An ISO 9001:2000 Certified Company

THE POWER OF THREE[3]
PHARMCO-AAPER
AND COMMERCIAL ALCOHOLS

Product Information (203) 740-3471 / Emergency Assistance CHEMTREC 1-800-424-9300

MATERIAL SAFETY DATA SHEETS

SECTION I
PRODUCT AND COMPANY IDENTIFICATION

Product: Manganese chloride tetrahydrate
This MSDS is valid for all grades and catalog #'s

Synonyms: Manganese dichloride tetrahydrate; Manganous chloride tetrahydrate
Formula: MnCl2.4H2O

Manufacturer: PHARMCO-AAPER
58 Vale Road
Brookfield, Connecticut 06804, USA
Phone (203) 740-3471
Fax (203) 740-3481

1101 Isaac Shelby Drive
Shelbyville, KY 40065
Phone (502) 633-0650
Fax (502) 633-0685

Emergency Contact:
CHEMTREC 1-800-424-9300

SECTION II
COMPOSITION /INFORMATION ON INGREDIENTS

% by weight	Material	CAS #	TLV/PEL	LC50/LD50
100	Manganese chloride tetrahydrate	13446-34-9	TWA 1 STEL: 3 from ACGIH (TLV) [United States]	ORAL (LD50) Acute: 1484 mg/kg [Rat].

SECTION III
HAZARDS IDENTIFICATION

Potential Acute Health Effects: Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.
Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available.
MUTAGENIC EFFECTS: Not available.
TERATOGENIC EFFECTS: Not available.
DEVELOPMENTAL TOXICITY: Not available.
The substance may be toxic to lungs, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

SECTION IV
FIRST AID

Obtain medical attention for all cases of over-exposure.
Eye Contact: Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention if irritation occurs.
Skin Contact: Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops. Cold water may be used.
Hazardous Skin Contact: Not available.
Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
Hazardous Inhalation: Not available.
Ingestion: Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.
Hazardous Ingestion: Not available.

SECTION V
FIRE FIGHTING MEASURES

Fire:
Flammability of the Product: Non-flammable.
Auto-Ignition temperature: Not applicable.
Flash point: Not applicable.
Flammable limits: Not applicable.
Products of Combustion: Not available.
Fire Hazards: Not applicable.
Explosion Hazards: Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.
Fire Extinguishing Media: Not applicable.
Special Information: When heated to decomposition it emits toxic fumes of hydrogen chloride.

SECTION VI
SPILL/ACCIDENTAL RELEASE MEASURES

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.
Large Spill: Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the

product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

SECTION VII
HANDLING AND STORAGE

Precautions: Do not ingest. Do not breathe dust. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as metals.
Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

SECTION VIII
EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
Personal Protection: Safety glasses. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.
Personal Protection in Case of a Large Spill: Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
Exposure Limits: TWA: 5 (mg(Mn)/m3) [Australia] Inhalation Total. TWA: 5 (mg(Mn)/m3) from OSHA (PEL) [United States] Inhalation Total. TWA: 0.2 (mg(Mn)/m3) from ACGIH (TLV) [United States] Inhalation Respirable. TWA: 5 (mg(Mn)/m3) [United Kingdom (UK)] Inhalation Total. TWA: 2.5 (mg(Mn)/m3) [Sweden] Inhalation Total. TWA: 1(mg(Mn)/m3) [Sweden] Inhalation Respirable. Consult local authorities for acceptable exposure limits.

SECTION IX
PHYSICAL AND CHEMICAL PROPERTIES

Physical State/Appearance: Solid
Molecular Weight: 197.9 g/mole
Odor: Not available.
Taste: Not available.
Color: Not available.
pH (1% Solution in Water): Not available.
Boiling Point: 1190°C (2174°F)
Melting Point: 58°C (136.4°F)
Critical Temperature: Not available.
Specific Gravity: 2.01 (Water = 1)
Vapor Pressure (mm Hg): Not applicable.
Vapor Density (Air=1): Not available.
Volatility: Not available.
Odor Threshold: Not available.
Evaporation Rate: Not available.
Viscosity: Not available.
Water/Oil Dist. Coefficient: Not available.
Ionicity (in water): Not available.
Dispersion Properties: See solubility in water.
Solubility: Easily soluble in cold water.

