

World Headquarters
Hach Company
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MSDS No: M00190

SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product Name: Chloroform
Catalog Number: 1445817

HACH LANGE GmbH
Willstätterstrasse 11
40549 Düsseldorf, Germany
+49 -(0)211 -52880

Emergency Telephone Numbers:
(Poison Information Center Main)
(+49 (0) 6131 19240) 24 HR

SDS Number: M00190

Chemical Name: Methane, trichloro -

Chemical Formula: CHCl₃

Chemical Family: Halogenated Hydrocarbons

Use of the substance/preparation: Laboratory Reagent

CAS No.: 67-66-3

Hazard: Toxic. Vapors harmful. Experimental carcinogen.

Date of MSDS Preparation:

Day: 12

Month: 01

Year: 2006

Additional Emergency Response Numbers: Austria: +49 (0)6131 19240, Belgium: +32 -(0)70 -245245, France: +33 (0)1 -40370404, Italy: +39 -026101029, Netherlands: +31 -(0)30 -2748888, Switzerland: +41 -(0)1 -2515151

2. COMPOSITION / INFORMATION ON INGREDIENTS

Chloroform

EEC Number: 2006638

CAS No.: ~~6766~~

Percent Range: 100,0

Percent Range Units: volume / volume

Ingredient EEC Symbol: Xn - HARMFUL

Ingredient R phrase(s) (R phrase details given in Heading 16): R 48/20/22 R 22 R 38 R 40

TLV: TWA = 10 ppm (49 mg/m³)

PEL: C: 50 ppm (C: 240 mg/m³)

EU Occupational Exposure Limits: 2 ppm (10 mg/m³) Skin notation (Recommended)

3. HAZARDS IDENTIFICATION

Emergency Overview:

Appearance: Clear, colorless

Odor: Ether -like

EU Symbols: Xn - HARMFUL

R PHRASES: R 22: Harmful if swallowed. R 38: Irritating to skin. R 40: Limited evidence of a carcinogenic effect.
R 48/20/22: Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.

Protective Equipment:

Potential Health Effects:

Eye Contact (EC): May cause irritation

Skin Contact (EC): Causes moderate irritation

Skin Absorption (EC): Causes central nervous system depression Causes kidney damage Causes liver damage

Target Organs (SA E): Central nervous system Kidneys Liver
Ingestion (EC): Causes: central nervous system depression kidney damage liver damage
Target Organs (Ing E): Central nervous system Kidneys Liver
Inhalation: Causes: central nervous system depression kidney damage liver damage
Target Organs (Inh E): Central nervous system Kidneys Liver
Medical Conditions Aggravated: Pre-existing: Central nervous system diseases Kidney conditions Liver conditions
Chronic Effects: None reported
Cancer / Reproductive Toxicity Information:
IARC Group 2B: Experimental Carcinogen
Chloroform
Additional Cancer / Reproductive Toxicity Information: Contains: a recognized teratogen. an experimental mutagen.
Toxicologically Synergistic Products: Exposure to and/or consumption of alcohol may increase toxic effects of this product.

4. FIRST AID MEASURES

Eye Contact: Immediately flush eyes with water for 15 minutes. Call physician.
Skin Contact (First Aid): Wash skin with soap and plenty of water.
Ingestion (First Aid): Do not induce vomiting. Call physician immediately.
Inhalation: Remove to fresh air. Give artificial respiration if necessary. Call physician.

5. FIRE FIGHTING MEASURES

Flammable Properties: Material will not burn. During a fire, corrosive and toxic gases may be generated by thermal decomposition.
Hazardous Combustion Products: This material will not burn.
Fire / Explosion Hazards: May react violently with: alkali metals aluminum / aluminum compounds strong bases
Static Discharge: None reported.
Mechanical Impact: None reported
Extinguishing Media: Carbon dioxide Alcohol foam. Dry chemical.
Extinguishing Media NOT To Be Used: Not applicable Not applicable Not applicable
Fire Fighting Instruction: As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear. Evacuate area and fight fire from a safe distance. Water runoff can cause environmental damage. Dike and collect water used to fight fire.

