

SAFETY DATA SHEET

According to JIS Z 7253:2019
Revision date 05-Oct-2023
 Revision Number 2.05

Section 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name	12 VOC Mixture Standard Solution(each 1mg/mL Methanol Solution)
Product Code	228-01481

Supplier FUJIFILM Wako Pure Chemical Corporation
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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
Skin sensitization	Category 1
Carcinogenicity	Category 1A
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	
Acute aquatic toxicity	Category 3
Chronic aquatic toxicity	Category 3
Ozone	Category 1

Pictograms



Signal word

Danger

Hazard statements

- H225 - Highly flammable liquid and vapor
- H319 - Causes serious eye irritation
- H302 - Harmful if swallowed
- H350 - May cause cancer
- H360 - May damage fertility or the unborn child
- H336 - May cause drowsiness or dizziness
- H317 - May cause an allergic skin reaction
- H412 - Harmful to aquatic life with long lasting effects

H420 - Harms public health and the environment by destroying ozone in the upper atmosphere

H402 - Harmful to aquatic life

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
- Contaminated work clothing should not be allowed out of the workplace
- Wear protective gloves
- 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
- Avoid release to the environment
- 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 skin irritation or rash occurs: Get medical advice/attention
- Wash contaminated clothing before reuse
- 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
- Refer to manufacturer/supplier for information on recovery/recycling

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	98.48	32.04	(2)-201	*	67-56-1
Benzene	0.13	78.11	(3)-1	*	71-43-2
1,1,1-Trichloroethane	0.13	133.40	(2)-55	*	71-55-6
Dichloromethane	0.13	84.93	(2)-36	*	75-09-2
1,1-Dichloroethylene	0.13	96.94	(2)-103	*	75-35-4
1,1,2-Trichloroethane	0.13	133.40	(2)-55	*	79-00-5
Trichloroethylene	0.13	131.39	2-105	*	79-01-6
cis-1,3-Dichloropropene	0.13	110.97	(2)-125	2-(13)-29	10061-01-5
trans-1,3-Dichloropropen	0.13	110.97	(2)-125	2-(13)-29	10061-02-6

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1,2-Dichloroethane	0.13	98.96	(2)-54	2-(13)-23	107-06-2
Tetrachloroethylene	0.13	165.83	(2)-114	*	127-18-4
cis-1,2-Dichloroethylene	0.13	96.94	(2)-103	*	156-59-2
Carbon Tetrachloride	0.13	153.82	(2)-38	2-(13)-47	56-23-5

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

Impurities and/or Additives: Not applicable

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

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**

Keep container protect from light tightly closed. Store in a cool (2-10 °C) place. Store locked up.

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	200ppm(260mg/m ³)	200ppm	TWA 200ppm(260mg/m ³) STEL 250ppm
Benzene 71-43-2	Skin ISHL/ACL: 1 ppm	ISHL/ACL: 1 ppm	STEL: 2.5 ppm TWA: 0.5 ppm Skin
1,1,1-Trichloroethane 71-55-6	TWA: 200 ppm OEL TWA: 1100 mg/m ³ OEL ISHL/ACL: 200 ppm	ISHL/ACL: 200 ppm	STEL: 450 ppm TWA: 350 ppm
Dichloromethane 75-09-2	50ppm,170mg/m ³	ISHL/ACL: 50 ppm	TWA: 50 ppm
1,1-Dichloroethylene 75-35-4	N/A	N/A	TWA: 5 ppm
1,1,2-Trichloroethane 79-00-5	TWA: 10 ppm OEL TWA: 55 mg/m ³ OEL Skin	N/A	TWA: 10 ppm Skin
Trichloroethylene 79-01-6	25ppm, 135mg/m ³	ISHL/ACL: 10 ppm	STEL: 25 ppm TWA: 10 ppm
trans-1,3-Dichloropropene 10061-02-6	N/A	N/A	TWA 1ppm(skin) 4.5mg/m ³
1,2-Dichloroethane 107-06-2	TWA: 10 ppm OEL TWA: 40 mg/m ³ OEL ISHL/ACL: 10 ppm	ISHL/ACL: 10 ppm	TWA: 10 ppm
Tetrachloroethylene 127-18-4	TWA: OEL Skin ISHL/ACL: 25 ppm	ISHL/ACL: 25 ppm	STEL: 100 ppm TWA: 25 ppm
cis-1,2-Dichloroethylene 156-59-2	ISHL/ACL: 150 ppm	ISHL/ACL: 150 ppm	TWA: 200 ppm
Carbon Tetrachloride 56-23-5	TWA: 5 ppm OEL TWA: 31 mg/m ³ OEL	ISHL/ACL: 5 ppm	STEL: 10 ppm TWA: 5 ppm

