

Chloroform**048-4**

Version 2.1

Revision Date 08/10/2018

Print Date 07/31/2019

SECTION 1. IDENTIFICATION

Product name : Chloroform

Number : 000000011341

Product Use Description : Solvent

Manufacturer or supplier's details : Honeywell International Inc.
1953 South Harvey Street
Muskegon, MI 49442For more information call : 1-800-368-0050
+1-231-726-3171

(Monday-Friday, 9:00am-5:00pm)In case of emergency call : **Medical: 1-800-498-5701 or +1-303-389-1414**
: **Transportation (CHEMTREC): 1-800-424-9300 or**
: **+1-703-527-3887**
:
: (24 hours/day, 7 days/week)**SECTION 2. HAZARDS IDENTIFICATION****Emergency Overview**

Form : liquid, clear

Color : colourless

Odor : ether-like

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Classification of the substance or mixture

Classification of the substance or mixture : Acute toxicity, Category 4, Oral
Acute toxicity, Category 4, Inhalation
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 1,
Liver, Kidney

GHS Label elements, including precautionary statements

Symbol(s)



Signal word

: Danger

Hazard statements

: Harmful if swallowed or if inhaled
Causes skin irritation.
Causes serious eye irritation.
May cause drowsiness or dizziness.
Suspected of causing cancer.
Suspected of damaging fertility or the unborn child.
Causes damage to organs through prolonged or repeated exposure.

Precautionary statements

: **Prevention:**
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
Wash skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.

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Wear protective gloves/protective clothing/eye protection/face protection.

Response:

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

IF ON SKIN: Wash with plenty of soap and water.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

IF exposed or concerned: Get medical advice/ attention.

If skin irritation occurs: Get medical advice/ attention.

If eye irritation persists: Get medical advice/ attention.

Take off contaminated clothing and wash before reuse.

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.

Carcinogenicity

NTP:	Chloroform	67-66-3
	Reasonably Anticipated to be a Human Carcinogen.	
IARC:	Chloroform	67-66-3
	Group 2B: Possibly carcinogenic to humans	
ACGIH:	Chloroform	67-66-3
	A3: Confirmed animal carcinogen	
	Ethanol	64-17-5
	A3: Confirmed animal carcinogen	

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SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature : Mixture

Chemical name	CAS-No.	Concentration
Chloroform	67-66-3	98.99 %
Ethanol	64-17-5	1.00 %
2-Methylbut-2-ene (Amylene)	513-35-9	<0.01 %

SECTION 4. FIRST AID MEASURES

- Inhalation : Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Use oxygen as required, provided a qualified operator is present. Call a physician.
- Skin contact : Wash off immediately with plenty of water for at least 15 minutes. Take off contaminated clothing and shoes immediately. Wash contaminated clothing before re-use. Call a physician.
- Eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician.
- Ingestion : Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Call a physician.

Notes to physician

Indication of immediate medical attention and special treatment needed, if necessary : Treat symptomatically.

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SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Dry chemical
Carbon dioxide (CO₂)
Foam
Cool closed containers exposed to fire with water spray.
- Specific hazards during firefighting : The product is not flammable.
Exposure to decomposition products may be a hazard to health.
In case of fire hazardous decomposition products may be produced such as:
Gaseous hydrogen chloride (HCl).
Phosgene
Chlorine (Cl₂)
Carbon monoxide
Carbon dioxide (CO₂)
- Special protective equipment for firefighters : Wear self-contained breathing apparatus and protective suit.
- Further information : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Wear personal protective equipment.
Immediately evacuate personnel to safe areas.
Keep people away from and upwind of spill/leak.
Isolate the affected area. Confine entry into the affected area to those persons properly protected (see Section 8 of MSDS).
Ensure adequate ventilation.
Avoid accumulation of vapours in low areas.
Remove all sources of ignition.
Do not swallow.
Do not breathe vapours or spray mist.
Avoid contact with skin, eyes and clothing.

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- 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.
Do not flush into surface water or sanitary sewer system.
Do not allow run-off from fire fighting to enter drains or water courses.
- Methods and materials for containment and cleaning up : Ventilate the area.
Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Shovel into suitable container for disposal.
Dispose of absorbed material in accordance with the regulations.

SECTION 7. HANDLING AND STORAGE**Handling**

- Precautions for safe handling : Wear personal protective equipment.
Use only in well-ventilated areas.
Keep container tightly closed.
Do not smoke.
Do not swallow.
Do not breathe vapours or spray mist.
Avoid contact with skin, eyes and clothing.
- Advice on protection against fire and explosion : The product is not flammable.
Normal measures for preventive fire protection.
Keep product and empty container away from heat and sources of ignition.
Fire or intense heat may cause violent rupture of packages.
Container hazardous when empty.

Storage

- Conditions for safe storage, including any incompatibilities : Storage rooms must be properly ventilated.
Keep away from heat and sources of ignition.
Keep away from direct sunlight.
Keep containers tightly closed in a dry, cool and well-ventilated place.

