Safety Data Sheet

1. Identification

Product name	N-Methylaniline
Product code	MA
Manufacturer name	Mitsuboshi Chemical Co., Ltd.
Address	14 Kitanoharacho, Kamigamo, Kita-ku, Kyoto, 603-8006, Japan
Contact	Development and Technical Division
Telephone number	+81-75-781-1177
Emergency telephone number	+81-75-781-1177
FAX number	+81-75-701-7227

2. Hazards identification

GHS classification

Physical hazards	
Flammable liquid	Category 4
Health hazards	
Acute toxicity (Oral)	Category 4
Specific target organ toxicity - Single exposure	Category 1 (kidney, haemal system) Category 2 (nervous system)
Specific target organ toxicity - Repeated exposure	Category 1 (haemal system, respiratory organs, liver, kidney)
Environmental hazards	
Hazardous to the aqauatic environmental(Acute)	Category 2
Hazardous to the aqauatic environmental(Long-term)	Category 2

GHS label elements

Pictograms and hazard symbol

Signal word: Danger

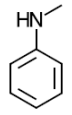
Hazard statements:
Combustible liquid
Harmful if swallowed.
Causes damage to organs (haemal system, kidney)
May cause damage to organs (nervous system)
Causes damage to organs through prolonged or repeated exposure (haemal system, respiratory organs, liver, kidney)
Toxic to aquatic life
Toxic to aquatic life with long lasting effects

Precautionary statement

Prevention	Do not breathe dust/fume/gas/mist/vapors/spray.

	Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Avoid release to the environment.
First aid measures	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. Rinse mouth. IF exposed or concerned: Call a POISON CENTER or doctor/physician. Get medical advice/attention if you feel unwell. Collect spillage.
Storage	Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.

3. Composition / Information on Ingredients

Substance/ Mixture	Substance
Components	N-Methylaniline
Synonyms	N-Methylphenylamine Methylaminobenzene
Concentration	≧99.0%
Chemical formula	 / C_7H_9N
CAS number	100-61-8

4. First aid measures

If inhaled	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/ attention if you feel unwell.
If on skin	Wash with plenty of soap and water. Get medical advice / attention.
If in eyes	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If swallowed	Call a Poison Center or doctor/physician if you feel unwell. Make the victims drink water with active carbon.

5. Fire-fighting measures

Extinguishing Media	Water spray, Foam fire extinguisher, Powder fire extinguisher, Carbon dioxide fire extinguisher
Inappropriate fire extinguisher	Concentrated water jet
Specific hazard	Irritative or toxic fume and gases are generated in a fire.
Specific fire extinguishing method	Stop the supply of the conbustible material, and extiguish a fire by appropriate fire extiguisher. Cool the neighbouring tanks and architectures by water spray to prevent the expansion of fire. Fire extinguishing activities should be done on the windward

	side of the fire. Prohibit the entry of non-essential personnel to the area of fire. Move the container away from the fire zone if it is not dangerous to do so.
Protective equipment and precautions for fire fighters	Wear appropriate self-contained breathing apparatus and chemical resistant protective clothing that can protect eyes and skin.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:	Workers should wear appropriate protective equipment, and should avoid contact with eyes and skin and inhalation of gas. Prohibit the entry of non-essential personnel.
Environmental precautions	Prevent leaked substances from entering surface and ground water in order to avoid impact on the environment.
Containment and clean-up methods and materials	Promptly remove the all ignition sources. (Prohibit smoking and fireworks in the neighbouring area) Collect spillage to metal- or glass-made container as possible. Move the residual liquid to the safe place by asborption to sand or unreactive absorbent.

7. Handling and storage

Handling	
Engineering control	Carry out the measures described in “8. Exposure controls/personal protection” and wear protective equipment.
Precautions for safe handling	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/ sparks /open flames/ hot surfaces. No smoking. Avoid breathing dust/ fume/ gas/mist/ vapors/ spray. Wash hands thoroughly after handling. Do not eat, drink, or smoke when using this product. Use only outdoors or in a well- ventilated area. Avoid release to the environment. Wear protective gloves/ protective clothing/ eye protection/ face protection. Wear respiratory protection. Wash contaminated clothing before reuse.
Avoidance of contact	Please refer to “10. Stability and reactivity”.
Storage	
Storage condition	Store in a well-ventilated place. Keep container tightly closed. Store locked up. Keep away from strong oxidizing reagents, food, and feed.

	Ventilate through floor. Store in a place that have no access to drain tube or sewer pipe.
Container and packaging materials	Use a container specified in the Fire Service Law or United Nations transportation regulations.

