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Safety Data Sheet

1. Identification of the substance or mixture and of the supplier

Product name : Dimethyl Sulfoxide
Product number : 13408-xx
Name of supplier : NACALAI TESQUE, INC.
Address : 498 Higashitamaya-cho, Nijo Karasuma, Nakagyo-ku, Kyoto, JAPAN
Division : Kyoto Factory
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SDS No. : GHS-13408E-6

2. Hazards identification

GHS hazard class and category

PHYSICAL HAZARDS	Explosives	-
	Flammable gases	-
	Aerosols	-
	Oxidizing gases	-
	Gases under pressure	-
	Flammable liquids	-
	Flammable solids	-
	Self-reactive substances and mixtures	-
	Pyrophoric liquids	-
	Pyrophoric solids	-
	Self-heating substances and mixtures	-
	Substances and mixtures which, in contact with water, emit flammable gases	-
	Oxidizing liquids	-
	Oxidizing solids	-
	Organic peroxides	-
	Corrosive to metals	-
HEALTH HAZARDS	Desensitized explosives	-
	Acute toxicity - oral	-
	Acute toxicity - dermal	-
	Acute toxicity - inhalation (gases)	-
	Acute toxicity - inhalation (vapours)	-
	Acute toxicity - inhalation (dusts and mists)	-
	Skin corrosion/irritation	-
	Serious eye damage/eye irritation	-
	Respiratory sensitization	-
	Skin sensitization	-
	Germ cell mutagenicity	-
	Carcinogenicity	-
	Reproductive toxicity	-
	Specific target organ toxicity - single exposure	Category 2
	Specific target organ toxicity - repeated exposure	-
ENVIRONMENTAL HAZARDS	Aspiration hazard	-
	Short - term (acute) hazardous to the aquatic environment	-
	Long - term (chronic) hazardous to the aquatic environment	-
	Hazardous to the ozone layer	-

- : Off the subject/not possible to classify

SYMBOL



SIGNAL WORD

Warning

HAZARD STATEMENTS	May cause damage to organs (respiratory system)
PREVENTION	Do not breathe dust/fume/gas/mist/vapours/spray. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product.
RESPONSE	IF exposed or concerned: Call a POISON CENTER/doctor.
STORAGE	Store locked up.
DISPOSAL	Dispose of contents/container in accordance with regulation.

3. Composition/information on ingredients

Substance/mixture : Substance

Chemical identity or ingredient name (Synonyms)	Chemical formula	CAS RN ®	Composition %	ENCS No.	ISHL No.
Dimethyl Sulfoxide	(CH ₃) ₂ SO	67-68-5	>=99.5	(2)-1553	listed

Impurities which are themselves classified and which contribute to the classification of the substance :
None

4. First-aid measures

Inhalation :

Remove to fresh air and keep at rest. If breathing is weak, irregular or has stopped, open his airway, loosen his collar and belt and administer artificial respiration. Call a poison center/doctor if necessary.

Skin contact :

Wash immediately with plenty of water and soap. Call a POISON CENTER/doctor if necessary.

Eye contact :

Rinse immediately the affected eyes cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Get medical advice/attention as soon as possible.

Ingestion :

Call immediately a POISON CENTER/doctor. Do NOT induce vomiting. Rinse mouth with water.

Most important sign symptoms of acute and late symptoms :

No data available

Precaution for first-aid persons :

Wear rubber gloves and air-tight safety goggles.

Information for the physician :

No data available

5. Fire-fighting measures

Suitable extinguishing media :

water spray, water resistant foam, carbon dioxide, powder, dry sand

Incompatible extinguishing media :

straight streams

Specific hazards arising from the chemical (and with regard to fire-fighting measures) :

During a fire, irritating and/or highly toxic gases may be generated by thermal decomposition or combustion.

Specific fire-fighting measures :

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 or dry sand should be used for small fires.

Foam extinguisher is effective for a large scale fire.

Special protective equipment and precautions for fire-fighters :

Fire-fighters should wear proper protective equipment.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures :

Evacuate non-essential personnel. Wear appropriate protective clothing.

Environmental precautions :

Attention should be given not to cause damage to the environment by flowing of spillage to rivers.

Methods and materials for containment and clean up :

For small spill, absorb spill with dry sand, soil or suitable absorbent and move to a chemical waste container. For large spill, prevent leakage by surrounded with earth and lead the spill to a safety place to collect.

Preventive measures for secondary accident :

Eliminate all sources of ignition and ventilate the area.

Prepare extinguishers before catching fire.

Shut off the leakage source and stop leak if you can do it without risk.

7. Handling and storage

Precautions for safe handling :

Countermeasure technique(s) :

Do not shock, overturn, drop, or drag containers.

Use with an enclosed system or a local exhaust ventilation.

When cold, contents may coagulate. Do not shake the container or agitate contents.

Fire is prohibited.

Wear suitable personal protective equipments.

