

SAFETY DATA SHEET

According to JIS Z 7253:2019
Revision date 01-Mar-2024
 Revision Number 1.03

Section 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name	10 Nitrosamines Mixture Standard Solution (each 2µg/mL Methanol Solution)
Product Code	145-10051

Supplier	FUJIFILM Wako Pure Chemical Corporation 1-2 Doshomachi 3-Chome, Chuo-ku, Osaka 540-8605, Japan Phone: +81-6-6203-3741 Fax: +81-6-6203-2029
Emergency telephone number	+81-6-6203-3741 / +81-3-3270-8571
Recommended uses	For research use only
Restrictions on use	Seek expert judgment when using for purposes other than those recommended.

Section 2: HAZARDS IDENTIFICATION

GHS classification**Classification of the substance or mixture****Flammable liquids**

Category 2

Acute toxicity - Oral

Category 4

Serious eye damage/eye irritation

Category 2A

Reproductive Toxicity

Category 1B

Specific target organ toxicity (single exposure)

Category 1, Category 3

Category 1 central nervous system, Visual organ, systemic toxicity

Category 3 Narcotic effects

Specific target organ toxicity (repeated exposure)

Category 1

Category 1 central nervous system, Visual organ

Pictograms

Signal word

Danger

Hazard statements

H225 - Highly flammable liquid and vapor

H319 - Causes serious eye irritation

H302 - Harmful if swallowed

H360 - May damage fertility or the unborn child

H336 - May cause drowsiness or dizziness

H370 - Causes damage to the following organs: central nervous system, Visual organ, systemic toxicity

H372 - Causes damage to the following organs through prolonged or repeated exposure: central nervous system, Visual organ

Precautionary statements-(Prevention)

- Obtain special instructions before use
- Do not handle until all safety precautions have been read and understood

- Use personal protective equipment as required
- Do not breathe dust/fume/gas/mist/vapors/spray
- Wash face, hands and any exposed skin thoroughly after handling
- Do not eat, drink or smoke when using this product
- Use only outdoors or in a well-ventilated area
- Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
- Keep container tightly closed
- Ground/bond container and receiving equipment
- Use explosion-proof electrical/ ventilating / lighting / equipment
- Use only non-sparking tools
- Take precautionary measures against static discharge
- Keep cool

Precautionary statements-(Response)

- IF exposed: Call a POISON CENTER or doctor/physician
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
- If eye irritation persists: Get medical advice/attention
- IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
- Call a POISON CENTER or doctor/physician if you feel unwell
- IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
- Rinse mouth
- In case of fire: Use suitable extinguishing media for extinction

Precautionary statements-(Storage)

- Store in a well-ventilated place. Keep container tightly closed
- Store locked up

Precautionary statements-(Disposal)

- Dispose of contents/container to an approved waste disposal plant

Others

Other hazards Not available

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

Single Substance or Mixture Mixture

Chemical Name	Weight-%	Molecular weight	ENCS	ISHL No.	CAS RN
Methanol	<100	32.04	(2)-201	*	67-56-1
N-Nitrosodi-n-butylamine	0.002	158.24	N/A	N/A	924-16-3
N-Nitroso-ethyl-isopropylamine	0.002	116.16	N/A	N/A	16339-04-1
N-Nitroso-N'-methylpiperazine	0.002	129.16	N/A	N/A	16339-07-4
N-Nitrosodiethylamine	0.002	102.13	N/A	N/A	55-18-5
N-Nitrosomorpholine	0.002	116.12	N/A	N/A	59-89-2
N-Nitrosodiisopropylamine	0.002	130.19	N/A	N/A	601-77-4
N-Methyl-N-nitrosoaniline	0.002	136.15	(3)-155	*	614-00-6
N-Nitrosomethylaminobutyric Acid	0.002	146.14	N/A	N/A	61445-55-4
N-Nitrosodimethylamine	0.002	74.08	N/A	N/A	62-75-9
N-Nitrosodi-n-propylamine	0.002	130.19	N/A	N/A	621-64-7

Note on ISHL No.: * in the table means announced chemical substances.

