



SAFETY DATA SHEET



1. Identification

Product identifier	CARULITE® 200 CATALYST
Other means of identification	
SDS number	-
Recommended use	Air purification media for the destruction of ozone and odors.
Recommended restrictions	Use in accordance with supplier's recommendations.
Manufacturer/Importer/Supplier/Distributor information	
Company name	CARUS LLC
Address	315 Fifth Street, Peru, IL 61354, USA
Telephone	+1 815 223-1500 - All other non-emergency inquiries about the product should be directed to the company
E-mail	salesmkt@carusllc.com
Website	www.carusllc.com
Contact person	Shelley Corban
Emergency Telephone	For Hazardous Materials [or Dangerous Goods] Incidents ONLY (spill, leak, fire, exposure or accident), call CHEMTREC at CHEMTREC®, USA: 001 (800) 424-9300 CHEMTREC®, Mexico (Toll-Free - must be dialed from within country): 01-800-681-9531 CHEMTREC®, Other countries: 001 (703) 527-3887

2. Hazard(s) identification

Physical hazards	Not classified.
Health hazards	Acute toxicity, oral Category 4 Acute toxicity, inhalation Category 4 Specific target organ toxicity, repeated exposure (inhalation) Category 2 (brain)
Environmental hazards	Hazardous to the aquatic environment, acute hazard Category 2
OSHA defined hazards	Not classified.
Label elements	



Signal word	Warning
Hazard statement	Harmful if swallowed. Harmful if inhaled. May cause damage to organs (Brain) through prolonged or repeated exposure by inhalation. Toxic to aquatic life.
Precautionary statement	
Prevention	Do not breathe dust/fume/gas/mist/vapors/spray. Use only outdoors or in a well-ventilated area. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Avoid release to the environment.
Response	If swallowed: Call a poison center/doctor if you feel unwell. Rinse mouth. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell.
Storage	Store away from incompatible materials.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC)

This product is a metal mixture and based on 28-day Transformation/Dissolution testing, does not meet the definition of environmentally hazardous.

Supplemental information

None.

3. Composition/information on ingredients**Mixtures**

Chemical name	CAS number	%
Manganese dioxide	1313-13-9	40 - 70
Copper oxide	1317-38-0	15 - 40

Composition comments

All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume. The manufacturer has claimed the exact percentage as trade secret under the OSHA Hazard Communication Standard.

4. First-aid measures**Inhalation**

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a physician if symptoms develop or persist.

Skin contact

Remove contaminated clothing. Wash off with soap and water. If skin irritation occurs: Get medical advice/attention. Wash contaminated clothing before reuse.

Eye contact

Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops or persists.

Ingestion

Rinse mouth. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical advice/attention if you feel unwell. Never give anything by mouth to a victim who is unconscious or is having convulsions.

Most important symptoms/effects, acute and delayed

Dusts may irritate the respiratory tract, skin and eyes. Prolonged exposure may cause chronic effects.

Indication of immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

General information

If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. Fire-fighting measures**Suitable extinguishing media**

Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media

None.

Specific hazards arising from the chemical

During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Carbon oxides (COx). Metal oxides.

Special protective equipment and precautions for firefighters

Firefighters should wear full protective clothing including self contained breathing apparatus. Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace.

Fire fighting equipment/instructions

Use water spray to cool unopened containers. Cool containers exposed to flames with water until well after the fire is out. Move container from fire area if it can be done without risk. In case of fire and/or explosion do not breathe fumes.

Specific methods

Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards

Not itself combustible but assists fire in burning materials.

6. Accidental release measures**Personal precautions, protective equipment and emergency procedures**

Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up. Local authorities should be advised if significant spillages cannot be contained. Do not breathe dust.

Methods and materials for containment and cleaning up

Stop the flow of material, if this is without risk. Dike far ahead of spill for later disposal. Following product recovery, flush area with water. For waste disposal, see Section 13 of the SDS.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Minimize dust generation and accumulation. Provide adequate ventilation. Handle and open container with care. Do not breathe dust/fume/gas/mist/vapors/spray. Do not taste or swallow. Do not eat, drink or smoke when using the product. Avoid prolonged exposure. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Wash contaminated clothing before reuse. Avoid release to the environment. Observe good industrial hygiene practices. Avoid contact with eye, skin and clothing.

