

## SAFETY DATA SHEET

Version 6.8  
Revision Date 09/08/2024  
Print Date 09/09/2024

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

Product name : Chloroform

Product Number : C2432  
Brand : SIGALD  
Index-No. : 602-006-00-4  
CAS-No. : 67-66-3

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

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

Company : Sigma-Aldrich Inc.  
3050 SPRUCE ST  
ST. LOUIS MO 63103  
UNITED STATES

Telephone : +1 314 771-5765  
Fax : +1 800 325-5052

**1.4 Emergency telephone**

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Acute toxicity, Oral (Category 4), H302  
Acute toxicity, Inhalation (Category 3), H331  
Skin irritation (Category 2), H315

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Eye irritation (Category 2A), H319  
 Carcinogenicity (Category 2), H351  
 Reproductive toxicity (Category 2), H361  
 Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336  
 Specific target organ toxicity - repeated exposure, Oral (Category 1), Liver, Kidney, H372  
 Short-term (acute) aquatic hazard (Category 3), H402

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 Statements

|      |  |
|------|--|
| H302 | Harmful if swallowed.  |
| H315 | Causes skin irritation.  |
| H319 | Causes serious eye irritation.   |
| H331 | Toxic if inhaled.  |
| H336 | May cause drowsiness or dizziness.   |
| H351 | Suspected of causing cancer.   |
| H361 | Suspected of damaging fertility or the unborn child.   |
| H372 | Causes damage to organs (Liver, Kidney) through prolonged or repeated exposure if swallowed. |
| H402 | Harmful to aquatic life.   |

Precautionary Statements

|                    |  |
|--------------------|--|
| 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/ vapors/ spray.   |
| P264               | Wash skin thoroughly after handling.   |
| P270               | Do not eat, drink or smoke when using this product.  |
| P271               | Use only outdoors or in a well-ventilated area.  |
| P273               | Avoid release to the environment.  |
| P280               | Wear protective gloves/ protective clothing/ eye protection/ face protection.  |
| P301 + P312 + P330 | IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.  |
| P302 + P352        | IF ON SKIN: Wash with plenty of soap and water.  |
| P304 + P340 + P311 | IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor.                         |
| P305 + P351 + P338 | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P308 + P313        | IF exposed or concerned: Get medical advice/ attention.  |
| P332 + P313        | If skin irritation occurs: Get medical advice/ attention.  |
| P337 + P313        | If eye irritation persists: Get medical advice/ attention.   |
| P362               | Take off contaminated clothing and wash before reuse.  |
| 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   |

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plant.

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

### SECTION 3: Composition/information on ingredients

#### 3.1 Substances

Synonyms : Trichloromethane  
Methylidyne trichloride

Formula :  $\text{CHCl}_3$   
Molecular weight : 119.38 g/mol  
CAS-No. : 67-66-3  
EC-No. : 200-663-8  
Index-No. : 602-006-00-4

| Component         | Classification   | Concentration |
|-------------------|--|---------------|
| <b>Chloroform</b> |  |               |
|                   | Acute Tox. 4; Acute Tox. 3; Skin Irrit. 2; Eye Irrit. 2A; Carc. 2; Repr. 2; STOT SE 3; STOT RE 1; Aquatic Acute 3; H302, H331, H315, H319, H351, H361, H336, H372, H402<br>Concentration limits:<br>20 %: STOT SE 3, H336; | <= 100 %      |

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

First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

##### If inhaled

After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

##### 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

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**SECTION 5: Firefighting measures****5.1 Extinguishing media****Unsuitable extinguishing media**

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

**5.2 Special hazards arising from the substance or mixture**

Carbon oxides

Hydrogen chloride gas

**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.

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**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**

Advice for non-emergency personnel: Do not breathe vapors, aerosols. 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 carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

**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

#### Advice on safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

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

#### Storage class

Storage class (TRGS 510): 6.1D: Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

### 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

#### Ingredients with workplace control parameters

| Component  | CAS-No. | Value  | Control parameters              | Basis   |
|------------|---------|--|---------------------------------|---|
| Chloroform | 67-66-3 | TWA  | 10 ppm                          | USA. ACGIH Threshold Limit Values (TLV)   |
|            | Remarks | Confirmed animal carcinogen with unknown relevance to humans |                                 |   |
|            |         | ST   | 2 ppm<br>9.78 mg/m <sup>3</sup> | USA. NIOSH Recommended Exposure Limits  |
|            |         | Potential Occupational Carcinogen                            |                                 |   |
|            |         | C  | 50 ppm<br>240 mg/m <sup>3</sup> | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants        |
|            |         | PEL  | 2 ppm<br>9.78 mg/m <sup>3</sup> | California permissible exposure limits for chemical contaminants (Title 8, Article 107) |

### 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

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.