Section 4: FIRST AID MEASURES

Inhalation

Remove to fresh air. If symptoms persist, call a physician.

Skin contact

Wash off immediately with soap and plenty of water. If symptoms persist, call a physician.

Eye contact

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediate medical attention is required.

Ingestion

Rinse mouth. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately. Do not induce vomiting without medical advice.

Protection of first-aiders

Use personal protective equipment as required.

Section 5: FIRE FIGHTING MEASURES

Suitable extinguishing media

Water spray (fog), Carbon dioxide (CO₂), Foam, Extinguishing powder, Sand

Unsuitable extinguishing media

No information available

Specific hazards arising from the chemical product

Thermal decomposition can lead to release of irritating and toxic gases and vapors. Vapors may form explosive mixtures with air

Special extinguishing method

No information available

Special protective actions for fire-fighters

Use personal protective equipment as required. Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

For indoor, provide adequate ventilation process until the end of working. Deny unnecessary entry other than the people involved by, for example, using a rope. While working, wear appropriate protective equipments to avoid adhering it on skin, or inhaling the gas. Work from windward, and retract the people downwind.

Environmental precautions

To be careful not discharged to the environment without being properly handled waste water contaminated.

Methods and materials for contaminant and methods and materials for cleaning up

Absorb dry sand, earth, sawdust and the waste. Collect empty container that can be sealed.

Recovery, neutralization

No information available

Secondary disaster prevention measures

Clean contaminated objects and areas thoroughly observing environmental regulations.

Section 7: HANDLING AND STORAGE

Handling**Technical measures**

Highly flammable. Avoid contact with high temperature objects, spark, and strong oxidizing agents. To cut with care and wear protective gloves and protective goggles to ampoule time of the opening (Cutting method to check the label). Use with local exhaust ventilation.

Precautions

Do not rough handling containers, such as upsetting, falling, giving a shock, and dragging. Prevent leakage, overflow, and scattering. Not to generate steam and dust in vain. Seal the container after use. After handling, wash hands and face, and then gargle. In places other than those specified, should not be smoking or eating and drinking. Should not be brought

contaminated protective equipment and gloves to rest stops. Deny unnecessary entry of non-emergency personnel to the handling area.

Safety handling precautions

Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use personal protective equipment as required. Avoid contact with skin, eyes or clothing.

Storage**Safe storage conditions****Storage conditions**

Container protected from light, and store tightly closed in freezer (-20°C). Packed with an inert gas.

Safe packaging material

Ampoule

Incompatible substances

Strong oxidizing agents

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls

In case of indoor workplace, seal the source or use a local exhaust system. Provide the safety shower facility, and hand- and eye-wash facility. And display their position clearly.

Exposure limits

Chemical Name	JSOH (Japan)	ISHL (Japan)	ACGIH
Methanol 67-56-1	TWA: 200 ppm OEL TWA: 260 mg/m ³ OEL Skin ISHL/ACL: 200 ppm	200ppm	TWA 200ppm(260mg/m ³) STEL 250ppm
N-Nitrosodimethylamine 62-75-9	N/A	N/A	Skin

Personal protective equipment**Respiratory protection**

gas mask for organic gas (JIS T 8152)

Hand protection

chemical protective gloves (JIS T 8116)

Eye protection

protective eyeglasses or chemical safety goggles (JIS T 8147)

Skin and body protection

Long-sleeved work clothes

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice.

