

**SAFETY DATA SHEET**

Creation Date 18-Oct-2010

Revision Date 24-Dec-2021

Revision Number 4

**1. Identification**

**Product Name** 4-Chlorobenzaldehyde

**Cat No. :** AC150440000; AC150440010; AC150440050; AC150441000;  
AC150442500

**CAS No** 104-88-1  
**Synonyms** P-Chlorobenzenecarboxaldehyde.; P-Chlorobenzaldehyde

**Recommended Use** Laboratory chemicals.  
**Uses advised against** Food, drug, pesticide or biocidal product use.

**Details of the supplier of the safety data sheet****Company**

Fisher Scientific Company  
One Reagent Lane  
Fair Lawn, NJ 07410  
Tel: (201) 796-7100

Acros Organics  
One Reagent Lane  
Fair Lawn, NJ 07410

**Emergency Telephone Number** For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11  
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99  
**CHEMTREC** Tel. No.**US**:001-800-424-9300 / **Europe**:001-703-527-3887

**2. Hazard(s) identification****Classification**

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

|  |            |
|--|------------|
| Acute oral toxicity                              | Category 4 |
| Skin Corrosion/Irritation                        | Category 2 |
| Serious Eye Damage/Eye Irritation                | Category 2 |
| Specific target organ toxicity (single exposure) | Category 3 |
| Target Organs - Respiratory system.              |            |
| Combustible dust                                 | Yes        |

**Label Elements**

**Signal Word**  
Warning

**Hazard Statements**

May form combustible dust concentrations in air  
Harmful if swallowed  
Causes skin irritation  
Causes serious eye irritation  
May cause respiratory irritation

**Precautionary Statements****Prevention**

Wash face, hands and any exposed skin thoroughly after handling  
Do not eat, drink or smoke when using this product  
Wear protective gloves/protective clothing/eye protection/face protection  
Avoid breathing dust/fume/gas/mist/vapors/spray  
Use only outdoors or in a well-ventilated area

**Inhalation**

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing  
Call a POISON CENTER or doctor/physician if you feel unwell

**Skin**

IF ON SKIN: Wash with plenty of soap and water  
If skin irritation occurs: Get medical advice/attention  
Take off contaminated clothing and wash before reuse

**Eyes**

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
If eye irritation persists: Get medical advice/attention

**Ingestion**

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell  
Rinse mouth

**Storage**

Store in a well-ventilated place. Keep container tightly closed  
Store locked up

**Disposal**

Dispose of contents/container to an approved waste disposal plant

**Hazards not otherwise classified (HNOC)**

Toxic to aquatic life with long lasting effects

### 3. Composition/Information on Ingredients

| Component            | CAS No   | Weight % |
|----------------------|----------|----------|
| p-Chlorobenzaldehyde | 104-88-1 | >95      |

### 4. First-aid measures

**Eye Contact**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

**Skin Contact**

Wash off immediately with plenty of water for at least 15 minutes. Get medical attention.

**Inhalation**

Remove to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth

method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Get medical attention.

**Ingestion** Do NOT induce vomiting. Call a physician or poison control center immediately.

**Most important symptoms and effects** No information available.

**Notes to Physician** Treat symptomatically

## 5. Fire-fighting measures

**Suitable Extinguishing Media** Water spray, carbon dioxide (CO<sub>2</sub>), dry chemical, alcohol-resistant foam. Water mist may be used to cool closed containers.

**Unsuitable Extinguishing Media** No information available

**Flash Point** 88 °C / 190.4 °F

**Method -** No information available

**Autoignition Temperature** 250 °C / 482 °F

### Explosion Limits

**Upper** No data available

**Lower** No data available

**Sensitivity to Mechanical Impact** No information available

**Sensitivity to Static Discharge** No information available

### Specific Hazards Arising from the Chemical

Combustible material. Containers may explode when heated.

### Hazardous Combustion Products

Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>). Hydrogen chloride gas.

### Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

### NFPA

**Health**  
2

**Flammability**  
2

**Instability**  
1

**Physical hazards**  
N/A

## 6. Accidental release measures

**Personal Precautions** Use personal protective equipment as required. Remove all sources of ignition. Take precautionary measures against static discharges. Avoid dust formation.

**Environmental Precautions** Do not flush into surface water or sanitary sewer system.

**Methods for Containment and Clean Up** Remove all sources of ignition. Sweep up and shovel into suitable containers for disposal. Avoid dust formation.

## 7. Handling and storage

**Handling** Wear personal protective equipment/face protection. Keep away from open flames, hot surfaces and sources of ignition. Avoid dust formation. Do not breathe dust. Do not get in eyes, on skin, or on clothing. Do not ingest. If swallowed then seek immediate medical assistance.

