SAFETY DATA SHEET

SECTION 1: Identification of the hazardous chemical and of the supplier

1.1 Product identifiers

Product name: 2,4,6-Trichlorophenol for synthesis

Product Number: 8.18469
Catalogue No.: 818469
Brand: Millipore
CAS-No.: 88-06-2

1.2 Other means of identification

No data available

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

Identified uses: Chemical for synthesis

1.4 Details of the supplier of the safety data sheet

Co. No: 178145
No. 4, Jalan U1/26, Section U1,
40150 HICOM GLENMARIE INDUSTRIAL PARK,SHA ALA MALAYSIA

Telephone: +60 (0)3-74943688
Fax: +60 (0)3-74910850

1.5 Emergency telephone

Emergency Phone #: 1-800-815-308 (CHEMTREC) * + 62 0800
140 1253 (Customer Call Centre)

Section 2: Hazard identification

2.1 GHS Classification

Classification according to CLASS regulations 2013
Acute toxicity, Oral (Category 4), H302
Skin corrosion/irritation (Category 2), H315
Serious eye damage/eye irritation (Category 2), H319
Carcinogenicity (Category 2), H351
Hazardous to the aquatic environment - acute hazard (Category 1), H400
Hazardous to the aquatic environment - chronic hazard (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Labelling according to CLASS regulations 2013

Pictogram

Signal word Warning
Hazard statement(s)
H302 Harmful if swallowed.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H351 Suspected of causing cancer.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)
Prevention
P201 Obtain special instructions before use.
P264 Wash skin thoroughly after handling.
P273 Avoid release to the environment.
P280 Wear protective gloves/eye protection/face protection.
P281 Use personal protective equipment as required.
Response
P391 Collect spillage.

Reduced Labeling (<= 125 ml)

Pictogram

Signal word Warning
Hazard statement(s) none
Precautionary statement(s) none
Refer to the Safety Data Sheet before use.

2.3 Other hazards - none

SECTION 3: Composition and information of the ingredients of the hazardous chemical

Substance / Mixture : Substance

3.1 Substances
Formula : C₆H₃Cl₃O
Molecular weight : 197.45 g/mol
CAS-No. : 88-06-2
EC-No. : 201-795-9
Index-No. : 604-018-00-5

Hazardous ingredients

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,4,6-Trichlorophenol</td>
<td>Acute Tox. 4; 2; Carc. 2; Aquatic Acute 1; Aquatic Chronic 1; H302, H315, H319, H351, H400, H410</td>
<td>&lt;= 100 %</td>
</tr>
<tr>
<td></td>
<td>M-Factor - Aquatic Acute Chronic: 1</td>
<td></td>
</tr>
</tbody>
</table>

For the full text of the H-Statements mentioned in this Section, see Section 16.
SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

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 2.2) 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

Suitable extinguishing media
Water Foam Carbon dioxide (CO2) Dry powder

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

5.2 Special hazards arising from the substance or mixture
Nature of decomposition products not known.
Combustible.
Fire may cause evolution of:
Hydrogen chloride gas
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air on intense heating.
Development of hazardous combustion gases or vapours possible in the event of fire.

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.
SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Avoid inhalation of dusts. 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 dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

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.

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

Recommended storage temperature see product label.

Storage class
Storage class (TRGS 510): 6.1C: Combustible, acute toxic Cat.3 / toxic compounds or compounds which 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 and personal protection

8.1 Control parameters
Ingredients with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls
Appropriate engineering controls
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.
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
This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested: KCL 741 Dermatril® L

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).
Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested: KCL 741 Dermatril® L

Body Protection
protective clothing

Respiratory protection
required when dusts 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.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Appearance</td>
<td>Form: powder, finecrystalline</td>
</tr>
<tr>
<td></td>
<td>Color: gray</td>
</tr>
<tr>
<td>b) Odor</td>
<td>No data available</td>
</tr>
<tr>
<td>c) Odor Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>d) pH</td>
<td>No data available</td>
</tr>
<tr>
<td>e) Melting point/freeze</td>
<td>65.0 °C</td>
</tr>
<tr>
<td>f) Initial boiling point</td>
<td>246.0 °C</td>
</tr>
<tr>
<td>and boiling range</td>
<td></td>
</tr>
<tr>
<td>g) Flash point</td>
<td>99 °C - closed cup - c.c.</td>
</tr>
</tbody>
</table>
h) Evaporation rate  No data available  
i) Flammability (solid, gas)  No data available  
j) Upper/lower flammability or explosive limits  No data available  
k) Vapor pressure  No data available  
l) Vapor density  No data available  
m) Density  1.675 g/cm³ at 25 °C  
Relative density  No data available  
n) Water solubility  No data available  
o) Partition coefficient: n-octanol/water  No data available  
p) Autoignition temperature  No data available  
q) Decomposition temperature  No data available  
r) Viscosity  Viscosity, kinematic: No data available  
Viscosity, dynamic: No data available  
s) Explosive properties  No data available  
t) Oxidizing properties  none

