	<p style="text-align: center;">CARULITE® 200 Granular Catalyst</p> <p>EC- SAFETY DATA SHEET according to Regulation (EC) № 1907/2006 of the European Parliament and of the Council, of 18 December 2006 concerning REACH</p> <p>MATERIAL SAFETY DATA SHEET Page 1 of 6</p>
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MSDS # CP-032

Revision Date: July 2011


Supersedes: June 2009

Section 1 Chemical Product and Company Identification


PRODUCT NAME: TRADE NAME: SYNONYMS:	CARULITE® 200 Granular Catalyst CARULITE® 200 Granular Catalyst None
USES OF SUBSTANCE: CARULITE® 200 Granular Catalyst is used for the destruction of ozone.	
COMPANY NAME: CARUS CORPORATION	COMPANY ADDRESS: 315 Fifth Street, Peru, IL 61354, USA INFORMATION: (815) 223-1500 (Tel) (815) 224-6816 (FAX) www.caruscorporation.com (Web) salesmkt@caruscorporation.com (Email) EMERGENCY TELEPHONE: (800) 435 -6856 (USA) (815) 223-1500 (Other countries) (800) 424-9300 (CHEMTREC®, USA) (703) 527-3887 (CHEMTREC®, Other countries)

Section 2 Hazards Identification

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS) RATINGS: Health Hazard 1 Flammability Hazard 0 Reactivity Hazard 0 Personal Protection Index E NATIONAL FIRE PROTECTION ASSOCIATION 704 (USA) NFPA HAZARD RATINGS: Health Hazard 1 = Materials which under fire conditions would give off irritating combustion products. (less than 1 hour exposure) Materials that on the skin could cause irritation. Flammability Hazard 0 = Materials that will not burn. Reactivity Hazard 0 = Materials which in themselves are normally stable, even under fire exposure conditions, and which are not reactive with water. Special Hazard None	
EFFECTS OF ACUTE EXPOSURE 1. Eye Contact: May cause eye irritation. 2. Skin Contact: May cause skin irritation or dehydrating of skin. 3. Inhalation: May cause nose, throat and lung irritation. 4. Ingestion: Irritating to mouth, throat and stomach.	
EFFECTS OF CHRONIC EXPOSURE Prolonged inhalation of manganese compounds above the TLV-TWA may cause lung irritation or central nervous system disorders. The symptoms simulate Parkinson's disease.	
CARCINOGENICITY NTP: not listed. IARC Monographs: not listed. OSHA Regulated: not listed.	
MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE Dust or fine powder may further irritate mucous membranes or open wounds.	


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Section 3 Composition and Information on Hazardous Ingredients

<u>Material</u>	<u>CAS No.*</u>	<u>EINECS No.*****</u>	<u>%</u>	<u>Hazard Data</u>
Manganese Dioxide	1313-13-9	215-202-6	40-70	PEL** C**** 5 mg Mn per cubic meter of air TLV-TWA*** 0.2 mg Mn per cubic meter of air
Copper Oxide	1317-38-0	215-269-1	15- 40	PEL** 1 mg Cu per cubic meter of air TLV-TWA*** 1mg Cu per cubic meter of air
<p>* Chemical Abstract Service Number</p> <p>** OSHA Permissible Exposure Limit, manganese compounds (as Mn), copper dusts and mists (as Cu), 29 CFR 1910.1000 Table Z-1.</p> <p>*** American Conference of Governmental Hygienists, 2005. TLV-TWA = the time weighted average concentration for a normal 8-hour workday and a 40-hour work week, to which nearly all workers may be repeatedly exposed, day after day, without adverse effect.</p> <p>**** Ceiling Exposure Limit or maximum exposure concentration not to be exceeded under any circumstances.</p> <p>***** European Inventory of Existing Chemical Substances</p>				
<u>HAZARD SYMBOLS:</u>				
<div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p>Xn</p> <p><u>Xn : Harmful</u></p> </div> </div>				
<u>RISK PHRASES:</u>				
20/22 Harmful by inhalation and if swallowed.				
<u>SAFETY PHRASES:</u>				
2 Keep out of the reach of children				
25 Avoid contact with eyes				