**Storage.** Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks and flame. Keep under nitrogen. Incompatible Materials. Strong oxidizing

agents. Strong reducing agents. Strong bases.

## 8. Exposure controls / personal protection

### Exposure Guidelines

This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

### Engineering Measures

Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting equipment.

### Personal Protective Equipment

#### **Eye/face Protection**

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

#### **Skin and body protection**

Wear appropriate protective gloves and clothing to prevent skin exposure.

#### **Respiratory Protection**

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

#### **Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

|  |                          |
|--|--------------------------|
| Physical State                         | Solid                    |
| Appearance                             | White to yellow          |
| Odor                                   | No information available |
| Odor Threshold                         | No information available |
| pH                                     | No information available |
| Melting Point/Range                    | > 46 °C / > 114.8 °F     |
| Boiling Point/Range                    | 214 °C / 417.2 °F        |
| Flash Point                            | 88 °C / 190.4 °F         |
| Evaporation Rate                       | Not applicable           |
| Flammability (solid,gas)               | No information available |
| Flammability or explosive limits       |                          |
| Upper                                  | No data available        |
| Lower                                  | No data available        |
| Vapor Pressure                         | 0.36 mbar @ 25 °C        |
| Vapor Density                          | Not applicable           |
| Specific Gravity                       | 1.196                    |
| Solubility                             | 935 mg/L (20°C)          |
| Partition coefficient; n-octanol/water | No data available        |
| Autoignition Temperature               | 250 °C / 482 °F          |
| Decomposition Temperature              | No information available |
| Viscosity                              | Not applicable           |
| Molecular Formula                      | C7 H5 Cl O               |
| Molecular Weight                       | 140.57                   |

## 10. Stability and reactivity

### **Reactive Hazard**

Yes

### **Stability**

Air sensitive. Light sensitive.

### **Conditions to Avoid**

Avoid dust formation. Incompatible products. Heat, flames and sparks. Exposure to air.

Exposure to light. Keep away from open flames, hot surfaces and sources of ignition.

**Incompatible Materials** Strong oxidizing agents, Strong reducing agents, Strong bases

**Hazardous Decomposition Products** Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>), Hydrogen chloride gas

**Hazardous Polymerization** Hazardous polymerization does not occur.

**Hazardous Reactions** None under normal processing.

## 11. Toxicological information

### Acute Toxicity

#### Product Information Component Information

| Component            | LD50 Oral                 | LD50 Dermal               | LC50 Inhalation               |
|----------------------|---------------------------|---------------------------|-------------------------------|
| p-Chlorobenzaldehyde | LD50 = 1575 mg/kg ( Rat ) | LD50 > 5000 mg/kg ( Rat ) | LC50 > 0.321 mg/L ( Rat ) 4 h |

**Toxicologically Synergistic Products** No information available

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

**Irritation** Irritating to eyes and skin

**Sensitization** No information available

**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen.

| Component            | CAS No   | IARC       | NTP        | ACGIH      | OSHA       | Mexico     |
|----------------------|----------|------------|------------|------------|------------|------------|
| p-Chlorobenzaldehyde | 104-88-1 | Not listed | Not listed | Not listed | Not listed | Not listed |

**Mutagenic Effects** Not mutagenic in AMES Test

**Reproductive Effects** No information available.

**Developmental Effects** No information available.

**Teratogenicity** No information available.

**STOT - single exposure** Respiratory system  
**STOT - repeated exposure** None known

**Aspiration hazard** No information available

**Symptoms / effects, both acute and delayed** No information available

**Endocrine Disruptor Information** No information available

**Other Adverse Effects** The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

## 12. Ecological information

### Ecotoxicity

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

| Component            | Freshwater Algae | Freshwater Fish  | Microtox   | Water Flea |
|----------------------|------------------|--|--|------------|
| p-Chlorobenzaldehyde | Not listed       | LC50: 2 - 2.4 mg/L, 96h flow-through (Pimephales promelas) | EC50 = 10.1 mg/L 30 min<br>EC50 = 10.2 mg/L 5 min<br>EC50 = 10.4 mg/L 30 min | Not listed |

|  |  |  |   |  |
|--|--|--|---|--|
|  |  |  | EC50 = 10.9 mg/L 15 min<br>EC50 = 500 mg/L 16 h |  |
|--|--|--|---|--|

**Persistence and Degradability** Soluble in water Persistence is unlikely based on information available.

**Bioaccumulation/ Accumulation** No information available.

**Mobility** . Will likely be mobile in the environment due to its water solubility.

| Component            | log Pow |
|----------------------|---------|
| p-Chlorobenzaldehyde | 2.19    |

