SAFETY DATA SHEET
Brexil Mn

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Mixture identification:

Trade name: Brexil Mn

Trade code: 11284

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended use:

Fertilizer

1.3. Details of the supplier of the safety data sheet

Company:
VALAGRO Spa
Via Cagliari, 1 Zona Industriale
66041 Atessa (CH) ITALY
Tel. (+39) 08728811 Fax (+39) 0872881382
www.valagro.com

Competent person responsible for the safety data sheet:
regulatory@valagro.com

1.4. Emergency telephone number

VALAGRO SPA - Telephone (+39) 0872 8811; Telefax number. (+39) 0872 881382 (Monday to Friday from 8:30 to 13:00 and 14:00 to 17.30 GMT +1)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Directive criteria, 67/548/CE, 99/45/EC and following amendments thereof:

Properties / Symbols:

Xn Harmful
Xi Irritant
N Dangerous for the environment

R Phrases:

R41 Risk of serious damage to eyes.
R48/20/22 Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.
R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

EC regulation criteria 1272/2008 (CLP):


Danger, Eye Dam. 1, Causes serious eye damage.


Warning, STOT RE 2, May cause damage to the brain through prolonged or repeated exposure per inhalation

Aquatic Chronic 2, Toxic to aquatic life with long lasting effects.

Adverse physicochemical, human health and environmental effects:

No other hazards

2.2. Label elements

Symbols:

Danger

Hazard statements:

H318 Causes serious eye damage.
H373 May cause damage to the brain through prolonged or repeated exposure per inhalation.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements:

P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P273 Avoid release to the environment.
P280 Wear safety goggles and face shield.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER or doctor/physician.
P501 Dispose of contents/container in accordance with applicable regulations.

Contents:

Manganese sulphate

2.3. Other hazards

vPvB Substances: None - PBT Substances: None

Other Hazards:

No other hazards

SECTION 3: Composition/information on ingredients

3.1. Substances

N.A.

3.2. Mixtures

Hazardous components within the meaning of EEC directive 67/548 and CLP regulation and related classification:

25% - 30% manganese sulphate

Index number: 025-003-00-4, CAS: 7785-87-7, EC: 232-089-9
Reach registration number: 01-2119456624-35-xxxx
Xn,Xi,N; R41-48/20/22-51/53

3.3/1 Eye Dam. 1 H318

3.9/2 STOT RE 2 H373

4.1/C2 Aquatic Chronic 2 H411

For full text of H-statements and R-phrases: see SECTION 16

SECTION 4: First aid measures

4.1. Description of first aid measures

In case of skin contact:

Immediately take off all contaminated clothing.
Areas of the body that have - or are only even suspected of having - come into contact with the product must be rinsed immediately with plenty of running water and possibly with soap.
Wash thoroughly the body (shower or bath).
Remove contaminated clothing immediatley and dispose off safely.
After contact with skin, wash immediately with soap and plenty of water.

In case of eyes contact:

After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an opthalmologist immediately.
Protect uninjured eye.

In case of Ingestion:

Give nothing to eat or drink.
Do not under any circumstances induce vomiting. OBTAIN A MEDICAL EXAMINATION IMMEDIATELY.

In case of Inhalation:

In case of inhalation, consult a doctor immediately and show him packing or label.

4.2. Most important symptoms and effects, both acute and delayed

No data available for the mixture.
Possible symptoms that may occur:
Inhalation: may cause irritation to the respiratory tract
Symptoms: cough, shortness of breath
Ingestion:
The manganese salts are hydrolyzing in an acidic environment. May cause severe irritation and burns of the mouth, throat and digestive tract.
Symptoms: vomiting, abdominal pain,gastrointestinal disorders
Contact with skin:
May cause irritation to the skin
Symptoms: redness, itching, pain.
Contact with eyes:
Causes severe eye irritation, causes serious eye damage
Symptoms include pain and redness

4.3. Indication of any immediate medical attention and special treatment needed

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).
Treatment:
None

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:
Water.
Carbon dioxide (CO2).
Extinguishing media which must not be used for safety reasons:
None in particular.

5.2. Special hazards arising from the substance or mixture

Do not inhale explosion and combustion gases.
Burning produces smoke containing carbon oxides (COx), nitrogen oxides (NOx), sulfur oxides (SOx), Manganese oxide (MnOx).