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Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Store away from incompatible substances.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

- | | | |
|--------------------------|---|--|
| Protective measures | : | Ensure that eyewash stations and safety showers are close to the workstation location. |
| Engineering measures | : | Use with local exhaust ventilation.
Prevent vapour buildup by providing adequate ventilation during and after use. |
| Eye protection | : | Do not wear contact lenses.
Wear as appropriate:
Safety glasses with side-shields
If splashes are likely to occur, wear:
Goggles or face shield, giving complete protection to eyes |
| Hand protection | : | Solvent-resistant gloves
Gloves must be inspected prior to use.
Replace when worn. |
| Skin and body protection | : | Wear as appropriate:
Solvent-resistant apron
Solvent-resistant gloves
If splashes are likely to occur, wear:
Protective suit |
| Respiratory protection | : | In case of insufficient ventilation, wear suitable respiratory equipment.
Wear a positive-pressure supplied-air respirator.
For rescue and maintenance work in storage tanks use self-contained breathing apparatus.
Use NIOSH approved respiratory protection. |
| Hygiene measures | : | When using, do not eat, drink or smoke.
Wash hands before breaks and immediately after handling the product.
Keep working clothes separately. |

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Remove and wash contaminated clothing before re-use.
Do not swallow.
Do not breathe vapours or spray mist.
Avoid contact with skin, eyes and clothing.
This material has an established AIHA ERPG exposure limit.
The current list of ERPG exposure limits can be found at
[http://www.aiha.org/insideaiha/GuidelineDevelopment/ERPG/D](http://www.aiha.org/insideaiha/GuidelineDevelopment/ERPG/Documents/2011erpgweelhandbook_table-only.pdf)
[ocuments/2011erpgweelhandbook_table-only.pdf](http://www.aiha.org/insideaiha/GuidelineDevelopment/ERPG/Documents/2011erpgweelhandbook_table-only.pdf).

Exposure Guidelines

Components	CAS-No.	Value	Control parameters	Update	Basis
Chloroform	67-66-3	TWA : Time weighted average	(10 ppm)	2008	ACGIH:US. ACGIH Threshold Limit Values
Chloroform	67-66-3	STEL : Short term exposure limit	9.78 mg/m3 (2 ppm)	2005	NIOSH/GUIDE:US. NIOSH: Pocket Guide to Chemical Hazards
Chloroform	67-66-3	Ceiling : Ceiling Limit Value:	240 mg/m3 (50 ppm)	02 2006	OSHA_TRANS:US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)
Chloroform	67-66-3	TWA : Time weighted average	9.78 mg/m3 (2 ppm)	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000)
Ethanol	64-17-5	STEL : Short term exposure limit	(1,000 ppm)	2009	ACGIH:US. ACGIH Threshold Limit Values

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Ethanol	64-17-5	REL : Recomm ended exposure limit (REL):	1,900 mg/m3 (1,000 ppm)	2005	NIOSH/GUIDE:US. NIOSH: Pocket Guide to Chemical Hazards
Ethanol	64-17-5	PEL : Permissi ble exposure limit	1,900 mg/m3 (1,000 ppm)	02 2006	OSHA_TRANS:US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)
Ethanol	64-17-5	TWA : Time weighted average	1,900 mg/m3 (1,000 ppm)	1989	Z1A:US. OSHA Table Z-1-A (29 CFR 1910.1000)

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	: liquid, clear
Color	: colourless
Odor	: ether-like
Odor threshold	: Note: no data available
pH	: Note: Not applicable
Melting point/range	: -64 °C
Boiling point/boiling range	: 62 °C
Flash point	: Note: does not flash

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Evaporation rate : Note: no data available

Lower explosion limit : Note: Not applicable

Upper explosion limit : Note: Not applicable

Vapor pressure : 212 hPa
at 20 °C(68 °F)

Vapor density : 4.12 at 20 °C

Density : 1.49 g/cm³ at 20 °C

Water solubility : 8 g/l at 20 °C

Partition coefficient:
n-octanol/water : Note: no data available

Ignition temperature : > 1,000 °C

Decomposition temperature : Note: no data available

Viscosity, dynamic : Note: no data available

Viscosity, kinematic : Note: no data available

Molecular weight : 119.37 g/mol

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SECTION 10. STABILITY AND REACTIVITY

Chemical stability	: Stable under recommended storage conditions.
Possibility of hazardous reactions	: Hazardous polymerisation does not occur.
Conditions to avoid	: Heat, flames and sparks. Protect from heat/overheating. Keep away from direct sunlight.
Incompatible materials	: Metals Aluminium Magnesium Strong bases Strong oxidizing agents May attack many plastics, rubbers and coatings.
Hazardous decomposition products	: Gaseous hydrogen chloride (HCl). Phosgene Chlorine (Cl ₂) Carbon monoxide Carbon dioxide (CO ₂)

SECTION 11. TOXICOLOGICAL INFORMATION

Acute oral toxicity	: LD50: 908 mg/kg Species: Rat
Acute inhalation toxicity	: Acute toxicity estimate: 11.11 mg/l , vapour Exposure time: 4 h Method: Calculation method
Acute dermal toxicity	: LD50: 20 g/kg

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Species: Rabbit

Skin irritation : Species: Rabbit
Result: Irritating to skin.