### 13. Disposal considerations

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

### 14. Transport information

#### DOT

**UN-No** UN3077  
**Proper Shipping Name** Environmentally hazardous substances, solid, n.o.s.  
**Technical Name** (4-CHLOROBENZALDEHYDE)  
**Hazard Class** 9  
**Packing Group** III

#### TDG

**UN-No** UN3077  
**Proper Shipping Name** Environmentally hazardous substances, solid, n.o.s.  
**Hazard Class** 9  
**Packing Group** III

#### IATA

**UN-No** UN3077  
**Proper Shipping Name** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.\*  
**Hazard Class** 9  
**Packing Group** III

#### IMDG/IMO

**UN-No** UN3077  
**Proper Shipping Name** Environmentally hazardous substances, solid, n.o.s.  
**Hazard Class** 9  
**Packing Group** III

### 15. Regulatory information

#### United States of America Inventory

| Component            | CAS No   | TSCA | TSCA Inventory notification -<br>Active-Inactive | TSCA - EPA Regulatory<br>Flags |
|----------------------|----------|------|--|--------------------------------|
| p-Chlorobenzaldehyde | 104-88-1 | X    | ACTIVE   | -                              |

#### Legend:

**TSCA** US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

'-' - Not Listed

**TSCA 12(b)** - Notices of Export Not applicable

#### International Inventories

Canada (DSL/NDL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

| Component | CAS No | DSL | NDL | EINECS | PICCS | ENCS | ISHL | AICS | IECSC | KECL |
|-----------|--------|-----|-----|--------|-------|------|------|------|-------|------|
|-----------|--------|-----|-----|--------|-------|------|------|------|-------|------|

|                      |          |   |   |           |   |   |   |   |   |          |
|----------------------|----------|---|---|-----------|---|---|---|---|---|----------|
| p-Chlorobenzaldehyde | 104-88-1 | - | X | 203-247-4 | X | X | X | X | X | KE-05521 |
|----------------------|----------|---|---|-----------|---|---|---|---|---|----------|

KECL - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

#### U.S. Federal Regulations

|   |                                    |
|---|------------------------------------|
| <b>SARA 313</b>   | Not applicable                     |
| <b>SARA 311/312 Hazard Categories</b>                       | See section 2 for more information |
| <b>CWA (Clean Water Act)</b>                                | Not applicable                     |
| <b>Clean Air Act</b>  | Not applicable                     |
| <b>OSHA - Occupational Safety and Health Administration</b> | Not applicable                     |
| <b>CERCLA</b>   | Not applicable                     |

**California Proposition 65** This product does not contain any Proposition 65 chemicals.

#### **U.S. State Right-to-Know Regulations**

| Component            | Massachusetts | New Jersey | Pennsylvania | Illinois | Rhode Island |
|----------------------|---------------|------------|--------------|----------|--------------|
| p-Chlorobenzaldehyde | X             | -          | X            | -        | -            |

#### **U.S. Department of Transportation**

|                             |   |
|-----------------------------|---|
| Reportable Quantity (RQ):   | N |
| DOT Marine Pollutant        | N |
| DOT Severe Marine Pollutant | N |

**U.S. Department of Homeland Security** This product does not contain any DHS chemicals.

#### Other International Regulations

**Mexico - Grade** No information available

**Authorisation/Restrictions according to EU REACH**

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

| Component            | CAS No   | OECD HPV | Persistent Organic Pollutant | Ozone Depletion Potential | Restriction of Hazardous Substances (RoHS) |
|----------------------|----------|----------|------------------------------|---------------------------|--|
| p-Chlorobenzaldehyde | 104-88-1 | Listed   | Not applicable               | Not applicable            | Not applicable                             |

| Component            | CAS No   | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification | Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements | Rotterdam Convention (PIC) | Basel Convention (Hazardous Waste) |
|----------------------|----------|---|--|----------------------------|------------------------------------|
| p-Chlorobenzaldehyde | 104-88-1 | Not applicable  | Not applicable   | Not applicable             | Not applicable                     |

## 16. Other information

**Prepared By** Regulatory Affairs

Thermo Fisher Scientific  
Email: EMSDS.RA@thermofisher.com

|                         |   |
|-------------------------|---|
| <b>Creation Date</b>    | 18-Oct-2010   |
| <b>Revision Date</b>    | 24-Dec-2021   |
| <b>Print Date</b>       | 24-Dec-2021   |
| <b>Revision Summary</b> | This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). |

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of SDS**