6. ACCIDENTAL RELEASE MEASURES

Spill Response Notice:
Only persons properly qualified to respond to an emergency involving hazardous substances should respond to a spill involving chemicals. See Section 13, Special Instructions for disposal assistance.
Containment Technique: Releases of this material may contaminate the environment. Absorb spilled liquid with non-reactive sorbent material. Stop spilled material from being released to the environment. Dike the spill to contain material for later disposal.
Clean-up Technique: Cover with an inert material, such as sand. Sweep up material. Incinerate material at an E.P.A. approved hazardous waste facility. Decontaminate the area of the spill with a soap solution.
Evacuation Procedure: Evacuate general area (50 foot radius or as directed by your facility's emergency response plan) when: any quantity is spilled. Deny access to unnecessary and unprotected personnel. If conditions warrant, increase the size of the evacuation.

7. HANDLING AND STORAGE

Handling: Avoid contact with eyes skin clothing Do not breathe mist or vapors. Wash thoroughly after handling. Use with adequate ventilation. Maintain general industrial hygiene practices when using this product.
Storage: Protect from: light air Store in a cool, well-ventilated place. Keep away from: alkali metals alkalies
Special Packaging Instructions: Not applicable
Use of the substance/preparation: Laboratory Reagent

8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

Engineering Controls: Have an eyewash station nearby. Have a safety shower nearby. Use a fume hood to avoid exposure to dust, mist or vapor. Maintain general industrial hygiene practices when using this product.

Personal Protective Equipment:

Eye Protection: chemical splash goggles

Skin / Hand Protection: lab coat pva (polyvinyl alcohol) gloves

Inhalation Protection: laboratory fume hood

Precautionary Measures: Avoid contact with: eyes skin clothing Do not breathe: mist/vapor Wash thoroughly after handling. Use with adequate ventilation. Keep away from: alkali metals alkalies

TLV: TWA = 10 ppm (49 mg/m³)

PEL: C: 50 ppm (C: 240 mg/m³)

EU Occupational Exposure Limits: 2 ppm (10 mg/m³) Skin notation (Recommended)

9. PHYSICAL / CHEMICAL PROPERTIES

Appearance: Clear, colorless

Physical State: Liquid

Odor: Ether-like

pH: Not determined.

Vapor Pressure: 159 mm Hg @ 20°C (68°F).

Vapor Density (air = 1): 4,1 (at boiling point of chloroform).

Boiling Point: 61°C (142°F).

Melting Point: -64°C (-83,2°F).

Flash Point: Not applicable

Method: Not applicable

Autoignition Temperature: Not applicable

Flammability Limits:

Lower Explosion Limits: Not applicable

Upper Explosion Limits: Not applicable

Specific Gravity (water = 1): 1,49 @ 20°C (68°F).

Evaporation Rate (water = 1): Not determined. The evaporation rate where: (ether=1) = 0,6; (butyl acetate=1) = 11,6.

Volatile Organic Compounds Content: 100%.

Partition Coefficient (n-octanol / water): Not applicable

Solubility:

Water: 1ml in 200ml water @ 25°C (77°F).

Acid: Not determined.

Other: Alcohol, Benzene, Ether, Carbon Tetrachloride, Carbon Disulfide.

Metal Corrosivity:

Steel: Not determined.

Aluminum: Not determined.

10. STABILITY / REACTIVITY

Chemical Stability: Stable when stored under proper conditions.

Conditions to Avoid: Exposure to air. Exposure to light. Extreme temperatures Heating to decomposition.

Reactivity / Incompatibility: Incompatible with: alkali metals alkalies aluminum caustics coatings (such as paint, varnish, wax, lacquer, etc.) plastics rubber

Hazardous Decomposition: Heating to decomposition releases toxic and/or corrosive fumes of: phosgene chlorides carbon monoxide

Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Product Toxicological Data:

LD50: Oral rat LD₅₀ = 695 mg/kg; Oral mouse LD₅₀ = 36 mg/kg.

LC50: Inhalation rat LC₅₀ = 47702 mg/m³/4hrs.

Dermal Toxicity Data: Skin rabbit LD₅₀ = >20g/kg.

Skin and Eye Irritation Data: Skin rabbit (Standard Draize test) 500 mg/24hrs = MILD; Skin rabbit (Open Draize test) 10 mg/24hrs = MILD; Eye rabbit (Standard Draize test) 20 mg/24hrs = MODERATE.

Mutation Data: Sister chromatid exchange in human lymphocytes @ 10 mmol/l; Cytogenetic analysis of rat @ 597 mg/kg/5D (intermittent oral administration); DNA damage in mammalian lymphocytes @ 1 mmol/l; More data reported in RTECS.