Eye irritation : Species: Rabbit
Result: Moderate eye irritation
Exposure time: 24 h

Repeated dose toxicity : Species: Rat
Application Route: Inhalation
Note: (50 ppm; 7 hours/day, 5 days/week for 6 months) Causes damage to the following organs: liver, kidneys.

: Species: Rat, male
Application Route: Oral gavage bioassay
Note: Carcinogenicity (70 g/kg for 78 weeks) Kidney tumors

: Species: Mouse, both male and female
Application Route: Oral gavage bioassay
Note: Carcinogenicity (127 g/kg for 92 weeks) Liver tumors

: Species: Rat, male
Application Route: Drinking Water Study
Note: Carcinogenicity (160 mg/kg/d for 104 days) Kidney tumors

: Species: Rat
Application Route: Inhalation
Note: Embryotoxicity at maternally toxic concentrations.

: Species: Rat
Application Route: Inhalation
Note: Teratogenicity at maternally toxic concentrations.

Further information : Note: Contains material which may cause cancer based on

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animal data.

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity effects**

Toxicity to fish : static test
LC50: 43.8 mg/l
Exposure time: 96 h
Species: Oncorhynchus mykiss (rainbow trout)

: static test
LC50: 100 mg/l
Exposure time: 96 h
Species: Lepomis macrochirus (Bluegill sunfish)

Toxicity to daphnia and other aquatic invertebrates : static test
LC50: 28.9 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)

Toxicity to algae : LC0: 185 mg/l
Species: Microcystis aeruginosa (blue alge)
: LC0: 1,110 mg/l
Species: Scenedesmus quadricauda (Green algae)

Toxicity to bacteria : LC0: 125 mg/l
Species: Pseudomonas putida

Further information on ecology**SECTION 13. DISPOSAL CONSIDERATIONS**

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Disposal methods : Observe all Federal, State, and Local Environmental regulations.

SECTION 14. TRANSPORT INFORMATION

DOT UN/ID No. : UN 1888
Proper shipping name : CHLOROFORM
Class : 6.1
Packing group : III
Hazard Labels : 6.1

IATA UN/ID No. : UN 1888
Description of the goods : CHLOROFORM
Class : 6.1
Packaging group : III
Hazard Labels : 6.1
Packing instruction (cargo aircraft) : 680
Packing instruction : 680
(passenger aircraft)
Packing instruction : Y680
(passenger aircraft)

IMDG UN/ID No. : UN 1888
Description of the goods : CHLOROFORM
Class : 6.1
Packaging group : III
Hazard Labels : 6.1
EmS Number : F-A, S-A
Marine pollutant : no

SECTION 15. REGULATORY INFORMATION**Inventories**

US. Toxic Substances : On TSCA Inventory
Control Act

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Australia. Industrial Chemical (Notification and Assessment) Act : On the inventory, or in compliance with the inventory

Canada. Canadian Environmental Protection Act (CEPA). Domestic Substances List (DSL) : All components of this product are on the Canadian DSL

Japan. Kashin-Hou Law List : On the inventory, or in compliance with the inventory

Korea. Existing Chemicals Inventory (KECI) : On the inventory, or in compliance with the inventory

Philippines. The Toxic Substances and Hazardous and Nuclear Waste Control Act : On the inventory, or in compliance with the inventory

China. Inventory of Existing Chemical Substances : On the inventory, or in compliance with the inventory

New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand : On the inventory, or in compliance with the inventory

National regulatory information

US. EPA CERCLA Hazardous Substances (40 CFR 302) : The following component(s) of this product is/are subject to release reporting under 40 CFR 302 when release exceeds the Reportable Quantity (RQ):

Reportable quantity: 10 lbs
: Chloroform 67-66-3

SARA 302 Components : The following components are subject to reporting levels established by SARA Title III, Section 302:
: Chloroform 67-66-3

SARA 313 Components : The following components are subject to reporting levels

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	established by SARA Title III, Section 313:	
	: Chloroform	67-66-3
SARA 311/312 Hazards	: Acute Health Hazard Chronic Health Hazard	
CERCLA Reportable Quantity	: 10 lbs	
California Prop. 65	:  WARNING: This product can expose you to chemicals, listed below, 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 .	
	Chloroform	67-66-3
	Chloroform	67-66-3
Massachusetts RTK	: Chloroform : Ethanol	67-66-3 64-17-5
New Jersey RTK	: Chloroform : Ethanol	67-66-3 64-17-5
Pennsylvania RTK	: Chloroform : Ethanol	67-66-3 64-17-5

SECTION 16. OTHER INFORMATION

	HMIS III	NFPA
Health hazard	: 2*	2
Flammability	: 0	0
Physical Hazard	: 0	
Instability	:	0

* - Chronic health hazard

Hazard rating and rating systems (e.g. HMIS® III, NFPA): This information is intended solely for the use of individuals trained in the particular system.

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Further information

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. Final determination of suitability of any material is the sole responsibility of the user. This information should not constitute a guarantee for any specific product properties.

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

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