



## SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision Date 09/30/2014

Version 2.1

### SECTION 1. Identification

#### Product identifier

Product number	CX1060
Product name	Chloroform (Ethanol Stabilized)
Synonyms	TCM
CAS-No.	67-66-3

#### Relevant identified uses of the substance or mixture and uses advised against

Identified uses	Reagent for analysis
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#### Details of the supplier of the safety data sheet

Company	EMD Millipore Corporation   290 Concord Road, Billerica, MA 01821, United States of America   General Inquiries: +1-978-715-4321   Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)
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Emergency telephone	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week
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### SECTION 2. Hazards identification

#### GHS Classification

Acute toxicity, Category 4, Oral, H302  
Acute toxicity, Category 3, Inhalation, H331  
Skin irritation, Category 2, H315  
Eye irritation, Category 2A, H319  
Carcinogenicity, Category 2, H351  
Reproductive toxicity, Category 2, H361  
Specific target organ systemic toxicity - repeated exposure, Category 1, Liver, Kidney, H372  
For the full text of the H-Statements mentioned in this Section, see Section 16.

#### GHS-Labeling

*Hazard pictograms*



*Signal Word*

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Danger

### *Hazard Statements*

H302 Harmful if swallowed.  
H315 Causes skin irritation.  
H319 Causes serious eye irritation.  
H331 Toxic if inhaled.  
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.

### *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.  
P280 Wear protective gloves/ eye protection/ face protection.  
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.  
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P311 Call a POISON CENTER or doctor/ physician.  
P321 Specific treatment (see supplemental first aid instructions on this label).  
P330 Rinse mouth.  
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 plant.

### **Other hazards**

None known.

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### **SECTION 3. Composition/information on ingredients**

Formula	CHCl <sub>3</sub>	CHCl <sub>3</sub> (Hill)
Synonyms	TCM	
Molar mass	119.38 g/mol	

### **Hazardous ingredients**

*Chemical Name ( Concentration)*

CAS-No.

*Chloroform ( >= 90 % - <= 100 % )*

67-66-3

Exact percentages are being withheld as a trade secret.

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*ethanol ( >= 1 % - < 5 % )*  
64-17-5

Exact percentages are being withheld as a trade secret.

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### SECTION 4. First aid measures

#### Description of first-aid measures

##### *General advice*

First aider needs to protect himself.

##### *Inhalation*

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

##### *Skin contact*

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

##### *Eye contact*

After eye contact: rinse out with plenty of water. Call in ophthalmologist.

##### *Ingestion*

After swallowing: caution if victim vomits. Risk of aspiration! Keep respiratory tract clear. Pulmonary failure possible after aspiration of vomit. Call a physician immediately. Subsequently administer: activated charcoal (20 - 40 g in 10% slurry).

Never give anything by mouth to an unconscious person.

#### Most important symptoms and effects, both acute and delayed

irritant effects, Cough, Shortness of breath, respiratory arrest, Dizziness, narcosis, agitation, spasms, inebriation, Nausea, Vomiting, Stomach/intestinal disorders, cardiovascular disorders, Headache, ataxia (impaired locomotor coordination)

Drying-out effect resulting in rough and chapped skin.

#### Indication of any immediate medical attention and special treatment needed

Laxative: Sodium sulfate (1 tablespoon/1/4 l water).

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### SECTION 5. Fire-fighting measures

#### Extinguishing media

##### *Suitable extinguishing media*

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

##### *Unsuitable extinguishing media*

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

#### Special hazards arising from the substance or mixture

Not combustible.

Ambient fire may liberate hazardous vapors.

Fire may cause evolution of:

Hydrogen chloride gas, Phosgene

#### Advice for firefighters

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### *Special protective equipment for fire-fighters*

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

### *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**

### **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.

Advice for emergency responders: Protective equipment see section 8.

### **Environmental precautions**

Do not empty into drains.

### **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 with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area. Do not inhale vapors.

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## **SECTION 7. Handling and storage**

### **Precautions for safe handling**

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

Observe label precautions.

### **Conditions for safe storage, including any incompatibilities**

Protected from light. Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Store at room temperature.

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**SECTION 8. Exposure controls/personal protection**

**Exposure limit(s)**

*Ingredients*

Basis	Value	Threshold limits	Remarks
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*Chloroform 67-66-3*

ACGIH	Time Weighted Average (TWA):	10 ppm	
NIOSH/GUIDE	Short Term Exposure Limit (STEL):	2 ppm 9.78 mg/m <sup>3</sup>	
OSHA_TRANS	Ceiling Limit Value:	50 ppm 240 mg/m <sup>3</sup>	
Z1A	Time Weighted Average (TWA):	2 ppm 9.78 mg/m <sup>3</sup>	

*ethanol 64-17-5*

ACGIH	Short Term Exposure Limit (STEL):	1,000 ppm	
NIOSH/GUIDE	Recommended exposure limit (REL):	1,000 ppm 1,900 mg/m <sup>3</sup>	
OSHA_TRANS	PEL:	1,000 ppm 1,900 mg/m <sup>3</sup>	
Z1A	Time Weighted Average (TWA):	1,000 ppm 1,900 mg/m <sup>3</sup>	

**Engineering measures**

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

**Individual protection measures**

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

*Hygiene measures*

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

*Eye/face protection*

Safety glasses

*Hand protection*

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

*Other protective equipment:*

protective clothing

*Respiratory protection*

required when vapors/aerosols are generated.