8. Exposure control / Personal protection

Control concentration	No setting
Threshold limit value	
Japan Society for Occupational Health (2019 edition)	No setting
ACGIH	TLV-TWA 0.5ppm (ICSC:2006)
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. 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.
Personnel protective equipment	
Respiratory protection	If ventilation is not enough, wear appropriate protective respiratory equipment.
Hand protection	Wear appropriate protective gloves.
Eye protection	Wear appropriate eye protection.
Skin and body protection	Wear appropriate protective clothing and face protection.

9. Physical and chemical properties

Physical state	Liquid (20℃, 1atm), pale yellow or pale brown
Color	Colorless or slightly yellow
Odor	Irritating, aniline odor
Melting point	-57℃(GESTIS)
Boiling point	194-196℃(GESTIS)
Flammability	Yes
Explosion Data	No data
Flash point	83℃(our company's data)
Auto-ignition temperature	500℃
Decomposition temperature	No data
pH	No data
Viscosity	2.568 cP (15℃); 1.766 cP (30℃) (HSDB)
Solubility	Water：5.62 g/L (25℃) Soluble in alcohol, chloroform, ether; soluble in acetone, benzene, organic solvent.
Partition coefficient :octanol／	1.66(GESTIS)

water	
Vapor pressure	1.59 hPa(40℃)(GESTIS)
Specific gravity(density)	0.99 g/cm3 (25℃)(GESTIS)
Relative vapor density(air＝1)	3.7(GESTIS)

10. Stability and reactivity

Reactivity	Please refer to “Hazardous decomposition products”.
Chemical stability	Stable under normal use and storage.
Conditions to avoid	Contact with open- flame, high temperature, incompatible substances.
Incompatible substance	Oxidizer, strong acid, especially nitric acid
Hazardous decomposition products	Heating causes combustion, harmful fume gas (Aniline, Nitrogen Oxide) is produced.

11. Toxicological information

Acute toxicity	
Oral	Rat:LD50=716-782 mg/kg(CERI Hazard Assessment Report),Category 4.
Dermal	Classification not possible due to lack of data.
Inhalation(vapor)	Classification not possible due to lack of data.
Inhalation(mist)	Classification not possible due to lack of data.
Skin corrosion/irritation	Classification not possible due to lack of data.
Serious eye damage/eye irritation	Classification not possible due to lack of data.
Respiratory sensitization	Classification not possible due to lack of data.
Skin sensitization	Classification not possible due to lack of data.
Germ sell mutagenicity	Classification not possible due to lack of data.
Carcinogenicity	Classification not possible due to lack of data.
Reproduction toxicity	Classification not possible due to lack of data.
Specific target organ toxicity (single exposure)	There are no single-exposure data on this substance in humans. As for experimental animals, there is a report that in a single oral dose test with rats, a decrease in locomotor activity, cyanosis, and brown urine were observed at 512 mg/kg corresponding to Category 2: lateral position, prone position, contraction of the whole body, lacrimation, and hypothermia were observed at or above lethal dose of 1000 mg/kg (JECDB (Access on August 2017)). In addition, there are reports that in an single oral dose test with rabbits, at 180 mg/kg corresponding to Category 1, the blood hemoglobin level rose up to 23-45%, and decreased erythrocyte count, increased hematopoiesis in the bone marrow, albuminuria, glycosuria and dark brown discoloration of the urine were observed (DFGOT vol. 6 (1993)), and that minimal lethal dose was 240 mg/kg corresponding to Category 1, acute toxicity symptoms were cyanosis, prostration, weight loss, dyspnea, occasional terminal convulsion (DFGOT vol. 6 (1993), ACGIH (7th, 2001)). In dermal exposure, there is a report

