

### 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Chloroform:Isoamyl alcohol 24:1

Product Number : C0549  
Brand : Sigma

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

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

##### Target Organs

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

##### GHS Classification

Acute toxicity, Oral (Category 4)  
Skin irritation (Category 2)  
Eye irritation (Category 2A)  
Carcinogenicity (Category 2)  
Specific target organ toxicity - repeated exposure (Category 2)  
Acute aquatic toxicity (Category 3)

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

Pictogram



Signal word

Warning

Hazard statement(s)

H302 Harmful if swallowed.  
H315 Causes skin irritation.  
H319 Causes serious eye irritation.  
H351 Suspected of causing cancer.  
H373 May cause damage to organs through prolonged or repeated exposure.  
H402 Harmful to aquatic life.

Precautionary statement(s)

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.  
**Skin** Harmful if absorbed through skin. Causes skin irritation.  
**Eyes** Causes eye irritation.  
**Ingestion** Harmful if swallowed.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Component	Classification	Concentration
<b>Chloroform</b>		
CAS-No. 67-66-3 EC-No. 200-663-8 Index-No. 602-006-00-4	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	60 - 100 %
<b>3-Methylbutan-1-ol</b>		
CAS-No. 123-51-3 EC-No. 204-633-5 Index-No. 603-006-00-7	Flam. Liq. 3; Acute Tox. 4; STOT SE 3; H226, H332, H335, EUH066	1 - 5 %
<b>Ethanol</b>		
CAS-No. 64-17-5 EC-No. 200-578-6 Index-No. 603-002-00-5	Flam. Liq. 2; H225, H225	1 - 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.

**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

**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.

**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.

**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			
3-Methylbutan-1-ol	123-51-3	TWA	100 ppm	USA. ACGIH Threshold Limit Values (TLV)
Remarks	Eye & Upper Respiratory Tract irritation			
		STEL	125 ppm	USA. ACGIH Threshold Limit Values (TLV)
	Eye & Upper Respiratory Tract irritation			
		TWA	100 ppm 360 mg/m <sup>3</sup>	USA. NIOSH Recommended Exposure Limits
		ST	125 ppm 450 mg/m <sup>3</sup>	USA. NIOSH Recommended Exposure Limits

		TWA	100 ppm 360 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.			
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. 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 ABEK (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
Colour	no data available

## Safety data

pH	no data available
Melting point/freezing point	no data available
Boiling point	no data available
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	no data available
Density	no data available
Water solubility	no data available
Partition coefficient: n-octanol/water	no data available
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 ( $\geq 0.6$  -  $\leq 1$  %)

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## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

#### Oral LD50

no data available

#### Inhalation LC50

no data available

#### 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.
<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.

**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.

**14. TRANSPORT INFORMATION****DOT (US)**

UN number: 1888 Class: 6.1 Packing group: III  
 Proper shipping name: Chloroform, solution  
 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, SOLUTION  
 Marine pollutant: No

**IATA**

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

**15. REGULATORY INFORMATION****OSHA Hazards**

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

**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
3-Methylbutan-1-ol	123-51-3	2007-03-01
Ethanol	64-17-5	2007-03-01

**Pennsylvania Right To Know Components**

	CAS-No.	Revision Date
Chloroform	67-66-3	2007-07-01
3-Methylbutan-1-ol	123-51-3	2007-03-01

Ethanol	64-17-5	2007-03-01
<b>New Jersey Right To Know Components</b>		
Chloroform	CAS-No. 67-66-3	Revision Date 2007-07-01
3-Methylbutan-1-ol	123-51-3	2007-03-01
Ethanol	64-17-5	2007-03-01
<b>California Prop. 65 Components</b>		
WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No. 67-66-3	Revision Date 2011-09-01
Chloroform		
<b>California Prop. 65 Components</b>		
WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.	CAS-No. 67-66-3	Revision Date 2011-09-01
Chloroform		

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## 16. OTHER INFORMATION

### Text of H-code(s) and R-phrased(s) mentioned in Section 3

Acute Tox.	Acute toxicity
Carc.	Carcinogenicity
EUH066	Repeated exposure may cause skin dryness or cracking.
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H302 + H332	Harmful if swallowed or if inhaled
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory 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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