

SAFETY DATA SHEET

Issue Date 19-Nov-2025
Revision Number 1.07

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product identifier

Product Name Dimethyl Sulfide-Borane Tetrahydrofuran Solution
Other means of identification
Product Code(s) 041-27411

Recommended use of the chemical and restrictions on use

Recommended Use For research use only.
Uses advised against Seek expert judgment when using for purposes other than those recommended.

Details of the supplier of the safety data sheet**Manufacturer Address**

FUJIFILM Wako Pure Chemical Corporation
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Chuo-ku Osaka 540-8605, Japan
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Distributor

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2. HAZARDS IDENTIFICATION

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

Flammable liquids	Category 2	Category 1
Pyrophoric liquids		
Substances and mixtures which, in contact with water, emit flammable gases		
Acute toxicity - Oral	Category 4	
Acute toxicity - Inhalation (Vapors)	Category 4	
Skin corrosion/irritation	Category 2	
Serious eye damage/eye irritation	Category 2A	
Carcinogenicity	Category 2	
Reproductive Toxicity	Category 2	
Specific target organ toxicity (single exposure)	Category 1, Category 3	
Category 1 central nervous system		
Category 3 Respiratory irritation, Narcotic effects		
Specific target organ toxicity (repeated exposure)	Category 1	
Category 1 central nervous system, respiratory system, liver		

Pictograms**Signal word**

Danger

Hazard statements

H225 - Highly flammable liquid and vapor
H250 - Catches fire spontaneously if exposed to air
H261 - In contact with water releases flammable gases
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H302 - Harmful if swallowed

H332 - Harmful if inhaled
 H351 - Suspected of causing cancer
 H361 - Suspected of damaging fertility or the unborn child
 H335 - May cause respiratory irritation
 H336 - May cause drowsiness or dizziness
 H370 - Causes damage to the following organs: central nervous system
 H372 - Causes damage to the following organs through prolonged or repeated exposure: central nervous system, respiratory system, liver

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 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 away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking Do not allow contact with air Keep away from any possible contact with water, because of violent reaction and possible flash fire Handle under inert gas. Protect from moisture 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 occurs: Get medical advice/attention Take off contaminated clothing and wash before reuse IF ON SKIN: Immerse in cool water/wrap in wet bandages Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages
 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 Store in a dry place

Precautionary statements-(Disposal)

Dispose of contents/container to an approved waste disposal plant

Others

Other hazards Not available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Single Substance or Mixture Mixture

Chemical Name	Molecular weight	CAS RN	Weight-%
Tetrahydrofuran	72.11	109-99-9	82
Borane dimethyl sulfide complex	75.97	13292-87-0	18

Impurities and/or Additives: Not applicable

4. FIRST AID MEASURES

First aid measures

Eye contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact Wash skin with soap and water.

Inhalation Remove to fresh air.

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.

Most important symptoms and effects, both acute and delayed

Symptoms No information available.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

5. FIRE-FIGHTING MEASURES**Suitable Extinguishing media**

Carbon dioxide (CO₂). Extinguishing powder. DRY sand.

Unsuitable Extinguishing media Water.

Specific hazards arising from the chemical

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

Explosion data

Sensitivity to Mechanical none.

Impact

Sensitivity to Static Discharge none.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES**Personal precautions, protective equipment and emergency procedures**

Personal precautions, protective equipment and emergency procedures Ensure adequate ventilation, especially in confined areas.

Environmental precautions

Environmental precautions See Section 12 for additional ecological information.

Methods and material for containment and cleaning up

Methods and material for containment and cleaning up Absorb dry sand, earth, sawdust and the waste. Collect empty container that can be sealed.

Methods for cleaning up Pick up and transfer to properly labeled containers.

7. HANDLING AND STORAGE**Precautions for safe handling**

Technical measures Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Use with local exhaust ventilation. Could form a flammable gas by contact with water and moisture.

Protective measures Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

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

with an inert gas.

Packaging materials

Glass.

Incompatible materials

Water.

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

Not applicable

Chemical Name	ACGIH	OSHA PEL	NIOSH IDLH
Tetrahydrofuran 109-99-9	STEL: 100 ppm TWA: 50 ppm Skin	TWA: 200 ppm TWA: 590 mg/m ³ (vacated) TWA: 200 ppm (vacated) TWA: 590 mg/m ³ (vacated) STEL: 250 ppm (vacated) STEL: 735 mg/m ³	IDLH: 2000 ppm TWA: 200 ppm TWA: 590 mg/m ³ STEL: 250 ppm STEL: 735 mg/m ³

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.

9. PHYSICAL AND CHEMICAL PROPERTIES**Form****Color**

Colorless - pale brown

Turbidity

clear ~ slightly muddy

Appearance

liquid

Odor

characteristic odor

pH

no data available

Melting point/freezing point

no data available

Boiling point, initial boiling point and boiling range

no data available

Flash point

no data available

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

Vapour pressure

no data available

Vapour density

no data available

Specific Gravity / Relative density

0.855 g/mL

Solubilities

water, Ethanol, ether: freely soluble. Reacts violently with water

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

no data available

Auto-ignition temperature:

no data available

Decomposition temperature:

no data available

Viscosity (coefficient of viscosity)

no data available

Dynamic viscosity

no data available

Particle characteristics

no data available

10. STABILITY AND REACTIVITY

Stability

Chemical stability

May be altered by light.

