福建沃尔法化学科技有限公司
Fujian Wolfa Chemical Technology Co., Ltd

DESIGN REPORT OF SAFETY DATA SHEET

Revision Date: April. 14, 2023

Name of the sample	MANGANESE PENTACARBONYL BROMIDE
Applicant	Fujian Wolfa Chemical Technology Co., Ltd.
Supplier	Fujian Wolfa Chemical Technology Co., Ltd.
Composition of the sample	MANGANESE PENTACARBONYL BROMIDE: ⩾98%
Warranty of Design	GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS (GHS) Eleventh revised edition
Design Result of SDS please see next page.	

Notes:This SDS is valid before the implementation of the Twelfth revised edition GHS.

Section 1 Product and Company Identification

> Product Identifier

Product Name	MANGANESE PENTACARBONYL BROMIDE
Synonyms	——
CAS No.	14516-54-2
EC No.	238-522-8
Molecular Formula	$C_5HBrMnO_5$

> Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

Relevant Identified Uses	Please consult manufacturer.
Uses Advised Against	Please consult manufacturer.

> Details of the Supplier of the Safety Data Sheet

Applicant Name	Fujian Wolfa Chemical Technology Co., Ltd.
Application Address	Room 2620, Building 18, Xingguang Plaza, No.970 Anji South Road, Fengze District, Quanzhou City, Fujian Province
Applicant Post Code	362000
Applicant Telephone	+86-17854166533
Applicant Fax	——
Applicant E-mail	——
Supplier Name	Fujian Wolfa Chemical Technology Co., Ltd.
Supplier Address	Room 2620, Building 18, Xingguang Plaza, No.970 Anji South Road, Fengze District, Quanzhou City, Fujian Province
Supplier Post Code	362000
Supplier Telephone	+86-17854166533
Supplier Fax	——
Supplier E-mail	——

> Emergency Phone Number

Emergency Phone Number	+86-17854166533

Section 2 Hazards Identification

Hazard class and label elements of the product according to GHS (the eleventh revised edition):

> GHS Hazard Class

Acute Toxicity – Inhalation	Category 3,H331
Acute Toxicity – Oral	Category 3,H301

For the full text of the H-Statements mentioned in this Section, see Section 16.

> GHS Label Elements

Pictogram



Signal Word Danger

> Hazard Statements

H301	Toxic if swallowed.
H331	Toxic if inhaled.

> Precautionary Statements

Prevention

P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash your face, hands, and any skin that comes into contact with it thoroughly after work
P270	Do not eat, drink, or smoke when using this product
P271	Use only outdoors or in a well-ventilated area
P280	Wear protective gloves/clothing/goggles/masks

Response

P301+P310+P330	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth.
P302+P312+P352	IF ON SKIN: Wash with plenty of soap and water. Call a POISONCENTER or doctor/ physician if you feel unwell.
P304+P340+P311	IF INHALED: Remove victim to fresh air and keep at rest in a positioncomfortable for breathing. Call a POISON CENTER or doctor/ physician.
P361+P364	Remove all contaminated clothing immediately and wash it before reusing

Storage

P405	Store locked up.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.

Disposal

P501	Dispose of contents/container in accordance with local/regional/national/ international regulations.

Section 3 Composition/Information on Ingredients

Component	CAS No.	EC No.	Concentration (weight percent, %)
MANGANESE PENTACARBONYL BROMIDE	14516-54-2	238-522-8	⩾98

Section 4 First Aid Measures

> Description of First Aid Measures

General Advice Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

Eye Contact Flush eyes with water as a precaution.

Skin Contact Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

If swallowed Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

If inhalation If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

> Most Important Symptoms and Effects, both Acute and Delayed

1 Carbonyl compounds can produce carbon monoxide during decomposition, which is toxic.

2 As far as we know, the chemical, physical, and toxicological properties of this substance have not been fully studied.

> Indication of Any Immediate Medical Attention and Special Treatment Needed

No data available.

Section 5 Fire Fighting Measures

> Extinguishing Media

Suitable Extinguishing Media Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Unsuitable Extinguishing Media Avoid using straight - stream water for fire extinguishing. Straight - stream water may cause the flammable liquid to splash, spreading the fire.

> Specific Hazards Arising from the Substance or Mixture

1 Carbon oxides.

2 Hydrogen bromide gas

3 Manganese/manganese oxides

4 Combustible.

5 Development of hazardous combustion gases or vapours possible in the event of fire.

> Advice for Firefighters

1 Firefighters must wear self-contained breathing apparatus and full firefighting gear while extinguishing the fire from upwind.

