AT- 407 Curing Grade Manganese Dioxide
Type B & Type N
Material Safety Data Sheet

Section 1 Chemical Product and Company Identification

MANUFACTURER'S NAME: CARUS CORPORATION	TELEPHONE NUMBER FOR INFORMATION: (815) 223-1500
MANUFACTURING FACILITY: Carus Corporation 1500 Eighth Street P. O. Box 1500 LaSalle, IL 61301	**CHEMTREC TELEPHONE NO.** (800) 424-9300 **EMERGENCY TELEPHONE NO.** (800) 435-6856

Section 2 Composition and Information on Ingredients

SYNONYMS: None

CLASS: Inorganic oxides

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS):

Health Hazard	1
Flammability Hazard	0
Reactivity Hazard	1
Personal Protection Index	E (Safety Glasses, Gloves, and Dust Respirator)

Hazardous Ingredients

Material or Component	CAS No.*	%	Hazard Data
Manganese Dioxide	1313-13-9	85-90%	**PEL** C****** 5 mg Mn per cubic meter of air **TLV-TWA***** 0.2 mg Mn per cubic meter of air
Sodium Carbonate	497-19-8	<5 %	**PEL**** 15 total dust per cubic meter of air **TLV-TWA***** 10 mg total dust per cubic meter of air

* Chemical Abstract Service Number.
** OSHA Permissible Exposure Limit.
*** American Conference of Governmental Hygienists, 2002. TLV-TWA=the time weighted average concentration for a normal 8-hour work day and a 40-hour work week to which nearly all workers may be repeatedly exposed, day after day, without effect.
**** Ceiling Exposure Limit or maximum exposure concentration not to be exceeded under any circumstances.

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Section 3 Hazards Identification

EFFECTS OF ACUTE EXPOSURE

1. Inhalation
   May cause nose, throat and lung irritation.
2. Skin Contact
   May cause skin irritation or dehydrating of skin.
3. Eye Contact
   May cause eye 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.

Section 4 First Aid Measures

EMERGENCY AND FIRST AID PROCEDURES

1. 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.
2. Skin
   Flush contaminated areas with large amounts of water. Remove contaminated clothing. Wash clothing before reuse.
3. Inhalation
   Remove person to fresh air. If breathing is difficult, administer oxygen. Seek medical attention.
4. 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 Water spray is most effective. Use dry chemical, CO2, or foam if water cannot be used.
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. An oxidizer under certain conditions.

Section 6 Accidental Release Measures

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED Clean up spills immediately by scooping AT – 407 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.

Section 7 Handling and Storage

Store in a cool, dry area in closed container. Segregate from easily oxidizable materials, peroxides, chlorates, and acids. Protect containers against physical damage.

Section 8 Exposure Controls and Personal Protection

VENTILATION REQUIREMENTS Provide sufficient mechanical and/or local exhaust to maintain exposure levels below TLV-TWA limit for manganese.
RESPIRATORY PROTECTION In cases where 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.
EYE PROTECTION Primary eye protection (safety glasses or goggles).
GLOVES Rubber or plastic gloves should be worn.
OTHER PROTECTIVE EQUIPMENT Normal work clothing is sufficient.

Section 9 Physical and Chemical Properties

BOILING POINT, 760 mm Hg: Not applicable	**VAPOR PRESSURE (mm Hg):** Not applicable
SOLUBILITY IN WATER:	Insoluble. Some alkali may be leached from the material.
BULK DENSITY: 37-50 lb/ cu.ft.	**PERCENT VOLATILE BY VOL.:** Not volatile
MELTING POINT: Starts to decompose with evolution of oxygen at 535°C/995°F.	
APPEARANCE AND ODOR: Black powder**.** Odorless	

Section 10 Stability and Reactivity

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STABILITY Stable under normal conditions. Moisture may reduce activity.
CONDITIONS TO AVOID Contact with incompatible materials or heat (535°C/995°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 Material is 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 biomagnification of manganese in the food chain does not appear to be significant.

Section 13 Disposal considerations

AT- 407 is not considered a hazardous waste under 40 CFR 261. Dispose of deactivated AT- 407 in a landfill approved to accept chemical waste.

Section 14 Transport Information

Proper Shipping Name:	Manganese dioxide compound
ID Number:	Not regulated by DOT
Product R.Q. (lb.)	None

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Section 15 Regulatory Information

AT- 407 contains 85-90% manganese compounds (CAS Reg. No. N/A) as part of the mixture and is subject to the reporting requirements of Section 313 of Title III Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

Components of this product are listed on the TSCA Inventory.

Section 16 Other Information

MSDS Status:
Revision Date: February 2008

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CARUS CORPORATION

315 5TH STREET, PERU, ILLINOIS 61354

Chithambarathanu Pillai (S.O.F.)

Carus Corporation
315 Fifth Street
PO Box 599
Peru, IL 61354
Tel (815) 223-1500
Fax (815) 224-6697

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