

1. Identification of the Product and Supplier

Product name: **Micromax[®]**

Product application: Weight material in oilwell cement and drilling fluids.

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2. Hazards Identification

Classification of the substance The product does not meet the criteria for hazard classification in accordance with the UN Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Hazard symbol/Hazard pictogram: N/A (not applicable)
Symbol letter/Indication of danger: N/A (not applicable)
Signal word: N/A (not applicable)
R-/H-phrases: N/A (not applicable)
S-/P-phrases: N/A (not applicable)

The product is unlikely to cause harmful effects when handled and stored as advised. See section 7.

Long term inhalation (years) of dust from manganese oxides might cause adverse health effects. (See section 11).

3. Composition/Information on Ingredients

IUPAC name: Trimanganese tetroxide
Synonyms: Manganese tetraoxide, Trimanganese tetraoxide, Mn_3O_4 , manganomanganic oxide

CAS No.: 1317-35-7
EINECS No.: 215-266-5

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4. First Aid Measures

Inhalation: Irritation caused by dust: Fresh air. See a physician on persistent feeling of discomfort.
Skin contact: Wash skin with water and/or a mild detergent.
Eye contact: Rinse eyes with water/saline solution. See a physician on persistent feeling of discomfort.
Ingestion: Remove the person affected from dusty area. See inhalation.

5. Fire Fighting Measures

Extinguishing media: Not applicable. Depending on surrounding fire.

Micromax[®] is not combustible. Micromax[®] is formed under surplus of oxygen (O₂) and there is thus no inherent risk of dust explosion.

6. Accidental Release Measures

Avoid handling that generates build up of dust. Released material should be collected in suitable containers. Contaminated material should be disposed of in accordance with applicable federal and local regulations.

7. Handling and Storage

Handling: Avoid inhalation of dust. (See section 8).
Storage: Keep away from hydrochloric acid (HCl). Keep dry and do not store at a temperature near to or below 0 °C .

8. Exposure Controls/Personal Protection

Occupational exposure controls

Avoid inhalation of dust. Eye protection, eye flushing facilities and protective gloves are recommended. Ensure adequate ventilation. Wear an appropriate particulate respirator in accordance with 29 CFR 1910.134 or CSA Standard Z94.4-M1982 for dust exposure that may exceed exposure limits. If adequate ventilation is not possible, a self-contained breathing apparatus or an air supplied respirator is recommended.



Occupational Exposure Limits :		OSHA PEL ¹⁾	ACGIH ²⁾ TLV, 2013		Notations
Substance	[CAS No.]	mg/m ³	8hr TWA ppm	mg/m ³	
Manganese [7439-96-5] and inorganic compounds, as Mn	-	5 (ceiling)		(0.2)	A4

¹⁾ 29 CFR 1910.1000 Table Z-1, limits for air contaminants

²⁾ American Conference of Governmental Industrial Hygienists

Notice of intended changes: 0.1 mg/m³ (inhalable), 0.02 mg/m³ (respirable)

^(I) Inhalable fraction

^(R) Respirable fraction

WHO (1980) has recommended a threshold limit value for respirable manganese particles of 0.3 mg/m³.

9. Physical and Chemical Properties

Form:	Powder with particle diameter 3-100 µm, of which 90 % has a particle diameter < 5 µm. Dust forms agglomerates.
Colour:	Reddish brown.
Odour:	Odourless.
Flash point:	Not applicable
Combustion temperature:	Not applicable
Explosion limit in air:	Not applicable
Melting Point (°C):	1550-1650
Solubility (Water):	Insoluble/slightly soluble.
Solubility (Organic solvents):	Insoluble/slightly soluble.
Specific Gravity (water =1):	4.8
pH value:	7-10; 5 g product in 50 ml distilled water.