If this product is classified as "Chemical Substances Hazardous to Skin, etc.", use appropriate protective equipment to them.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Form**Color**

colorless

Turbidity

clear

Appearance

liquid

Odor

no data available

Melting point/freezing point

no data available

Boiling point, initial boiling point and boiling range

no data available

Flammability

Highly flammable liquid and vapor

Evaporation rate:

no data available

Flammability (solid, gas):

no data available

Upper/lower flammability or explosive limits**Upper:**

no data available

Lower:

no data available

Flash point

no data available

Auto-ignition temperature:

no data available

Decomposition temperature:

no data available

pH

no data available

Viscosity (coefficient of viscosity)

no data available

Dynamic viscosity	no data available
Solubilities	water , Ethanol , acetone : soluble .
n-Octanol/water partition coefficient:(log Pow)	no data available
Vapour pressure	no data available
Specific Gravity / Relative density	no data available
Vapour density	no data available
Particle characteristics	no data available

Section 10: STABILITY AND REACTIVITY

Stability

Reactivity	no data available
Chemical stability	May be altered by light.
Hazardous reactions	None under normal processing
Conditions to avoid	Extremes of temperature and direct sunlight, Heat, flames and sparks, static electricity, spark
Incompatible materials	Strong oxidizing agents
Hazardous decomposition products	Nitrogen oxides (NOx), Carbon monoxide (CO), Carbon dioxide (CO ₂)

Section 11: TOXICOLOGICAL INFORMATION

Acute toxicity

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Methanol	1400 mg/kg (Human)	15800 mg/kg (Rabbit)	>31500 ppm (Rat) 4 h (vapor)
N-Nitrosodi-n-butylamine	1200 mg/kg (Rat)	N/A	N/A
N-Nitrosodiethylamine	280 mg/kg (Rat)	N/A	N/A
N-Nitrosomorpholine	320 mg/kg (Rat)	N/A	N/A
N-Methyl-N-nitrosoaniline	225 mg/kg (Rat)	N/A	N/A
N-Nitrosodimethylamine	23 mg/kg (Rat)	N/A	78 ppm (Rat) 4 h
N-Nitrosodi-n-propylamine	480 mg/kg (Rat)	N/A	N/A

Chemical Name	Acute toxicity -oral- source information	Acute toxicity -dermal- source information	Acute toxicity -inhalation gas-source information
Methanol	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
N-Nitrosodi-n-butylamine	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
N-Nitrosodiethylamine	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
N-Nitrosomorpholine	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
N-Nitrosodimethylamine	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
N-Nitrosodi-n-propylamine	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.

Chemical Name	Acute toxicity -inhalation vapor- source information	Acute toxicity -inhalation dust-source information	Acute toxicity -inhalation mist-source information
Methanol	Based on the NITE GHS Classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
N-Nitrosodi-n-butylamine	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
N-Nitrosodiethylamine	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.

N-Nitrosomorpholine	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
N-Nitrosodimethylamine	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
N-Nitrosodi-n-propylamine	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.

Skin irritation/corrosion

Chemical Name	Skin corrosion/irritation source information
Methanol	Based on the NITE GHS classification results.
N-Nitrosodi-n-butylamine	Based on the NITE GHS classification results.
N-Nitrosodiethylamine	Based on the NITE GHS classification results.
N-Nitrosomorpholine	Based on the NITE GHS classification results.
N-Nitrosodimethylamine	Based on the NITE GHS classification results.
N-Nitrosodi-n-propylamine	Based on the NITE GHS classification results.

Serious eye damage/ irritation

Chemical Name	Serious eye damage/irritation source information
Methanol	Based on the NITE GHS classification results.
N-Nitrosodi-n-butylamine	Based on the NITE GHS classification results.
N-Nitrosodiethylamine	Based on the NITE GHS classification results.
N-Nitrosomorpholine	Based on the NITE GHS classification results.
N-Nitrosodimethylamine	Based on the NITE GHS classification results.
N-Nitrosodi-n-propylamine	Based on the NITE GHS classification results.

Respiratory or skin sensitization

Chemical Name	Respiratory or Skin sensitization source information
Methanol	Based on the NITE GHS classification results.
N-Nitrosodi-n-butylamine	Based on the NITE GHS classification results.
N-Nitrosodiethylamine	Based on the NITE GHS classification results.
N-Nitrosomorpholine	Based on the NITE GHS classification results.
N-Nitrosodimethylamine	Based on the NITE GHS classification results.
N-Nitrosodi-n-propylamine	Based on the NITE GHS classification results.