SECTION X
STABILITY/REACTIVITY INFORMATION

Stability: The product is stable.
Instability Temperature: Not available.
Conditions of Instability: Excess heat, incompatible materials
Incompatibilities: Reactive with metals.
Corrosivity: Non-corrosive in presence of glass.
Special Information: Hygroscopic; keep container tightly closed. Incompatible with Zinc, potassium, sodium.

SECTION XI
TOXICOLOGICAL INFORMATION

Routes of Entry: Inhalation. Ingestion.
Toxicity to Animals: Acute oral toxicity (LD50): 1484 mg/kg [Rat].
Chronic Effects on Humans: May cause damage to the following organs: lungs, central nervous system (CNS).
Other Toxic Effects on Humans: Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation.
Special Information on Toxicity to Animals: Not available.
Special Information on Chronic Effects/Toxicity on Humans: May cause adverse reproductive effects and birth defects (teratogenic) based on animal test data. May cause cancer based on animal test data May affect

SECTION XII
ECOLOGICAL INFORMATION

Ecotoxicity: Not available.
BOD5 and COD: Not available.
Products of Biodegradation: Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.
Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.
Special Information on Products of Biodegradation: Not available.

SECTION XIII
DISPOSAL CONSIDERATIONS

Waste Disposal: Recycle to process, if possible. Consult your local or regional authorities.

SECTION XIV
TRANSPORTATION INFORMATION

DOT Classification: DOT Not a DOT controlled material (United States).
UN: Not applicable.
Special Provisions for Transport: Not applicable.

SECTION XV
REGULATORY INFORMATION

Federal and State Regulations: Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires emergency planning based on Threshold Planning Quantities (TPQs) and release reporting based on Reportable Quantities (RQs) in 40 CFR 355 (used for SARA 302, 304, 311 and 312). Components present in this product at a level which could require reporting under the statute are: **NONE**

Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III requires submission of annual report release of toxic chemicals that appear in 40 CFR 372 (used for SARA 313). This information must be included in all MSDSs that are copied and distributed for this material. Components present in this product at a level which could require reporting under the statute are: **Manganese chloride tetrahydrate**

Pennsylvania Right-To-Know, Hazardous substance List, Hazardous Substances and Special hazardous Substances on the list must be identified when present in products. Components present in this product at a level which could require reporting under the statute are: **Manganese chloride tetrahydrate**

Massachusetts Right-To-Know, Substance List (MSL) Hazardous Substances and Extraordinarily Hazardous Substances on the MSL must be identified when present in products. Components present in this product at a level which could require reporting under the statute are: **Manganese chloride tetrahydrate**

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) requires notification of the National Response Center of release of quantities of Hazardous Substances equal or greater than the reportable quantities (RQs) in 40 CFR 302.4. Components present in this product at a level which could require reporting under the statute are: **NONE**

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: **No products were found.**

California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: **No products were found.**

Other Classifications:

WHMIS (Canada): Not controlled under WHMIS (Canada).

DSCL (EEC): R22- Harmful if swallowed.

Protective Equipment: Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Safety glasses.

References: Not available.

Other Special Considerations: Not available.

The information contained herein is based on data considered to be accurate based on the material as packaged. However, no warranty is expressed regarding the accuracy of these data or the results to be obtained from the use thereof. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It is the user's obligation to determine the conditions of safe use of the product. While this MSDS is based on technical data judged to be reliable, PHARMCO-AAPER assumes not responsibility for the completeness or accuracy of the information contained herein.