis-dihydrodiol to its respective catechol which is resistant to further degradation(7).

12.3Bioaccumulative potential

Carp exposed to 4-chlorotoluene at 0.03 and 0.3 mg/L had measured BCF values of 14-101.6 and 21.9-76.5, respectively(1). An estimated BCF value of 200 was calculated for 4-chlorotoluene(SRC), using a measured log Kow of 3.33(2) and a recommended regression-derived equation(3). According to a recommended classification scheme(4), these BCF values suggest that some bioconcentration in aquatic organisms will occur(SRC).

12.4Mobility in soil

The Koc of 4-chlorotoluene is estimated as approximately 340(SRC), using an experimental water solubility of 106 mg/l at 20°C(1,SRC) and a regression-derived equation(2,SRC). According to a recommended classification scheme(3), this estimated Koc value suggests that 4-chlorotoluene will have moderate mobility in soil(SRC).

12.5Other adverse effects

no data available

13.Disposal considerations

13.1Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

14.Transport information

14.1UN Number

ADR/RID: UN2238 IMDG: UN2238 IATA: UN2238

14.2UN Proper Shipping Name

ADR/RID: CHLOROTOLUENES
IMDG: CHLOROTOLUENES
IATA: CHLOROTOLUENES

14.3Transport hazard class(es)

ADR/RID: 3 IMDG: 3 IATA: 3

14.4Packing group, if applicable

ADR/RID: III IMDG: III IATA: III

14.5Environmental hazards

ADR/RID: yes IMDG: yes IATA: yes

14.6Special precautions for user

no data available

14.7Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

no data available

15.Regulatory information

15.1Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
4-Chlorotoluene	4-Chlorotoluene	106-43-4	none
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Listed.

New Zealand Inventory of Chemicals (NZIoC)	Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	Listed.
Vietnam National Chemical Inventory	Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)	Listed.

16.Other information

Information on revision

Creation Date Aug 17, 2017
Revision Date Aug 17, 2017

Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods
- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home
- HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm
- IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple
- ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg
- Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp
- ECHA - European Chemicals Agency, website: https://echa.europa.eu/