SAFETY DATA SHEETS

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

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Identification 1. **GHS** Product identifier 1.1 Product name 4-Chloro-3-methylphenol Other means of identification 1.2 Product number Chlorocresol Other names 1.3 Recommended use of the chemical and restrictions on use Identified uses For industry use only. Uses advised against no data available 2. Hazard identification Classification of the substance or mixture 2.1 Acute toxicity - Oral, Category 4 Acute toxicity - Dermal, Category 4 Serious eye damage, Category 1 Skin sensitization, Category 1 Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1 2.2 GHS label elements, including precautionary statements

Pictogram(s)



Signal word	Danger
Hazard statement(s)	H302 Harmful if swallowed
	H312 Harmful in contact with skin
	H318 Causes serious eye damage
	H317 May cause an allergic skin reaction
	H400 Very toxic to aquatic life
Precautionary statement(s)	
Prevention	P264 Wash thoroughly after handling.
	P270 Do not eat, drink or smoke when using this product.
	P280 Wear protective gloves/protective clothing/eye protection/face protection.
	P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
	P272 Contaminated work clothing should not be allowed out of the workplace.
	P273 Avoid release to the environment.
Response	P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor/…if you feel unwell.
	P330 Rinse mouth.
	P302+P352 IF ON SKIN: Wash with plenty of water/
	P312 Call a POISON CENTER/doctor/…if you feel unwell.
	P321 Specific treatment (see on this label).

P362+P364 Take off contaminated clothing and wash it before reuse.

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

P310 Immediately call a POISON CENTER/doctor/…

P333+P313 If skin irritation or rash occurs: Get medical advice/attention.

P391 Collect spillage.

Storage

none

Disposal

P501 Dispose of contents/container to ...

2.3 Other hazards which do not result in classification

none

3. Composition/information on ingredients

3.1 Substances

Chemical name	Common names and	CAS	EC	Concentration
	synonyms	number	number	
4-Chloro-3-	4-Chloro-3-	50 50 7	nono	100%
methylphenol	methylphenol	enol 59-30-7 none		100%0

4. First-aid measures

4.1 Description 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. Refer for medical attention.

In case of skin contact

Remove contaminated clothes. Rinse skin with plenty of water or shower. Refer

for medical attention .

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

Rinse mouth. Refer for medical attention .

4.2 Most important symptoms/effects, acute and delayed

Excerpt from ERG Guide 152 [Substances - Toxic (Combustible)]: Highly toxic, may be fatal if inhaled, swallowed or absorbed through skin. Contact with molten substance may cause severe burns to skin and eyes. Avoid any skin contact. Effects of contact or inhalation may be delayed. Fire may produce irritating, corrosive and/or toxic gases. Runoff from fire control or dilution water may be corrosive and/or toxic and cause pollution. (ERG, 2016)

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

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. /Phenols and related compounds/

5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

Excerpt from ERG Guide 152 [Substances - Toxic (Combustible)]: SMALL FIRE: Dry chemical, CO2 or water spray. LARGE FIRE: Water spray, fog or regular foam. Move containers from fire area if you can do it without risk. Dike fire-control water for later disposal; do not scatter the material. Use water spray or fog; do not use straight streams. FIRE INVOLVING TANKS OR CAR/TRAILER LOADS: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Do not get water inside containers. Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank. ALWAYS stay away from tanks engulfed in fire. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn. (ERG, 2016)

5.2 Specific hazards arising from the chemical

Excerpt from ERG Guide 152 [Substances - Toxic (Combustible)]: Combustible material: may burn but does not ignite readily. Containers may explode when heated. Runoff may pollute waterways. Substance may be transported in a molten form. (ERG, 2016)

5.3 Special protective actions for fire-fighters

Wear self-contained breathing apparatus for firefighting if necessary.

6. Accidental release measures

6.1 Personal 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.

6.2 Environmental precautions

Personal protection: chemical protection suit including self-contained breathing apparatus. Do NOT let this chemical enter the environment. Sweep spilled substance into covered sealable containers. If appropriate, moisten first to prevent dusting. Then store and dispose of according to local regulations.

6.3 Methods and materials for containment and cleaning up

Activated carbon is a good method for removing chlorophenols from water. Competitive adsorption occurs between chlorophenols and humic substances present in nearly all municipal water supplies. This competition decreases the capacity of carbon for chlorophenols. /Chlorophenols/

7. Handling and storage

7.1 Precautions 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.

7.2 Conditions for safe storage, including any incompatibilities

Separated from food and feedstuffs. Dry.

