

SAFETY DATA SHEET

SDS: A5112-0000_E001

Date Prepared: 2019/05/15

Date Revised: 2023/01/10

Product Name: **METHYL PROPYLENE DI GLYCOL (MFDG)**

1. Identification of the substance/mixture and of the company/undertaking

Product name:	METHYL PROPYLENE DI GLYCOL (MFDG)
Identification of the supplier:	Nippon Nyukazai Co., Ltd.
Address:	No.4-1.Nihonbashi Kobuna-cho, Chuo-ku, Tokyo 103-0024, Japan
Charge section:	Business Operation Department (TEL:+81-3-5651-5640,FAX:+81-3-5651-5646)
Emergency telephone number:	Business Operation Department (TEL:+81-3-5651-5640,FAX:+81-3-5651-5646)
Recommend use:	diluent , Detergent , deposition aid , reaction solvent
Restrictions on use:	Seek expert judgment when using for purposes other than those recommended.

2. Hazards identification

Hazard category

Flammable liquids	Category 4
Serious eye damage/eye irritation	Category 2B
Specific target organ systemic toxicity following single exposure	Category 3

Label elements

Hazard pictograms:



Signal word:	Warning
Hazard statements:	H227 Combustible liquid H320 Causes eye irritation H335+H336 May cause respiratory irritation, or May cause drowsiness or dizziness.
Precautionary statements:	<p>Prevention P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P261 Avoid breathing dust/fume/gas/mist/vapours/spray. P264 Wash hands and face thoroughly after handling. P271 Use only outdoors or in a well-ventilated area. P280 Wear protective gloves/protective clothing/eye protection/face protection.</p> <p>Response P312 Call a POISON CENTRE/doctor/healthcare professionals under the supervision of a doctor if you feel unwell. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.</p>

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P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313 If eye irritation persists: Get medical advice/attention.

P370+P378 In case of fire : Use appropriate extinguishing media for extinction.

Storage P403 Store in a well ventilated place.

P405 Store locked up.

P403+P233 Store in a well ventilated place. Keep container tightly closed.

Disposal P501 Dispose of contents/container in accordance with local/regional/national/international regulation.

3. Composition/information on ingredients

3.1. Substances

Ingredients and Concentration

Ingredient Name	Concentration wt. %	CAS RN®	Existing and New Chemical Substances (JAPAN)	Industrial Safety and Health Law Substances (JAPAN)	Industrial Safety and Health Law (JAPAN)	Pollutant Release Transfer Register Law (JAPAN)	Poisonous and Deleterious Substances Control Act (JAPAN)
			Gazette notice reference number	Gazette notice reference number	Notifiable Substances	Specified Substances	Poisonous and Deleterious Substances
Dipropylene glycol monomethyl ether	99-100	34590-94-8	2-426, 7-97	Public	Applicable	Not applicable	Not applicable

3.2. Mixtures

Not Applicable

4. First aid measures

Inhalation:

Remove victim to fresh air and keep at rest in a position comfortable for breathing.

If breathing is stopped, lie on your back and perform cardiopulmonary respiration.

Get medical advice/attention.

Skin contact:

Take off contaminated clothing and wash before reuse.

Wash with plenty of soap and water.

If skin irritation or a rash occurs: Get medical advice/attention.

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Eye contact:	Immediately flush eye with plenty of clean water for at least 15 minutes. (If easy to do, remove contact lenses, if worn.) Get medical attention immediately.
Ingestion:	After having swallowed it, Drink a large quantity of water when consciousness becomes clear and receive treatment for the doctor immediately. A mouth must not give a person without the consciousness a thing.
Protection for first aid person:	The rescuer wears a tool for appropriate protection depending on the situation.

5. Firefighting measures

Suitable extinguishing media:	Use water spray(fog), foam, dry chemical or CO2.
Extinguishing media to avoid:	Straight stream water.
Specific hazards arising from the chemical:	At the time of fire, hazardous gases (carbon monoxide and others) can be generated.
Fire fighting:	Keep upwind of fire. Eliminate all ignition sources if safe to do so. In case of fire in the surroundings, move the content/container to the safety place. If it is not possible to move, cool the content/container with water spray.
Special protective equipment and precautions for fire fighters:	Gloves, protection glasses, wear fire, flame resistant, retardant clothing, air respiratory organs wear a tool for appropriate protection.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:	Promptly remove possible ignition sources from the vicinity. Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel.
Environmental precautions:	To environment (area of the sea, the soil) must not release it.
Methods and materials for containment and cleaning up:	Absorb this product with inactive materials (example: dry sand, earth) and recover it into a waste material container. In the case of large amount, stop leakage with earth/sand to begin with, and, then, recover it. In the case of a small quantity, I adsorb it in the earth and sand, a waste and collect it in empty container which I can seal up after having removed it.

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7. Handling and storage

Handling

Technical measures: During handling, be sure to wear proper protective equipment (refer to the section 8).
 This product can be charged with static electricity. Take countermeasures for static electricity removal (grounding, others).
 Wear antistatic clothes and antistatic shoes to prevent human body electrification.
 Use explosion-proof electrical/ventilating/lighting equipment.

