## 1 Identification

**Product identifier**

**Product name: 1,4-Dichlorobenzene**

**Stock number:** A16290, L04936
**CAS Number:**
106-46-7
**EC number:**
203-400-5
**Relevant identified uses of the substance or mixture and uses advised against.**
**Identified use:** SU24 Scientific research and development

**Details of the supplier of the safety data sheet**
**Manufacturer/Supplier:**
Alfa Aesar
Thermo Fisher Scientific Chemicals, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Tel: 800-343-0660
Fax: 800-322-4757
Email: tech@alfa.com
www.alfa.com
**Information Department:** Health, Safety and Environmental Department
**Emergency telephone number:**
During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660. After normal business hours, call Carechem 24 at (866) 928-0789.

## 2 Hazard(s) identification

**Classification of the substance or mixture in accordance with 29 CFR 1910 (OSHA HCS)**

GHS08 Health hazard

Carc. 2 H351 Suspected of causing cancer.

GHS07

Acute Tox. 4 H302 Harmful if swallowed.
Acute Tox. 4 H332 Harmful if inhaled.
Eye Irrit. 2A H319 Causes serious eye irritation.
**Hazards not otherwise classified** No information known.

**Label elements**
**GHS label elements** The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)
**Hazard pictograms**

GHS07 GHS08

**Signal word** Warning
**Hazard statements**
H302+H332 Harmful if swallowed or if inhaled.
H319 Causes serious eye irritation.
H351 Suspected of causing cancer.
**Precautionary statements**
P201 Obtain special instructions before use.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P281 Use personal protective equipment as required.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P308+P313 IF exposed or concerned: Get medical advice/attention.
P337+P313 If eye irritation persists: Get medical advice/attention.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
**WHMIS classification**
D2A - Very toxic material causing other toxic effects

**Classification system**
**HMIS ratings (scale 0-4)**
**(Hazardous Materials Identification System)**


Health (acute effects) = 2
Flammability = 2
Physical Hazard = 1

**Other hazards**
**Results of PBT and vPvB assessment**
**PBT:** Not applicable.
**vPvB:** Not applicable.

## 3 Composition/information on ingredients

**Chemical characterization: Substances**
**CAS# Description:**
106-46-7 1,4-Dichlorobenzene
**Concentration:** ≤100%

(Contd. on page 2)

**Product name: 1,4-Dichlorobenzene**

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**Identification number(s):**
**EC number:** 203-400-5

## 4 First-aid measures

**Description of first aid measures**
**After inhalation**
Supply fresh air. If required, provide artificial respiration. Keep patient warm.
Seek immediate medical advice.
**After skin contact**
Immediately wash with water and soap and rinse thoroughly.
Seek immediate medical advice.
**After eye contact** Rinse opened eye for several minutes under running water. Then consult a doctor.
**After swallowing** Seek medical treatment.
**Information for doctor**
**Most important symptoms and effects, both acute and delayed**
Harmful if swallowed.
Causes serious eye irritation.
Harmful if inhaled.
Suspected of causing cancer.
**Indication of any immediate medical attention and special treatment needed** No further relevant information available.

## 5 Fire-fighting measures

**Extinguishing media**
**Suitable extinguishing agents** Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
**Special hazards arising from the substance or mixture**
If this product is involved in a fire, the following can be released:
Carbon monoxide and carbon dioxide
Hydrogen chloride (HCl)
**Advice for firefighters**
**Protective equipment:**
Wear self-contained respirator.
Wear fully protective impervious suit.

## 6 Accidental release measures

**Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
**Environmental precautions:** Do not allow product to reach sewage system or any water course.
**Methods and material for containment and cleaning up:** Dispose of contaminated material as waste according to section 13.
**Prevention of secondary hazards:** Keep away from ignition sources.
**Reference to other sections**
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

## 7 Handling and storage

**Handling**
**Precautions for safe handling**
Keep container tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation at the workplace.
**Information about protection against explosions and fires:** Keep ignition sources away.

**Conditions for safe storage, including any incompatibilities**
**Storage**
**Requirements to be met by storerooms and receptacles:** No special requirements.
**Information about storage in one common storage facility:** Store away from oxidizing agents.
**Further information about storage conditions:**
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.
**Specific end use(s)** No further relevant information available.

## 8 Exposure controls/personal protection

**Additional information about design of technical systems:**
Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

**Control parameters**

| **Components with limit values that require monitoring at the workplace:** | |
|---|---|
| **106-46-7 1,4-Dichlorobenzene (100.0%)** | |
| PEL (USA) | Long-term value: 450 mg/m³, 75 ppm |
| REL (USA) | See Pocket Guide App. A |
| TLV (USA) | Long-term value: 60 mg/m³, 10 ppm |
| EL (Canada) | Long-term value: 10 ppm<br>IARC 2B |
| EV (Canada) | Long-term value: 10 ppm |

**Additional information:** No data

**Exposure controls**
**Personal protective equipment**
**General protective and hygienic measures**
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Remove all soiled and contaminated clothing immediately.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes.
Avoid contact with the eyes and skin.
Maintain an ergonomically appropriate working environment.
**Breathing equipment:** Use suitable respirator when high concentrations are present.