Conditions for safe storage, including any incompatibilities

Store locked up. Store in original tightly closed container. Store in a cool, dry place out of direct sunlight. Keep out of reach of children. Use care in handling/storage. Store away from incompatible materials (See Section 10).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Manganese dioxide (CAS 1313-13-9)	Ceiling	5 mg/m ³

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Copper oxide (CAS 1317-38-0)	TWA	1 mg/m ³	Dust and mist.
		0.2 mg/m ³	Fume.
Manganese dioxide (CAS 1313-13-9)	TWA	0.1 mg/m ³	Inhalable fraction.
		0.02 mg/m ³	Respirable fraction.

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
Copper oxide (CAS 1317-38-0)	TWA	0.1 mg/m ³	Fume.
Manganese dioxide (CAS 1313-13-9)	STEL	3 mg/m ³	Fume.
	TWA	1 mg/m ³	Fume.

Biological limit values

No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls

Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. If material is ground, cut, or used in any operation which may generate dusts, use appropriate local exhaust ventilation to keep exposures below the recommended exposure limits. Ventilate as needed to control airborne dust. Observe occupational exposure limits and minimize the risk of inhalation of dust. Eye wash facilities and emergency shower must be available when handling this product. Provide adequate ventilation.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear dust-resistant safety goggles where there is danger of eye contact.

Skin protection

Hand protection

Wear protective gloves. Suitable gloves can be recommended by the glove supplier.

Skin protection

Other

Wear suitable protective clothing. Use of an impervious apron is recommended.

Respiratory protection

When engineering controls are not sufficient to lower exposure levels below the applicable exposure limit, use a NIOSH approved respirator for dusts. In case of inadequate ventilation or risk of inhalation of dust, use suitable respiratory equipment with particle filter. Seek advice from local supervisor.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Keep away from food and drink.

9. Physical and chemical properties

Appearance

Physical state	Solid.
Form	Granular.
Color	Brown or black.

Odor Odorless.

Odor threshold Not applicable.

pH Not applicable (insoluble in water).

Melting point/freezing point Property has not been measured.

Initial boiling point and boiling range Property has not been measured.

Flash point Not applicable (solid).

Evaporation rate Not applicable (solid).

Flammability (solid, gas) Non flammable.

Upper/lower flammability or explosive limits

Explosive limit - lower (%) Not applicable (solid).

Explosive limit - upper (%) Not applicable (solid).

Vapor pressure Property has not been measured.

Vapor density Not applicable (solid).

Relative density Property has not been measured.

Solubility(ies)

Solubility (water) Insoluble in water.

Partition coefficient (n-octanol/water) Not applicable, product is a mixture.

Auto-ignition temperature Not applicable (solid).

Decomposition temperature 1299.2 °F (704 °C)

Viscosity Not applicable (solid).

Other information

Bulk density 800 - 900 kg/m³

Kinematic viscosity Not applicable (solid).

10. Stability and reactivity

Reactivity The product is stable and non-reactive under normal conditions of use, storage and transport.

Chemical stability Stable under normal temperature conditions.

Possibility of hazardous reactions Hazardous polymerization does not occur.

Conditions to avoid Avoid incompatible materials and intense heat.

Incompatible materials Oxidizing material. Combustible material. Organic material. Reducing agents. Halogenated compounds. Strong acids. Aluminum.

Hazardous decomposition products Copper fumes. Carbon oxides. Metal oxides.

11. Toxicological information

Information on likely routes of exposure

Inhalation Harmful if inhaled. Dust may irritate respiratory system or lungs.

Skin contact Dust/mist may irritate skin.

Eye contact Dust in the eyes may cause irritation.

Ingestion Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics Dust may irritate the respiratory tract, skin and eyes. Prolonged exposure may cause chronic effects.