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Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

## SECTION 9. Physical and chemical properties

Physical state	liquid
Color	colorless
Odor	sweet
Odor Threshold	84.9 - 201.5 ppm
pH	No information available.
Melting point	-63 °C
Boiling point/boiling range	ca. 142 °F ( 61 °C) at 1,013 hPa
Flash point	Method: DIN 51755 Part 1 does not flash
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Vapor pressure	211 hPa at 68 °F ( 20 °C)
Relative vapor density	4.25
Density	1.48 g/cm <sup>3</sup> at 68 °F ( 20 °C)
Relative density	No information available.
Water solubility	8 g/l at 68 °F ( 20 °C)
Partition coefficient: n-octanol/water	log Pow: 2 ( 25 °C) (experimental) (IUCLID) Bioaccumulation is not expected.
Autoignition temperature	No information available.

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Decomposition temperature	Distillable in an undecomposed state at normal pressure.
Viscosity, dynamic	0.56 mPa.s at 68 °F ( 20 °C)
Explosive properties	Not classified as explosive.
Oxidizing properties	none
Ignition temperature	not combustible

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### SECTION 10. Stability and reactivity

#### Reactivity

See below

#### Chemical stability

heat-sensitive  
Sensitivity to light

#### *Stabilizer*

ethanol

#### Possibility of hazardous reactions

Risk of explosion with:

Ammonia, Amines, nitrogen oxides, bases, Oxygen, alkali amides, organic nitro compounds, Alcohols, alkali hydroxides, strong alkalis, Fluorine, peroxi compounds, Alkaline earth metals, Alkali metals, Powdered metals

Methanol, with, alcoholates

Methanol, with, strong alkalis

Iron, in powder form

various alloys, sensitive to shock

Methanol, with, Sodium hydroxide

magnesium, in powder form

Oxygen, with, alkali compounds

Aluminum, in powder form

Acetone, with, alkali compounds

Potassium, sensitive to shock

sodium, sensitive to shock

Violent reactions possible with:

phosphines, bis(dimethylamino)dimethyl tin, nonmetallic hydrogen compounds, Powdered metals, Light metals, Ketones, mineral acids, Strong oxidizing agents, semimetallic hydrogen compounds

#### Conditions to avoid

no information available

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### Incompatible materials

rubber, various plastics

### Hazardous decomposition products

in the event of fire: See section 5.

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## SECTION 11. Toxicological information

### Information on toxicological effects

#### *Likely route of exposure*

Inhalation, Eye contact, Skin contact

#### *Target Organs*

Heart

Eyes

Liver

Kidneys

Skin

Central nervous system

Respiratory system

Blood

reproductive system

#### *Acute oral toxicity*

LD50 Rat: 695 mg/kg (RTECS)

LDLO human: 2,514 mg/kg (RTECS)

Symptoms: Nausea, Vomiting, Risk of aspiration upon vomiting., Aspiration may cause pulmonary edema and pneumonitis.

absorption

#### *Acute inhalation toxicity*

Acute toxicity estimate: 0.5 mg/l

Symptoms: Cough, Shortness of breath, Possible damages:, mucosal irritations

absorption

#### *Acute dermal toxicity*

LD50 Rabbit: > 3,980 mg/kg

(IUCLID)

absorption

#### *Skin irritation*

Rabbit

Result: slight irritation

(IUCLID) (Regulation (EC) No 1272/2008, Annex VI)

Drying-out effect resulting in rough and chapped skin.

Causes skin irritation.

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## *Eye irritation*

Rabbit

Result: slight irritation

(IUCLID) (Regulation (EC) No 1272/2008, Annex VI)

Causes serious eye irritation.

## *Carcinogenicity*

Carcinogen classifications of IARC, NTP, California proposition 65 for Ethanol CAS 64-17-5 apply to beverage use only. This product is NOT intended for this use.

## *CMR effects*

Carcinogenicity:

Suspected of causing cancer.

Teratogenicity:

Suspected of damaging the unborn child.

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

The substance or mixture is not classified as specific target organ toxicant, single exposure.

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

Target Organs: Liver, Kidney

Causes damage to organs through prolonged or repeated exposure.

## *Aspiration hazard*

Regarding the available data the classification criteria are not fulfilled.

