

# Material Safety Data Sheet

## 1. Chemical substance and corporate information

**Substance:** Dimethyl-p-toluidine  
**Product code** DMpT  
**Company:** Mitsuboshi Chemical Co., Ltd.  
**Address:** 14 Kitanoharacho, Kamigamo, Kita-ku, Kyoto, 603-8005, Japan  
**Department:** Development and Technology Department  
**Telephone No.:** 075-781-1177  
**Emergency telephone No.:** 075-781-1177  
**Fax No.:** 075-701-7227  
**Email address:**  
**Applications and usage restrictions:** Plastic polymers, curing catalysts, plastic cement, adhesive agents

## 2. Outline of hazard

### GHS classification

#### Physicochemical hazards

Explosives	Not classified
Flammable gases	Not classified
Flammable aerosols	Not classified
Oxidizing gases	Not classified
Gases under pressure	Not classified
Flammable liquids	Class 4
Flammable solids	Not classified
Self-reactive substances and mixtures	Not classified
Pyrophoric liquids	Other classification
Pyrophoric solids	Not classified
Self-heating substances and mixtures	Unclassifiable
Substances and mixtures which, in contact with water, emit flammable gases	Not classified

#### Health hazards

Oxidizing liquids	Not classified
Oxidizing solids	Not classified
Organic peroxides	Not classified
Corrosive to metals	Other classification
Acute toxicity (oral)	Class 4
Acute toxicity (dermal)	Class 4
Acute toxicity (inhalation:vapor)	Not classified
Acute toxicity (inhalation:steam)	Unclassifiable
Acute toxicity (inhalation:dust)	Not classified
Acute toxicity (inhalation:mist)	Class 4
Serious corrosion / irritation	Unclassifiable
Serious eye damage / eye irritation	Unclassifiable
Respiratory sensitization	Unclassifiable
Skin sensitization	Unclassifiable
Germ cell mutagenicity	Other classification
Carcinogenicity	Class 2
Reproductive toxicity	Unclassifiable
Specific target organ systemic toxicity (single exposure)	Unclassifiable
Specific target organ systemic toxicity (repeated exposure)	Unclassifiable
Aspiration hazard	Unclassifiable

<b>Environmental hazards</b>	Acute hazard to the aquatic environment	Class 3
	Chronic hazard to the aquatic environment	Class 3

**Pictograms and symbols:**



**Precautionary statements:  
Hazard statement:**

Warning  
 Flammable liquid  
 Harmful if swallowed  
 Harmful in contact with skin  
 Toxic by inhalation  
 Possible risk of slight irritation of skin  
 Possible risk of strong irritation of eyes  
 Possible risk of damage to blood through short-term exposure  
 Possible risk of damage to liver, kidneys, spleen, and blood through long-term and repeated exposure  
 Harmful to aquatic life  
 Harmful to aquatic organisms through long-term effects

**Precautionary statements:** [Prevention]  
 Obtain the instruction manual before use.  
 Do not handle until all safety precautions have been read and understood.  
 Keep away from flame and high temperatures.  
 Wear appropriate protective gloves, protective glasses and face shield.  
 If necessary use personal protective and ventilation equipment, and avoid exposure.  
 Do not inhale mist, steam, or spray.  
 Use only outdoors or in a well-ventilated area.  
 Do not eat, drink, or smoke when using this product.  
 Wash hands thoroughly after handling.  
 Avoid release to the environment.  
 [First-aid measures]  
 Wash hands thoroughly after handling.  
 If swallowed, rinse mouth.  
 If inhaled, remove victims to fresh air and keep at rest in a position comfortable for breathing.  
 If enters eyes, rinse cautiously with water for several minutes. Next, remove contact lenses, if present and easy to do. Continue rinsing.  
 If skin irritation or rash occurs, get medical advice / attention.  
 If irritation of the eyes continues, get medical advice / attention.  
 If exposed or concerned, get medical advice / attention.  
 If nausea is experienced get medical advice / attention.  
 Recover the leaked chemical.  
 [Storage]  
 Store in a cold, well-ventilated area.  
 Store in a locked place.  
 Seal container and store in a well-ventilated area.  
 [Disposal]  
 Dispose of contents / container by consignment to a specialist waste disposal contractor authorized by the Prefectural governor.

