

## Safety Data Sheet

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### 1. Chemical product and company identification

Product name : Dimethyl sulfoxide-d6, 99.9 atom % D

#### Company information

Name of manufacturer : KANTO CHEMICAL CO., INC.  
Address : 2-1, Nihonbashi, Muromachi 2-Chome, Chuo-Ku, Tokyo, 103-0022, JP  
Name of section : Business Administration Department, Reagent Division  
Telephone number : +81-3-6214-1090  
Facsimile number : +81-3-3241-1047  
Mail address : BC32@kanto.co.jp  
Reference No : 11560  
Recommended use : For research use only  
Restrictions on use : Seek expert judgment when using the product for applications other than those recommended.

### 2. Hazards identification

#### GHS classification

Physical hazards Flammable liquids Category 4  
Health hazards Specific target organ toxicity Category 2 (respiratory organs)  
(single exposure)

Hazard  
pictograms



Signal word : Warning

Hazard statements : Combustible liquid  
May cause damage to organs (respiratory organs)

#### Precautionary statements

Prevention : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
Do not breathe mist/vapors.  
Wash hands, forearms and face thoroughly after handling.  
Do not eat, drink or smoke when using this product.  
Wear protective gloves/protective clothing/eye protection/face protection.  
Response : IF exposed or concerned: Call a POISON CENTER or doctor.  
Storage : Store in a well-ventilated place.  
Store locked up.  
Disposal : Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.



### 3. Composition/information on ingredients

Distinction of substance or mixture : Substance

Synonyms : DMSO-d6, 99.9 atom % D  
Methyl sulfoxide-d6, 99.9 atom % D

| Chemical name         | Concentration (%) | Formula | TSCA   | EC-No.    | CAS RN    |
|-----------------------|-------------------|---------|--------|-----------|-----------|
| Dimethyl sulfoxide-d6 | ≥ 99.9            | C2D6OS  | Listed | 200-664-3 | 2206-27-1 |

\*Concentration : Deuteration degree.

### 4. First aid measures

#### First aid measures

First-aid measures after inhalation : Remove the victim to fresh air, and make him blow his nose and gargle.

First-aid measures after skin contact : Wash the affected areas under running water.

First-aid measures after eye contact : Wash the affected areas under running water.

First-aid measures after ingestion : The chemical is volatile. Do not induce vomiting because it increases the risk of aspiration into the lungs. Get medical attention immediately. If necessary, rinse mouth with water.

Personal Protection in First Aid and Measures : Rescuers should wear proper protective equipment like rubber gloves, goggles.

### 5. Fire fighting measures

Suitable extinguishing media : Water, dry chemical powder, carbon dioxide, dry sand, foam

Unsuitable extinguishing media : None

Firefighting instructions : Move containers from fire area if it can be done without risk, if not possible, apply water from a safe distance to cool and protect surrounding area.  
Dry chemical powder, carbon dioxide or dry sand should be used for small fires. Foam extinguisher is effective for a large scale fire.

Personal protection (Emergency response) : Firefighters should wear protective equipment.

### 6. Accidental release measures

#### Personal Precautions, Protective Equipment and Emergency Procedures

General measures : Wear proper protective equipment and avoid contact with skin and inhalation of vapor. Conduct operations from upwind and evacuate people downwind. Remove all sources of ignition. Keep away personnel except for authorized ones from spillage area by stretching ropes.

#### Environmental precautions

Environmental precautions : Attention should be given to avoid discharge of spilled product into rivers and resulting environmental damage. When diluting spill with large amounts of water, discharge of untreated wastewater into the environment must be avoided.



**Methods and Equipment for Containment and Cleaning up**

- For containment : Absorb spill with inert material (e.g, diatomaceous earth, sand) and flush spillage area with copious amounts of water.
- Prevention Measures for Secondary Accidents : Remove nearby sources of ignition and prepare extinguishing media.

**7. Handling and storage****Handling**

- Technical measures : Wear proper protective equipment to avoid contact with skin or inhalation of vapor. Pay attention to fire.  
Ventilate well at working places.
- Precautions for safe handling : Avoid formation of vapor and aerosols.  
Do not allow contact with oxidizing substances.

