SAFETY DATA SHEET



1/12

Metalosate® MZ

Section 1. Identifi	cation
GHS product identifier	: Metalosate® MZ
Product code	: 09025
Other means of identification	: Metalosate MZ (09025)
Product type	: Liquid.
Relevant identified uses of	the substance or mixture and uses advised against
Identified uses	
Fertilizer.	
Uses advised against Not applicable.	
Supplier's details	: Balchem Corporation 5 Paragon Drive Suite 201 Montvale, NJ 07645 United States 1.845.326.5600
e-mail address of person responsible for this SDS	: sds@balchem.com
Emergency telephone number (with hours of operation)	: Chemtrec CCN#2275 1.800.424.9300 (USA) +1.703.527.3887 (International)
Section 2. Hazard	Is identification
OSHA/HCS status	: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Classification of the substance or mixture	: SERIOUS EYE DAMAGE - Category 1 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
<u>GHS label elements</u> Hazard pictograms	
Signal word	: Danger
Hazard statements	: H318 - Causes serious eye damage. H373 - May cause damage to organs through prolonged or repeated exposure. (brain)
Precautionary statements	
Prevention	: P280 - Wear eye or face protection. P260 - Do not breathe vapor.
Response	 P314 - Get medical advice or attention if you feel unwell. P305 + P351 + P338, P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.
Storage	: Not applicable.
Disposal	: P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Section 2. Hazards identification

Hazards not otherwise : None known. classified

Section 3. Composition/information on ingredients

Substance/mixture

: Mixture

Ingredient name	%	CAS number
Sulfuric acid, manganese(2+) salt, hydrate (1:1:1)	≤10	10034-96-5
Sulfuric acid, zinc salt (1:1), monohydrate	≤10	7446-19-7

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessa	ary first aid measures
Eye contact	: Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.
Inhalation	: Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Skin contact	: Get medical attention immediately. Call a poison center or physician. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Ingestion	: Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symp	toms/effects, acute and delayed
Potential acute healt	<u>h effects</u>
Eye contact	: Causes serious eye damage.
Inhalation	: No known significant effects or critical hazards.
Skin contact	: No known significant effects or critical hazards.
Ingestion	: No known significant effects or critical hazards.
Over-exposure signs	s/symptoms

Section 4. First aid measures

Eye contact	: Adverse symptoms may include the following: pain watering redness
Inhalation	: No specific data.
Skin contact	: Adverse symptoms may include the following: pain or irritation redness blistering may occur
Ingestion	: Adverse symptoms may include the following: stomach pains
Indication of immediate me	dical attention and special treatment needed, if necessary
Notes to physician	 In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Specific treatments	: No specific treatment.
Protection of first-aiders	: No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media	
Suitable extinguishing media	: Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	: None known.
Specific hazards arising from the chemical	: In a fire or if heated, a pressure increase will occur and the container may burst.
Hazardous thermal decomposition products	: Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides sulfur oxides metal oxide/oxides
Special protective actions for fire-fighters	 Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Special protective equipment for fire-fighters	: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	Evacuate s entering. I Provide ad	shall be taken involving ar surrounding areas. Keep Do not touch or walk throu lequate ventilation. Wear e. Put on appropriate pers	unnecessary and unprograms of the spilled material. De appropriate respirator	otected personnel fror o not breathe vapor or when ventilation is	
For emergency responders	Section 8 d	ed clothing is required to o on suitable and unsuitable / personnel".			
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Section 6. Accidental release measures

Environmental precautions	:	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
Methods and materials for c	<u>ont</u>	ainment and cleaning up
Small spill	:	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
Large spill	:	Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling	L	
Protective measures	:	Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
Advice on general occupational hygiene	:	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
Conditions for safe storage, including any incompatibilities	:	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