Ventilation requirements: Use the ventilation equipment described in Section 8.

Precautions for safe handling: Not especially.

Storage

Storage conditions: Store the containers avoiding direct sunlight. Store in less than 40°C in a well-ventilated room.

Safety adequate container materials: Use the container specified by the Fire Service ACT and the United Nations Transport Regulations.

8. Exposure controls/personal protection

Appropriate engineering controls: Use local ventilation equipment.
 Install eye and body washing facilities near the handling place.
 Display the position of equipment clearly.

Control parameters

Ingredient Name	Industrial Safety and Health Law (JAPAN)	Japan Society for Occupational Health	ACGIH-TLV	
	Administrative Control Levels	Occupational Exposure Limits	TWA	STEL
Dipropylene glycol monomethyl ether	Not established	Not established	Not established	Not established

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Personal protective equipment

Respiratory protection:	Use a gas mask for organic gases, air-supplied respirator, self-contained compressed air breathing apparatus on the situation.
Hand protection:	Organic solvent impermeable protective gloves (Antistatic ones are desirable.)
Eye/face protection:	Protective glasses, goggle, protective face shield.
Skin/body protection:	Wear long-sleeved working clothes and protective shoes.(Antistatic ones are desirable.)
	Use an oiliness apron-resistant, boots depending on the situation.
Hygiene measures:	Wash with soap and water after handling.

9. Physical and chemical properties

Product

Form:	Liquid (20°C)
Color:	Colorless transparent
Odor:	Ether odor
Melting point/freezing point:	-80(°C)
Initial boiling point and boiling range:	187.2(°C)
Flammability (solid, gas):	No data
Upper/lower flammability or explosive limits:	1.1 – 14(%)
Flash point:	76.5(°C)
Auto-ignition temperature:	No data
Decomposition temperature:	No data
pH:	No data
Kinematic viscosity:	No data
Solubility:	water : Soluble.
Partition coefficient: n-octanol/water:	No data
Vapour pressure:	7.999(Pa)(20°C)
Specific Gravity:	0.955(20°C)
Vapour density:	No data
Particle characteristics:	No data

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10. Stability and reactivity

Chemical stability:	Stable under normal temperatures and pressures.
Possibility of hazardous reactions:	It may react with the oxidizing agent and generate heat.
Conditions to avoid:	Avoid heat, flames, sparks and ignition sources.
Incompatible materials:	Acid, Oxidizing agents.
Hazardous decomposition products:	No data available

11. Toxicological information

Product

Acute toxicity (oral):	No Classification
Acute toxicity (dermal):	No Classification
Acute toxicity (inhalation):	Exempt classification (Gas) Classification not possible (Vapour) Classification not possible (Dust/Mist)
Skin corrosion/irritation:	No Classification
Serious eye damage/irritation:	Category 2B
Respiratory sensitization:	Classification not possible
Skin sensitization:	No Classification
Mutagenicity:	Classification not possible
Carcinogenicity:	Classification not possible
Reproductive toxicity:	Classification not possible
Target organ effect/Single exposure:	Category 3(anesthetic action,respiratory tract irritation)
Target organ effect/Multi exposure:	No Classification
Respiratory toxic:	Classification not possible

Ingredient

Dipropylene glycol monomethyl ether

Acute toxicity (oral):	No Classification LD50: 5180-5400 mg/kg[rat]
Acute toxicity (dermal):	No Classification LD50:>= 9500 mg/kg[rabbit]
Acute toxicity (inhalation):	Exempt classification (Gas) Classification not possible (Vapour) LC50:>= 4.1 mg/L[rat] Classification not possible (Dust/Mist)

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Skin corrosion/irritation:	<p>No Classification</p> <p>Effect on person : In the human case, because the result of no irritating was reported by application of the undiluted substance to the skin for 5 days (SIDS (2001)), it was concluded that the substance was not a skin irritant (SIDS (2001)).</p> <p>Effect on animals : Several studies using rabbits were reported that the substance was not a skin irritant (SIDS (2001)). Based on the information, the substance was classified as "No Classification".</p>
Serious eye damage/irritation:	<p>Category 2B</p> <p>Effect on animals : In the rabbit test, instillation of 0.1 mL of undiluted test substance caused irritation to the conjunctiva and eyelid. These effects recovered within 7 days. As additional findings, it was also reported that slight effect of the anterior epithelium of the cornea was observed (SIDS (2001)). Based on the document, the substance was classified as Category 2B.</p>
Respiratory sensitization:	<p>Classification not possible</p> <p>Effect on person : No data available.</p>
Skin sensitization:	<p>No Classification</p> <p>Effect on person : The substance was classified as "No Classification" based on the documented case that no sensitization was reported in the skin sensitization test for 200 human subjects with application to their dorsal skin, and the substance was concluded as not skin sensitizer (SIDS (2001)).</p>
Mutagenicity:	<p>Classification not possible</p> <p>The classification was not possible due to lack of in vivo</p>
Carcinogenicity:	<p>Classification not possible</p> <p>No data available</p>
Reproductive toxicity:	<p>Classification not possible</p> <p>In the inhalation studies using pregnant rats or rabbits during the organogenetic period, both animal species didn't show the embryotoxicity or teratogenicity in the highest concentration of 300 ppm, which was realizable to expose under standard temperature and pressure, and the adverse influence was not observed in the development of offspring (SIDS (2001)). However, since no information was provided regarding sexual functions and fertility of parent animals, the classification was not possible.</p>