**National / regional information:**

**3. Composition / information on ingredients**

**Chemical**

<b>IUPAC name or common name:</b>	Dimethyl-p-toluidine
<b>Synonym:</b>	N,N-Dimethyl-p-toluidine N,N,4-Trimethylbenzenamine N,N,4-Trimethylaniline
<b>Chemical formula:</b>	C <sub>9</sub> H <sub>13</sub> N
<b>CAS number:</b>	99-97-8
<b>Reference Number in Gazetted List in Japan (Law Concerning the Examination and Regulation of Manufacture etc. of Chemical Substances: (3)-191 and Regulation of Manufacture etc. of Chemical Substances, Occupational Health and Safety Law):</b>	
<b>Impurities and stabilizing additives which contribute to the classification of the substance:</b>	
<b>Concentration or proportion range:</b>	99.0% or more

**4. First-aid measures**

<b>If inhaled:</b>	Remove victims to fresh air and keep at rest in a position comfortable for breathing. If nausea is experienced get medical advice / attention.
<b>If on skin:</b>	Rinse skin promptly. If skin irritation occurs, get medical advice / attention. If nausea is experienced get medical advice / attention.
<b>If in eyes:</b>	Rinse cautiously with water for several minutes. Next, remove contact lenses, if present and easy to do. Continue rinsing. If irritation of the eyes continues, get medical advice / attention. If nausea is experienced get medical advice / attention.
<b>If swallowed:</b>	Contact a doctor immediately. Rinse mouth with water. Get medical advice / attention. If nausea is experienced get medical advice / attention.
<b>Potential acute symptoms and delayed symptoms<sup>1)</sup>:</b>	If inhaled: Purple lips and nails (cyanosis), purple skin (cyanosis), headache, dizziness, nausea, confusion, convulsions, and unconsciousness.  If on skin: May be absorbed. See "Inhalation". If enters eyes: If swallowed: See "Inhalation".
<b>Most important symptoms / effects:</b>	
<b>Special medical precautions:</b>	

**5. Fire-fighting measures**

<b>Fire extinguishing agent:</b>	Small fire: Powder fire extinguishing agent, carbon dioxide, water spray Big fire: Powder fire extinguishing agent, carbon dioxide, alcohol resistant foam agent, water spray
<b>Inappropriate fire extinguishing agent:</b>	Concentrated water jet
<b>Specific hazards:</b>	Flammable: Burns, but does not ignite easily. Heating the container may cause it to explode.

**Specific fire-fighting methods:** May emit irritant, corrosive or toxic gas when burned.  
Very low flash point: Spray water on big fires where other fire extinguishing agents are not effective.  
Move the container away from the fire zone if it is not dangerous to do so.  
Do not put water in the container.  
Fight fire from maximum distance and use unmanned hose holders or monitor nozzles.  
Cool containers with large amounts of water until well after the fire is out.

**Protective equipment and precautions for fire fighters:** Wear appropriate breathing apparatus and chemical resistant protective clothing.

## 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures:** Immediately establish a seclusion zone of a suitable distance in all directions around the leak.

Prohibit the entry of non-essential personnel.

Workers should wear appropriate protective equipment (refer to "8. Exposure controls / personal protection"), and should avoid contact with the eyes and skin and inhalation of gas.

Damaged containers or leaked substances should not be touched without wearing appropriate protective clothing.

If fire does not occur in spite of leakage, wear highly air-tight, impermeable protective clothing.

Stay upwind.

Move away from low-lying areas.

Ventilate sealed areas.

**Environmental precautions:** Prevent leaked substances from entering surface and ground water in order to avoid impact on the environment.

Avoid release to the environment.

**Recovery and neutralization:** With a small quantity, absorb the leaked substance with desiccated soil, sand or noncombustible matter, or collect it in an empty container that can be covered and sealed. Afterwards, dispose of appropriately.

With a large quantity, enclose the leaked substance with an earth bank to prevent outflow, and direct it to a safe place for recovery.

Absorb the substance with desiccated soil, sand or noncombustible matter, or collect it in a container that can be covered and sealed.

**Containment and clean up methods and materials:** Stop the leak if it is not dangerous to do so.

**Measures to prevent secondary accidents:** Promptly remove all ignition sources (prohibit smoking in the vicinity, sparks and flames).

Prevent inflow into gutters, drains, basements or closed places.  
Do not put water in the container.

## 7. Handling and storage

### Precautions for safe handling

#### Engineering controls:

Carry out the measures described in "8. Exposure controls / personal protection" and wear protective equipment.

