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**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1 Product identifiers**

Product name : Chlorothalonil

Product Number : N11454  
Brand : Supelco  
Index-No. : 608-014-00-4  
CAS-No. : 1897-45-6**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified uses : Laboratory chemicals, Synthesis of substances

**1.3 Details of the supplier of the safety data sheet**Company : Sigma-Aldrich Inc.  
3050 SPRUCE ST  
ST. LOUIS MO 63103  
UNITED STATESTelephone : +1 314 771-5765  
Fax : +1 800 325-5052**1.4 Emergency telephone number**Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-  
527-3887 CHEMTREC (International) 24  
Hours/day; 7 Days/week

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**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**Acute toxicity, Inhalation (Category 2), H330  
Serious eye damage (Category 1), H318  
Skin sensitisation (Category 1), H317  
Carcinogenicity (Category 2), H351  
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335  
Short-term (acute) aquatic hazard (Category 1), H400  
Long-term (chronic) aquatic 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**

Pictogram



Signal word

Danger

Hazard statement(s)

H317 May cause an allergic skin reaction.  
H318 Causes serious eye damage.  
H330 Fatal if inhaled.  
H335 May cause respiratory irritation.  
H351 Suspected of causing cancer.  
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P201 Obtain special instructions before use.  
P202 Do not handle until all safety precautions have been read and understood.  
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.  
P271 Use only outdoors or in a well-ventilated area.  
P272 Contaminated work clothing must not be allowed out of the workplace.  
P273 Avoid release to the environment.  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
P284 Wear respiratory protection.  
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.  
P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.  
P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.  
P308 + P313 IF exposed or concerned: Get medical advice/ attention.  
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.  
P363 Wash contaminated clothing before reuse.  
P391 Collect spillage.  
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.  
P405 Store locked up.  
P501 Dispose of contents/ container to an approved waste disposal plant.

### 2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

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## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Synonyms : Tetrachloroisophthalodinitrile  
2,4,5,6-Tetrachlorisophthalonitril  
2,4-Dicyanotetrachlorobenzene  
2,4,5,6-tetrachlorobenzene-1,3-dicarbonitrile

Formula : C<sub>8</sub>Cl<sub>4</sub>N<sub>2</sub>  
Molecular weight : 265.89 g/mol  
CAS-No. : 1897-45-6



EC-No. : 217-588-1  
Index-No. : 608-014-00-4

Component	Classification	Concentration
<b>Chlorothalonil</b>	Acute Tox. 2; Eye Dam. 1; Skin Sens. 1; Carc. 2; STOT SE 3; Aquatic Acute 1; Aquatic Chronic 1; H330, H318, H317, H351, H335, H400, H410 Concentration limits: 20 %: STOT SE 3, H335; M-Factor - Aquatic Acute: 10 - Aquatic Chronic: 10	<= 100 %

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

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## SECTION 4: First aid measures

### 4.1 Description of first aid measures

#### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

#### If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

#### In case of skin contact

Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

#### In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

#### If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. 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

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## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.



**5.2 Special hazards arising from the substance or mixture**  
Carbon oxides, Nitrogen oxides (NO<sub>x</sub>), Hydrogen chloride gas  
Combustible.

**5.3 Advice for firefighters**  
Wear self-contained breathing apparatus for firefighting if necessary.

**5.4 Further information**  
No data available

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## **SECTION 6: Accidental release measures**

**6.1 Personal precautions, protective equipment and emergency procedures**  
Wear respiratory protection. 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**  
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

**6.3 Methods and materials for containment and cleaning up**  
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

**6.4 Reference to other sections**  
For disposal see section 13.

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## **SECTION 7: Handling and storage**

**7.1 Precautions for safe handling**  
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.  
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**  
Keep container tightly closed in a dry and well-ventilated place.  
Storage class (TRGS 510): 6.1A: Combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

**7.3 Specific end use(s)**  
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## **SECTION 8: Exposure controls/personal protection**

### **8.1 Control parameters**

**Components with workplace control parameters**  
Contains no substances with occupational exposure limit values.



## 8.2 Exposure controls

### Appropriate engineering controls

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

### Personal protective equipment

#### Eye/face protection

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

#### 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.

#### Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

#### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

#### Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

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## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

- |  |  |
|--|--|
| a) Appearance                              | Form: solid<br>Colour: white                     |
| b) Odour                                   | odourless  |
| c) Odour Threshold                         | No data available                                |
| d) pH                                      | No data available                                |
| e) Melting point/freezing point            | Melting point/range: 250 - 251 °C (482 - 484 °F) |
| f) Initial boiling point and boiling range | 350 °C 662 °F at 1,013 hPa                       |
| g) Flash point                             | ( )No data available                             |
| h) Evaporation rate                        | No data available                                |
| i) Flammability (solid, gas)               | No data available                                |



j) Upper/lower flammability or explosive limits	No data available
k) Vapour pressure	No data available
l) Vapour density	No data available
m) Relative density	1.732 g/cm <sup>3</sup> at 20 °C (68 °F)
n) Water solubility	slightly soluble
o) Partition coefficient: n-octanol/water	log Pow: 3.7 at 25 °C (77 °F) - Bioaccumulation is not expected.
p) Auto-ignition temperature	No data available
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Explosive properties	No data available
t) Oxidizing properties	No data available