	that in a test where this substance was applied to the skin of rabbits for one hour, cyanosis and death were observed at or above 3,000 mg/kg (DFGOT vol. 6 (1993), ACGIH (7th, 2001)). From the above information, this substance is considered to affect the haemal system and kidney at the doses corresponding to Category 1, and the nervous system at the dose corresponding to Category 2. Therefore, it was classified in Category 1 (haemal system, kidney) and Category 2 (nervous system).
Specific target organ toxicity (Repeated exposure)	There is no information in humans. In a 28-day repeated oral dose toxicity test with rats, the following items were observed: hyperemia and pigment deposit of the spleen, hyaline droplet degeneration in the kidney at or above 5 mg/kg/day (converted guidance value: 0.6 mg/kg/day) within a guidance value range for Category 1, decreased hematocrit level and erythrocytes count, increased reticulocytes ratio, increased hematopoiesis in the bone marrow, extramedullary hematopoiesis in the liver and spleen at or above 25 mg/kg/day (converted guidance value: 7.8 mg/kg/day), prothrombin time extension, an increase in total bilirubin, yellowish-brown urine, deposit of pigment at the proximal tubules in the kidney at 125 mg/kg/day (converted guidance value: 38.9 mg/kg/day) (JECDB (Access on August 2017), Environmental Risk Assessment for Chemical Substances, Vol. 12 (Ministry of the Environment, 2014)). In addition, it is reported that in an inhalation exposure test with rats for 130 times (7 hours/day), the formation of Heinz bodies at 2.4 ppm = 10.5 mg/m3 (converted guidance value: 0.0123 mg/L) and death, methemoglobinemia, centrilobular hepatocellular necrosis in the liver, moderate kidney damage, pulmonary edema, and interstitial pneumonia at 7.6 ppm = 33.3 mg/m3 (converted guidance value: 0.038 mg/L) were observed (ACGIH (7th, 2001), Environmental Risk Assessment for Chemical Substances, Vol.12 (Ministry of the Environment, 2014)). From the above, in addition to mainly observed effects on the blood and others related to them, effects on the respiratory organs, liver, and kidney were also observed, therefore, it was classified in Category 1. Besides, this classification result was different from the previous one since a new information source was used.
Aspiration hazard	Classification not possible due to lack of data.

12. Ecological information

Hazard to the aquatic	
Acute hazard	From 48-hour EC50 = 5.58 mg/L for crustacea (Daphnia magna) (Environmental Risk Assessment for Chemical Substances vol. 12 (Ministry of the Environment, 2014)), it was classified in Category 2.
Chronic hazard	If chronic toxicity data are used, then it is classified in Category 2 due to being not rapidly degradable (non-biodegradable, a degradation rate by BOD: 1.4% (J-CHECK, 1977)), and 21-day NOEC (reproduction inhibition) = 0.29 mg/L for crustacea (Daphnia magna) (Results of Aquatic Toxicity Tests of Chemicals conducted by Ministry of the Environment in Japan (Ministry of the Environment, 2017), Environmental Risk Assessment for Chemical Substances vol. 12 (Ministry of the Environment, 2014)). If acute toxicity data are used for a trophic level for which chronic toxicity data are not obtained, then it is classified in Category 3 due to being not rapidly degradable (non-biodegradable, a degradation rate by BOD: 1.4% (J-CHECK, 1977)), and 96-hour LC50 = 57.5 mg/L for fish (Oryzias latipes) (Environmental Risk Assessment for Chemical Substances vol. 12 (Ministry of the Environment, 2014)). From the above results, it was classified in Category 2.
Hazard to the ozone layer	No information available
mobility	

13. Disposal consideration

Residual waste	For disposal, follow relevant regulations and local authority standards. Dispose of contents / container by a special waste disposal contractor who received permission from the local governor. When consigning waste to a contractor, be sure to provide sufficient notice of hazards and toxicity.
Contaminated packaging	Containers should be cleaned and recycled, or appropriate disposal according to relevant laws and local government standards. When empty containers are discarded, contents should be completely removed.

14. Transport information

International regulations	
UN number	2294
Proper shipping name	N-methylaniline
Class	6.1
Packing groupe	III

Marine pollutant	Applicable
Chemicals listed in MARPOL73/78 annex Ⅱ and with IBC code	Applicable
Domestic regulations	Regulations on transport in your region should be checked by your own responsibility.

15. Regulatory information	Regulatory information about this substance in your country or in your region should be researched by your own responsibility.
Laws and Regulations in Japan	
Act on the evaluation of chemical Substances and regulation of their Manufacture, etc.	MITI Number : 3-106 Chemical Substance Name : N-Methylaniline
Act on confirmation, etc. of release amounts of specific chemical substances in the environment and promotion of improvements to the management thereof	Classification : II Cabinet order No. : 2-90 Cabinet order name :
Industrial safety and health act (ISHA)	Chemical Substances Requiring Labeling and Delivery of Documents, etc.
Poisonous and deleterious substances control act	Deleterious Substances(Cabinet order)
Air pollution control act	Hazardous Air Pollutant
Act on prevention of marine pollution and maritime disaster	Applicable
Fire service act	Class-4 No.3 petroleums No.3, Not water-soluble fluid Dangerous grade 3

16. Other information	
References	The original data are indicated in each item.

Disclaimer

The content of this SDS 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.