	Occupational	exposure	limits
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Ingredient name			Exposure limits
Sulfuric acid, manganese(2	+) salt, hydrate ((1:1:1)	 NIOSH REL (United States, 10/2020). [manganese compounds and fume as Mn] TWA: 1 mg/m³, (as Mn) 10 hours. Form: Fume STEL: 3 mg/m³, (as Mn) 15 minutes. Form: Fume ACGIH TLV (United States, 1/2022). [Manganese and inorganic compounds Inhalable fraction / Respirable fraction, as Mn] TWA: 0.1 mg/m³, (as Mn) 8 hours. Form: Inhalable fraction TWA: 0.02 mg/m³, (as Mn) 8 hours. Form:
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Section 8. Exposure controls/personal protection

Section 8. Expos	e controls/personal protection
Sulfuric acid, zinc salt (1:1)	Respirable fraction OSHA PEL (United States, 5/2018). [Manganese compounds (as Mn)] CEIL: 5 mg/m ³ , (as Mn) OSHA PEL 1989 (United States, 3/1989). [Manganese compounds (as Mn)] CEIL: 5 mg/m ³ , (as Mn) CAL OSHA PEL (United States, 5/2018). [manganese and compounds as Mn] TWA: 0.2 mg/m ³ , (as Mn) 8 hours. None.
Biological exposure indice	
No exposure indices knowr	
Appropriate engineering controls	: If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
Environmental exposure controls	: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.
Individual protection measured	S
Hygiene measures	: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
Eye/face protection	: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/ or face shield. If inhalation hazards exist, a full-face respirator may be required instead
Skin protection	
Hand protection	: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
Body protection	: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Other skin protection	: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Respiratory protection	Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

Physical state	: Liquid.
Color	: Brown.
Odor	: Not available.
Odor threshold	: Not available.
рН	: 4.5 to 6 [Conc. (% w/w): 1%]
Melting point/freezing point	: Not available.
Boiling point, initial boiling point, and boiling range	: Not available.
Flash point	: Not available.
Flammability	: Not available.
Lower and upper explosion limit/flammability limit	: Not available.

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Vapor pressure

	Vapor Pressure at 20°C			Vapor pressure at 50°C		
Ingredient name	mm Hg	kPa	Method	mm Hg	kPa	Method
water	17.5	2.3				
Relative vapor density	: Not ava	ailable.			<u></u>	
Relative density	: Not ava	ailable.				
Density	: 1.17 g/	cm³				
Solubility in water	: Not ava	ailable.				
Partition coefficient: n- octanol/water	: Not app	olicable.				
Auto-ignition temperature	: Not ava	ailable.				
Decomposition temperature	: Not ava	ailable.				
/iscosity	: Not ava	ailable.				
Aaximum rate of pressure ise	: Not ava	ailable.				
Particle characteristics						
Median particle size	: Not app	olicable.				

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: No specific data.
Incompatible materials	: No specific data.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Product/ingredient name		Route of exposure	Target organs
Sulfuric acid, manganese(2+) salt, hydrate (1:1:1)	Category 2	inhalation	brain

Aspiration hazard

Not available.

Information on the likely routes of exposure	:	Not available.
Potential acute health effects		
Eye contact	:	Causes serious eye damage.
Inhalation	:	No known significant effects or critical hazards.
Skin contact	:	No known significant effects or critical hazards.
Ingestion	:	No known significant effects or critical hazards.
Symptoms related to the phys Eye contact Inhalation	:	cal, chemical and toxicological characteristics Adverse symptoms may include the following: pain watering redness No specific data.
Skin contact		Adverse symptoms may include the following: pain or irritation redness blistering may occur
Ingestion	:	Adverse symptoms may include the following: stomach pains

<u>Delayed and immediate effects and also chronic effects from short and long term exposure</u> <u>Short term exposure</u>

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Section 11. Toxicological information

Potential immediate effects	:	Not available.
Potential delayed effects	:	Not available.
Long term exposure		
Potential immediate effects	-	Not available.
Potential delayed effects	:	Not available.
Potential chronic health eff	ect	<u>s</u>
Not available.		
General	:	May cause damage to organs through prolonged or repeated exposure.
Carcinogenicity	:	No known significant effects or critical hazards.
Mutagenicity	:	No known significant effects or critical hazards.
Reproductive toxicity	:	No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/ kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/ I)
Metalosate® MZ	4668.8	N/A	N/A	N/A	N/A
Sulfuric acid, manganese(2+) salt, hydrate (1:1:1)	2150	N/A	N/A	N/A	N/A
Sulfuric acid, zinc salt (1:1), monohydrate	500	N/A	N/A	N/A	N/A

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Metalosate® MZ	LC50 >20 mg/l Marine water	Crustaceans - <i>Americamysis</i> bahia	48 hours
	LC50 18 mg/l Marine water		96 hours

Persistence and degradability

Not available.