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Target organ effect/Single exposure: Category 3(anesthetic action,respiratory tract irritation)
 Depression of central nervous system was observed in rats by oral administration, and a mild narcosis was seen in rats exposed by inhalation for 7 hours (SIDS (2001)). In addition, the transient narcotic effect was also reported in rabbits by the dermal application (SIDS (2001)). Therefore, the substance was classified as Category 3 (narcotic effects). Furthermore, it was reported that the substance cause slight irritation in the nose in humans and it was also referred to the probable minimum concentrations of irritating to the throat and respiratory tract (SIDS (2001)). It was also reported that, at the concentration above 100 ppm, torment by irritation of nose, throat or respiratory tract occurred prior to the first signs of CNS impairments (ACGIH (2001)). Based on these descriptions, the substance was classified as Category 3 (respiratory tract irritation).

Target organ effect/Multi exposure: No Classification
 In the 4-week oral study in rats, transient salivation and liver effects (significant increase in liver weight and centrilobular hypertrophy) were observed in the high dose group at 1000 mg/kg/day (converted dose level as that of 90-day study: 308 mg/kg/day). However, no other treatment-related effects were reported (SIDS (2001)). Because the liver effects found in the study were concluded to be adaptive changes (SIDS (2001)), it was considered that no adverse effects were seen up to the highest dose beyond the range of the guidance values. Thus, the classification was considered as equivalent to "Not classified" for oral route. Furthermore, it was reported that the NOEL in the 4-week dermal application study in rats was 1000 mg/kg/day (converted dose level as that of 90-day study: 308 mg/kg/day), and that NOEL in the 90-day dermal application in rabbits was 2850 mg/kg/day (SIDS (2001)). Both of which were over the range of guidance values. Furthermore, the NOELs in the 13-week inhalation studies in rats or rabbits (as vapors, 6 hours/day, 5 days/week) were reported as 200 ppm (1.212 mg/L) or higher in each study (SIDS (2001)), and these were over the upper limit of the guidance values. Thus, the classification for each route via dermal and inhalation was also equivalence to "Not classified" category. Therefore, the classification for specific target organ toxicity (repeated exposure) was concluded as "Not classified".

Respiratory toxic: Classification not possible
 Effect on person : No data available.

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12. Ecological information

Product

Ecotoxicity	
Acute toxicity:	No Classification
Chronic toxicity:	No Classification
Persistence and degradability :	No information.
Bioaccumulative potential :	No information.
Mobility in soil:	No information.
Hazardous to the ozone layer:	Classification not possible
Other impact :	No information.

Ingredient

Dipropylene glycol monomethyl ether

Ecotoxicity	
Acute toxicity:	No Classification
Fish:	LC50:> 100 mg/L
Daphnia:	EC50:> 100 mg/L
Algae:	EC50:> 100 mg/L
Chronic toxicity:	No Classification
Fish:	No data
Daphnia:	No data
Algae:	No data
Persistence and degradability :	No data
Bioaccumulative potential :	No data
Hazardous to the ozone layer:	Classification not possible

13. Disposal considerations

Disposal methods: When waste materials and waste water are to be treated, collect them into specified containers and entrust the disposal to a disposal contractor having an industrial waste disposal contractor permit.

Do not use the used containers for other purposes like filling other substances. Be sure to dispose of them after treating the content according to the above description. In case of recycling the container, return the container as it is after fitting a stopper without filling anything into it.

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14. Transport information

International classification regulations	UN classification :	Not applicable
UN number :	Proper shipping name :	Not applicable
Packing group :		Not applicable
Domestic restriction:		Transport the material in accordance with the regulations in your country or region.
Specific security precaution and condition of transportation:		Load the containers in such a way as not to wet with water, fall down, tumble, or being damaged. Cover the loaded cargo to prevent direct sunlight.
Emergency Response Guide (ERG) Numbers:	171	

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

Reference	Information obtained in NITE (National Institute of Technology and Evaluation) and other literature surveys.
Disclaimer	<p>About the description: This SDS was created in accordance with JIS Z 7253 based on the materials and data available at the time of creation.</p> <p>Detailed information such as composition and ingredients corresponding to overseas legal regulation registration confirmation etc. may not be described, so please contact our sales staff separately if necessary.</p> <p>Precautions are for normal handling. In case of special handling, it is the responsibility of the user to take safety measures suitable for the intended use and usage.</p> <p>We have paid close attention to the contents, but we do not guarantee the contents.</p> <p>This product can only be used for industrial purposes. If you want to use it for other purposes, please contact us in advance.</p>