Reproductive Effects Data: Oral rat TDLo (female) = 1260 mg/kg (Fetotoxicity; Musculoskeletal abnormalities);
Inhalation rat TCLo (female) = 30 ppm/7H (Fertility effects; Fetotoxicity; Musculoskeletal abnormalities);
Oral mouse TDLo (male) = 2177 mg/kg (Reduced weight gain in newborn; Biochemical and metabolic effects on newborn); More data reported in RTECS.

Ingredient Toxicological Data: --

Not applicable

IARC Group 2B: Experimental Carcinogen

Chloroform

12. ECOLOGICAL INFORMATION

Product Ecological Information: --

No ecological data available for this product.

Ingredient Ecological Information: --

Not applicable

13. DISPOSAL CONSIDERATIONS

NOTICE (Disposal): These disposal guidelines are based on federal regulations and may be superseded by more stringent state or local requirements. Please consult your local environmental regulators for more information. In Europe: Chemical and analysis solutions must be disposed of in compliance with the respective national regulations. Product packaging must be disposed of in compliance with the country-specific regulations or must be passed to a packaging return system.

14. TRANSPORT INFORMATION

I.C.A.O.:

I.C.A.O. Proper Shipping Name: Chloroform

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ICAO Hazard Class: 6,1

ICAO Subsidiary Risk: NA

ICAO UN/ID Number: UN1888

ICAO Packing Group: III

I.M.O.:

I.M.O. Proper Shipping Name: Chloroform

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I.M.O. Hazard Class: 6,1

I.M.O. Subsidiary Risk: NA

I.M.O. UN Number: UN1888

I.M.O. Packing Group: III

A.D.R.:

A.D.R. Proper Shipping Name: Chloroform

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A.D.R. Hazard Class: 6,1

A.D.R. Subsidiary Risk: NA

A.D.R. UN -Number:: 1888

A.D.R. Packing Group: III

Additional Information: This product may be shipped as part of a chemical kit composed of various compatible dangerous goods for analytical or testing purposes. This kit would have the following classification: Proper Shipping Name: Chemical Kit Hazard Class: 9 UN Number 3316

15. REGULATORY INFORMATION

National Inventories:

EEC Inventory Status: EINECS Listed: Yes

EEC Number: 2006638

EEC LABEL COPY:

EU Symbols: Xn - HARMFUL

R PHRASES: R 22: Harmful if swallowed. R 38: Irritating to skin. R 40: Limited evidence of a carcinogenic effect. R 48/20/22: Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.

S PHRASES: S 36/37: Wear suitable protective clothing and gloves.

16. OTHER INFORMATION

References: Vendor Information. TLV's Threshold Limit Values and Biological Exposure Indices for 1992 -1993. American Conference of Governmental Industrial Hygienists, 1992. The Merck Index, 11th Ed. Rahway, New Jersey: Merck and Co., Inc., 1989. Technical Judgment. Sax, N. Irving. Dangerous Properties of Industrial Materials, 7th Ed. New York: Van Nostrand Reinhold Co., 1989. Sixth Annual Report on Carcinogens, 1991. U.S. Department of Health and Human Services. Rockville, MD: Technical Resources, Inc. 1991. NIOSH/OSHA Occupational Health Guidelines for Chemical Hazards. Cincinnati: Department of Health and Human Services, 1981. List of Dangerous Substances Classified in Annex I of the EEC Directive (67/548) - Classification, Packaging and Labeling of Dangerous Substances, Amended July 1992. IARC Monographs on the Evaluation of the Carcinogenic Risks to Humans. World Health Organization (Volumes 1 -42) Supplement 7. France: 1987. Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Association, 1991. CCINFO RTECS. Canadian Centre for Occupational Health and Safety. Hamilton, Ontario Canada: 30 June 1993. Cassaret and Doull's Toxicology, 3rd Ed. New York: Macmillan Publishing Co., Inc., 1986. Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332 -2983. 29 CFR 1900 - 1910 (Code of Federal Regulations - Labor). EU Occupational Exposure Limits On Line.

R PHRASES: R 22: Harmful if swallowed. R 38: Irritating to skin. R 40: Limited evidence of a carcinogenic effect. R 48/20/22: Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.

Use of the substance/preparation: Laboratory Reagent

Revision Summary: Updates in Section(s) 14,

Legend:

NA - Not Applicable	w/w - weight/weight
ND - Not Determined	w/v - weight/volume
NV - Not Available	v/v - volume/volume

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

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