

SAFETY DATA SHEET

According to JIS Z 7253:2019
Revision date 27-Feb-2024
 Revision Number 8.09

Section 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name	1,2,3-Trichloropropane Standard Solution (1mg/mL t-Butyl Methyl Ether Solution)
Product Code	203-15981

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

Skin corrosion/irritation

Serious eye damage/eye irritation

Carcinogenicity

Reproductive Toxicity

Specific target organ toxicity (single exposure)

Category 3 Respiratory irritation, Narcotic effects

Category 2

Category 2

Category 2B

Category 1B

Category 1B

Category 3

Pictograms



Signal word

Danger

Hazard statements

- H225 - Highly flammable liquid and vapor
- H315 - Causes skin irritation
- H320 - Causes eye irritation
- H350 - May cause cancer
- H360 - May damage fertility or the unborn child
- H335 - May cause respiratory irritation
- H336 - May cause drowsiness or dizziness

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
- Wash face, hands and any exposed skin thoroughly after handling
- Avoid breathing dust/fume/gas/mist/vapors/spray

- 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 or concerned: 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 eye irritation persists: Get medical advice/attention
- If skin irritation occurs: Get medical advice/attention
- IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
- Wash contaminated clothing before reuse
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
- In case of fire: Use suitable extinguishing media for extinction

Precautionary statements-(Storage)

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

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
tert-Butyl methyl ether	99.9	88.15	(2)-3220	2-(2)-133 2-(12)-134	1634-04-4
1,2,3-Trichloropropane	0.1	147.43	(2)-83	2-(13)-52	96-18-4

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

Carbon dioxide (CO₂), Foam, Extinguishing powder, Sand

Unsuitable extinguishing media

No information available

Specific hazards arising from the chemical product

Vapors may form explosive mixture with air 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
tert-Butyl methyl ether 1634-04-4	N/A	N/A	TWA: 50 ppm
1,2,3-Trichloropropane 96-18-4	N/A	N/A	TWA: 0.005 ppm

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)
tert-Butyl methyl ether 1634-04-4	50 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 (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

Data except for the appearance is described as a solvent.

Form**Color**

colorless

Turbidity

clear

Appearance

liquid

Odor

Slight pungent odor

Melting point/freezing point

no data available

Boiling point, initial boiling point and boiling range

55 °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:**

no data available

Lower:

no data available

Flash point

-32 °C

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 : insoluble : organic solvents : soluble .

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

no data available

Vapour pressure

no data available

Specific Gravity / Relative density

0.741

Vapour density

3.1

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 products

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

Section 11: TOXICOLOGICAL INFORMATION

Acute toxicity

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
tert-Butyl methyl ether	> 2000 mg/kg (Rat)	> 2000 mg/kg (Rat) > 7400 mg/kg (Rabbit)	23576 ppm (Rat) 4 h
1,2,3-Trichloropropane	253 mg/kg (Rat)	880 mg/kg (Rabbit)	3 mg/L (Rat) 4 h

Chemical Name	Acute toxicity -oral- source information	Acute toxicity -dermal- source information	Acute toxicity -inhalation gas- source information
tert-Butyl methyl ether	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
1,2,3-Trichloropropane	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
tert-Butyl methyl ether	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
1,2,3-Trichloropropane	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
tert-Butyl methyl ether	Based on the NITE GHS classification results.
1,2,3-Trichloropropane	Based on the NITE GHS classification results.

Serious eye damage/ irritation

Chemical Name	Serious eye damage/irritation source information
tert-Butyl methyl ether	Based on the NITE GHS classification results.
1,2,3-Trichloropropane	Based on the NITE GHS classification results.

Respiratory or skin sensitization

Chemical Name	Respiratory or Skin sensitization source information
tert-Butyl methyl ether	Based on the NITE GHS classification results.
1,2,3-Trichloropropane	Based on the NITE GHS classification results.

Reproductive cell mutagenicity

Chemical Name	germ cell mutagenicity source information
tert-Butyl methyl ether	Based on the NITE GHS classification results.
1,2,3-Trichloropropane	Based on the NITE GHS classification results.

Carcinogenicity

Chemical Name	Carcinogenicity source information
tert-Butyl methyl ether	Based on the NITE GHS classification results.
1,2,3-Trichloropropane	Based on the NITE GHS classification results.

Chemical Name	NTP	IARC	ACGIH	JSOH (Japan)
tert-Butyl methyl ether	-	Group 3	A3	-

1634-04-4				
1,2,3-Trichloropropane 96-18-4	Reasonably Anticipated	Group 2A	A2	Group 2A

Reproductive toxicity

Chemical Name	Reproductive toxicity source information
tert-Butyl methyl ether	Based on the NITE GHS classification results.
1,2,3-Trichloropropane	Based on the NITE GHS classification results.

STOT-single exposure

Chemical Name	STOT -single exposure- source information
tert-Butyl methyl ether	Based on the NITE GHS classification results.
1,2,3-Trichloropropane	Based on the NITE GHS classification results.

STOT-repeated exposure

Chemical Name	STOT -repeated exposure- source information
tert-Butyl methyl ether	Based on the NITE GHS classification results.
1,2,3-Trichloropropane	Based on the NITE GHS classification results.

Aspiration hazard

Chemical Name	Aspiration Hazard source information
tert-Butyl methyl ether	Based on the NITE GHS classification results.
1,2,3-Trichloropropane	Based on the NITE GHS classification results.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity

Chemical Name	Algae/aquatic plants	Fish	Crustacea
tert-Butyl methyl ether	EC50 : <i>Pseudokirchneriella subcapitata</i> > 110 mg/L 72 h	LC50 : <i>Oryzias latipes</i> > 120 mg/L 96 h	N/A
1,2,3-Trichloropropane	EC50: <i>Phaeodactylum tricornutum</i> 34 mg/L 168 h	LC50 : <i>Pimephales promelas</i> 50.8 mg/L 96 h	LC50 : <i>Ceriodaphnia dubia</i> 4.13 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
tert-Butyl methyl ether	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.
1,2,3-Trichloropropane	Based on the NITE GHS classification results.	Based on the NITE GHS classification results.

Persistence and degradability

Degree of decomposition: 0 % by BOD (METI Existing chemical safety inspections)

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 UN2398
 Proper shipping name: Methyl tert-butyl ether
 UN classification 3
 Subsidiary hazard class
 Packing group II
 Marine pollutant Not applicable

IMDG

UN number UN2398
 Proper shipping name: Methyl tert-butyl ether
 UN classification 3
 Subsidiary hazard class
 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 UN2398
 Proper shipping name: Methyl tert-butyl ether
 UN classification 3
 Subsidiary hazard class
 Packing group II
 Environmentally Hazardous Substance Not applicable

Section 15: REGULATORY INFORMATION

Japanese regulations

Fire Service Act Category IV, Class I petroleums, dangerous grade 2
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)
 Notifiable Substances (Law Art.57-2)
 Substances designated by the Minister of Health, Labor and Welfare as carcinogenic(Ordinance on Industrial Safety and Health Art.577, Para.2)
 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)
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 Z
Pollutant Release and Transfer Register Law (2023.4.1-) Not applicable
Export Trade Control Order Not applicable

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-)
tert-Butyl methyl ether 1634-04-4 (99.9)	-	Applicable	-

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-)
1,2,3-Trichloropropane 96-18-4 (0.1)	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 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