	Skin ISHL/ACL: 5 ppm		Skin
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Chemical Name	Concentration standard value set by the Minister of Health, Labor and Welfare (8hr)	Concentration standard value set by the Minister of Health, Labor and Welfare (Short-Term)
1,1-Dichloroethylene 75-35-4	5 ppm	N/A
cis-1,3-Dichloropropene 10061-01-5	1 ppm	N/A
trans-1,3-Dichloropropene 10061-02-6	1 ppm	N/A

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
Skin and body protection	Long-sleeved work clothes

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Form

Color colorless

Turbidity clear

Appearance liquid

Odor

characteristic odor

Melting point/freezing point

-98 °C

Boiling point, initial boiling point and boiling range

64 °C

Flammability

Highly flammable liquid and vapor

Evaporation rate:

no data available

Flammability (solid, gas):

no data available

Upper/lower flammability or explosive limits

Upper: 36.5 v/v%

Lower: 6.0 v/v%

Flash point

11 °C

Auto-ignition temperature:

464 °C

Decomposition temperature:

no data available

pH

no data available

Viscosity (coefficient of viscosity)

no data available

Dynamic viscosity

no data available

Solubilities

water , Ethanol and acetone : miscible .

n-Octanol/water partition coefficient:(log Pow)

-0.74

Vapour pressure

12.3 kPa

Specific Gravity / Relative density

0.791-0.793

Vapour density

1.1 (air=1)

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 productsCarbon monoxide (CO), Carbon dioxide (CO₂), Halides

Section 11: TOXICOLOGICAL INFORMATION
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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)
Benzene	3,400 - 5,600 mg/kg (Rat)	>8,200 mg/kg (Rabbit)	13,700 ppm (Rat)
1,1,1-Trichloroethane	> 2000 mg/kg (Rat)	> 2000 mg/kg (Rat)	15588 ppm (Rat) 4 h
Dichloromethane	2120 mg/kg (Rat Male)	N/A	18,371 ppm (Rat) 4 h
1,1-Dichloroethylene	1500 mg/kg (Rat)	N/A	6350 ppm (Rat) 4 h
1,1,2-Trichloroethane	837 mg/kg (Rat)	5,380 mg/kg (Rabbit)	2000 ppm (Rat) 4 h
Trichloroethylene	4920 mg/kg (Rat) 4290 mg/kg (Rat)	> 20 g/kg (Rabbit) 29000 mg/kg (Rabbit)	26 mg/L (Rat) 4 h
trans-1,3-Dichloropropene	470mg/kg(Rat)	775mg/kg(Rat)	1000ppm/2h(Rat)
1,2-Dichloroethane	670 mg/kg (Rat)	2800 mg/kg (Rabbit)	1000 ppm (Rat) 4 h
Tetrachloroethylene	2629 mg/kg (Rat)	N/A	27.8 mg/L (Rat) 4 h
cis-1,2-Dichloroethylene	N/A	N/A	13,700 ppm (Rat) 4 h
Carbon Tetrachloride	2350 mg/kg (Rat)	15000 mg/kg (Rabbit) 5070 mg/kg (Rat)	8000 ppm (Rat) 4 h

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.
Benzene	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
1,1,1-Trichloroethane	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Dichloromethane	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
1,1-Dichloroethylene	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
1,1,2-Trichloroethane	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Trichloroethylene	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
1,2-Dichloroethane	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Tetrachloroethylene	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
cis-1,2-Dichloroethylene	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Carbon Tetrachloride	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.
Benzene	Based on the NITE GHS Classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
1,1,1-Trichloroethane	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Dichloromethane	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.

