MATERIAL SAFETY DATA SHEET (MSDS)
MANGANOUS OXIDE

SECTION 1 - PRODUCER & SUPPLIERS DETAILS

Manufacturer & Supplier: NUMINOR CHEMICAL INDUSTRIES LTD.
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SECTION 2 - CHEMICAL NAME & INFORMATION ON INGREDIENTS

Chemical Name: Manganous Oxide: (CAS: 1344-43-0) (EINECS: 215-695-8)
Symbol: Xn - Harmful
R-Phrases: R48/20/21/22 - Harmful: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed.
Formula: MnO
Synonyms: Manganese Oxide
% Range: 54 - 62%

SECTION 3 - PHYSICAL & CHEMICAL CHARACTERISTICS

Melting Point: Not Listed.
Specific Gravity: 5.0
Solubility in water: Insoluble
Appearance & Odour: Solid powder(fine), Dark brown-Green in colour, no odour.
SECTION 4 - HAZARDS IDENTIFICATION

Physical / chemical hazards: The data available does not support any physical or chemical hazard.

Environmental hazard: None Listed.

Adverse human health effects
- Inhalation: May cause irritation to the respiratory tract.
- Skin contact: Repeated or prolonged skin contact may cause irritation.
- Eye contact: Excessive dust exposure may cause eye irritation.
- Ingestion: Health hazard if ingested in large quantities, can cause acute chronic damage to health.

SECTION 5 - FIRE, FIGHTING & EXPLOSION DATA

Fire: Non Combustible.
Flammability: Non Flammable
Flash point: Not Combustible
Extinguishing media: In case of fire in immediate vicinity use any extinguishing agent.

Protection of fire-fighters: Use breathing apparatus (self-contained breathing apparatus with full face shield). Wear suitable protective clothing.

Hazardous combustion and decomposition products: None.

SECTION 6 - STABILITY & REACTIVITY DATA

Stability: Stable under ordinary conditions
Hazardous Reactions: Soluble in mineral acids. Dust explosion if mixed with fine organic material and exposed to naked flame. Violent reaction with $\text{H}_2\text{O}_2$, $\text{CaOH}$, and $\text{F}_2$.

Incompatibility (materials to avoid): Not Applicable

SECTION 7 - Toxicological Information

Acute toxicity
- Inhalation: Causes chills, fever, nausea, vomiting, coughing, weakness and headaches.
- Dermal: Exposure can cause skin irritation.
- Ingestion: (Oral rat) LD50 = 9g/kg

Dermal irritation: Can cause irritation.
Eyes irritation: Not available.
Chronic toxicity: Not available.

(Section 7 continued-Toxilogical Information)
Sensitization: Not available.
Carcinogenicity: Not listed by IARC and ACGIH as carcinogen.
Mutagenicity: Not available.
Reproductive toxicity: An experimental or tumorigen and mutagen.

Other toxicological information: Eye, skin, respiratory kidney or liver diseases or disorders would be aggravated by repeated or prolonged exposure to this chemical. Persons with history of alcoholism, psychiatric, neurological or liver dysfunction would be expected to be at increased risk from exposure.

SECTION 8 - FIRST AID MEASURES

Effects and symptoms: Chills, fever, nausea, vomiting, coughing, weakness and headaches, skin irritation.

First aid
- Skin contact: Wash immediately with plenty of water and soap/
- Inhalation: Remove victim to fresh air. Clean nasal cavity with water. Give oxygen if breathing difficulty. Seek medical attention.
If feeling unwell, immediately seek medical attention.
- Eye contact: Rinse immediately with clean water for 15 minutes.
If feeling unwell, immediately seek medical attention.
- Ingestion: Immediately rinse mouth with water.
Do not induce vomiting. Give large quantities of water or milk to drink.
If feeling unwell, immediately seek medical attention.

Protection of rescue personnel: Avoid all unnecessary exposure. Use appropriate protection (see Section 9).

SECTION 9 - PERSONAL PROTECTION & EXPOSURE CONTROLS

- Respiratory protection: Respiratory protection equipment necessary.
- Hand protection: Gloves.
Material: leather gloves, cotton gloves, rubber gloves.
- Skin protection: Work clothes.
- Eye protection: Chemical goggles or safety glasses.

Occupational Exposure Limits
8 Hour TLV-TWA [mg/m3] : 0.2 (Dust)
Engineering measures: Mechanical ventilation is recommended.
SECTION 10 - ACCIDENTAL RELEASE MEASURES & SPILL LEAK PROCEDURES

Personal precautions: Wear suitable gloves and eye/face protection. Avoid dust creation.
Environmental precautions: Avoid allowing product to enter drains, sewage system, ground water.
Methods for cleaning up: Sweep up and shovel into suitable containers for disposal. Re-use or recycle waste.

SECTION 11 - HANDLING AND STORAGE

Handling & storing: Good housekeeping - store in a cool dry place - keep containers shut. Avoid making dust.
Packing Materials: All materials suitable.

SECTION 12 - ECOLOGICAL INFORMATION

Persistence and degradability: Not applicable.
Bioaccumulative potential: Not applicable.
WGK (Germany): 1
Ecotoxicity: Not applicable
Mobility: Not applicable

SECTION 13 - DISPOSAL CONSIDERATIONS

Disposal: Comply with local regulations for disposal.
Waste of residues: This material and its container should be labeled H.
Contaminated packaging: Keep waste packaging separate.
Waste should be disposed of in a permitted chemical waste facility.
SECTION 14 - TRANSPORT INFORMATION

Hazard Labels: Not restricted.

H. S. Code: 2820.9000
UN - No: Not Listed.
ADR/RID/ADNR/IMO-IMDG: Not restricted.
Shipping Name: Manganous Oxide
Packaging Group: Not Applicable
IMDG-Marine Pollution No
EMS No. Not available.
MFAG Table Not available.

SECTION 15 - REGULATORY INFORMATION

Symbol: Xn - Harmful

R Phrase(s): R48/20/21/22- Harmful: danger of serious damage to health by prolonged exposure through inhalation, in contact with skin and if swallowed.
S Phrase(s): S3,8,9: Keep container in a cool, dry, well ventilated place.
S20,22,26: When using do not eat or drink. Do not breathe dust. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

SECTION 16 - OTHER INFORMATION

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MSDS prepared by: AVK

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