**Storage**

- Storage conditions : Store in a dark, cool place and tightly closed.
- Material used in packaging/containers : Glass, fluorine resin, stainless steel.

**8. Exposure controls / Personal protection equipment**

|           |                 |
|-----------|-----------------|
| ACGIH TWA | Not established |
|-----------|-----------------|

- Appropriate engineering controls : Use with an enclosed system or a local exhaust ventilation.

**Protective equipment**

- Respiratory protection : If necessary, wear chemical cartridge respirator with an organic vapor cartage
- Hand protection : Impervious protective gloves
- Eye protection : Safety goggles
- Skin and body protection : Protective clothing, protective boots

**9. Physical and chemical properties**

- Physical state : Liquid
- Color : Colorless.
- Odor : Odorless
- pH : No data available
- Melting point : 18.54 ° C
- Freezing point : No data available
- Boiling point : 189 ° C
- Flash point : 87 ° C (C.C.)
- Auto-ignition temperature : 300 - 302 ° C
- Decomposition temperature : 190 ° C
- Flammability : Flammable
- Vapor pressure : 0.49 hPa (20°C)
- Relative density : No data available
- Density : 1.099 - 1.103 g/cm<sup>3</sup> (20°C)
- Relative gas density : 2.7



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|-------------------------------------------------|---------------------------------------------------------------------------|
| Solubility                                      | : Water: Miscible. Organic solvents: Readily soluble in ethanol, acetone. |
| Partition coefficient n-octanol/water (log Pow) | : -1.35                                                                   |
| Explosive limits (vol %)                        | : 2.6 - 28.5 vol %                                                        |
| Viscosity, kinematic                            | : 1.82 mm <sup>2</sup> /s (25°C)                                          |
| Particle characteristics                        | : No data available                                                       |

## 10. Stability and reactivity

|                                    |                                                                                                                   |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Reactivity                         | : Reduced to sulfide and oxidized to sulfone.<br>The S-O bond is relatively easy to break and acts as an oxidant. |
| Chemical stability                 | : Stable under normal conditions. Hygroscopic.                                                                    |
| Possibility of hazardous reactions | : Explosion may occur due to partial decomposition during distillation at normal pressure.                        |
| Conditions to avoid                | : Light, heat.                                                                                                    |
| Incompatible materials             | : Oxidizing substances, reducing substances.                                                                      |
| Hazardous decomposition products   | : Carbon monoxide, sulfur oxides.                                                                                 |

## 11. Toxicological information

|                               |                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Acute toxicity (oral)         | : No classification<br>rat LD50=14500mg/kg                                                                                                                                                                                                                                                                                                                                                                                  |
| Acute toxicity (dermal)       | : No classification<br>rat LD50=40000mg/kg                                                                                                                                                                                                                                                                                                                                                                                  |
| Acute toxicity (inhalation)   | : No classification (gas)<br>Classification not possible (vapor)<br>No classification (dust, mist)<br>rat LC50=5.33mg/L/4h                                                                                                                                                                                                                                                                                                  |
| Skin corrosion/irritation     | : No classification<br>In rabbit skin irritation tests (conforming to OECD TG 404), very slight or clear erythema was observed, but all the effects disappeared after 72 hours.                                                                                                                                                                                                                                             |
| Serious eye damage/irritation | : No classification<br>In rabbit eye irritation tests (conforming to OECD TG 405), mild to moderate irritation of the conjunctiva was observed, but all the effects disappeared after 72 hours.                                                                                                                                                                                                                             |
| Respiratory sensitization     | : Classification not possible                                                                                                                                                                                                                                                                                                                                                                                               |
| Skin sensitization            | : No classification<br>Negative results were obtained in skin sensitization studies with the substance in guinea pigs (conforming to OECD TG 406), and sensitization tests in humans were also negative.                                                                                                                                                                                                                    |
| Germ cell mutagenicity        | : No classification<br>As for in vivo tests, there are negative data on micronucleus assay, dominant lethal study, and sister chromatid exchange test in rodents administered intraperitoneally. As for in vitro tests, there are negative data on reverse mutation test in bacteria, chromosome aberration test, mouse lymphoma assay, gene mutation test, and unscheduled DNA synthesis test in cultured mammalian cells. |
| Carcinogenicity               | : Classification not possible<br>No human data is available. There is no evidence of carcinogenicity in long-term oral administration studies in rats, dogs, and monkeys.                                                                                                                                                                                                                                                   |



