



PERFORMANCE MINERALS®

MATERIAL SAFETY DATA SHEET

MSDS DATE: 12/15/09

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

MANPRO® 160

Manganese-methionine complex – Livestock nutritional feed additive

Zinpro Corporation
10400 Viking Drive, Suite 240
Eden Prairie, MN 55344-7265

CHEMTREC PHONE: 800-424-9300
INFO PHONE: 952-944-2736

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT	CAS NO.	% WT	SARA 313 REPORTABLE	OSHA PEL-TWA	ACGIH TLV-TWS
Manganese methionine complex	None	16% (as Mn)	Yes	None	None

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: Avoid exposure to all workplace chemicals. Obtain manufacturer's instructions before use. In case of accident or if you feel unwell, seek medical advice immediately and show the product label where possible.

ROUTES OF ENTRY: Ingestion, inhalation.

POTENTIAL HEALTH EFFECTS

- EYES:** May irritate eyes.
- SKIN:** May irritate skin.
- INGESTION:** May irritate mucous membranes.
- INHALATION:** Irritation of nose, mouth, and throat may occur.

ACUTE HEALTH HAZARDS: None

CHRONIC HEALTH HAZARDS: Breathing high levels of manganese can cause irritation of your nose and throat. Inhaling or ingesting high levels of manganese can affect behavior and cause deterioration of motor skills.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: Respiratory problems, existing dermatitis

CARCINOGENICITY: None known at this time.

SECTION 4: FIRST AID MEASURES

- EYES:** Wash eyes with copious amounts of water. Consult a physician.
- SKIN:** After contact with skin, wash immediately with plenty of water.
- INGESTION:** Wash mouth and throat repeatedly without swallowing. Do not induce vomiting without medical advice. Consult a physician if you feel unwell.
- INHALATION:** Move to fresh air. Provide oxygen or artificial respiration if needed. Consult a physician without delay.

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SECTION 5: FIRE-FIGHTING MEASURES

FLAMMABLE LIMITS IN AIR, UPPER: NA
(% BY VOLUME) LOWER: NA

FLASH POINT: >200 °C

AUTOIGNITION TEMPERATURE: >200 °C

NFPA HAZARD CLASSIFICATION

HEALTH: 0 FLAMMABILITY: 1 REACTIVITY: 0

HMIS HAZARD CLASSIFICATION

HEALTH: 0 FLAMMABILITY: 1 REACTIVITY: 0 PHYSICAL: 0

EXTINGUISHING MEDIA: Dry chemical, CO₂, water spray, or foam as appropriate for surrounding materials.

SPECIAL FIRE FIGHTING

PROCEDURES: Self-contained breathing apparatus always recommended for fire-fighting.

UNUSUAL FIRE AND EXPLOSION HAZARDS: All granular materials have the potential to create a fire hazard if dust is generated during handling.

HAZARDOUS DECOMPOSITION PRODUCTS: Burning may produce irritant fumes such as metal oxides, or toxic gases such as carbon monoxide.

SECTION 6: ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS: Use personal protective equipment including gloves, safety glasses, and dust mask when handling this product. When handling, do not eat, drink, or smoke.

ENVIRONMENTAL PRECAUTIONS: Prevent product from entering drains.

METHODS FOR CLEANING: Carefully sweep up and recover uncontaminated material for re-use. Scoop remaining waste into suitable, labeled container for disposal.

SECTION 7: HANDLING AND STORAGE

HANDLING AND STORAGE: Use only in an area provided with adequate ventilation.
Use personal protective equipment when handling this product.
Remove and wash contaminated clothing before re-use.
Store in tightly closed container at room temperature in a dry location.

OTHER PRECAUTIONS: ALWAYS minimize the generation of dust when handling.
This product contains metal compounds. Do not mix with acids or oxidizers except under controlled conditions.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE GUIDELINES:

Source	Substance	Permissible Exposure Level
Occupational Safety & Health Administration	Manganese complex of amino acids hydrate	None listed
Occupational Safety & Health Administration	Manganese compounds (as Mn)	5.0 mg/m ³ (TWA)

ENGINEERING CONTROLS: Use only in a well-ventilated area to prevent exposure from exceeding regulatory levels.

RESPIRATORY PROTECTION: Breathing apparatus is needed only when dust is formed. Use a mask suitable for dust. Proper handling to minimize dust is required. Do not smoke when handling this product.

EYE PROTECTION: Safety glasses with side-shields.