## 9.2 Other safety information

Solubility in other solvents	Benzene at 20 °C (68 °F) - soluble xylene at 20 °C (68 °F) - soluble Acetone at 20 °C (68 °F) - slightly soluble hexane at 20 °C (68 °F) - practically insoluble
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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No data available

### 10.2 Chemical stability

Stable under recommended storage conditions.

### 10.3 Possibility of hazardous reactions

No data available

### 10.4 Conditions to avoid

No data available

### 10.5 Incompatible materials

Cyanides

### 10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NO<sub>x</sub>), Hydrogen chloride gas

Other decomposition products - No data available

In the event of fire: see section 5



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## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

LD50 Oral - Rat - 10,000 mg/kg

Remarks: (RTECS)

LC50 Inhalation - Rat - 4 h - 0.078 mg/l

Remarks: (RTECS)

LD50 Dermal - Rabbit - > 10,000 mg/kg

Remarks: (RTECS)

No data available

#### Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation

Remarks: (IUCLID)

#### Serious eye damage/eye irritation

Eyes - Rabbit

Result: Irreversible effects on the eye

Remarks: (IUCLID)

#### Respiratory or skin sensitisation

Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

#### Germ cell mutagenicity

Chromosome aberration test in vitro

Chinese hamster ovary cells

Result: positive

(Lit.)

#### Carcinogenicity

Suspected of causing cancer.

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Chlorothalonil)

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

#### Reproductive toxicity

##### Specific target organ toxicity - single exposure

May cause respiratory irritation.

Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

##### Specific target organ toxicity - repeated exposure

No data available

#### Aspiration hazard

No data available

#### Additional Information

RTECS: NT2600000

Nose bleeding, Rash

Stomach - Irregularities - Based on Human Evidence



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## SECTION 12: Ecological information

### 12.1 Toxicity

Toxicity to fish	static test LC50 - Oncorhynchus mykiss (rainbow trout) - 0.012 mg/l - 96 h Remarks: (ECOTOX Database)
	static test LC50 - Ictalurus punctatus (channel catfish) - 0.043 mg/l - 96 h Remarks: (ECOTOX Database)
	flow-through test LC50 - Cyprinus carpio (Carp) - 0.055 mg/l - 96 h Remarks: (ECOTOX Database)
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - 0.028 mg/l - 48 h Remarks: (ECOTOX Database)
Toxicity to algae	ErC50 - Anabaena flosaquae - 0.094 mg/l - 96 h Remarks: (ECOTOX Database)

### 12.2 Persistence and degradability

No data available

### 12.3 Bioaccumulative potential

Bioaccumulation Oncorhynchus mykiss (rainbow trout) - 96 h - 10 µg/l(Chlorothalonil)

Bioconcentration factor (BCF): 436,690

### 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 Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Very toxic to aquatic life with long lasting effects.

No data available

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## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.





## Contaminated packaging

Dispose of as unused product.

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### SECTION 14: Transport information

#### DOT (US)

UN number: 2811 Class: 6.1 Packing group: II  
Proper shipping name: Toxic solids, organic, n.o.s. (Chlorothalonil)  
Reportable Quantity (RQ):  
Poison Inhalation Hazard: No

#### IMDG

UN number: 2811 Class: 6.1 Packing group: II EMS-No: F-A, S-A  
Proper shipping name: TOXIC SOLID, ORGANIC, N.O.S. (Chlorothalonil)  
Marine pollutant : yes

#### IATA

UN number: 2811 Class: 6.1 Packing group: II  
Proper shipping name: Toxic solid, organic, n.o.s. (Chlorothalonil)

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### SECTION 15: Regulatory information

#### SARA 302 Components

This material does not contain any components with a section 302 EHS TPQ.

#### SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Chlorothalonil	1897-45-6	2007-07-01

#### SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

#### Massachusetts Right To Know Components

	CAS-No.	Revision Date
Chlorothalonil	1897-45-6	2007-07-01

No components are subject to the Massachusetts Right to Know Act.

#### Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Chlorothalonil	1897-45-6	2007-07-01

#### New Jersey Right To Know Components

	CAS-No.	Revision Date
Chlorothalonil	1897-45-6	2007-07-01



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## SECTION 16: Other information

### Further information

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