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|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Reproductive toxicity  | : Classification not possible<br>No developmental effects were seen in a developmental toxicity test by oral gavage in female rats on gestation days 6-15 and in a developmental toxicity test by oral gavage in female rabbits on gestation days 7-28. However, there is insufficient data of reproductive effects.                                                                                                                                                                                                                                     |
| STOT-single exposure   | : May cause damage to organs (respiratory organs)<br>There is no human data on single exposure to the substance. Following single inhalation exposure of rats to the substance aerosol at 1,600 mg/m <sup>3</sup> for 4 hours, no fatal cases or toxic symptoms were observed, but partial pulmonary edema was observed at necropsy. In addition, following exposure at high concentrations (2,000-2,900 mg/m <sup>3</sup> ) for long hours (24, 40 hours), similar effects were observed. Thus, it was classified into category 2 (respiratory organs). |
| STOT-repeated exposure | : No classification<br>No effects were seen in the range beyond category 2 in any of a 13-week inhalation exposure test in rats, a 78-week oral administration study in rats (50% aqueous solution of the substance, 1-9 mL/kg), and dermal application tests in rabbits, dogs, and pigs.                                                                                                                                                                                                                                                                |
| Aspiration hazard      | : Classification not possible                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

## 12. Ecological information

### Ecotoxicity

|                 |                                                         |
|-----------------|---------------------------------------------------------|
| Aquatic acute   | : No classification<br>Artemia salina EC50=6830mg/L/24h |
| Aquatic chronic | : No classification                                     |

### Persistence and degradability

Not readily biodegradable  
BOD : 3.1%

### Bioaccumulative potential

Low bioconcentration  
BCF : ≤0.4 (1.0mg/L), ≤4 (0.1mg/L)

### Mobility in soil

High mobility  
Koc : 2.1

### Hazardous to the ozone layer

|       |                               |
|-------|-------------------------------|
| Ozone | : Classification not possible |
|-------|-------------------------------|

## 13. Disposal considerations

|                                      |                                                                                                                                               |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Ecological waste information         | : Burn in a chemical incinerator equipped with an afterburner and a scrubber. Or entrust approved waste disposal companies with the disposal. |
| Contaminated container and packaging | : In case of disposal of empty bottles, dispose bottles after removing the content thoroughly.                                                |



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## 14. Transport information

### International Regulations

#### Transport by sea(IMDG)

UN-No. (IMDG) : Not applicable  
Proper Shipping Name (IMDG) : Not applicable  
Packing group (IMDG) : Not applicable  
Transport hazard class(es) (IMDG) : Not applicable

#### Air transport(IATA)

UN-No. (IATA) : Not applicable  
Proper Shipping Name (IATA) : Not applicable  
Packing group (IATA) : Not applicable  
Transport hazard class(es) (IATA) : Not applicable  
Marine pollutant : Not applicable

## 15. Regulatory information

Regulatory information with regard to this substance in your country or region should be examined by your own responsibility.

## 16. Other information

Data sources : NITE Chemical Risk Information Platform (NITE-CHRIP), National Institute of Technology and Evaluation.  
Solvents Handbook, T, Asahara el, Kodansha Scientific Ltd. (1976) .  
Dictionary of Organic Compounds, The society of Synthetic Organic Chemistry, Kodansha Ltd. (1985) .  
Encyclopaedia Chimica, Kyoritsu Shuppan Co, Ltd. (1963) .  
Handbook of 17524 Chemical Products, The Chemical Daily Co. (2024) .

The information contained herein is based on several references and the present state of our knowledge. However the SDS does not always cover all information about the product, handle the product carefully. The information is intended to ordinary usage, in case of particular handlings, conduct appropriate safety measurements. The information herein is only provision of information, and it does not represent a guarantee the properties of the product. The Safety Data Sheet(SDS) is prepared based on JIS Z7253.