2 If possible, move containers away from the fire scene to an open area.

3 If containers in the fire scene have changed color or emit sound from the pressure relief device, evacuation must be carried out immediately.

4 Isolate the accident scene and prohibit unauthorized personnel from entering.

5 Contain and manage firefighting water to prevent environmental contamination.

Section 6 Accidental Release Measure

> Personal Precautions, Protective Equipment and Emergency Procedures

1 It is recommended that emergency responders wear self-contained breathing apparatus, anti-static clothing, and rubber oil-resistant gloves.

2 Do not touch or cross over the leaked material.

3 All equipment used during operations should be grounded.

4 Cut off the source of the leak as much as possible and eliminate all ignition sources.

5 Establish a precautionary zone based on the affected area from liquid flow, vapor, or dust dispersion; evacuate unauthorized personnel to a safe area from the crosswind and upwind directions.

> Environmental Precautions

Contain the leaked material to avoid environmental contamination. Prevent the leaked material from entering sewers, surface water, and groundwater.

> Methods and Materials for Containment and Cleaning Up

1 Minor leaks: Collect the leaked liquid in a sealable container as much as possible. Absorb it with sand, activated carbon, or other inert materials, and transfer it to a safe location. Discharge into the sewer is prohibited.

2 Major leaks: Construct a dike or dig a pit for containment. Seal off drainage pipes. Cover with foam to suppress evaporation. Use explosion-proof pumps to transfer to tankers or designated collectors for recycling or disposal at waste treatment facilities.

Section 7 Handling and Storage

> Precautions for Handling

1 Operators should be specially trained and strictly follow operating procedures.

2 Operations should be conducted in areas equipped with local or general ventilation systems.

3 Avoid contact with eyes and skin, and prevent inhalation of vapors.

4 Keep away from sparks and heat sources; smoking is prohibited in the workplace.

5 Use explosion-proof ventilation systems and equipment.

6 When transferring to containers, control the flow rate and ensure grounding devices are in place to prevent static electricity buildup.

7 Avoid contact with incompatible materials such as oxidizers (refer to Section 10 for incompatible materials).

8 Handle with care, preventing damage to packaging and containers.

9 Empty containers may retain harmful residues.

10 Wash hands after use, and eating or drinking in the workplace is prohibited.

11 Equip with appropriate types and quantities of firefighting equipment and leak emergency response devices.

> Conditions for safe storage, including any incompatibilities

1. Store in a cool, well-ventilated warehouse.
2. Should be stored separately from oxidizers and food-grade chemicals; do not mix store.
3. Keep containers sealed.
4. Keep away from sparks and heat sources.
5. The warehouse must be equipped with lightning protection devices.
6. The exhaust system should have devices for dissipating static electricity.
7. Use explosion-proof lighting and ventilation settings.
8. The use of equipment and tools that are prone to producing sparks is prohibited.
9. The storage area should be equipped with leak emergency response devices and suitable containment materials.

Section 8 Exposure Controls/Personal Protection

> Control Parameters

Occupational Exposure Limit Values

No information available

Biological Limit Values

No information available

Monitoring Methods

EN 14042: Workplace air - Guidance for the assessment of exposure to chemical or biological agents.

GBZ/T 160.1~GBZ/T 160.81-2004: Determination of toxic substances in workplace air (a series of effective standards).

> Engineering Controls

1. It is recommended to separate the workplace from other work areas.
2. Implement closed operations to prevent leaks.
3. Enhance ventilation.
4. Establish emergency evacuation routes and necessary hazard areas.
5. Install automatic alarm systems and accident ventilation facilities.
6. Set up red zone warning lines, warning signs, and Chinese warning instructions, along with a communication alarm system.
7. Provide safety shower and eyewash facilities.

> Personal Protection Equipment

Eye protection	Wear chemical safety goggles (compliant with EU EN 166 or US NIOSH standards).
Hand protection	Wear rubber oil-resistant gloves.
Respiratory protection	When airborne concentrations exceed permissible levels, wear a filtering gas mask (half mask). In emergency rescue or evacuation situations, wear a self-contained breathing apparatus.
Skin and Body Protection	Wear work clothing that is resistant to toxic substance penetration.

