SAFETY DATA SHEET

Version 5.1
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1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Dimethylmercury

Product Number : 328081
Brand : Aldrich
Product Use : For laboratory research purposes.

Supplier : Sigma-Aldrich Canada Co.
2149 Winston Park Drive
OAKVILLE ON L6H 6J8
CANADA

Manufacturer : Sigma-Aldrich Corporation
3050 Spruce St.
St. Louis, Missouri 63103
USA

Telephone : +1 9058299500
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Emergency Phone # (For both supplier and manufacturer) : 1-800-424-9300
Preparation Information : Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

Target Organs

Nerves., Kidney

WHMIS Classification

B2	Flammable liquid	Flammable liquid
D1A	Very Toxic Material Causing Immediate and Serious Toxic Effects	Highly toxic by ingestion
D1B	Toxic Material Causing Immediate and Serious Toxic Effects	Highly toxic by skin absorption
D2A	Very Toxic Material Causing Other Toxic Effects	Toxic by inhalation. Carcinogen

GHS Classification

Flammable liquids (Category 2)
Acute toxicity, Oral (Category 2)
Acute toxicity, Inhalation (Category 2)
Acute toxicity, Dermal (Category 1)
Specific target organ toxicity - repeated exposure (Category 2)
Acute aquatic toxicity (Category 1)
Chronic aquatic toxicity (Category 1)

GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)
H225 Highly flammable liquid and vapour.
H300 + H310 Fatal if swallowed or in contact with skin

H330	Fatal if inhaled.
H373	May cause damage to organs through prolonged or repeated exposure.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P210	Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash hands thoroughly after handling.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing.
P284	Wear respiratory protection.
P302 + P350	IF ON SKIN: Gently wash with plenty of soap and water.
P310	Immediately call a POISON CENTER or doctor/ physician.
P501	Dispose of contents/ container to an approved waste disposal plant.

HMIS Classification

Health hazard:	4
Chronic Health Hazard:	*
Flammability:	3
Physical hazards:	0

Potential Health Effects

Inhalation	Toxic if inhaled. May cause respiratory tract irritation.
Skin	May be fatal if absorbed through skin. May cause skin irritation.
Eyes	May cause eye irritation.
Ingestion	May be fatal if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : Methylmercury

Formula : C_2H_6Hg

Molecular weight : 230.66 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
Dimethylmercury			
593-74-8	209-805-3	080-007-00-3	<=100%

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. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Flush eyes with water as a precaution.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Conditions of flammability
Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking.

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 firefighting if necessary.

Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Mercury/mercury oxides.

Explosion data - sensitivity to mechanical impact
No data available

Explosion data - sensitivity to static discharge
No data available

Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear respiratory protection. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low 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
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Use explosion-proof equipment. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

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
Dimethylmercury	593-74-8	TWA	0.01 mg/m3	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
Remarks	Substance may be readily absorbed through intact skin			
		STEL	0.03 mg/m3	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
	Substance may be readily absorbed through intact skin			
		TWAEV	0.01 mg/m3	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
	Skin (percutaneous)			
		STEV	0.03 mg/m3	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants

	Skin (percutaneous)			
		TWA	0.01 mg/m3	Canada. British Columbia OEL
	Contributes significantly to the overall exposure by the skin route.			
		STEL	0.03 mg/m3	Canada. British Columbia OEL
	Contributes significantly to the overall exposure by the skin route.			
		TWA	0.01 mg/m3	Ontario Table of Occupational Exposure Limits made under the Occupational Health and Safety Act.
	Skin Denotes a chemical agent listed in Table 1 of Ontario Regulation 490/09 (Designated Substances) made under the Act. See clause 2 (2) (a) of this Regulation.			
		STEL	0.03 mg/m3	Ontario Table of Occupational Exposure Limits made under the Occupational Health and Safety Act.
	Skin Denotes a chemical agent listed in Table 1 of Ontario Regulation 490/09 (Designated Substances) made under the Act. See clause 2 (2) (a) of this Regulation.			

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.