1,1-Dichloroethylene	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
1,1,2-Trichloroethane	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Trichloroethylene	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
1,2-Dichloroethane	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Tetrachloroethylene	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
cis-1,2-Dichloroethylene	Based on the NITE GHS Classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Carbon Tetrachloride	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.
Benzene	Based on the NITE GHS classification results.
1,1,1-Trichloroethane	Based on the NITE GHS classification results.
Dichloromethane	Based on the NITE GHS classification results.
1,1-Dichloroethylene	Based on the NITE GHS classification results.
1,1,2-Trichloroethane	Based on the NITE GHS classification results.
Trichloroethylene	Based on the NITE GHS classification results.
trans-1,3-Dichloropropene	Based on the NITE GHS classification results.
1,2-Dichloroethane	Based on the NITE GHS classification results.
Tetrachloroethylene	Based on the NITE GHS classification results.
cis-1,2-Dichloroethylene	Based on the NITE GHS classification results.
Carbon Tetrachloride	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.
Benzene	Based on the NITE GHS classification results.
1,1,1-Trichloroethane	Based on the NITE GHS classification results.
Dichloromethane	Based on the NITE GHS classification results.
1,1-Dichloroethylene	Based on the NITE GHS classification results.
1,1,2-Trichloroethane	Based on the NITE GHS classification results.
Trichloroethylene	Based on the NITE GHS classification results.
trans-1,3-Dichloropropene	Based on the NITE GHS classification results.
1,2-Dichloroethane	Based on the NITE GHS classification results.
Tetrachloroethylene	Based on the NITE GHS classification results.
cis-1,2-Dichloroethylene	Based on the NITE GHS classification results.
Carbon Tetrachloride	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.
Benzene	Based on the NITE GHS classification results.
1,1,1-Trichloroethane	Based on the NITE GHS classification results.
Dichloromethane	Based on the NITE GHS classification results.
1,1-Dichloroethylene	Based on the NITE GHS classification results.
1,1,2-Trichloroethane	Based on the NITE GHS classification results.
Trichloroethylene	Based on the NITE GHS classification results.
trans-1,3-Dichloropropene	Based on the NITE GHS classification results.
1,2-Dichloroethane	Based on the NITE GHS classification results.
Tetrachloroethylene	Based on the NITE GHS classification results.
cis-1,2-Dichloroethylene	Based on the NITE GHS classification results.
Carbon Tetrachloride	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.
Benzene	Based on the NITE GHS classification results.

1,1,1-Trichloroethane	Based on the NITE GHS classification results.
Dichloromethane	Based on the NITE GHS classification results.
1,1-Dichloroethylene	Based on the NITE GHS classification results.
1,1,2-Trichloroethane	Based on the NITE GHS classification results.
Trichloroethylene	Based on the NITE GHS classification results.
1,2-Dichloroethane	Based on the NITE GHS classification results.
Tetrachloroethylene	Based on the NITE GHS classification results.
cis-1,2-Dichloroethylene	Based on the NITE GHS classification results.
Carbon Tetrachloride	Based on the NITE GHS classification results.

Carcinogenicity

Chemical Name	Carcinogenicity source information
Methanol	Based on the NITE GHS classification results.
Benzene	Based on the NITE GHS classification results.
1,1,1-Trichloroethane	Based on the NITE GHS classification results.
Dichloromethane	Based on the NITE GHS classification results.
1,1-Dichloroethylene	Based on the NITE GHS classification results.
1,1,2-Trichloroethane	Based on the NITE GHS classification results.
Trichloroethylene	Based on the NITE GHS classification results.
1,2-Dichloroethane	Based on the NITE GHS classification results.
Tetrachloroethylene	Based on the NITE GHS classification results.
cis-1,2-Dichloroethylene	Based on the NITE GHS classification results.
Carbon Tetrachloride	Based on the NITE GHS classification results.