10. Stability and reactivity

Conditions to avoid:	None. Micromax [®] is a stable manganese oxide.
Materials to avoid:	Concentrated hydrochloric acid (HCl). Reacts violently with hydrogen peroxide (H ₂ O ₂).
Hazardous decomposition products:	Concentrated hydrochloric acid reacts with Micromax [®] forming toxic chlorine gas (Cl ₂) under certain conditions.

11. Toxicological Information

The product does not meet the criteria for hazard classification in accordance with the UN Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Acute effects:

Inhalation:	Dust may cause mechanical irritation of mucous membranes. Inhalation of high concentrations of Mn vapour or Mn oxide fumes (See section 8) can result in chemical pneumonia.
Skin contact:	Dust may cause mechanical irritation.
Eye contact:	Dust may cause mechanical irritation.
Ingestion:	Dust may cause mechanical irritation of mucous membranes.

Chronic effects:

Manganese is an essential trace metal in all living organisms. Long-term inhalation (years) of Manganese oxides may cause chronic manganese intoxication (manganism) affecting the central nervous system (CNS), and lead to extensive disablement, that cannot be cured.

Fumes/dust of MnO₂ (tetravalent manganese (Mn[IV])) is classified as harmful to health. Micromax[®] contains divalent and trivalent manganese (Mn[II] and Mn[III]). Mn[IV] has not been detected in the product.

12. Ecological Information

The product is not characterized as dangerous for the environment.

MOBILITY:	The product is not mobile under normal environmental conditions.
PERSISTENCE:	Not relevant for inorganic substances.
BIOACCUMULATION:	Not relevant.
ECO-TOXICITY:	The product does not meet the classification criteria for ecotoxicological endpoints in accordance with the UN Globally Harmonized System of Classification and Labelling of Chemicals (GHS, 5 th revision).

13. Disposal Considerations

The material should be recovered for recycling if possible. Dispose of waste product according to applicable federal, state and local rules for non-hazardous solid waste materials. No special precautions are necessary during repackaging. The product is not a listed RCRA Hazardous Waste (40 CFR 261).

14. Transport Information

UN number:	not classified
UN proper shipping name:	not applicable
Transport hazard class:	not applicable
Packing group:	not applicable
Environmental hazard:	The product is not a marine pollutant.
Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code):	not classified
Special precautions:	none

15. Regulatory Information

OSHA:	This safety data sheet has been compiled in accordance with the revised Hazard Communication Standard (HCS 2012) and applies GHS classification criteria.
TSCA:	The product is listed in the TSCA (Toxic Substance Control Act) Inventory ID 8275, CAS # 1317-35-7 (Manganese oxide, Mn ₃ O ₄)
CERCLA:	(Comprehensive Response Compensation, and Liability Act): The product and its components are not listed in 40 CFR 302.4.
RCRA:	(Resource Conservation/Recovery Act): The product is not a listed hazardous waste.

SARA TITLE III: (Superfund Amendments and Reauthorization Act):
311/312 Hazard Categories: Immediate Health, Delayed Health.
313 Reportable Ingredients: Manganese Compounds (Category Code N450).

CALIFORNIA PROPOSITION 65:
None

IARC: The product is not classified as a carcinogen by IARC.

US-NTP: The ingredients of the product are not listed in the 2011 Report on Carcinogens (RoC).

WHMIS: not classified.

DSL Canada The product is specified on the public Portion of the Domestic Substances List (identifier: 1317-35-7).

16. Other Information

According to Chapter 1.5.2 of the UN Globally Harmonized System of Classification and Labelling of Chemicals (GHS) safety data sheets (SDS) are only required for substances and mixtures that meet the harmonized criteria for physical, health or environmental hazards. This product does not meet these criteria.

Legal Disclaimer:

The information given in this sheet is to the best of Elkem's knowledge and believed accurate and reliable as of the date indicated. However, no representation, warranty or guarantee is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability and completeness of such information for his own particular use

Literature references are available upon request.

Micromax[®] is a registered trade mark owned by Elkem AS.