Section 9 Physical and Chemical Properties

Appearance: Yellow to orange solid

Odor: Slightly odorous

Odor Threshold: No information available

pH: No information available

Melting Point/Freezing Point (℃): No information available

Initial Boiling Point and Boiling Range (℃): No information available

Flash Point (℃): No information available

Evaporation Rate: No information available

Flammability: No information available

Upper/lower explosive limits[%(v/v)]: Upper limit: No information available；Lower limit: No information available

Vapor Pressure (KPa): No information available

Relative Vapour Density(Air=1): No information available

Relative Density(Water=1): No information available

Solubility: No information available

n-Octanol/Water Partition Coefficient: No information available

Auto-Ignition Temperature(℃): No information available

Decomposition Temperature (℃): No information available

Kinematic Viscosity (mm^2/s): No information available

Particle characteristics: No information available

Critical Temperature(℃): No information available

Section 10 Stability and Reactivity

Reactivity	No data available.
Chemical Stability	Stable under recommended storage conditions.
Possibility of Hazardous Reactions	No data available.
Conditions to Avoid	Static electricity discharge, heat, humidity, etc.
Incompatible Materials	Strong oxidizing agents.
Hazardous Decomposition Products	No data available.

Section 11 Toxicological Information

> Acute Toxicity

Oral: No data available

Inhalation: No data available

Dermal: No data available

> Skin Corrosion/Irritation

No information available

> Serious Eye Damage/Irritation

No information available

> Respiratory or skin Sensitization

No information available

> Germ Cell Mutagenicity

No information available

> Carcinogenicity

No information available

> Reproductive Toxicity

No information available

> Specific target organ toxicity -single exposure

No information available

> Specific target organ toxicity -repeated exposure

No information available

> Aspiration hazard

No information available

> Potential Health Effects

Inhalation: Inhalation can be toxic and may cause respiratory irritation.

Ingestion: Accidental swallowing can be toxic.

Skin: May be toxic if absorbed through the skin and can cause skin irritation.

Eyes: May cause eye irritation.

> Signs and Symptoms Following Exposure

Carbonyl compounds are toxic due to decomposition yielding carbon monoxide., To the best of our knowledge, thechemical, physical, and toxicological properties have not been thoroughly investigated.

Section 12 Ecological Information

> Acute Aquatic Toxicity

No information available

> Others

Persistence and degradability	No information available.
Bioaccumulative potential	No information available.
Mobility in soil	No information available.
Results of PBT and vPvB assessment	No information available.

Section 13 Disposal Considerations

> Waste treatment methods

Waste Chemicals	Recycle whenever possible.If recycling is not possible, dispose of by incineration.Do not dispose of this product by discharging it into the sewer system.
Contaminated Packaging	Return containers to the manufacturer or dispose of them according to national and local regulations.
Disposal Precautions	Refer to relevant national and local regulations before disposal.

Section 14 Transport Information

Transporting Label	
Marine pollutant	No
UN Number	3466
UN Proper Shipping Name	METAL CARBONYLS,SOLID,N.O.S.
Transport Hazard Class	6.1
Transport Subsidiary Hazard Class	NONE
Packing Group	II

Section 15 Regulatory Information

> International List of Chemicals

Component	EINECS	TSCA	DSL	IECSC	NZIoC	PICCS	KECL	AIIC	ENCS
MANGANESE PENTACARBONYL BROMIDE	×	×	×	×	×	×	√	×	×

【EINECS】 European Inventory of Existing Commercial Chemical Substances

【TSCA】 Toxic Substances Control Act Inventory (United States)

【DSL】 Domestic Substances List (Canada)

【IECSC】 Inventory of Existing Chemical Substances in China

【NZIoC】 New Zealand Inventory of Chemicals

【PICCS】 Philippines Inventory of Chemicals and Chemical Substances

【KECL】 Korean Existing Chemicals List

【AIIC】 Australian Inventory of Industrial Chemicals

【ENCS】 Existing and New Chemical Substances (Japan)

Note

"√" Indicates that the substance included in the regulations

"×" That no data or included in the regulations

Section 16 Additional Information

Preparation Date	Dec.1,2022
Revision Date	Apr.14,2025
Revision Reason	SDS Update Section

Disclaimer

The information provided in this Safety Data Sheet is correct based on the latest knowledge, information and concepts available to us. The information provided is intended only as a guide for safe operation, use, processing, storage, transportation, disposal and discharge and is not intended as a guarantee or specification of quality. This information is only used for the specific substance specified and may not be suitable for mixing with any other substance or in all cases, unless otherwise specified in the context.