Chemical Name	NTP	IARC	ACGIH	JSOH (Japan)
Benzene 71-43-2	Known	Group 1	A1	Group 1
1,1,1-Trichloroethane 71-55-6		Group 2A Group 3		
Dichloromethane 75-09-2	Reasonably Anticipated	Group 2A	A3	Group 2A
1,1-Dichloroethylene 75-35-4		Group 2B		Group 2B
1,1,2-Trichloroethane 79-00-5	-	Group 3	A3	-
Trichloroethylene 79-01-6	Known Reasonably Anticipated	Group 1 Group 3	A2	Group 1
trans-1,3-Dichloropropene 10061-02-6	R (ヒトに対して発がん性がある)	グループ2B (ヒトに対して発がん性がある可能性がある)	A3 (動物発がん性物質)	「第2群B」人間に対しておそらく発がん性があると考えられる物質(証拠が比較的十分でない物質)
1,2-Dichloroethane 107-06-2	Reasonably Anticipated	Group 2A Group 2B	-	Group 2B
Tetrachloroethylene 127-18-4	Reasonably Anticipated	Group 2A	A3	Group 2B
Carbon Tetrachloride 56-23-5	Reasonably Anticipated	Group 2A Group 2B	A2	Group 2B

Reproductive toxicity

Chemical Name	Reproductive toxicity source information
Methanol	Based on the NITE GHS classification results.
Benzene	Based on the NITE GHS classification results.
1,1,1-Trichloroethane	Based on the NITE GHS classification results.
Dichloromethane	Based on the NITE GHS classification results.
1,1-Dichloroethylene	Based on the NITE GHS classification results.
1,1,2-Trichloroethane	Based on the NITE GHS classification results.
Trichloroethylene	Based on the NITE GHS classification results.
1,2-Dichloroethane	Based on the NITE GHS classification results.
Tetrachloroethylene	Based on the NITE GHS classification results.

cis-1,2-Dichloroethylene	Based on the NITE GHS classification results.
Carbon Tetrachloride	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.
Benzene	Based on the NITE GHS classification results.
1,1,1-Trichloroethane	Based on the NITE GHS classification results.
Dichloromethane	Based on the NITE GHS classification results.
1,1-Dichloroethylene	Based on the NITE GHS classification results.
1,1,2-Trichloroethane	Based on the NITE GHS classification results.
Trichloroethylene	Based on the NITE GHS classification results.
trans-1,3-Dichloropropene	Based on the NITE GHS classification results.
1,2-Dichloroethane	Based on the NITE GHS classification results.
Tetrachloroethylene	Based on the NITE GHS classification results.
cis-1,2-Dichloroethylene	Based on the NITE GHS classification results.
Carbon Tetrachloride	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.
Benzene	Based on the NITE GHS classification results.
1,1,1-Trichloroethane	Based on the NITE GHS classification results.
Dichloromethane	Based on the NITE GHS classification results.
1,1-Dichloroethylene	Based on the NITE GHS classification results.
1,1,2-Trichloroethane	Based on the NITE GHS classification results.
Trichloroethylene	Based on the NITE GHS classification results.
trans-1,3-Dichloropropene	Based on the NITE GHS classification results.
1,2-Dichloroethane	Based on the NITE GHS classification results.
Tetrachloroethylene	Based on the NITE GHS classification results.
cis-1,2-Dichloroethylene	Based on the NITE GHS classification results.
Carbon Tetrachloride	Based on the NITE GHS classification results.