Safety measures/incompatibility :

Handle not to generate aerosol or dust.

Incompatible contact(s) :

See [10. Stability and Reactivity].

Storage :

Conditions for safe storage, including any incompatibilities :

Countermeasure technique(s) :

Store in the Dangerous Goods Warehouse.

Incompatibilities :

See [10. Stability and Reactivity].

Recommendation for storage :

Protect from direct sunlight. Keep tightly closed in cool place.

Incompatible storage condition :

Keep away from incompatible material(s).

Fire is strictly prohibited.

Recommended container and packaging materials :

glass, etc.

8. Exposure control/personal protection

Control value/Adopted value :

Chemical identity	Control value (Japan)	Adopted value (JSHO)	Adopted value (ACGIH)
Dimethyl Sulfoxide	Not established	Not established	Not established

Appropriate engineering controls :

Keep source tightly closed or install local exhaust ventilation. Provide shower and vanity unit nearby and make clear the location of these.

Individual protection measures, such as personal protective equipment (PPE) :

Respiratory protection :

Gas masks for organic compounds

Hand protection :

Impervious glove

Eye protection :

Protective eyeglasses or chemical safety goggles

Skin and body protection :

Impervious clothing such as apron, boots, or whole-body suits

9. Physical and chemical properties

Physical state :

Liquid

Color :

Colorless

Odor :

None

Melting point/freezing point :

18 C

Boiling point, initial boiling point and boiling range :

189 C

Flammability :

No data available

Lower flammability or explosive limits :

2.6 vol%

Upper flammability or explosive limits :	42 vol%
Flash point :	95 C
Auto-ignition temperature :	215 C
Decomposition temperature :	No data available
pH :	No data available
Kinematic viscosity :	No data available
Solubility in water :	Very soluble
Solubility(ies) in solvent :	Very soluble in ethanol and diethyl ether
Octanol/water partition coefficient (log Pow) :	-1.35
Vapor pressure :	59.4 Pa (20 C)
Density/relative density :	1.101 g/mL (20 C)
Relative gas density (air=1) :	2.7
Particle characteristics :	No data available
Other data :	Hygroscopic

10. Stability and reactivity

Reactivity :

No data available

Chemical stability :

This product is considered a stable material under normal and anticipated storage and handling conditions.

Possibility of hazardous reactions :

May react with oxidants.

Conditions to avoid :

sunlight, heat, moisture, contact with incompatible materials

Incompatible materials :

oxidants

Hazardous decomposition products (except for carbon monoxide, carbon dioxide and water) :

sulfur oxides

11. Toxicological information

(Insufficient data are available on the effect of this substance on human health, therefore utmost care must be taken.)

Acute toxicity :

Chemical identity	Oral	Dermal	Inhalation
Dimethyl Sulfoxide	rat LD50 14500 mg/kg	rat LD50 40 g/kg	No data available

Skin corrosion/irritation :

No data available

Serious eye damage/eye irritation :

No data available

Respiratory sensitization :

No data available

Skin sensitization :

No data available

Germ cell mutagenicity :

No data available

Carcinogenic effects :

Chemical identity	Carcinogenicity Assessment
Dimethyl Sulfoxide	No data available

Toxicity for reproduction :

No data available

Specific target organ systemic toxicity (single exposure) :

May cause damage to organs (respiratory system)

Specific target organ systemic toxicity (repeated exposure) :

No data available

Aspiration hazard :

No data available

Other information :

No data available

12. Ecological information

(Insufficient data are available on the effect of this substance on the environment, therefore utmost care must be taken.)

Ecotoxicity :

Chemical identity	Fish toxicity
Dimethyl Sulfoxide	Fish (Oryzias latipes) LC50/48H 33000 ppm

Persistence and degradability :

Hardly biodegradability (3.1 % by BOD)

Bioaccumulative potential :

Low or non residuality

Mobility in soil :

No data available

Hazard to the ozone layer :

No data available

Other adverse effects :

No data available

13. Disposal considerations

Contact a licensed professional waste disposal service to dispose of this material. Comply with all country, national and local regulations.

14. Transport information

UN number : Not applicable

UN Proper shipping name : Not applicable

Class or Division : Not applicable

Subsidiary risk : Not applicable

Packing group : Not applicable

Marine pollutant : No

Land regulation information : Not controlled under ADR/RID's regulations.

Marine regulation information : Not Controlled under IMDG's regulations.

Aviation regulation information : Not controlled under ICAO/IATA's regulations.

Special precautions with transport or conveyance :

Protect from direct sun light in transportation, and confirm the container does not leak. Carefully load it onto a transporter without dropping, overturning or damaging so that it will stably stays on the transporter.

Emergency Response Guidebook - Number (ERG No.) : -

15. Regulatory information

Compliance with national and local regulations is the responsibility of the user.

16. Other information

DISCLAIMER :

For R&D use only. Not for drug, household or other uses.

WARRANTY :

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.