

SAFETY DATA SHEET

according to EC directive 2001/58/EC
Version 3.0 Revision Date 12.05.2007
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1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product name : **Chloroform**

Product Number : 34854
Brand : Sigma-Aldrich

Company : Sigma-Aldrich Company Ltd.
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2. COMPOSITION/INFORMATION ON INGREDIENTS

Formula : CHCl_3
Molecular Weight : 119.38 g/mol

CAS-No.	EC-No.	Index-No.	Classification	Concentration [%]
Chloroform				
67-66-3	200-663-8	602-006-00-4	Xn, Carc.Cat.3, R22- R38- R40- R48/20/22	>= 99.5

3. HAZARDS IDENTIFICATION

Risk advice to man and the environment

Harmful if swallowed. Irritating to skin. Limited evidence of a carcinogenic effect. Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.

4. FIRST AID MEASURES

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

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. FIRE-FIGHTING MEASURES

Suitable extinguishing media

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

Special protective equipment for fire-fighters

Wear self contained breathing apparatus for fire fighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation.

Environmental precautions

Do not let product enter drains.

Methods for 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

Handling

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

Normal measures for preventive fire protection.

Storage

Store in cool place. 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	Update	Basis
Chloroform	67-66-3	TWA	2 ppm 9.9 mg/m ³	1997-01-01	UK. Health and Safety Commission, EH 40/2005, Workplace exposure limits
Remarks	Where no specific short-term exposure limit is listed, a figure three times the long-term exposure should be used				
		TWA	2 ppm 10 mg/m ³	2000-06-01	EU. Commission Directive 2000/39/EC of 8 June 2000 establishing a first list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC. OJ no. L 142 of 16.6.2000, p. 47-50.

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. The selected protective gloves have to satisfy the specifications of EU Directive 89/689/EEC and the standard EN 374 derived from it.

Eye protection

Safety glasses

Skin and body protection

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

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	-63.0 °C
Boiling point	61.0 °C
Flash point	not applicable
Ignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapour pressure	213.3 hPa at 20.0 °C
Density	1.48 g/cm ³
Water solubility	no data available
Partition coefficient (n-octanol/water)	log Pow: 1.97

10. STABILITY AND REACTIVITY**Storage stability**

Stable under recommended storage conditions.

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, Phosgene gas, Chlorine

11. TOXICOLOGICAL INFORMATION**Acute toxicity**

LD50 Oral - rat - 695.0 mg/kg

Remarks: Behavioral:Change in motor activity (specific assay). Behavioral:Ataxia. Lungs, Thorax, or Respiration:Respiratory stimulation.

LC50 Inhalation - rat - 4 h - 47,702 mg/m³

LD50 Dermal - rabbit - > 20,000 mg/kg

Irritation and corrosion

Skin - rabbit - Mild skin irritation - 24 h

Eyes - rabbit - Eye irritation - 24 h

Sensitization

no data available

Chronic exposure

Carcinogenicity - rat - Oral

Tumorigenic: Carcinogenic by RTECS criteria. Leukaemia

This product is or contains a component that has been reported to be probably carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification. The National Cancer Institute (NCI) has found clear evidence for carcinogenicity.

Laboratory experiments have shown mutagenic effects.

Signs and Symptoms of Exposure

Vomiting, Gastrointestinal disturbance, Exposure to and/or consumption of alcohol may increase toxic effects., To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Potential Health Effects

Inhalation	Harmful if inhaled. May cause respiratory tract irritation.
Skin	May be harmful if absorbed through skin. Causes skin irritation.
Eyes	May cause eye irritation.
Ingestion	Harmful if swallowed.
Target Organs	Central nervous system, Blood, Liver, Cardiovascular system., Kidney,

12. ECOLOGICAL INFORMATION

Elimination information (persistence and degradability)

Bioaccumulation	Lepomis macrochirus (Bluegill) - 14 d Bioconcentration factor (BCF): 6
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Ecotoxicity effects

Toxicity to fish	LC50 - Leuciscus idus (Golden orfe) - 162.00 mg/l - 48 h
	LC100 - Leuciscus idus (Golden orfe) - 220.00 mg/l - 48 h
	LC50 - No information available. - 97.00 mg/l - 96 h
	LC50 - Brachydanio rerio (zebra fish) - 121.00 mg/l - 96 h
	NOEC - Oryzias latipes - 122 mg/l - 10 d
	NOEC - Oncorhynchus mykiss (rainbow trout) - 24 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates.	EC50 - Daphnia magna (Water flea) - 79.00 mg/l - 24 h
	Immobilization EC50 - Daphnia magna (Water flea) - 51.6 mg/l - 48 h
	NOEC - Daphnia magna (Water flea) - 120 mg/l - 11 d
Toxicity to algae	EC50 - No information available. - 500.00 mg/l - 24 h

Further information on ecology

no data available

13. DISPOSAL CONSIDERATIONS**Product**

Observe all federal, state, and local environmental regulations. 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**ADR/RID**

UN-No.: 1888 Class: 6.1 Packing group: III
Proper shipping name: CHLOROFORM

IMDG

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

IATA

UN-No.: 1888 Class: 6.1 Packing group: III
Proper shipping name: Chloroform

15. REGULATORY INFORMATION**Labelling according to EC Directives**

EC Label

Hazard symbols

Xn Harmful

R-phrase(s)

R22 Harmful if swallowed.
R38 Irritating to skin.
R40 Limited evidence of a carcinogenic effect.
R48/20/22 Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.

S-phrase(s)

S36/37 Wear suitable protective clothing and gloves.

16. OTHER INFORMATION**Further information**

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