- 8. Exposure controls/personal protection
- 8.1 Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

8.2 Appropriate engineering controls

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

8.3 Individual 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	Chlorocresol is a pinkish to white crystalline solid with a phenolic odor. Melting point 64-66°C. Shipped as a solid or in a liquid carrier. Soluble in aqueous base. Toxic by ingestion, inhalation or skin absorption. Used as an external germicide. Used as a preservative in paints and inks.
Colour	Dimorphous crystals aqueous solutions turn yellow
	on exposure to light and air
Odour	Said to be odorless when very pure, but usually a phenolic odor persists
Melting point/ freezing point	-96°C(lit.)
Boiling point or initial boiling point and boiling range	178°C
Flammability	Combustible. Gives off irritating or toxic fumes (or gases) in a fire.
Lower and upper explosion limit / flammability limit	no data available
Flash point	45°C(lit.)
Auto-ignition temperature	590°C
Decomposition temperature	no data available
рН	pH = 5.6 in saturated aqueous solution
Kinematic viscosity	no data available
Solubility	less than 1 mg/mL at 20°C
Partition coefficient n- octanol/water (log value)	log Kow = 3.10
Vapour pressure	5.00X10-2 mm Hg at 20°C
Density and/or relative density	0.9 at 25°C
Relative vapour density	no data available
Particle characteristics	no data available

10. Stability and reactivity

10.1 Reactivity

no data available

10.2 Chemical stability

Aq solns turn yellow on exposure to light and air.

10.3 Possibility of hazardous reactions

CHLOROCRESOLS are incompatible with bases, acid chlorides, acid anhydrides, and oxidizing agents. Corrodes steel, brass, copper and copper alloys.

10.4 Conditions to avoid

no data available

10.5 Incompatible materials

p-Chloro-m-cresol is corrosive to metals and forms complex compounds with transition metal ions. Slow discoloration of the chemical occurs in the presence of sunlight.

10.6 Hazardous decomposition products

When heated to decomposition it emits toxic fumes of phosgene /and hydrogen chloride/.

11. Toxicological information

Acute toxicity

- · Oral: LD50 Rat oral 1,360 1,610 mg/kg bw
- · 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
Cancer Classification: Group D Not Classifiable as to Human Carcinogenicity
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

12.1 Toxicity

- Toxicity to fish: LC50; Species: Pimephales promelas (fathead minnow) 31 day old; Conditions: flow through, pH 7.24, 25.2°C, hardness 45.6 mg/L
 CaCO3; Concentration: 7.38 mg/L for 96 hr (confidence limit 6.26-8.71 mg/L)
- Toxicity to daphnia and other aquatic invertebrates: LC50; Species: Daphnia magna (Water Flea); Concentration: 2.3 ppm for 48 hr (99.97% a.i.) /Conditions of bioassay not specified
- Toxicity to algae: EC50; Species: Chlorella pyrenoidosa (Green Algae)
 2x10+6 cells/mL; Conditions: freshwater, static, 22°C, pH 7.4;
 Concentration: 15000 ug/L for 72 hr (95% confidence interval: 12000-18000 ug/L); Effect: decreased population growth rate /99% purity
- · Toxicity to microorganisms: no data available

12.2 Persistence and degradability

Adapted mixed cultures, isolated by enrichment techniques from garden soil, compost, river mud, and the sediment of a petroleum refinery waste lagoon, were shown to be capable of partially degrading p-chloro-m-cresol. It is questionable, however, whether these studies can be extrapolated to the environment of ambient surface waters since the concn of the substrate chemical employed for enrichment of an organism and for obtaining a reasonable amount of cell growth is far above the concn generally found in nature.

12.3 Bioaccumulative potential

BCF values of 5.5 to 11 and 6.7 to 13 were measured using initial 3-methyl-4chlorophenol concentrations of 2 ug/L and 20 ug/L, respectively(1). Tests were conducted in a continuous flow system with six weeks exposure using carp having an average lipid content of 4.9%(1). According to a classification scheme(2), these BCF ranges suggest that bioconcentration in aquatic organisms is low(SRC).

12.4 Mobility in soil

The Koc of 3-methyl-4-chlorophenol is 490(1). According to a classification scheme(2), this Koc value suggests that 3-methyl-4-chlorophenol is expected to have moderate mobility in soil. The pKa of 3-methyl-4-chlorophenol is 9.55(3), indicating that this compound will exist partially in the anion form in the environment and anions generally do not adsorb more strongly to soils containing organic carbon and clay than their neutral counterparts(4). The chemical was found to be mobile in an activated carbon-sand filter system; this was considered to be indicative of a low adsorption potential in soil systems(5). 3-Methyl-4-chlorophenol concentration balance was 0.167 ug/L influent, not detected effluent from Steinhaeule, Neu-Ulmin, a major municipal sewage plant in Germany, sampled on March 11, 1998(6).

12.5 Other adverse effects

no data available

13. Disposal considerations

13.1 Disposal 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			
14.1	UN Number			
	ADR/RID: UN3437	IMDG: UN3437	IATA: UN3437	
14.2	UN Proper Shipping Name			
	ADR/RID: CHLOROCRESOLS, SOLID IMDG: CHLOROCRESOLS, SOLID IATA: CHLOROCRESOLS, SOLID			
14.3	Transport hazard class(es)			
	ADR/RID: 6.1	IMDG: 6.1	IATA: 6.1	
14.4	Packing group, if applicable			
	ADR/RID: II	IMDG: II	IATA: II	
14.5	Environmental hazards			
	ADR/RID: yes	IMDG: yes	IATA: yes	
14.6	Special precautions for user			
	no data available			
14.7	Transport in bulk accordir Code	ng to Annex II of MARP	OL 73/78 and the IBC	
	no data available			

15. Regulatory information

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

Chemical name	Common names and synonyms	CAS number	EC number
4-Chloro-3- methylphenol	4-Chloro-3-methylphenol	59-50-7	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 12, 2017
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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/

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