## **Carcinogenicity**

IARC	Group 2B: Possibly carcinogenic to humans Chloroform 67-66-3
OSHA	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
NTP	Anticipated carcinogen. Chloroform 67-66-3
ACGIH	Confirmed animal carcinogen with unknown relevance to humans. Chloroform 67-66-3

## **Further information**

Systemic effects:

After absorption:

Dizziness, inebriation, agitation, spasms, narcosis, respiratory arrest

After long-term exposure to the chemical:

drop in blood pressure, Headache, ataxia (impaired locomotor coordination), Stomach/intestinal disorders, cardiovascular disorders

Damage to:

Liver, Kidney, Cardiac

Effect potentiated by: ethanol

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Handle in accordance with good industrial hygiene and safety practice.

### SECTION 12. Ecological information

#### Ecotoxicity

##### *Toxicity to fish*

LC50 *Lepomis macrochirus* (Bluegill sunfish): 18 mg/l; 96 h (IUCLID)

##### *Toxicity to daphnia and other aquatic invertebrates*

EC50 *Daphnia magna* (Water flea): 79 mg/l; 48 h (IUCLID)

EC5 *E. sulcatum*: > 6,560 mg/l; 72 h (IUCLID) (maximum permissible toxic concentration)

##### *Toxicity to algae*

IC5 *Scenedesmus quadricauda* (Green algae): 1,100 mg/l; 8 d (IUCLID) (maximum permissible toxic concentration)

##### *Toxicity to bacteria*

EC5 *Pseudomonas putida*: 125 mg/l; 16 h (IUCLID) (maximum permissible toxic concentration)

EC50 activated sludge: 1,010 mg/l; 3 h  
OECD Test Guideline 209

#### Persistence and degradability

##### *Biodegradability*

0 %; 14 d

OECD Test Guideline 301C

Not readily biodegradable.

#### Bioaccumulative potential

##### *Partition coefficient: n-octanol/water*

log Pow: 2 (25 °C)

(experimental)

(IUCLID) Bioaccumulation is not expected.

#### Mobility in soil

##### *Distribution among environmental compartments*

Adsorption/Soil

log Koc: 1.72

(experimental)

Mobile in soils

#### Other adverse effects

##### *Henry constant*

14084 Pa\*m<sup>3</sup>/mol

Method: (experimental)

(IUCLID) Distribution preferentially in air.

##### *Additional ecological information*

Discharge into the environment must be avoided.

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**SECTION 13. Disposal considerations**

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

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**SECTION 14. Transport information**

**Land transport (DOT)**

UN number UN 1888  
Proper shipping name CHLOROFORM  
Class 6.1  
Packing group III  
Environmentally hazardous --

**Air transport (IATA)**

UN number UN 1888  
Proper shipping name CHLOROFORM  
Class 6.1  
Packing group III  
Environmentally hazardous --  
Special precautions for user no

**Sea transport (IMDG)**

UN number UN 1888  
Proper shipping name CHLOROFORM  
Class 6.1  
Packing group III  
Environmentally hazardous --  
Special precautions for user yes  
EmS F-A S-A

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**SECTION 15. Regulatory information**

**United States of America**

**SARA 313**

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

*Ingredients*

Chloroform 67-66-3 99 %

**SARA 302**

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

*Ingredients*

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## Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

### *Ingredients*

Chloroform

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

### *Ingredients*

Chloroform

## DEA List I

Not listed

## DEA List II

Not listed

## US State Regulations

### Massachusetts Right To Know

#### *Ingredients*

Chloroform

### Pennsylvania Right To Know

#### *Ingredients*

Chloroform

ethanol

### New Jersey Right To Know

#### *Ingredients*

Chloroform

ethanol

### California Prop 65 Components

WARNING: this product contains a chemical known in the State of California to cause cancer.

#### *Ingredients*

Chloroform

### California Prop 65 Components

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

#### *Ingredients*

Chloroform

## Notification status

TSCA: All components of the product are listed in the TSCA-inventory.

DSL: All components of this product are on the Canadian DSL.

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## SECTION 16. Other information

### Training advice

Provide adequate information, instruction and training for operators.

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**Labeling**

*Hazard pictograms*



*Signal Word*

Danger

*Hazard Statements*

H302 Harmful if swallowed.  
H315 Causes skin irritation.  
H319 Causes serious eye irritation.  
H331 Toxic if inhaled.  
H351 Suspected of causing cancer.  
H361 Suspected of damaging fertility or the unborn child.  
H372 Causes damage to organs through prolonged or repeated exposure.

*Precautionary Statements*

Response

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.  
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
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 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

**Full text of H-Statements referred to under sections 2 and 3.**

H302	Harmful if swallowed.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H331	Toxic if inhaled.
H351	Suspected of causing cancer.
H361	Suspected of damaging fertility or the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.

**Key or legend to abbreviations and acronyms used in the safety data sheet**

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

Revision Date 09/30/2014

The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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