

### 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Chloroform

Product Number : 288306  
Brand : Sigma-Aldrich

Supplier : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +1 800-325-5832  
Fax : +1 800-325-5052  
Emergency Phone # (For both supplier and manufacturer) : (314) 776-6555

Preparation Information : Sigma-Aldrich Corporation  
Product Safety - Americas Region  
1-800-521-8956

### 2. HAZARDS IDENTIFICATION

#### Emergency Overview

##### OSHA Hazards

Carcinogen, Target Organ Effect, Harmful by ingestion., Irritant, Teratogen

##### Target Organs

Cardiovascular system., Central nervous system, Blood, Liver, Kidney, Nerves., Heart

##### GHS Classification

Acute toxicity, Oral (Category 4)  
Acute toxicity, Inhalation (Category 4)  
Skin irritation (Category 2)  
Eye irritation (Category 2A)  
Carcinogenicity (Category 2)  
Reproductive toxicity (Category 2)  
Specific target organ toxicity - single exposure (Category 3), Central nervous system  
Specific target organ toxicity - repeated exposure (Category 2), Liver, Kidney  
Acute aquatic toxicity (Category 3)

##### GHS Label elements, including precautionary statements

Pictogram



Signal word

Warning

Hazard statement(s)

H302 + H332	Harmful if swallowed or if inhaled
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer.
H361d	Suspected of damaging the unborn child.
H373	May cause damage to organs (Liver, Kidney) through prolonged or repeated exposure.
H402	Harmful to aquatic life.

**Precautionary statement(s)**

P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.  
 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.

**HMIS Classification**

**Health hazard:** 2  
**Chronic Health Hazard:** \*  
**Flammability:** 0  
**Physical hazards:** 0

**NFPA Rating**

**Health hazard:** 2  
**Fire:** 0  
**Reactivity Hazard:** 0

**Potential Health Effects**

**Inhalation** May be harmful if inhaled. Causes respiratory tract irritation. Vapours may cause drowsiness and dizziness.  
**Skin** Harmful if absorbed through skin. Causes skin irritation.  
**Eyes** Causes eye irritation.  
**Ingestion** Harmful if swallowed.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Synonyms : Trichloromethane  
 Methylidyne trichloride

Formula :  $\text{CHCl}_3$   
 Molecular Weight : 119.38 g/mol

Component	Classification	Concentration
<b>Chloroform</b>		
CAS-No. 67-66-3	Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2; Carc. 2; Repr. 2; STOT SE 3; STOT RE 2; H302 + H332, H315, H319, H336, H351, H361d, H373	90 - 100 %
EC-No. 200-663-8		
Index-No. 602-006-00-4		
<b>Ethanol</b>		
CAS-No. 64-17-5	Flam. Liq. 2; H225, H225	1 - 5 %
EC-No. 200-578-6		
Index-No. 603-002-00-5		

For the full text of the H-Statements and R-Phrases mentioned in this Section, see Section 16

**4. 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. 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.

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## 5. FIREFIGHTING MEASURES

### Conditions of flammability

Not flammable or combustible.

### Suitable extinguishing media

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

### Special protective equipment for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

### Hazardous combustion products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas

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## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions

Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

### 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.

### Methods and materials for containment and cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

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## 7. HANDLING AND STORAGE

### Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

### Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

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## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
Chloroform	67-66-3	TWA	10 ppm	USA. ACGIH Threshold Limit Values (TLV)
Remarks	Central Nervous System impairment Liver damage Embryo/fetal damage Confirmed animal carcinogen with unknown relevance to humans			
		TWA	2 ppm 9.78 mg/m <sup>3</sup>	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		C	50 ppm 240 mg/m <sup>3</sup>	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	The value in mg/m <sup>3</sup> is approximate. Ceiling limit is to be determined from breathing-zone air samples.			
		ST	2 ppm 9.78 mg/m <sup>3</sup>	USA. NIOSH Recommended Exposure Limits
	Potential Occupational Carcinogen See Appendix A			
Ethanol	64-17-5	TWA	1,000 ppm	USA. ACGIH Threshold Limit Values (TLV)
Remarks	Upper Respiratory Tract irritation Confirmed animal carcinogen with unknown relevance to humans			

		TWA	1,000 ppm 1,900 mg/m <sup>3</sup>	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		TWA	1,000 ppm 1,900 mg/m <sup>3</sup>	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
The value in mg/m <sup>3</sup> is approximate.				
		TWA	1,000 ppm 1,900 mg/m <sup>3</sup>	USA. NIOSH Recommended Exposure Limits

## Personal protective equipment

### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type AXBEK (EN 14387) 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).

### Hand 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 CE 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.

### Eye 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 and 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.

### Hygiene measures

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

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Appearance

Form liquid, clear

Colour colourless

### Safety data

pH no data available

Melting point/freezing point Melting point/range: -63 °C (-81 °F) - lit.