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, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

Specific engineering controls
Use mechanical exhaust or laboratory fumehood to avoid exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	liquid
Colour	colourless

Safety data

pH	No data available
Melting	Melting point/range: -43 °C (-45 °F) - lit.

point/freezing point	
Boiling point	93 - 94 °C (199 - 201 °F) - lit.
Flash point	5 °C (41 °F) - closed cup
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	2.961 g/cm3 at 25 °C (77 °F)
Water solubility	No data available
Partition coefficient: n-octanol/water	log Pow: 5
Relative vapour density	No data available
Odour	No data available
Odour Threshold	No data available
Evaporation rate	No data available

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions

Vapours may form explosive mixture with air.

Conditions to avoid
Heat, flames and sparks. Extremes of temperature and direct sunlight.

Materials to avoid
Strong oxidizing agents

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Mercury/mercury oxides.
Other decomposition products - No data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50
No data available

Inhalation LC50
Dermal LD50
Other information on acute toxicity
No data available

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
No data available

Respiratory or skin sensitisation
No data available

Germ cell mutagenicity

Carcinogenicity

IARC: 2B - Group 2B: Possibly carcinogenic to humans (Dimethylmercury)

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

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)
May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard
No data available

Potential health effects

Inhalation	Toxic if inhaled. May cause respiratory tract irritation.
Ingestion	May be fatal if swallowed.
Skin	May be fatal if absorbed through skin. May cause skin irritation.
Eyes	May cause eye irritation.

Signs and Symptoms of Exposure
In contrast to inorganic mercury compounds, alkyl mercury compounds rapidly pass through the placenta and blood brain barrier. The peripheral and central nervous systems and the kidney are major target organs. Methylmercury poisoning symptoms result primarily from damage to the nervous system. The symptoms are primarily characterized by loss of sensation in the hands and feet and in areas around the mouth, diminution of vision resulting in tunnel vision, ataxia, dysarthria, and hearing loss. Severe poisoning produces blindness, coma and death. There is a latent period of weeks to months before development of the poisoning symptoms. Mercury shows a specificity to damage small nerve cells in the cerebellum and visual cortex. Methylmercury causes degeneration and necrosis of neurons in the focal areas of the cerebral cortex, especially within the visual areas of the occipital cortex and the granular layer of the cerebellum. It has been found that methylmercury inhibits protein synthesis in the brain before symptoms of poisoning appear and that recovery of protein synthesis does not occur in granular cells as it does recover in other neuronal cell types. Consumption by pregnant women has caused serious neurological disorders in their offspring resulting in mental retardation with cerebral palsy. Acute exposure to nonlethal levels of methylmercyry results in severely depressed lymphocyte response to T-cell mitogens thus depressing polyclonal activation of lymphocytes by T-cell mitogens and antibody responses to sepcific antigenic stimulation.

Synergistic effects
No data available

Additional Information
RTECS: OW3010000

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.

Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3383 Class: 6.1 (3) Packing group: I
Proper shipping name: Toxic by inhalation liquid, flammable, n.o.s. (Dimethylmercury)
Marine pollutant: No
Poison Inhalation Hazard: Hazard zone A

IMDG
UN number: 3383 Class: 6.1 (3) Packing group: I EMS-No: F-E, S-D
Proper shipping name: TOXIC BY INHALATION LIQUID, FLAMMABLE, N.O.S. (Dimethylmercury)
Marine pollutant: No

IATA
UN number: 3383 Class: 6.1 (3)
Proper shipping name: Toxic by inhalation liquid, flammable, n.o.s. (Dimethylmercury)
IATA Passenger: Not permitted for transport
IATA Cargo: Not permitted for transport

15. REGULATORY INFORMATION

WHMIS Classification

B2	Flammable liquid	Flammable liquid
D1A	Very Toxic Material Causing Immediate and Serious Toxic Effects	Highly toxic by ingestion
D1B	Toxic Material Causing Immediate and Serious Toxic Effects	Highly toxic by skin absorption
D2A	Very Toxic Material Causing Other Toxic Effects	Toxic by inhalation. Carcinogen

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

16. OTHER INFORMATION

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.