#### Local exhaust ventilation, and general ventilation:

Carry out the local exhaust ventilation and general ventilation described in "8. Exposure controls / personal protection".

#### Precautions for safe handling:

Obtain an instruction manual before use.

Do not handle until all safety precautions have been read and

understood.  
Beware of fire.  
Do not touch, inhale or swallow.  
Use exhaust ventilation that maintains the atmospheric concentration below the exposure limit.  
Use only outdoors or in a well-ventilated area.  
Wash hands thoroughly after handling.  
Do not eat, drink, or smoke when using this product.  
Avoid release to the environment.  
Refer to "10. Stability and reactivity".

**Avoid contact:**

**Storage**

**Engineering controls:**

The walls, posts and floor of the storage location should be fire resistant, and the beams should be a noncombustible material. Make the roof of the storage location out of noncombustible material, supported with light, noncombustible material such as a metal sheet, and do not provide a ceiling. The floor of the storage location should be a structure that does not absorb or permit the permeation of water. The floor of the storage location should be a structure impermeable to hazardous materials with an appropriate slope and it should be provided with an appropriate runoff tap. Provide the storage location with natural lighting, illumination and ventilation required for storage and handling of hazardous materials.

**Incompatible materials:**

**Storage conditions:**

Refer to "10. Stability and reactivity".  
Store away from flame and hot surfaces.  
Store in a cold, well-ventilated area.  
Store away from oxidizing agents.  
Store in a locked place.  
Seal container and store in a well-ventilated area.  
Use a container specified in the Fire Service Law or United Nations transportation regulations.

**Container and packaging materials:**

**8. Exposure controls / personal protection**

**Control concentration<sup>2)</sup>:**

Not set

**Threshold limit value<sup>2)</sup>  
(Exposure limit value,  
biological exposure index):**

Not set

**Japan Society for  
Occupational Health (2006  
edition)**

Not set

**ACGIH (2006 edition)**

Not set

**Facility controls:**

In the place where the substance is stored and used, provide facilities for eye washing and a shower for washing the entire body.  
  
Use the substance only in completely closed systems and equipment.  
To ensure that the atmospheric concentration is maintained below the recommended control concentration and threshold limit value, seal the process, provide local ventilation, and take other necessary physical measures.  
Install ventilation equipment for maintaining air-polluting substances below the control concentration and threshold limit value when mist is emitted during processing at high heat.

**Protective equipment:**

<b>Respiratory protective equipment:</b>	Wear appropriate respiratory protective equipment.
<b>Hand protection:</b>	Wear appropriate protective gloves.
<b>Eye protection:</b>	Wear appropriate eye protection. Protective glasses (normal glasses, normal glasses with side guards, or goggles)
<b>Skin and body protection:</b>	Wear appropriate face protection. If necessary, wear appropriate protective clothing and face shield.
<b>Hygiene controls:</b>	Do not eat, drink, or smoke when using this product. Wash hands thoroughly after handling.

## 9. Physical and chemical properties

<b>Physical state, form, color:</b>	Pale yellow or brown transparent liquid
<b>Odor:</b>	Distinctive chemical odor
<b>pH:</b>	No data
<b>Melting point / freezing point:</b>	-15°C <sup>2)</sup> , -6.6 (calculated value) <sup>3)</sup>
<b>Boiling point, Initial boiling point and boiling range:</b>	215°C (boiling point) <sup>1)</sup> , 211°C <sup>2), 4)</sup>
<b>Flash point:</b>	83°C (closed cup) <sup>1), 4)</sup> , 90°C (Cleveland open-cup) <sup>8)</sup>
<b>Explosive range:</b>	Lower limit 1.2 vol% ~ Upper limit 7 vol% <sup>4)</sup>
<b>Vapor pressure:</b>	10 Pa (20°C) <sup>2)</sup> , 19 Pa (20°C) <sup>4)</sup> , 23.7 Pa (25°C) <sup>5)</sup> , 78 Pa (25°C) <sup>3)</sup>
<b>Vapor density (air = 1):</b>	4.7 <sup>1)</sup>
<b>Relative density (density):</b>	0.9 <sup>1)</sup> , 0.937 <sup>4)</sup> , 0.9366 g/cm <sup>3</sup> (20°C) <sup>3)</sup>
<b>Solubility:</b>	Aqueous solubility: Insoluble <sup>1), 4)</sup> , 349 mg/L (25°C) <sup>2), 3)</sup> , 650 mg/L (37°C) <sup>5)</sup> , 455 mg/L <sup>3)</sup>  Mixes with alcohol, ethyl, chloroform, and aromatic solvents in any ratio <sup>4)</sup>
<b>n-octanol / water partition coefficient:</b>	logPow = 2.61 <sup>1), 3)</sup> , 2.81 <sup>3), 5)</sup>
<b>Auto-ignition temperature:</b>	In excess of 100°C <sup>6)</sup>
<b>Decomposition temperature:</b>	No data
<b>Odor threshold value:</b>	No data
<b>Evaporation rate (butyl acetate = 1):</b>	No data
<b>Combustibility (solid, gas):</b>	Not relevant
<b>Viscosity:</b>	No data