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**Product name: 1,4-Dichlorobenzene**

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**Recommended filter device for short term use:**
Use a respirator with type P100 (USA) or P3 (EN 143) cartridges as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards.
**Protection of hands:**
Impervious gloves
Check protective gloves prior to each use for their proper condition.
The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.
**Material of gloves** Nitrile rubber, NBR
**Penetration time of glove material (in minutes)** 480
**Glove thickness** 0.11 mm
**Eye protection:** Safety glasses
**Body protection:** Protective work clothing.

## 9 Physical and chemical properties

**Information on basic physical and chemical properties**
**General Information**
**Appearance:**

| | |
|---|---|
| **Form:** | Crystalline |
| **Odor:** | Not determined |
| **Odor threshold:** | Not determined. |
| **pH-value:** | Not applicable. |
| **Change in condition** | |
| **Melting point/Melting range:** | 52-56 °C (126-133 °F) |
| **Boiling point/Boiling range:** | 173-174 °C (343-345 °F) |
| **Sublimation temperature / start:** | Not determined |
| **Flash point:** | 65 °C (149 °F) |
| **Flammability (solid, gaseous)** | Not determined. |
| **Ignition temperature:** | >500 °C (>932 °F) |
| **Decomposition temperature:** | Not determined |
| **Auto igniting:** | Not determined. |
| **Danger of explosion:** | Not determined. |
| **Explosion limits:** | |
| **Lower:** | 1.7 Vol % |
| **Upper:** | 5.9 Vol % |
| **Vapor pressure at 20 °C (68 °F):** | 0.8 hPa (1 mm Hg) |
| **Density at 20 °C (68 °F):** | 1.248 g/cm³ (10.415 lbs/gal) |
| **Relative density** | Not determined. |
| **Vapor density** | Not applicable. |
| **Evaporation rate** | Not applicable. |
| **Solubility in / Miscibility with** | |
| **Water at 25 °C (77 °F):** | 0.08 g/l |
| **Partition coefficient (n-octanol/water):** | Not determined. |
| **Viscosity:** | |
| **dynamic:** | Not applicable. |
| **kinematic:** | Not applicable. |
| **Other information** | No further relevant information available. |

## 10 Stability and reactivity

**Reactivity** No information known.
**Chemical stability** Stable under recommended storage conditions.
**Thermal decomposition / conditions to be avoided:** Decomposition will not occur if used and stored according to specifications.
**Possibility of hazardous reactions** Reacts with strong oxidizing agents
**Conditions to avoid** No further relevant information available.
**Incompatible materials:** Oxidizing agents
**Hazardous decomposition products:**
Carbon monoxide and carbon dioxide
Hydrogen chloride (HCl)

## 11 Toxicological information

**Information on toxicological effects**
**Acute toxicity:** The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for this substance.

**LD/LC50 values that are relevant for classification:**

| | | |
|---|---|---|
| Oral | LD50 | 500 mg/kg (rat) |
| Inhalative | LC50/4H | 5000 mg/m3/4H (rat) |

**Skin irritation or corrosion:** May cause irritation
**Eye irritation or corrosion:** Causes serious eye irritation.
**Sensitization:** No sensitizing effects known.
**Germ cell mutagenicity:** The Registry of Toxic Effects of Chemical Substances (RTECS) contains mutation data for this substance.
**Carcinogenicity:**
Suspected of causing cancer.
IARC-2B: Possibly carcinogenic to humans: limited evidence in humans in the absence of sufficient evidence in experimental animals.
NTP-R: Reasonably anticipated to be a carcinogen: limited evidence from studies in humans or sufficient evidence from studies in experimental animals.
ACGIH A3: Animal carcinogen: Agent is carcinogenic in experimental animals at a relatively high dose, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) not considered relevant to worker exposure. Available epidemologic studies do not confirm an increased risk of cancer in exposed humans. Available evidence suggests that the agent is not likely to cause cancer in humans except under uncommon or unlikely routes or levels of exposure.
The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for this substance.
**Reproductive toxicity:** The Registry of Toxic Effects of Chemical Substances (RTECS) contains reproductive data for this substance.
**Specific target organ system toxicity - repeated exposure:** No effects known.
**Specific target organ system toxicity - single exposure:** No effects known.
**Aspiration hazard:** No effects known.
**Subacute to chronic toxicity:** The Registry of Toxic Effects of Chemical Substances (RTECS) contains multiple dose toxicity data for this substance.
**Additional toxicological information:** To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

**Carcinogenic categories**
**OSHA-Ca (Occupational Safety & Health Administration)** Substance is not listed.



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**Product name: 1,4-Dichlorobenzene**

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## 12 Ecological information