Reproductive cell mutagenicity

Chemical Name	germ cell mutagenicity source information
Methanol	Based on the NITE GHS classification results.
N-Nitrosodi-n-butylamine	Based on the NITE GHS classification results.
N-Nitrosodiethylamine	Based on the NITE GHS classification results.
N-Nitrosomorpholine	Based on the NITE GHS classification results.
N-Nitrosodimethylamine	Based on the NITE GHS classification results.
N-Nitrosodi-n-propylamine	Based on the NITE GHS classification results.

Carcinogenicity

Chemical Name	Carcinogenicity source information
Methanol	Based on the NITE GHS classification results.
N-Nitrosodi-n-butylamine	Based on the NITE GHS classification results.
N-Nitrosodiethylamine	Based on the NITE GHS classification results.
N-Nitrosomorpholine	Based on the NITE GHS classification results.
N-Nitrosodimethylamine	Based on the NITE GHS classification results.
N-Nitrosodi-n-propylamine	Based on the NITE GHS classification results.

Chemical Name	NTP	IARC	ACGIH	JSOH (Japan)
N-Nitrosodi-n-butylamine 924-16-3	Reasonably Anticipated	Group 2B		
N-Nitrosodiethylamine 55-18-5	Reasonably Anticipated	Group 2A		
N-Nitrosomorpholine 59-89-2	Reasonably Anticipated	Group 2B		Group 2B
N-Nitrosodimethylamine 62-75-9	Reasonably Anticipated	Group 2A	A3	
N-Nitrosodi-n-propylamine	Reasonably	Group 2B		

621-64-7	Anticipated		
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Reproductive toxicity

Chemical Name	Reproductive toxicity source information
Methanol	Based on the NITE GHS classification results.
N-Nitrosodi-n-butylamine	Based on the NITE GHS classification results.
N-Nitrosodiethylamine	Based on the NITE GHS classification results.
N-Nitrosomorpholine	Based on the NITE GHS classification results.
N-Nitrosodimethylamine	Based on the NITE GHS classification results.
N-Nitrosodi-n-propylamine	Based on the NITE GHS classification results.

STOT-single exposure

Chemical Name	STOT -single exposure- source information
Methanol	Based on the NITE GHS classification results.
N-Nitrosodi-n-butylamine	Based on the NITE GHS classification results.
N-Nitrosodiethylamine	Based on the NITE GHS classification results.
N-Nitrosomorpholine	Based on the NITE GHS classification results.
N-Nitrosodimethylamine	Based on the NITE GHS classification results.
N-Nitrosodi-n-propylamine	Based on the NITE GHS classification results.

STOT-repeated exposure

Chemical Name	STOT -repeated exposure- source information
Methanol	Based on the NITE GHS classification results.
N-Nitrosodi-n-butylamine	Based on the NITE GHS classification results.
N-Nitrosodiethylamine	Based on the NITE GHS classification results.
N-Nitrosomorpholine	Based on the NITE GHS classification results.
N-Nitrosodimethylamine	Based on the NITE GHS classification results.
N-Nitrosodi-n-propylamine	Based on the NITE GHS classification results.

Aspiration hazard

Chemical Name	Aspiration Hazard source information
Methanol	Based on the NITE GHS classification results.
N-Nitrosodi-n-butylamine	Based on the NITE GHS classification results.
N-Nitrosodiethylamine	Based on the NITE GHS classification results.
N-Nitrosomorpholine	Based on the NITE GHS classification results.
N-Nitrosodimethylamine	Based on the NITE GHS classification results.
N-Nitrosodi-n-propylamine	Based on the NITE GHS classification results.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity

Chemical Name	Algae/aquatic plants	Fish	Crustacea
Methanol	N/A	LC50 : <i>Lepomis macrochirus</i> 15400 mg/L 96 h	LC50 : <i>Artemia</i> 1340 mg/L 96 h
N-Nitrosodimethylamine	N/A	N/A	LC50 : <i>Gammaridea</i> 280 - 445 mg/L 96 h