Aspiration hazard

Chemical Name	Aspiration Hazard source information
Methanol	Based on the NITE GHS classification results.
Benzene	Based on the NITE GHS classification results.
1,1,1-Trichloroethane	Based on the NITE GHS classification results.
Dichloromethane	Based on the NITE GHS classification results.
1,1-Dichloroethylene	Based on the NITE GHS classification results.
1,1,2-Trichloroethane	Based on the NITE GHS classification results.
Trichloroethylene	Based on the NITE GHS classification results.
1,2-Dichloroethane	Based on the NITE GHS classification results.
Tetrachloroethylene	Based on the NITE GHS classification results.
cis-1,2-Dichloroethylene	Based on the NITE GHS classification results.
Carbon Tetrachloride	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
Benzene	EC50 : <i>Pseudokirchneriella subcapitata</i> 29 mg/L 72 h	LC50 : <i>Oncorhynchus mykiss</i> 5.3 mg/L 96 h EC50 : <i>Fathead mino</i> 0.8 mg/L 32 h	EC50 : <i>Daphnia magna</i> 8.76 - 15.6 mg/L 48 h
1,1,1-Trichloroethane	EbC50 : <i>Chlamydomonas</i> 0.536 mg/L 72 h	N/A	N/A
Dichloromethane	N/A	N/A	EC50: <i>Daphnia magna</i>

			27 mg/L 48 h
1,1-Dichloroethylene	<i>EbC50 : Chlamydomonas reinhardi</i> 9.12 mg/L 72 h <i>EC10 : Scenedesmus quadricauda</i> 240 mg/L 96 h	N/A	<i>EC50 : Daphnia magna</i> 11.6 mg/L 48 h
1,1,2-Trichloroethane	<i>EC50:Pseudokirchneriella subcapitata</i> 51.4 mg/L 72h	<i>LC50:Pimephales promelas</i> 81.6 mg/L 96 h	<i>EC50:Daphnia magna</i> 18 mg/L 48 h
Trichloroethylene	<i>EC50:Pseudokirchneriella subcapitata</i> 175 mg/L 96 h <i>EC50:Desmodesmus subspicatus</i> 450 mg/L 96 h	<i>LC50 : Pimephales promelas</i> 31.4 - 71.8 mg/L 96 h <i>LC50 : Lepomis macrochirus</i> 39 - 54 mg/L 96 h	<i>EC50:Daphnia magna</i> 2.2 mg/L 48 h
1,2-Dichloroethane	<i>EC50:Desmodesmus subspicatus</i> 166 mg/L 96 h <i>static</i> <i>EC50:Pseudokirchneriella subcapitata</i> 433 mg/L 96 h	<i>LC50:Pimephales promelas</i> 110 - 123 mg/L 96 h <i>LC50:Lepomis macrochirus</i> 230 - 710 mg/L 96 h <i>LC50:Oncorhynchus mykiss</i> 225 mg/L 96 h	<i>LC50 : Artemia salina</i> 12.8 mg/L 48 h
Tetrachloroethylene	<i>EC50:Pseudokirchneriella subcapitata</i> 500 mg/L 96 h	<i>LC50:Lepomis macrochirus</i> 11.0 - 15.0 mg/L 96 h <i>LC50:Pimephales promelas</i> 12.4 - 14.4 mg/L 96 h <i>LC50:Oncorhynchus mykiss</i> 4.73 - 5.27 mg/L 96 h <i>LC50:Pimephales promelas</i> 8.6 - 13.5 mg/L 96 h	<i>EC50:Daphnia magna</i> 6.1 - 9.0 mg/L 48 h
cis-1,2-Dichloroethylene	N/A	<i>LC50 : Oryzias latipes</i> 67.2 mg/L 96 h	<i>EC50 : Daphnia magna</i> 40.2mg/L 48 h
Carbon Tetrachloride	<i>ErC50 : Pseudokirchneriella subcapitata</i> 0.46 mg/L 72 h	<i>LC50 : Oryzias latipes</i> 7.6 mg/L 96 h	<i>EC50:Daphnia magna</i> 28 mg/L 24 h <i>EC50:Daphnia magna</i> 29 mg/L 48 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.
Benzene	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
1,1,1-Trichloroethane	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Dichloromethane	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
1,1-Dichloroethylene	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
1,1,2-Trichloroethane	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Trichloroethylene	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
1,2-Dichloroethane	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Tetrachloroethylene	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
cis-1,2-Dichloroethylene	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
Carbon Tetrachloride	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.