9.2 Other safety information  
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity  
Forms explosive mixtures with air on intense heating.  
A range from approx. 15 Kelvin below the flash point is to be rated as critical.  
The following applies in general to flammable organic substances and mixtures: in  
correspondingly fine distribution, when whirled up a dust explosion potential may generally  
be assumed.

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

10.3 Possibility of hazardous reactions  
Violent reactions possible with:  
Strong oxidizing agents  
Acid halides  
Acid anhydrides

10.4 Conditions to avoid  
Strong heating.

10.5 Incompatible materials  
No data available
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**
LD50 Oral - Rat - 820.0 mg/kg
Remarks: (RTECS)
Inhalation: No data available
Dermal: No data available

**Skin corrosion/irritation**
Skin - Rabbit
Result: Skin irritation - 24 h
Remarks: (RTECS)

**Serious eye damage/eye irritation**
Eyes - Rabbit
Result: Severe eye irritation - 24 h
Remarks: (RTECS)

**Respiratory or skin sensitization**
No data available

**Germ cell mutagenicity**
No data available

**Carcinogenicity**
Limited evidence of carcinogenicity in animal studies

**Reproductive toxicity**
No data available

**Specific target organ toxicity - single exposure**
No data available

**Specific target organ toxicity - repeated exposure**
No data available

**Aspiration hazard**
No data available

11.2 Additional Information
Depending on the intensity and duration of exposure, effects may vary from mild irritation to severe destruction of tissue. Damage to the eyes. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Damage to the eyes.

SECTION 12: Ecological information

12.1 Toxicity

**Toxicity to fish**
LC50 - Lepomis macrochirus (Bluegill sunfish) - 0.32 mg/l - 96 h
Remarks: (ECOTOX Database)

**Toxicity to daphnia**
EC50 - Daphnia magna (Water flea) - 2.2 mg/l - 48 h
and other aquatic invertebrates

**12.2 Persistence and degradability**
No data available

**12.3 Bioaccumulative potential**
Bioaccumulation
Poecilia reticulata (guppy) - 36 d
- 0.0005 mg/l(2,4,6,-Trichlorophenol)

Bioconcentration factor (BCF): 12,180

**12.4 Mobility in soil**
No data available

**12.5 Results of PBT and vPvB assessment**
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**12.6 Endocrine disrupting properties**
No data available

**12.7 Other adverse effects**
No data available

**SECTION 13: Disposal information**

**13.1 Waste treatment methods**

**Product**
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions. According to Quality Environment Regulation (Scheduled Waste) 2005, waste need to be sent to designated premise for recycle, treatment or disposal. Please contact Kualiti Alam for waste classification and correct disposal method.

**SECTION 14: Transportation information**

**14.1 UN number**
ADR/RID: 2020
IMDG: 2020
IATA-DGR: 2020

**14.2 UN proper shipping name**
ADR/RID: CHLOROPHENOLS, SOLID
IMDG: CHLOROPHENOLS, SOLID
IATA-DGR: Chlorophenols, solid

**14.3 Transport hazard class(es)**
ADR/RID: 6.1
IMDG: 6.1
IATA-DGR: 6.1

**14.4 Packaging group**
ADR/RID: III
IMDG: III
IATA-DGR: III

**14.5 Environmental hazards**
ADR/RID: yes
IMDG Marine pollutant: yes
IATA-DGR: no

**14.6 Special precautions for user**
None
14.7 Incompatible materials

Other regulations
Hazchem Code : 2X

SECTION 15: Regulatory information

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

Notification status
AICS: On the inventory, or in compliance with the inventory
DSL: None of the components of this product are on the Canadian DSL, but all are on the NDSL
ENCS: On the inventory, or in compliance with the inventory
ISHL: On the inventory, or in compliance with the inventory
KECI: On the inventory, or in compliance with the inventory
NZIoC: On the inventory, or in compliance with the inventory
PICCS: On the inventory, or in compliance with the inventory

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.
H302 Harmful if swallowed.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H351 Suspected of causing cancer.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

Further information
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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