Other data

Chemical Name	Short-term (acute) hazardous to the aquatic environment source information	Long-term (chronic) hazardous to the aquatic environment source information
Methanol	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
N-Nitrosodi-n-butylamine	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
N-Nitrosodiethylamine	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
N-Nitrosomorpholine	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
N-Nitrosodimethylamine	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
N-Nitrosodi-n-propylamine	Based on the NITE GHS classification	Based on the NITE GHS classification

	results.	results.
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Persistence and degradability	No information available
Bioaccumulative potential	No information available
Mobility in soil	No information available
Hazard to the ozone layer	No information available

Section 13: DISPOSAL CONSIDERATIONS

Waste from residues

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Contaminated container and contaminated packaging

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Section 14: TRANSPORT INFORMATION

ADR/RID

UN number	UN1230
Proper shipping name:	Methanol
UN classification	3
Subsidiary hazard class	6.1
Packing group	II
Marine pollutant	Not applicable

IMDG

UN number	UN1230
Proper shipping name:	Methanol
UN classification	3
Subsidiary hazard class	6.1
Packing group	II
Marine pollutant (Sea)	Not applicable
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	No information available

IATA

UN number	UN1230
Proper shipping name:	Methanol
UN classification	3
Subsidiary hazard class	6.1
Packing group	II
Environmentally Hazardous Substance	Not applicable

Section 15: REGULATORY INFORMATION

Japanese regulations

Fire Service Act	Category IV, alcohols, dangerous grade 2 water-soluble
Poisonous and Deleterious Substances Control Law	Not applicable
Industrial Safety and Health Act	Harmful Substances Whose Names Are to be Indicated on the Label (Law Art.57) Notifiable Substances (Law Art.57-2) Class 2 Organic Solvents (Enforcement Order Attached Table No.6-2, Ordinance on Prevention of Organic Solvent Poisoning Art.1, Para.1, Item 5) Working Environment Evaluation Standards, Administrative Control Levels (Law Art.65-2, Para.1) Dangerous Substances - Flammable Substance (Enforcement Order Attached Table 1 Item 4)

Industrial Safety and Health Act (2024~)	【2024.4.1~】 Chemical Substances Hazardous to Skin, etc.(Regulations Article 594-2 Paragraph 1)
Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc	Priority Assessment Chemical Substances (Law Article 2, Para.5)
Regulations for the carriage and storage of dangerous goods in ship	Flammable Liquids (Ordinance Art.3, Ministry of Transportation Ordinance Regarding Transport by Ship and Storage, Attached Table 1)
Civil Aeronautics Law	Flammable Liquids (Ordinance Art.194, MITL Notification for Air Transportation of Explosives etc., Attached Table 1)
Marine Pollution Prevention Law	Enforcement ordinance Appendix No. 1 Noxious liquid substance Category Y
Pollutant Release and Transfer Register Law (2023.4.1-)	Not applicable
Export Trade Control Order	Not applicable
Air Pollution Control Law	Specified Substances

Chemical Name	Poisonous and Deleterious Substances Control Law	Industrial Safety and Health Act Substances (Law Art.57-2)	Pollutant Release and Transfer Register Law (2023.4.1-)
Methanol 67-56-1 (<100)	-	Applicable	-

Section 16: OTHER INFORMATION

Key literature references and sources for data etc.

NITE: National Institute of Technology and Evaluation (JAPAN)
<http://www.safe.nite.go.jp/japan/db.html>
 IATA dangerous Goods Regulations
 RTECS:Registry of Toxic Effects of Chemical Substances
 Japan Industrial Safety and Health Association GHS Model SDS
 Dictionary of Synthetic Organic Chemistry, SSOCJ, Koudansha Scientific Co.Ltd.
 Chemical Dictionary, Kyouritsu Publishing Co., Ltd.
 etc

Record of SDS revisions Disclaimer

The following contents were revised. Regulatory information.

This SDS is according to JIS Z 7253: 2019. The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

GHS Classification is according to JIS Z 7252:2019. *JIS: Japanese Industrial Standards

End of Safety Data Sheet