## 10. Stability and reactivity

<b>Chemical stability:</b>	Discoloring when exposed to air and light.
<b>Possibility of hazardous reactions:</b>	Strong oxidizing agents, reacts particularly with nitric acid.
<b>Conditions to avoid:</b>	Air, light.
<b>Incompatible materials:</b>	Strong oxidizing agents, strong acids, particularly nitric acid.
<b>Hazardous decomposition products:</b>	May decompose and emit nitrogen oxide and other noxious fumes when heated or ignited.

## 11. Toxicological information

<b>Acute toxicity:</b>	LD <sub>50</sub> 1650 mg/kg <sup>3)</sup> in tests with oral administration using rats, Class 4. Harmful if swallowed LD <sub>50</sub> 2000 mg/kg <sup>3)</sup> in tests with dermal administration using rabbits, Class 4. Harmful in contact with skin Inhalation: LC <sub>50</sub> 1.4 mg/L (4 hours) <sup>3)</sup> in tests with inhalation exposure using rats, and saturated vapor pressure concentration is 234 ppm (1.29mg/L) at saturated vapor pressure of 23.7 Pa (25° C) <sup>5)</sup> LC <sub>50</sub> in this case is the concentration below saturated vapor pressure, so it falls into Class 4 as 'mist'. Toxic by inhalation
<b>Serious corrosion / irritation:</b>	Although it is reported to cause tingling on soft skin areas <sup>6)</sup> , the GHS classification is 'Unclassifiable' due to lack of data.
<b>Serious eye damage / eye irritation:</b>	Possible risk of slight irritation of skin Although it is reported to cause severe pain and inflammation if it enters the eyes <sup>6)</sup> , the GHS classification is 'Unclassifiable' due to lack of data.
<b>Respiratory sensitization / skin sensitization:</b>	Possible risk of strong irritation of eyes Respiratory sensitization: 'Unclassifiable' due to lack of data.
<b>Germ cell mutagenicity:</b>	Skin sensitization: 'Unclassifiable' due to lack of data. Other classification, since in vivo testing of mice <sup>7)</sup> and testing of salmonella <sup>7)</sup> proved negative.
<b>Carcinogenicity:</b>	'Unclassifiable' due to lack of data.
<b>Reproductive toxicity:</b>	'Unclassifiable' due to lack of data.
<b>Specific target organ systemic toxicity (single exposure):</b>	May have impact on red blood cells, generating methemoglobin. Although it is reported that these impacts appear after a delay <sup>1)</sup> , the GHS classification is 'Unclassifiable' due to lack of data. Possible risk of damage to blood through short-term exposure
<b>Specific target organ systemic toxicity (repeated exposure):</b>	Although chronic toxicity with pallor of the face, and damage to liver, kidneys, spleen, blood etc. is reported <sup>6)</sup> , the GHS classification is 'Unclassifiable' due to lack of data. Possible risk of damage to liver, kidneys, spleen, and blood through long-term and repeated exposure
<b>Aspiration hazard:</b>	No data

## 12. Environmental impact information

**Acute hazard to the aquatic environment:** Fish 96 h LC<sub>50</sub> = 52 mg/L<sup>3)</sup>, 46 mg/L<sup>3)</sup>, 52.8 mg/L<sup>3)</sup>, Class 3.

**Chronic hazard to the aquatic environment:** Harmful to aquatic life  
Although acute toxicity is Class 3 and bioaccumulation potential is inferred to be low (logPow<4), it cannot be judged to be readily biodegradable<sup>3)</sup>, therefore it is deemed to be Class 3.  
Harmful to aquatic organisms through long-term effects

## 13. Disposal considerations

**Residual waste:** For disposal, follow relevant regulations and local authority standards

standards.