Reactivity

no data available

Hazardous reactions

Reacts violently with water

Conditions to avoid

Extremes of temperature and direct sunlight, Moisture

Incompatible materials

Water

Hazardous decomposition products

Carbon monoxide (CO), Carbon dioxide (CO₂), Sulfur oxides (SO_x), Boron oxide

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Tetrahydrofuran	2000 mg/kg (Rat)	> 2000 mg/kg (Rat)	18187 ppm (Rat) 4 h
Borane dimethyl sulfide complex	N/A	> 2000 mg/kg (Rat)	N/A

Chemical Name	Acute toxicity -oral- source information	Acute toxicity -dermal- source information	Acute toxicity -inhalation gas- source information
Tetrahydrofuran	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
Tetrahydrofuran	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
Tetrahydrofuran	Based on the NITE GHS classification results.

Serious eye damage/ irritation

Chemical Name	Serious eye damage/irritation source information
Tetrahydrofuran	Based on the NITE GHS classification results.

Respiratory or skin sensitization

Chemical Name	Respiratory or Skin sensitization source information
Tetrahydrofuran	Based on the NITE GHS classification results.

Reproductive cell mutagenicity

Chemical Name	germ cell mutagenicity source information
Tetrahydrofuran	Based on the NITE GHS classification results.

Carcinogenicity

Chemical Name	Carcinogenicity source information
Tetrahydrofuran	Based on the NITE GHS classification results.

Chemical Name	NTP	IARC	ACGIH	JSOH
Tetrahydrofuran 109-99-9	N/A	Group 2B	A3	-

Reproductive toxicity

Chemical Name	Reproductive toxicity source information
Tetrahydrofuran	Based on the NITE GHS classification results.

STOT-single exposure

Chemical Name	STOT -single exposure- source information
Tetrahydrofuran	Based on the NITE GHS classification results.

STOT-repeated exposure

Chemical Name	STOT -repeated exposure- source information
Tetrahydrofuran	Based on the NITE GHS classification results.

Aspiration hazard

Chemical Name	Aspiration Hazard source information
Tetrahydrofuran	Based on the NITE GHS classification results.

12. ECOLOGICAL INFORMATION**Ecotoxicity**

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Tetrahydrofuran 109-99-9	LC50 : Pimephales Promelas 2160 mg/L 96 h	LC50 : Fathead minnow 2160 mg/L 96 h	N/A	EC50 : Daphnia magna 5930 mg/L 48 h

Persistence and degradability

No information available

Bioaccumulative potential

No information available

Mobility

no data available

Chemical Name	Partition coefficient
Tetrahydrofuran 109-99-9	0.45

Mobility in soil

No information available

Other Data

No information available

13. DISPOSAL CONSIDERATIONS**Waste treatment methods****Disposal of wastes**

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

Precautionary including method of disposing contaminated packaging

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

14. TRANSPORT INFORMATION**DOT**

UN/ID No	UN3399
Proper shipping name:	ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE, FLAMMABLE (Dimethyl Sulfide-Borane Tetrahydrofuran Solution)
UN classification	4.3
Subsidiary hazard class	3
Packing group	II
Marine pollutant	Not applicable

IATA

UN/ID No	UN3399
Proper shipping name:	ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE, FLAMMABLE (Dimethyl Sulfide-Borane Tetrahydrofuran Solution)
UN classification	4.3

Subsidiary hazard class 3
Packing group II
Environmentally Hazardous Substance Not applicable

IMDG

UN/ID No UN3399
Proper shipping name: ORGANOMETALLIC SUBSTANCE, LIQUID, WATER-REACTIVE, FLAMMABLE (Dimethyl Sulfide-Borane Tetrahydrofuran Solution)
UN classification 4.3
Subsidiary hazard class 3
Packing group II
Marine pollutant (Sea) Not applicable

15. REGULATORY INFORMATION

US Federal Regulations**SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

Chemical Name	CAS RN	Weight-%	SARA 313 - Threshold Values %
Tetrahydrofuran - 109-99-9	109-99-9	82	N/A
Borane dimethyl sulfide complex - 13292-87-0	13292-87-0	18	N/A

SARA 311/312 Hazard Categories

Acute health hazard No
Chronic Health Hazard No
Fire hazard No
Sudden release of pressure hazard No
Reactive Hazard No

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical Name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Tetrahydrofuran 109-99-9	1000 lb	N/A	RQ 1000 lb final RQ RQ 454 kg final RQ

US State Regulations**California Proposition 65**

This product does not contain any chemicals regulated by Proposition 65

Chemical Name	California Proposition 65
Tetrahydrofuran - 109-99-9	Carcinogen

U.S. State Right-to-Know Regulations

This product does not contain any substances regulated by state right-to-know regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Tetrahydrofuran 109-99-9	X	X	X

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. OTHER INFORMATION**Issue Date** 19-Nov-2025**Revision Note**

No information available

Disclaimer

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, use, processing, storage, transportation, disposal and release 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.

End of Safety Data Sheet