Information on toxicological effects

Acute toxicity	Harmful if inhaled or swallowed.	
Components	Species	Test Results
Copper oxide (CAS 1317-38-0)		
Acute		
Dermal		
LD50	Rat	> 2000 mg/kg, 24 Hours (OECD Test Guideline 402)
Oral		
LD50	Rat	> 2500 mg/kg (OECD Test Guideline 423)
Skin corrosion/irritation	Dust may cause skin irritation.	
Corrosivity		
Manganese dioxide (CAS 1313-13-9)		OECD 404, EU Method B.4 Result: Not irritating. Species: Rabbit
Copper oxide (CAS 1317-38-0)		OECD Test Guideline 404 Result: Not irritating. Species: Rabbit
Serious eye damage/eye irritation	Dust may cause eye irritation.	
Eye		
Manganese dioxide (CAS 1313-13-9)		OECD 405, EU Method B.5 Result: Not irritating. Species: Rabbit
Copper oxide (CAS 1317-38-0)		OECD Test Guideline 405 Result: Not irritating. Species: Rabbit
Respiratory or skin sensitization	Not classified.	
Respiratory sensitization	Not classified.	
Skin sensitization	Not classified.	
Skin sensitization		
Copper oxide (CAS 1317-38-0)		OECD Test Guideline 406 Result: Not sensitizing. Species: Guinea pig
Germ cell mutagenicity	Not classified.	
Carcinogenicity	Not classified.	
IARC Monographs. Overall Evaluation of Carcinogenicity	Not listed.	
NTP Report on Carcinogens	Not listed.	
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)	Not listed.	
Reproductive toxicity	Not classified.	
Specific target organ toxicity - single exposure	Not classified.	
Specific target organ toxicity - repeated exposure	May cause damage to the following organs through prolonged or repeated exposure: Brain.	
Aspiration hazard	Not classified.	
Chronic effects	Prolonged exposure, usually over many years, to manganese oxide fume/dust can lead to chronic manganese poisoning, chiefly affecting the central nervous system.	
Further information	Chronic exposure to breathing low levels of manganese dust or fume over a long period of time can result in "manganism," a disease of the central nervous system similar to Parkinson's Disease, gait impairment, muscle spasms and behavioral changes. Frequent inhalation of dust over a long period of time increases the risk of developing asthma, chronic lung diseases, and skin irritation. Prolonged exposure, usually over many years, to manganese oxide fume/dust can lead to chronic manganese poisoning, chiefly affecting the central nervous system.	

12. Ecological information

Ecotoxicity

Toxic to aquatic life. The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment. A 28-day Transformation/Dissolution protocol test was conducted with this product at a 1 mg/L loading in a standard aqueous medium at pH 6. The 7 and 28 days release factors for copper were 1.82% and 4.35%, respectively. For manganese, no concentrations were measured above the validated and accredited reporting limits after 7 and 28 days of extraction (limit of 5 µg/L).

The implementation of the GHS classification system, taking into account the results of the T/Dp test, results in an Aquatic Acute 2 classification for the product; this classification is driven by the presence of copper (as CuO). Under CLP (EU-implementation of GHS) there is no environmental classification for the product.

Components	Species	Test Results
Manganese dioxide (CAS 1313-13-9)		
Other		
Other	EC50	Activated sewage sludge
	NOEC	Activated sewage sludge
		> 1000 mg/l, 3 hr
		1000 mg/l
Persistence and degradability	No data available.	
Bioaccumulative potential	No data available.	
Mobility in soil	Not available.	
Mobility in general	The product is insoluble in water.	
Other adverse effects	None known.	

13. Disposal considerations

Disposal instructions	Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The Waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose in accordance with all applicable regulations. Do not allow this material to drain into sewers/water supplies.
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	This product is not intended to be transported in bulk.
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15. Regulatory information

US federal regulations	This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
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TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Copper oxide (CAS 1317-38-0)	Listed.
Manganese dioxide (CAS 1313-13-9)	Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Toxic Substances Control Act (TSCA)

All components of the mixture on the TSCA 8(b) inventory are designated "active".

Superfund Amendments and Reauthorization Act of 1986 (SARA)**SARA 302 Extremely hazardous substance**

Not listed.

SARA 311/312 Hazardous chemical

Yes

Classified hazard categories

Acute toxicity (any route of exposure)
Specific target organ toxicity (single or repeated exposure)

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Copper oxide	1317-38-0	15 - 40
Manganese dioxide	1313-13-9	40 - 70

Other federal regulations**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Manganese dioxide (CAS 1313-13-9)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA)

Contains component(s) regulated under the Safe Drinking Water Act.

US state regulations**US. Massachusetts RTK - Substance List**

Not regulated.

US. New Jersey Worker and Community Right-to-Know Act

Copper oxide (CAS 1317-38-0)
Manganese dioxide (CAS 1313-13-9)

US. Pennsylvania Worker and Community Right-to-Know Law

Copper oxide (CAS 1317-38-0)
Manganese dioxide (CAS 1313-13-9)

US. Rhode Island RTK

Not regulated.

California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 2016 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to www.P65Warnings.ca.gov.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Industrial Chemicals (AICIS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 24-July-2014
Revision date 18-February-2022
Version # 04
HMIS® ratings Health: 2*
Flammability: 0
Physical hazard: 0

NFPA ratings



References

HSDB® - Hazardous Substances Data Bank
Registry of Toxic Effects of Chemical Substances (RTECS)

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