Dispose of waste by consignment to a waste disposal contractor authorized by the Prefectural governor, or the local municipal entity for disposal where appropriate.

When consigning waste to a contractor, be sure to provide sufficient notice of hazards and toxicity.

**Contaminated containers and packaging:**

Wash and recycle the containers, or follow relevant regulations and local authority standards for disposal.

When disposing of empty containers, completely remove the contents.

**14. Transport information**

**International regulations**

**Maritime regulatory information**

Follow the IMO regulations.

**UN No.:** 2810

**Proper Shipping Name:** Toxic Liquid, Organic, N.O.S.

**Class:** 6.1

**Packing Group:** II, III

**Marine Pollutant:**

**Aviation regulatory information**

Follow the regulations of ICAO/IATA.

**UN No.:** 2810

**Proper Shipping Name:** Toxic Liquid, Organic, N.O.S.

**Class:** 6.1

**Packing Group:**

**Domestic regulations**

**Overland regulatory information**

Follow the regulations of the Fire Protection Law.

Follow the regulations of the Poisonous and Deleterious Substances Control Law.

**Maritime regulatory information**

Follow the regulations of the Ship Safety Law.

**UN No.:** 2810

**Proper Shipping Name:** Toxic Liquid, Organic, N.O.S.

**Class:** 6.1

**Packing Group:** II, III

**Marine pollutant:** Not relevant

**Aviation regulatory information**

Follow the regulations of the Aviation Law.

**UN No.:** 2810

**Proper Shipping Name:** Toxic Liquid, Organic, N.O.S.

**Class:** 6.1

**Grade:**

**Special precautions for users**

Stack hazardous materials so that they do not fall, and ensure that transportation containers for hazardous materials do not fall, topple



over or suffer damage.

Transport hazardous materials and containers of hazardous materials avoiding friction and agitation.

During transportation of hazardous materials, if there is any risk of the hazardous materials leaking or causing any other accident, take emergency measures to prevent accidents and report to the nearest fire-fighting and other relevant agencies.

When transporting hazardous materials, avoid direct sunlight, stack containers so that they are not subject to damage, corrosion, or leaks, and take measures to ensure that the stacked cargo cannot collapse.

Do not transport the material with food or feed.

Do not stack heavy items on the containers.

During transportation it is necessary to retain a yellow card.

## 15. Regulatory information

<b>Fire Protection Law:</b>	Type 4 flammable liquid, Type 3 petroleum nonaqueous solvent (Article 2 paragraph 7 of the Law, Hazardous Substance Attached Table No. 1) Danger rating III
<b>Ship Safety Law:</b>	Poison (Hazard regulations Articles 2 and 3, Hazardous Material Notification Attached Table No. 1)
<b>Port Regulations Law:</b>	Poison (Port Regulations Law Article 12 Dangerous Goods )
<b>Aviation Law:</b>	Poison (Enforcement Order Article 194, Hazardous Material Notification Attached Table No. 1)

## 16. Other information

### References

- 1) International Chemical Safety Cards (ICSC) 1997
- 2) National Institute of Technology and Evaluation, Total Search System for Chemical Substances
- 3) IUCLID (2002)
- 4) Chemical Safety Management Data Book (2000), enlarged and revised edition 2
- 5) SRC PhysProp Database
- 6) Mitsuboshi Chemical data
- 7) National Toxicology Program (NTP) (2004)
- 8) Hazardous Materials Database, Hazardous Materials Safety Techniques Association, Registration number 4051-053407
- 9) Emergency Response Guidebook, Japan Chemical Industry Association (2000)
- 10) Japan Industrial Safety and Health Association, Safety and Health Information Center GHS model MSDS
- 11) GHS Classification Manual (06/2/10) GHS Related Agency Liaison Committee
- 12) Globally Harmonized System of Classification and Labelling of Chemicals (GHS) Revised Edition, Japanese translation

### Disclaimer

The content of this MSDS was prepared based on currently available materials, and the data and evaluations are not necessarily full and complete, therefore the content must be treated with caution. Moreover, the precautions shown here are for normal handling of the product. If you intend to use the product for special purposes, additional safety measures appropriate to the application and usage may be required.