Boiling point 60.5 - 61.5 °C (140.9 - 142.7 °F) - lit.

Flash point	no data available
Ignition temperature	no data available
Auto-ignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapour pressure	213.3 hPa (160.0 mmHg) at 20.0 °C (68.0 °F)
Density	1.492 g/mL at 25 °C (77 °F) 1.48 g/mL at 25 °C (77 °F)
Water solubility	no data available
Partition coefficient: n-octanol/water	log Pow: 1.97
Relative vapour density	no data available
Odour	no data available
Odour Threshold	no data available
Evaporation rate	no data available

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## 10. STABILITY AND REACTIVITY

### Chemical stability

Stable under recommended storage conditions.

### Possibility of hazardous reactions

no data available

### Conditions to avoid

no data available

### Materials to avoid

Strong oxidizing agents, Strong bases, Magnesium, Sodium/sodium oxides, Lithium

### Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas

Other decomposition products - no data available

Contains the following stabiliser(s):

Ethanol ( $\geq 0.5$  -  $\leq 1$  %)

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## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

#### Oral LD50

#### Inhalation LC50

#### Dermal LD50

no data available

### Other information on acute toxicity

no data available

### Skin corrosion/irritation

no data available

### Serious eye damage/eye irritation

Eyes: no data available

### Respiratory or skin sensitisation

no data available

### Germ cell mutagenicity

no data available

### **Carcinogenicity**

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

NTP: 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 identified as a carcinogen or potential carcinogen by OSHA.

### **Reproductive toxicity**

no data available

### **Teratogenicity**

no data available

### **Specific target organ toxicity - single exposure (Globally Harmonized System)**

no data available

### **Specific target organ toxicity - repeated exposure (Globally Harmonized System)**

no data available

### **Aspiration hazard**

no data available

### **Potential health effects**

<b>Inhalation</b>	May be harmful if inhaled. Causes respiratory tract irritation. Vapours may cause drowsiness and dizziness.
<b>Ingestion</b>	Harmful if swallowed.
<b>Skin</b>	Harmful if absorbed through skin. Causes skin irritation.
<b>Eyes</b>	Causes eye irritation.

### **Signs and Symptoms of Exposure**

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

### **Synergistic effects**

no data available

### **Additional Information**

RTECS: Not available

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## **12. ECOLOGICAL INFORMATION**

### **Toxicity**

no data available

### **Persistence and degradability**

no data available

### **Bioaccumulative potential**

no data available

### **Mobility in soil**

no data available

### **PBT and vPvB assessment**

no data available

### **Other adverse effects**

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

Harmful to aquatic life.

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### 13. DISPOSAL CONSIDERATIONS

#### 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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### 14. TRANSPORT INFORMATION

#### DOT (US)

UN number: 1888 Class: 6.1 Packing group: III

Proper shipping name: Chloroform

Reportable Quantity (RQ): 10 lbs

Marine pollutant: No

Poison Inhalation Hazard: No

#### IMDG

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

Proper shipping name: CHLOROFORM

Marine pollutant: No

#### IATA

UN number: 1888 Class: 6.1 Packing group: III

Proper shipping name: Chloroform

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### 15. REGULATORY INFORMATION

#### OSHA Hazards

Carcinogen, Target Organ Effect, Harmful by ingestion., Irritant, Teratogen

#### SARA 302 Components

The following components are subject to reporting levels established by SARA Title III, Section 302:

	CAS-No.	Revision Date
Chloroform	67-66-3	2007-07-01

#### SARA 313 Components

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

	CAS-No.	Revision Date
Chloroform	67-66-3	2007-07-01

#### SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

#### Massachusetts Right To Know Components

	CAS-No.	Revision Date
Chloroform	67-66-3	2007-07-01
Ethanol	64-17-5	2007-03-01

#### Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Chloroform	67-66-3	2007-07-01
Ethanol	64-17-5	2007-03-01

#### New Jersey Right To Know Components

	CAS-No.	Revision Date
Chloroform	67-66-3	2007-07-01
Ethanol	64-17-5	2007-03-01

**California Prop. 65 Components**

WARNING! This product contains a chemical known to the State of California to cause cancer.  
Chloroform

CAS-No.  
67-66-3

Revision Date  
2011-09-01

**California Prop. 65 Components**

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.  
Chloroform

CAS-No.  
67-66-3

Revision Date  
2011-09-01

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**16. OTHER INFORMATION****Text of H-code(s) and R-phrase(s) mentioned in Section 3**

Acute Tox.	Acute toxicity
Carc.	Carcinogenicity
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H302 + H332	Harmful if swallowed or if inhaled
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer.
H361d	Suspected of damaging the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.
Repr.	Reproductive toxicity
Skin Irrit.	Skin irritation
STOT RE	Specific target organ toxicity - repeated exposure
STOT SE	Specific target organ toxicity - single exposure

**Further information**

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