Section 4 First Aid Measures

<p>EMERGENCY AND FIRST AID PROCEDURES</p> <ol style="list-style-type: none"> Eyes Immediately flush eyes with large amounts of water for at least 15 minutes holding lids apart to ensure flushing of the entire surface. Seek medical attention if irritation persists. Skin Flush contaminated areas with large amounts of water. Remove contaminated clothing. Wash clothing before reuse. Inhalation Remove person to fresh air. If breathing is difficult, administer oxygen. Seek medical attention. Ingestion Never give anything by mouth to an unconscious or convulsing person. If conscious, give large quantities of water. Do not induce vomiting. Seek medical attention

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Section 5 Fire Fighting Measures

The material itself is noncombustible but may accelerate the burning of combustible material.
FLASHPOINT None
FLAMMABLE OR EXPLOSIVE LIMITS Lower: Nonflammable. Upper: Nonflammable.
EXTINGUISHING MEDIA Use extinguishing medium appropriate for surrounding materials.
SPECIAL FIREFIGHTING PROCEDURES None
UNUSUAL FIRE AND EXPLOSION HAZARDS Should not be heated or rubbed in contact with organic matter or other oxidizable substances. Keep away from heat and flammable materials. Potentially an oxidizer under certain conditions.

Section 6 Accidental Release Measures

<p>STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED</p> <p>Clean up spills immediately by scooping CARULITE® 200 Granular Catalyst into a metal drum. Deactivate by soaking with water. Cover loosely. Flush contaminated floors with abundant quantities of water into sewer, if permitted by federal, state, or local regulations.</p>

Section 7 Handling and Storage


<p>Store in a cool, dry area in closed container. Segregate from easily oxidizable materials, peroxides, chlorates, and acids. Protect containers against physical damage.</p>
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Section 8 Exposure Controls and Personal Protection

<p>VENTILATION REQUIREMENTS</p> <p>Provide sufficient mechanical and/or local exhaust to maintain exposure levels below TLV-TWA limit for manganese.</p>
<p>RESPIRATORY PROTECTION</p> <p>In cases where high dust exposure may exist, the use of NIOSH-MSHA dust and mist respirator or an air-supplied respirator is advised. Engineering or administrative controls should be implemented to control dust.</p>
<p>EYE PROTECTION</p> <p>Primary eye protection (safety glasses or goggles).</p>
<p>GLOVES</p> <p>Rubber or plastic gloves should be worn.</p>
<p>OTHER PROTECTIVE EQUIPMENT</p> <p>Normal work clothing is sufficient.</p>

Section 9 Physical and Chemical Properties

BOILING POINT, 760 mm Hg Not applicable	VAPOR PRESSURE (mm Hg) Not applicable
SOLUBILITY IN WATER % BY SOLUTION	Insoluble
BULK DENSITY Approximately 0.9 g/cc	PERCENT VOLATILE BY VOLUME Not volatile
MELTING POINT Starts to decompose with evolution of oxygen at 704°C (1300°F)	
APPEARANCE AND ODOR Black granulated solid; odorless.	

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Section 10 Stability and Reactivity

STABILITY	Stable under normal conditions. Moisture may reduce catalytic activity.
CONDITIONS TO AVOID	Contact with incompatible materials or heat (704°C/1300°F).
INCOMPATIBLE MATERIALS	Contact with peroxides and chlorates may cause violent reaction under certain conditions, such as elevated temperature or friction. May ignite organic material, especially organic solvents. May initiate polymerization of monomers. May form unstable acetylides in contact with acetylene.
HAZARDOUS DECOMPOSITION PRODUCTS	None
CONDITIONS CONTRIBUTING TO HAZARDOUS POLYMERIZATION	Not known to polymerize.

Section 11 Toxicological Information

Most diagnosed cases of manganese toxicity in humans have been reported following long-term exposures to airborne concentrations of manganese above the TLV-TWA. The usual form of chronic manganese toxicity involves the central nervous system.
Reports of adverse effects in humans from ingestion of manganese are rare.