Full contact

Material: Fluorinated rubber

Minimum layer thickness: 0.7 mm

Break through time: 480 min

Material tested: Vitoject® (KCL 890 / Aldrich Z677698, Size M)

Splash contact

Material: Fluorinated rubber

Minimum layer thickness: 0.7 mm

Break through time: 480 min

Material tested: Vitoject® (KCL 890 / Aldrich Z677698, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

### Body Protection

protective clothing

### Respiratory protection

Recommended Filter type: Filter type AX

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

required when vapours/aerosols 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.

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## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

a) Appearance                      Form: liquid, clear

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|   |   |
|---|---|
|   | Color: colorless  |
| b) Odor   | sweet   |
| c) Odor Threshold                               | 205 ppm   |
| d) pH   | No data available   |
| e) Melting point/freezing point                 | Melting point/ range: -63 °C (-81 °F)                         |
| f) Initial boiling point and boiling range      | 60.5 - 61.5 °C 140.9 - 142.7 °F                               |
| g) Flash point                                  | ( ) - Regulation (EC) No. 440/2008, Annex, A.9 does not flash |
| 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                               | 210 hPa at 20 °C (68 °F)                                      |
| l) Vapor density                                | 4.12 - (Air = 1.0)  |
| m) Density                                      | 1.492 g/mL at 25 °C (77 °F)                                   |
| Relative density                                | No data available   |
| n) Water solubility                             | 8.7 g/l at 23 °C (73 °F) - OECD Test Guideline 105 - soluble  |
| o) Partition coefficient: n-octanol/water       | No data available   |
| p) Autoignition temperature                     | No data available   |
| q) Decomposition temperature                    | Distillable in an undecomposed state at normal pressure.      |
| r) Viscosity                                    | No data available   |
| s) Explosive properties                         | No data available   |
| t) Oxidizing properties                         | none  |

## 9.2 Other safety information

|                              |   |
|------------------------------|---|
| Solubility in other solvents | organic solvent at 20 °C (68 °F) - miscible |
| Relative vapor density       | 4.12 - (Air = 1.0)                          |

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

No data available

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## 10.2 Chemical stability

Sensitivity to light heat-sensitive

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

Contains the following stabilizer(s):

2-methyl-2-butene ( $\geq 0.001$  -  $\leq 0.015$  %)

## 10.3 Possibility of hazardous reactions

Risk of explosion with:

Ammonia

Amines

nitrogen oxides

bases

Oxygen

alkali amides

organic nitro compounds

strong alkalis

Fluorine

peroxi compounds

Alkaline earth metals

Alkali metals

Powdered metals

Methanol

with

alcoholates

strong alkalis

Iron

in powder form

magnesium

in powder form

various alloys

sensitive to shock

Methanol

with

Sodium hydroxide

Oxygen

with

alkali compounds

Aluminum

in powder form

Acetone

with

alkali compounds

Potassium

sensitive to shock

phosphines

bis(dimethylamino)dimethyl tin

nonmetallic hydrogen compounds

Powdered metals

Light metals

Ketones

mineral acids

Strong oxidizing agents



semimetallic hydrogen compounds  
sodium  
sensitive to shock

#### **10.4 Conditions to avoid**

no information available

#### **10.5 Incompatible materials**

rubber, various plastics

#### **10.6 Hazardous decomposition products**

In the event of fire: see section 5

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### **SECTION 11: Toxicological information**

#### **11.1 Information on toxicological effects**

##### **Acute toxicity**

Acute toxicity estimate Oral - 908 mg/kg

(Calculation method)

LD50 Oral - Rat - male - 908 mg/kg

(OECD Test Guideline 401)

Acute toxicity estimate Inhalation - 4 h - 3.1 mg/l - vapor (Calculation method)

LC50 Inhalation - Rat - 6 h - 9.17 mg/l - vapor

Acute toxicity estimate Inhalation - Expert judgment - 4 h - 3.1 mg/l - vapor

Dermal: No data available

No data available

##### **Skin corrosion/irritation**

Skin - Rabbit

Result: Irritating to skin. - 24 h

Remarks: (ECHA)

Remarks: Drying-out effect resulting in rough and chapped skin.

Skin - Rabbit

Result: slight irritation

Remarks: (IUCLID)

##### **Serious eye damage/eye irritation**

Eyes - Rabbit

Result: Irritating to eyes.

Remarks: (ECHA)

Remarks: (Regulation (EC) No 1272/2008, Annex VI)

##### **Respiratory or skin sensitization**

Maximization Test - Guinea pig

Result: negative

(Regulation (EC) No. 440/2008, Annex, B.6)

##### **Germ cell mutagenicity**

Test Type: Ames test

Test system: Escherichia coli/Salmonella typhimurium  
Metabolic activation: with and without metabolic activation  
Result: negative  
Remarks: (ECHA)  
Test Type: unscheduled DNA synthesis assay  
Test system: Liver  
Metabolic activation: without metabolic activation  
Result: negative  
Remarks: (ECHA)

Test Type: Micronucleus test  
Species: Rat  
Cell type: Red blood cells (erythrocytes)  
Application Route: Oral  
Method: OECD Test Guideline 474  
Result: negative

Test Type: unscheduled DNA synthesis assay  
Species: Rat  
Cell type: Liver cells  
Application Route: Oral  
Method: OECD Test Guideline 486  
Result: negative

Test Type: in vivo assay  
Species: Mouse

Application Route: Inhalation

Result: negative  
Remarks: (ECHA)

### **Carcinogenicity**

Suspected of causing cancer.