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SKIN PROTECTION: Gloves

WORK HYGIENIC PRACTICES: Do not eat or drink when handling this product.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Brown, granular
ODOR: Sweet, organic
PHYSICAL STATE: Solid
pH: NA
MELTING POINT: >200 °C
SPECIFIC GRAVITY (H₂O = 1): 0.660 at 20°C
SOLUBILITY IN WATER: Active product is water soluble; Carrier is insoluble
PERCENT SOLIDS BY WEIGHT: 100%
PERCENT VOLATILE: 0%
VOLATILE ORGANIC COMPOUNDS (VOC): 0%

SECTION 10: STABILITY AND REACTIVITY

STABILITY: This product is stable under recommended storage conditions and in normal use.

CONDITIONS TO AVOID (STABILITY): Avoid generation of dust while handling. As with all dusts, particularly those containing metals, finely divided airborne material may explode or burn when exposed to source of ignition.

INCOMPATIBILITY (MATERIAL TO AVOID): Organic and metallic compounds are incompatible with acids and strong oxidizers. Potentially violent reactions may occur on mixing with these materials.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: Thermal decomposition may release irritating gases, such as metal oxides, or toxic gases, such as carbon monoxide.

HAZARDOUS POLYMERIZATION: None

SECTION 11: TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION:

Essential trace minerals are not a health hazard at low concentrations. However, the toxicology of this mixture of mineral-amino acid complexes at the stated concentrations has not been specifically studied. The following information pertains to the individual mineral components of this product.

Acute toxicity: Manganese (salts) lowest LD₅₀ (oral, rat) = 1090 mg/kg

Excessive exposure may affect human health as follows:

Prolonged contact may cause mild pain and redness of skin, eyes, and mucous membranes.

Prolonged inhalation may cause pain and redness in the nose, mouth, & throat.

Excessive inhalation or ingestion of this or other trace minerals may lead to nausea, drowsiness, muscle weakness, emotional disturbances, headache, dizziness, confusion, or paralysis.

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SECTION 12: ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION:

This product contains manganese, a metal that occurs naturally throughout the environment, in rocks, soil, and water and is an essential element in plants and animals. Manganese compounds are used as pesticides, most commonly as fungicides, illustrating that targeted ecological effects of such materials do occur. There is no data regarding the actual eco-toxicity of the metal-amino acid complex in this product, which is formulated and approved for ingestion by livestock.

SECTION 13: DISPOSAL CONSIDERATIONS

This product is not a hazardous waste when disposed. As with all waste materials, it is recommended that residuals of this product and the container be disposed in a responsible manner at a licensed landfill or recycling center.

SECTION 14: TRANSPORT INFORMATION

This product is not listed or categorized as a hazardous material for transport in the U.S. at 49 CFR 172.101.

SECTION 15: REGULATORY INFORMATION

Mineral-amino acid complexes are not regulated under any of the listed programs.
The metallic component as a free metal is regulated as follows:

U.S. FEDERAL REGULATIONS

TSCA (TOXIC SUBSTANCE CONTROL ACT) listed: Manganese and compounds

CERCLA (COMPREHENSIVE RESPONSE COMPENSATION, AND LIABILITY ACT):

No RQ is assigned, although the class is a CERCLA hazardous substance.

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT):

302 EXTREMELY HAZARDOUS SUBSTANCE TPQ: Not EHS

304 EXTREMELY HAZARDOUS SUBSTANCE RQ: Not EHS

311/312 HAZARD CATEGORIES: Acute: No Chronic: Yes Fire: No Pressure: No Reactivity: No

313 REPORTABLE INGREDIENTS: Manganese compounds N450 (56% by weight; 16% Mn by weight)

CLEAN AIR ACT AMENDMENTS Section 112: Manganese compounds are listed as Hazardous Air Pollutants in Section 112 of the CAAA and may be subject to regulation if emitted to the air.

STATE REGULATIONS: Refer to individual state agency for information.

INTERNATIONAL REGULATIONS: Refer to European Chemical Substance Information System (ESIS)
Refer to Australian Hazardous Substance Information System (HSIS)

SECTION 16: OTHER INFORMATION

OTHER INFORMATION: None

PREPARATION INFORMATION:

Centers for Disease Control (CDC) Agency for Toxic Substances and Disease Registry (ATSDR)
National Fire Protection Association (NFPA)
Hazardous Materials Information System (HMIS)
U.S. EPA Chemical Emergency Preparedness and Prevention Office (CEPPO) List of Lists
Pesticide Network Database
U.S. EPA Substance Registry Service (TSCA)
U.S. Dept of Labor Occupational Safety & Health Administration (OSHA) 29 CFR 1910.1000
U.S. Dept of Transportation (DOT) 49 CFR 172.101

DISCLAIMER: The information expressed in this document regarding this product is believed to be reliable. However, no guarantee or warranty of any kind, express or implied, concerning the use of this product is intended.