

SAFETY DATA SHEET

Micromax FF

Revision Date: 03-Dec-2018

Revision Number: 3

1. Identification of the hazardous chemical and of the supplier

Product identifier

Product Name Micromax FF

Other means of identification

Hazardous Material Number: HM520147

Recommended use of the chemical and restrictions on use

Recommended Use Weight Additive

Supplier details

Elkem Materials
P.O. Box 266
Pittsburgh, PA 15230
Telephone: +1-412-299-7200

Importer

Halliburton Energy Service (M) Sdn Bhd
10th Floor, G Tower,
199 Jalan Tun Razak,
50400, Kuala Lumpur, Malaysia
Phone Number: +603-9206 6888

Halliburton Energy Service (M) Sdn Bhd
Labuan Base,
Ranca-Ranca Industrial Estate
Labuan FT, LAB 82223 Malaysia
Phone Number: +60 87-596 200 ext Gate B-886086263

Halliburton Energy Service (M) Sdn Bhd
Warehouse 38, Phase 2, Kemaman Supply Base (KSB)
24007, Kemaman
Terengganu, Malaysia
Phone Number : +609-862 8000

For further information, please contact

E-mail Address fdunexchem@halliburton.com

Emergency Phone number

+60 015 4 877 0772
Global Incident Response Access Code: 334305
Contract Number: 14012

2. Hazard Identification

Classification of the hazardous chemical

Reproductive Toxicity	Category 2 - H361
Specific Target Organ Toxicity - (Repeated Exposure)	Category 2 - H373

Label Elements

Hazard Pictograms



Signal Word:

Warning

Hazard Statements

H373 - May cause damage to organs through prolonged or repeated exposure
H361 - Suspected of damaging fertility or the unborn child

Precautionary Statements

Prevention

P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P281 - Use personal protective equipment as required

Response

P314 - Get medical attention/advice if you feel unwell
P308 + P313 - IF exposed or concerned: Get medical advice/attention

Storage Disposal

P405 - Store locked up
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations

Contains Substances

Manganese tetraoxide

CAS Number

1317-35-7

Other hazards which do not result in classification

This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).
This substance is not considered to be very persistent nor very bioaccumulating (vPvB).

3. Composition and information on ingredients of the hazardous chemical

Substances	CAS Number	PERCENT (w/w)	GHS Classification - Malaysia
Manganese tetraoxide	1317-35-7	> 60%	STOT RE 2 (H373) Repr. 2 (H361)

4. First aid measures

Description of first aid measures

Inhalation

If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Eyes

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Skin Wash with soap and water. Get medical attention if irritation persists.
Ingestion Do NOT induce vomiting. Give nothing by mouth. Obtain immediate medical attention.

Most important symptoms and effects, both acute and delayed

May cause damage to organs through prolonged or repeated exposure.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically

5. Fire-fighting measures

Suitable extinguishing media

Suitable Extinguishing Media

All standard fire fighting media

Extinguishing media which must not be used for safety reasons

None known.

Physicochemical hazards arising from the chemical

Special exposure hazards in a fire

Not applicable

Special protective equipment and precautions for fire fighters

Special protective equipment for firefighters

Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Use appropriate protective equipment. Avoid creating and breathing dust. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing.

See Section 8 for additional information

Environmental precautions

Prevent from entering sewers, waterways, or low areas.

Methods and material for containment and cleaning up

Scoop up and remove.

7. Handling and storage

Precautions for safe handling

Avoid contact with eyes, skin, or clothing. Avoid creating or inhaling dust. Ensure adequate ventilation. Wash hands after use. Launder contaminated clothing before reuse. Use appropriate protective equipment.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Store in a cool, dry location. Product has a shelf life of 24 months.

8. Exposure controls and personal protection

Control parameters

Exposure Limits

Substances	CAS Number	Malaysia OEL	ACGIH TLV-TWA
Manganese tetraoxide	1317-35-7	0.2 mg/m ³	TWA: 0.02 mg/m ³ TWA: 0.1 mg/m ³

Appropriate engineering controls**Engineering Controls**

Use in a well ventilated area. Localized ventilation should be used to control dust levels.