**Toxicity**
**Aquatic toxicity:** No further relevant information available.
**Persistence and degradability** No further relevant information available.
**Bioaccumulative potential** No further relevant information available.
**Mobility in soil** No further relevant information available.
**Ecotoxical effects:**
**Remark:** Very toxic for aquatic organisms
**Additional ecological information:**
**General notes:**
Do not allow product to reach ground water, water course or sewage system, even in small quantities.
Danger to drinking water if even extremely small quantities leak into the ground.
Also poisonous for fish and plankton in water bodies.
May cause long lasting harmful effects to aquatic life.
Avoid transfer into the environment.
Very toxic for aquatic organisms
**Results of PBT and vPvB assessment**
**PBT:** Not applicable.
**vPvB:** Not applicable.
**Other adverse effects** No further relevant information available.

## 13 Disposal considerations

**Waste treatment methods**
**Recommendation** Consult state, local or national regulations to ensure proper disposal.
**Uncleaned packagings:**
**Recommendation:** Disposal must be made according to official regulations.

## 14 Transport information

| | |
|---|---|
| **UN-Number** | |
| **DOT, IMDG, IATA** | UN3077 |
| **UN proper shipping name** | |
| **DOT** | Environmentally hazardous substances, solid, n.o.s. (1,4-Dichlorobenzene) |
| **IMDG** | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (1,4-Dichlorobenzene), MARINE POLLUTANT |
| **IATA** | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (1,4-Dichlorobenzene) |
| **Transport hazard class(es)** | |
| **DOT, IMDG, IATA** | |

| | |
|---|---|
| **Class** | 9 Miscellaneous dangerous substances and articles. |
| **Label** | 9 |
| **Class** | 9 (M7) Miscellaneous dangerous substances and articles |
| **Label** | 9 |
| **Packing group** | |
| **DOT, IMDG, IATA** | III |
| **Environmental hazards:** | |
| **Marine pollutant (IMDG):** | Symbol (fish and tree) |
| **Special marking (ADR):** | Symbol (fish and tree) |
| **Special marking (IATA):** | Symbol (fish and tree) |
| **Special precautions for user** | Warning: Miscellaneous dangerous substances and articles |
| **EMS Number:** | F-A,S-F |
| **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** | Not applicable. |
| **Transport/Additional information:** | |
| **DOT** | |
| **Marine Pollutant (DOT):** | No |
| **Remarks:** | Special marking with the symbol (fish and tree). |
| **UN "Model Regulation":** | UN3077, Environmentally hazardous substances, solid, n.o.s. (1,4-Dichlorobenzene), 9, III |

## 15 Regulatory information

**Safety, health and environmental regulations/legislation specific for the substance or mixture**
**GHS label elements** The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)
**Hazard pictograms**

GHS07 GHS08

**Signal word** Warning
**Hazard statements**
H302+H332 Harmful if swallowed or if inhaled.
H319 Causes serious eye irritation.
H351 Suspected of causing cancer.
**Precautionary statements**
P201 Obtain special instructions before use.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P281 Use personal protective equipment as required.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P308+P313 IF exposed or concerned: Get medical advice/attention.

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**Product name: 1,4-Dichlorobenzene**

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P337+P313 If eye irritation persists: Get medical advice/attention.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**National regulations**
All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.
All components of this product are listed on the Canadian Domestic Substances List (DSL).

**SARA Section 313 (specific toxic chemical listings)**

| | |
|---|---|
| 106-46-7 | 1,4-Dichlorobenzene |

**California Proposition 65**

**Prop 65 - Chemicals known to cause cancer**

| | |
|---|---|
| 106-46-7 | 1,4-Dichlorobenzene |

**Prop 65 - Developmental toxicity** Substance is not listed.
**Prop 65 - Developmental toxicity, female** Substance is not listed.
**Prop 65 - Developmental toxicity, male** Substance is not listed.
**Information about limitation of use:** For use only by technically qualified individuals.
**Other regulations, limitations and prohibitive regulations**
**Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006.** Substance is not listed.
**The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.**
Substance is not listed.
**Annex XIV of the REACH Regulations (requiring Authorisation for use)** Substance is not listed.
**Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## 16 Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

**Department issuing SDS:** Global Marketing Department
**Date of preparation / last revision** 01/18/2017 / -
**Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
HMIS: Hazardous Materials Identification System (USA)
WHMIS: Workplace Hazardous Materials Information System (Canada)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
vPvB: very Persistent and very Bioaccumulative
ACGIH: American Conference of Governmental Industrial Hygienists (USA)
OSHA: Occupational Safety and Health Administration (USA)
NTP: National Toxicology Program (USA)
IARC: International Agency for Research on Cancer
EPA: Environmental Protection Agency (USA)
Acute Tox. 4: Acute toxicity, Hazard Category 4
Eye Irrit. 2A: Serious eye damage/eye irritation, Hazard Category 2A
Carc. 2: Carcinogenicity, Hazard Category 2