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

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	Deleterious Substances 3rd. Grade
Industrial Safety and Health Act	Harmful Substances Whose Names Are to be Indicated on the Label (Law Art.57, Para.1, Enforcement Order Art.18) Notifiable Substances (Law Art.57-2, Enforcement Order Art.18-2 Attached Table No.9)No.560,241,257,383,226,240,531,384,359,256 Class 2 Organic Solvents (Enforcement Order Attached Table No.6-2, Ordinance on Prevention of Organic Solvent Poisoning Art.1, Para.1, Item 5) Dangerous Substances - Flammable Substance (Enforcement Order Attached Table 1 Item 4) Working Environment Evaluation Standards, Administrative Control Levels (Law

<p>Act on the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc Regulations for the carriage and storage of dangerous goods in ship Civil Aeronautics Law</p> <p>Marine Pollution Prevention Law</p> <p>Pollutant Release and Transfer Register Law (2023.4.1-)</p> <p>Specified Class 1-No. Water Pollution Control Act</p> <p>Export Trade Control Order</p> <p>Ozon protection act.(Japan)</p> <p>Air Pollution Control Law</p> <p>Soil Contamination Control Law</p>	<p>Art.65-2, Para.1) Group 2 Specified Chemical Substance, Special organic solvents. Substances designated by the Minister of Health, Labor and Welfare as carcinogenic(Ordinance on Industrial Safety and Health Art.577, Para.2) Class II Specified Chemical Substances (Law Art.2, Para.3, Enforcement Order Art.1-2) Priority Assessment Chemical Substances (Law Article 2, Para.5)</p> <p>Flammable Liquids (Ordinance Art.3, Ministry of Transportation Ordinance Regarding Transport by Ship and Storage, Attached Table 1)</p> <p>Flammable Liquids (Ordinance Art.194, MITL Notification for Air Transportation of Explosives etc., Attached Table 1)</p> <p>Enforcement ordinance Appendix No. 1 Noxious liquid substance Category Y Marine pollutants (P and PP substances) Specified Class 1 No.</p> <p>400 , 281</p> <p>Harmful Substances (Law Art.2, Enforcement Order Art.2, Ordinance Designating Wastewater Standards Art.1)</p> <p>Appendix 2 Export Approval Item B-2 B-3</p> <p>Priority Chemical Substances, Specified Substances Designated Hazardous Substances</p>
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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 (98.48)	-	Applicable	-
Benzene 71-43-2 (0.13)	-	Applicable	Applicable
1,1,1-Trichloroethane 71-55-6 (0.13)	-	Applicable	-
Dichloromethane 75-09-2 (0.13)	-	Applicable	-
1,1-Dichloroethylene 75-35-4 (0.13)	-	Applicable	-
1,1,2-Trichloroethane 79-00-5 (0.13)	-	Applicable	-
Trichloroethylene 79-01-6 (0.13)	-	Applicable	Applicable
cis-1,3-Dichloropropene 10061-01-5 (0.13)	Applicable	Applicable	-
trans-1,3-Dichloropropene 10061-02-6 (0.13)	Applicable	Applicable	-
1,2-Dichloroethane 107-06-2 (0.13)	-	Applicable	-
Tetrachloroethylene 127-18-4 (0.13)	-	Applicable	-
cis-1,2-Dichloroethylene 156-59-2 (0.13)	-	Applicable	-
Carbon Tetrachloride 56-23-5 (0.13)	Applicable	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

The following contents were revised. Hazards identification. Composition/information on ingredients.

Disclaimer

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