Individual protection measures, such as personal protective equipment**Personal Protective Equipment**

If engineering controls and work practices cannot prevent excessive exposures, the selection and proper use of personal protective equipment should be determined by an industrial hygienist or other qualified professional based on the specific application of this product.

Respiratory Protection

If engineering controls and work practices cannot keep exposure below occupational exposure limits or if exposure is unknown, wear a NIOSH certified, European Standard EN 149, AS/NZS 1715:2009, or equivalent respirator when using this product. Selection of and instruction on using all personal protective equipment, including respirators, should be performed by an Industrial Hygienist or other qualified professional.

Dust/mist respirator. (N95, P2/P3)

Hand Protection

Normal work gloves.

Skin Protection

Normal work coveralls.

Eye Protection

Safety glasses.

Other Precautions

None known.

Environmental Exposure Controls

Do not allow material to contaminate ground water system

9. Physical and chemical properties

Information on basic physical and chemical properties

Physical State: Solid

Color: Red brown

Odor: Odorless

Odor Threshold: No information available

PropertyValues

Remarks/ - Method

pH:

7-10

Freezing Point / Range

1550 - 1650 °C

Melting Point / Range

No data available

Pour Point / Range

No data available

Boiling Point / Range

No data available

Flash Point

No data available

Evaporation rate

No data available

Vapor Pressure

No data available

Vapor Density

No data available

Specific Gravity

4.8

Water Solubility

Insoluble in water

Solubility in other solvents

No data available

Partition coefficient: n-octanol/water

No data available

Autoignition Temperature

No data available

Decomposition Temperature

No data available

Viscosity

No data available

Explosive Properties

No information available

Oxidizing Properties

No information available

Other information**VOC Content (%)**

No data available

10. Stability and reactivity

Reactivity

Not expected to be reactive.

Chemical stability

Stable

Possibility of hazardous reactions

Will Not Occur

Conditions to avoid

Avoid contact with hydrochloric acid. Can react to release chlorine gas.

Incompatible materials

None known.

Hazardous decomposition products

None known.

11. Toxicological information

Information on possible routes of exposure

Principle Route of Exposure Eye or skin contact, inhalation.

Symptoms related to exposure

Most Important Symptoms/Effects

May cause damage to organs through prolonged or repeated exposure.

Numerical measures of toxicity

Toxicology data for the components

Substances	CAS Number	LD50 Oral	LD50 Dermal	LC50 Inhalation
Manganese tetraoxide	1317-35-7	> 2000 mg/kg (Rat)	No data available	>5.17 mg/L (rat, 4 h, dust)

Immediate, delayed and chronic health effects from exposure

Inhalation

May cause respiratory irritation.

Eye Contact

May cause mechanical irritation to eye.

Skin Contact

May cause mechanical skin irritation.

Ingestion

May cause abdominal pain, vomiting, nausea, and diarrhea. May cause hypoglycemia.

Chronic Effects/Carcinogenicity Prolonged or repeated exposure may cause central nervous system and brain effects. Prolonged or repeated exposure may result in manganism. Symptoms are similar to Parkinson's disease.

Exposure Levels

No data available

Interactive effects

Central nervous system disorders. Kidney disorders. Lung disorders.

Data limitations

No data available

Substances	CAS Number	Skin corrosion/irritation
Manganese tetraoxide	1317-35-7	Non-irritating to the skin (Rabbit)

Substances	CAS Number	Serious eye damage/irritation
Manganese tetraoxide	1317-35-7	Non-irritating to the eye (Rabbit)

Substances	CAS Number	Skin Sensitization
Manganese tetraoxide	1317-35-7	No information available

Substances	CAS Number	Respiratory Sensitization
Manganese tetraoxide	1317-35-7	No information available

Substances	CAS Number	Mutagenic Effects
Manganese tetraoxide	1317-35-7	In vitro tests did not show mutagenic effects. In vivo tests did not show mutagenic effects. (similar substances)