Bioaccumulative potential

Not available.

Mobility in soil

Soil/water partition : Not available. coefficient (K_{oc})

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods

: The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification	IMDG	ΙΑΤΑ
UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-	-	-
Transport hazard class(es)	-	-	-	-	-
Packing group	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.

Additional information

DOT Classification

- : <u>Reportable quantity</u> 11764.7 lbs / 5341.2 kg [1206 gal / 4565.1 L]. Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.
- Special precautions for user : Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according : Not available. to IMO instruments

Section 15. Regulatory information

U.S. Federal regulations	: TSCA 4(a) proposed test rules: glycine
	TSCA 8(a) CDR Exempt/Partial exemption: Not determined
	Clean Water Act (CWA) 307: Sulfuric acid, zinc salt (1:1), monohydrate
	Clean Water Act (CWA) 311: Sulfuric acid, zinc salt (1:1), monohydrate
Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)	: Listed
Clean Air Act Section 602 Class I Substances	: Not listed
Clean Air Act Section 602 Class II Substances	: Not listed

Section 15. Regulatory information

DEA List I Chemicals (Precursor Chemicals)	:	Not listed
DEA List II Chemicals (Essential Chemicals)	:	Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312 Classification

: SERIOUS EYE DAMAGE - Category 1

SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2

Composition/information on ingredients

Name	%	Classification
Sulfuric acid, manganese(2+) salt, hydrate (1:1:1) Sulfuric acid, zinc salt (1:1), monohydrate Protein hydrolyzates, vegetable	≤10	SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 ACUTE TOXICITY (oral) - Category 4 SERIOUS EYE DAMAGE - Category 1 COMBUSTIBLE DUSTS

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	, , , , , , , , , , , , , , , , , , , ,	10034-96-5 7446-19-7	≤10 ≤10
Supplier notification	, , , , , , , , , , , , , , , , , , , ,	10034-96-5 7446-19-7	≤10 ≤10

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts	: None of the components are listed.
New York	: None of the components are listed.
New Jersey	: The following components are listed: ZINC compounds
Pennsylvania	: The following components are listed: MANGANESE COMPOUNDS; ZINC COMPOUNDS

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals	

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia	1	All components are listed or exempted.
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- Canada : All components are listed or exempted.
- China : All components are listed or exempted.

Section 15. Regulatory information

Eurasian Economic Union	1	Russian Federation inventory: All components are listed or exempted.
Japan	:	Japan inventory (CSCL): Not determined. Japan inventory (ISHL): Not determined.
New Zealand	:	All components are listed or exempted.
Philippines	1	All components are listed or exempted.
Republic of Korea	1	Not determined.
Taiwan	1	All components are listed or exempted.
Thailand	1	Not determined.
Turkey	1	Not determined.
United States	1	Not determined.
Viet Nam	:	All components are listed or exempted.

Section 16. Other information

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

National Fire Protection Association (U.S.A.)



Procedure used to derive the classification

	Classifi	cation		Justification
SERIOUS EYE DAMAGE - SPECIFIC TARGET ORGA		PEATED EXPOSURE) -	Category 2	Calculation method Calculation method
<u>History</u>				
Date of printing	: 12 July 20	23		
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Date of previous issue	: 12 July 20	23		
Version	: 1.01			
Key to abbreviations	Association gerous Goods water partition coef	n of Pollution From Ships, 1973		
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Section 16. Other information

References

UN = United Nations

: Not available.

✓ Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.