Section 12 Ecological Information

Inorganic manganese compounds have negligible vapor pressures but exist in air as suspended particulate matter, which settle under the influence of gravity.
The transport of manganese in water is influenced by the solubility of the form present. Insoluble forms, such as manganese dioxide, are transported as sediments.
The bioaccumulation of manganese in the food chain does not appear to be significant.

Section 13 Disposal Considerations

CARULITE® 200 Granular Catalyst is not considered a hazardous waste under 40 CFR 261. Dispose of deactivated CARULITE® 200 Granular Catalyst in a landfill approved to accept chemical waste, after verifying that it is not contaminated with hazardous substances through usage.
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Section 14 Transport Information

USA (land, D.O.T.)	Proper Shipping Name:	Manganese dioxide compound
	ID Number:	Not regulated
European Labeling in accordance Road/Rail Transport (ADR/RID)	Proper Shipping Name:	Manganese dioxide compound
	ID Number:	Not regulated
European Labeling in accordance with EC directive (Water, I.M.O.)	Proper Shipping Name:	Manganese dioxide compound
	ID Number:	Not regulated
European Labeling in accordance with EC directive (Air, I.C.A.O.)	Proper Shipping Name:	Manganese dioxide compound
	ID Number:	Not regulated



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Section 15 Regulatory Information

US Federal Regulations

TSCA:

All components in this product are listed on the TSCA inventory.

Health & Safety Reporting List:

None of the chemicals in this product are on the Health & Safety Reporting List.

Chemical Test Rules:

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b:

None of the chemicals in this product are listed under TSCA Section 12b.

TSCA Significant New Use Rule:

None of the chemicals in this product have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs:

None of the chemicals in this product have an RQ.

SARA Section 302 Extremely Hazardous Substances:

None of the chemicals in this product have a TPQ.

SARA Codes:

CAS # 1313-13-9 and 1317-38-0; acute

SARA Section 313:

CARULITE® 200 Granular Catalyst contains manganese compounds (CAS Reg. No. N/A) and copper compounds (CAS Reg. No. N/A) as part of the mixture and is subject to the reporting requirements of Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 or Class 2 Ozone depleters.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

State:

CAS # 1313-13-9 is on the state lists from NJ.

FIFRA:

CAS# 1317-38-0 is found.

California Prop 65:

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives:

HAZARD SYMBOLS:

[Xn : Harmful](#)


RISK PHRASES:

20/22 Harmful by inhalation and if swallowed.

SAFETY PHRASES:

2 Keep out of the reach of children

25 Avoid contact with eyes

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WGK (Water Danger/Protection):

CAS# 1317-38-0: [VwVwS](#) (1) and [KBwS-Beschluss](#) (3)

Canada - DSL/NDSL:

CAS # 1313-13-9 and 1317-38-0 are listed on Canada's DSL List.

Canada – WHMIS:

None of the components in this product could be classified as hazardous in accordance with the hazard criteria of the Controlled Products Regulations.

Canadian Ingredient Disclosure List:

Manganese and copper compounds are listed on the Canadian Ingredient Disclosure List.

Japan Chemical Inventory List – METI

CAS # 1313-13-9 and 1317-38-0 are listed on Japan's METI List.

Australia Chemical Inventory List – AICS

CAS # 1313-13-9 and 1317-38-0 are listed on Australia's AICS List.



China Chemical Inventory List – IECSC CAS # 1313-13-9 and 1317-38-0 are listed on China's IECSC List.

Section 16 Other Information

Chithambarathanu Pillai (S.O.F.) July 2011

The information contained herein is accurate to the best of our knowledge. However, data, safety standards and government regulations are subject to change and, therefore, holders and users should satisfy themselves that they are aware of all current data and regulations relevant to their particular use of product. **CARUS CORPORATION DISCLAIMS ALL LIABILITY FOR RELIANCE ON THE COMPLETENESS OR ACCURACY OR THE INFORMATION INCLUDED HEREIN. CARUS CORPORATION MAKES NO WARRANTY, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR PARTICULAR USE OR PURPOSE OF THE PRODUCT DESCRIBED HEREIN.** All conditions relating to storage, handling, and use of the product are beyond the control of Carus Corporation, and shall be the sole responsibility of the holder or user of the product.

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