Substances	CAS Number	Carcinogenic Effects
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Manganese tetraoxide	1317-35-7	Not regarded as carcinogenic.
Substances	CAS Number	Reproductive toxicity
Manganese tetraoxide	1317-35-7	Fetotoxic and teratogenic effects observed in experimental animals at concentrations that did not produce maternal toxicity.
Substances	CAS Number	STOT - single exposure
Manganese tetraoxide	1317-35-7	No significant toxicity observed in animal studies at concentration requiring classification.
Substances	CAS Number	STOT - repeated exposure
Manganese tetraoxide	1317-35-7	Causes damage to organs through prolonged or repeated exposure if inhaled: Central Nervous System (CNS)
Substances	CAS Number	Aspiration hazard
Manganese tetraoxide	1317-35-7	No information available

12. Ecological information

Ecotoxicity

12.1. Toxicity

Substances	CAS Number	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Toxicity to Invertebrates
Manganese tetraoxide	1317-35-7	EC50 (72h) > 100% saturated solution (Desmodesmus subspicatus)	LC50 (96h) > 100% saturated solution (orhynchus mykiss)	EC50 (3 h) > 1000 mg/L (activated sludge of a predominantly domestic sewage)	EC50 (48 h) > 0.022 mg/L (Daphnia magna) NOAEC (21 d) > 100 mg/L (Daphnia magna)

Persistence and degradability

Substances	CAS Number	Persistence and Degradability
Manganese tetraoxide	1317-35-7	The methods for determining biodegradability are not applicable to inorganic substances.

Bioaccumulative potential

Substances	CAS Number	Bioaccumulation
Manganese tetraoxide	1317-35-7	No information available

Mobility in soil

Substances	CAS Number	Mobility
Manganese tetraoxide	1317-35-7	No information available

Other adverse effects

Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

13. Disposal considerations

Disposal methods

Disposal methods

Incineration recommended in approved incinerator according to federal, state, and local regulations.

Contaminated Packaging

Follow all applicable national or local regulations.

14. Transportation information

Transportation Information

UN Number

Not restricted

UN proper shipping name:

Not restricted

Transport Hazard Class(es):

Not applicable

Packing Group: Not applicable
Environmental Hazards: Not applicable

IMDG/IMO

UN Number: Not restricted
UN proper shipping name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

IATA/CAO

UN Number: Not restricted
UN proper shipping name: Not restricted
Transport Hazard Class(es): Not applicable
Packing Group: Not applicable
Environmental Hazards: Not applicable

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
 Not applicable

Special precautions for user

None

HazChem Code

None Allocated

15. Regulatory information

International Agreements

Montreal Protocol - Ozone Depleting Substances:	Does not apply.
Stockholm Convention - Persistent Organic Pollutants:	Does not apply
Rotterdam Convention - Prior Informed Consent:	Does not apply.
Basel Convention - Hazardous Waste:	Does not apply.

Safety, health, and environmental regulations specific for the hazardous chemical

Malaysia Occupation Safety and Health - Prohibition of Use Substances:	Does not apply
Malaysia Substances Requiring Medical Surveillance:	Does not apply
Malaysia Environmentally Hazardous Substances (EHS):	One or more components listed.

16. Other information

Revision Date: 03-Dec-2018

Revision Note

Initial Release

Key literature references and sources for data

www.ChemADVISOR.com/

Key or legend to abbreviations and acronyms used in the safety data sheet

bw – body weight
 CAS – Chemical Abstracts Service
 EC – European Commission
 EC10 – Effective Concentration 10%
 EC50 – Effective Concentration 50%
 EEC – European Economic Community
 ErC50 – Effective Concentration growth rate 50%
 IBC Code – International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
 LC50 – Lethal Concentration 50%
 LD50 – Lethal Dose 50%
 LL0 – Lethal Loading 0%
 LL50 – Lethal Loading 50%

MARPOL – International Convention for the Prevention of Pollution from Ships

mg/kg – milligram/kilogram

mg/L – milligram/liter

NIOSH – National Institute for Occupational Safety and Health

NOEC – No Observed Effect Concentration

NTP – National Toxicology Program

OEL – Occupational Exposure Limit

PBT – Persistent Bioaccumulative and Toxic

PC – Chemical Product category

PEL – Permissible Exposure Limit

ppm – parts per million

PROC – Process category

STEL – Short Term Exposure Limit

h - hour

d - day

Disclaimer Statement

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End of Safety Data Sheet