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

NTP: RAHC - Reasonably anticipated to be a human carcinogen (Chloroform)

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**

Suspected of damaging the unborn child.

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

May cause drowsiness or dizziness.

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

Oral - Causes damage to organs through prolonged or repeated exposure.

- Liver, Kidney

### **Aspiration hazard**

No data available

## 11.2 Additional Information

Repeated dose toxicity - Rat - female - Oral - NOAEL (No observed adverse effect level) - 34 mg/kg

RTECS: FS9100000

Vomiting, Cough, irritant effects, Shortness of breath, respiratory arrest, narcosis, Dizziness, Nausea, agitation, spasms, inebriation, Headache, Stomach/intestinal disorders, ataxia (impaired locomotor coordination), cardiovascular disorders  
Drying-out effect resulting in rough and chapped skin.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Stomach - Irregularities - Based on Human Evidence

Stomach - Irregularities - Based on Human Evidence

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## SECTION 12: Ecological information

### 12.1 Toxicity

|   |   |
|---|---|
| Toxicity to daphnia and other aquatic invertebrates | static test EC50 - Crassostrea gigas - 152.5 mg/l - 48 h<br>Remarks: (ECHA) |
|---|---|

|                   |   |
|-------------------|---|
| Toxicity to algae | static test ErC50 - Chlamydomonas reinhardtii (green algae) - 13.3 mg/l - 72 h<br>Remarks: (ECHA) |
|-------------------|---|

|   |   |
|---|---|
| Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity) | semi-static test NOEC - Daphnia magna (Water flea) - 6.3 mg/l - 21 d<br>Remarks: (ECHA) |
|---|---|

### 12.2 Persistence and degradability

No data available

### 12.3 Bioaccumulative potential

No data available

### 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

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## SECTION 13: Disposal considerations

### 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.

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## SECTION 14: Transport information

#### DOT (US)

UN number: 1888    Class: 6.1    Packing group: III  
Proper shipping name: Chloroform  
Reportable Quantity (RQ): 10 lbs  
Reportable Quantity (RQ): 10 lbs  
Poison Inhalation Hazard: No

#### IMDG

UN number: 1888    Class: 6.1    Packing group: III    EMS-  
No: F-A, S-A  
Proper shipping name: CHLOROFORM

#### IATA

UN number: 1888    Class: 6.1    Packing group: III  
Proper shipping name: Chloroform

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## SECTION 15: Regulatory information

#### CERCLA Reportable Quantity

| Components | CAS-No. | Component RQ (lbs) | Calculated product RQ (lbs) |
|------------|---------|--------------------|-----------------------------|
| Chloroform | 67-66-3 | 10                 | 10                          |
| Chloroform | 67-66-3 | 10                 | 10 (D022)                   |

#### SARA 304 Extremely Hazardous Substances Reportable Quantity

| Components | CAS-No. | Component RQ (lbs) | Calculated product RQ (lbs) |
|------------|---------|--------------------|-----------------------------|
| Chloroform | 67-66-3 | 10                 | 10                          |

#### SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

| Components | CAS-No. | Component TPQ (lbs) |
|------------|---------|---------------------|
| Chloroform | 67-66-3 | 10000               |

**SARA 311/312** : Acute Health Hazard

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**Hazards** Chronic Health Hazard

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

|            |         |                  |
|------------|---------|------------------|
| Chloroform | 67-66-3 | >= 90 - <= 100 % |
|------------|---------|------------------|

**US State Regulations**

**Massachusetts Right To Know**

|            |         |
|------------|---------|
| Chloroform | 67-66-3 |
|------------|---------|

**Pennsylvania Right To Know**

|            |         |
|------------|---------|
| Chloroform | 67-66-3 |
|------------|---------|

**Maine Chemicals of High Concern**

Product does not contain any listed chemicals

**Vermont Chemicals of High Concern**

Product does not contain any listed chemicals

**Washington Chemicals of High Concern**

Product does not contain any listed chemicals

**California Prop. 65**

WARNING: This product can expose you to chemicals including Chloroform, which is/are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

**The ingredients of this product are reported in the following inventories:**

TSCA : All substances listed as active on the TSCA inventory

**TSCA list**

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

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**SECTION 16: Other information**

**Further information**

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. 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](http://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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Version: 6.8

Revision Date: 09/08/2024

Print Date: 09/09/2024