5.3. Advice for firefighters

Use suitable breathing apparatus, protective clothing, eye protection and gloves resistant to chemicals according to EN469.
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Move undamaged containers from immediate hazard area if it can be done safely.
In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

No action shall be taken involving any personal risk or without suitable training

For non-emergency personnel:

Wear protective clothes giving a total skin protection, latex gloves, safety glasses and mask with filter P2
Keep away from the affected area people not involved in the emergency intervention.
Alert the internal emergency team.
Ensure adequate ventilation, move people in a safe place.
Alert the internal emergency team.

For emergency responders:

Wear protective clothes giving a total skin protection, latex gloves, safety glasses and mask with filter P2
See protective measures under point 7 and 8.
Ensure adequate ventilation, move people in a safe place.
Avoid dust generation
Avoid any accumulation of electrostatic charge which may create a hazardous condition and cause an ignition.

6.2. Environmental precautions

Do not allow to enter into soil/subsoil. Do not allow to enter into surface water or drains.
Retain contaminated washing water and dispose it in landfill approved;
If possible, collect in clean plastic containers labeled and reuse as fertilizer.
In case of gas escape or of entry into waterways, soil or drains, inform the responsible authorities.
Suitable material for taking up: absorbing material, organic, sand

6.3. Methods and material for containment and cleaning up

Collect the product in plastic containers, cleaned and labeled for example using shovel and broom
Avoid raising dust
Wash with plenty of water, contain the spill with absorbent material,earth, sand

6.4. Reference to other sections

See also section 8 and 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Avoid contact with skin and eyes, inhalation of vapours and mists.
Don't use empty container before they have been cleaned.

Before making transfer operations, assure that there aren't any incompatible material residuals in the containers.
Contamined clothing should be changed before entering eating areas.
Do not eat or drink while working.
See also section 8 for recomened protective equipment.

7.2. Conditions for safe storage, including any incompatibilities

Keep in original plastic containers tightly closed in a well-ventilated place far from humidity, heat source and direct sunlight
Keep away from food, drink and feed.
Incompatible materials:
bases, oxidizing and reducing agents
Instructions as regards storage premises:
Adequately ventilated premises.
Avoid dust generation.
Dusts at sufficient concentrations can form explosive mixtures with air
Avoid any accumulation of electrostatic charge which may create a hazardous condition and cause an ignition.

7.3. Specific end use(s)

Fertilizer

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

- Exposure limit Manganese (Mn) TWA 0.2 mg/m3 inorganic compounds
Critical effect: central nervous system

Workers:
DNEL skin = 0.00414 mg / kg / day
DNEL inhalation = 0.2 mg / kg / day

Population:
DNEL skin = 0.0021 mg / kg / day
DNEL inhalation = 0.043 mg / m³

Environment:
PNEC water (fresh water) = 0.0128 mg / l
PNEC water (sea water) = 0.0004 mg / l
PNEC water (intermittent emissions) = 0.03 mg / l
PNEC STP = 56 mg / l
PNEC sediment (fresh water) = 0.0114 mg / kg dw sediment
PNEC sediment (sea water) = 0.00114 mg / kg dw sediment
PNEC soil = 25.1 mg / kg soil dw

8.2. Exposure controls

8.2.1 Appropriate engineering controls

It is recommended that the workers wear appropriate gloves if there is a potential for dermal exposure.
If the product is used in in closed systems with no likelihood for exposure, no RMMs are necessary.
If it is used in closed processes with occasional controlled exposure (e.g. sampling), LEV with ≥90% efficacy should be present if the process equipment is places inside a building. If the process equipment is placed outside, the workers have to wear respiratory protection with ≥90% efficacy.
If the product is used in open processes running inside a building, LEV with ≥90% efficacy should be installed and the workers have to wear respiratory protection with ≥95% efficacy.

8.2.2 Individual protection measures, such as personal protective equipment

Eye protection:

Use close fitting safety goggles according to EN 166, don't use eye lens.

Protection for skin:

Wear protective clothing.

Protection for hands:

Use protective gloves that provides comprehensive protection, e.g. P.V.C., neoprene or rubber according to EN374-1, EN374-2, EN374-3.

Respiratory protection:

Not needed for normal use.

In case of dust generation, use anti-powder mask with P2 filters according to the EN 143. The powder exposition limit must be respected.

Thermal Hazards:

None known

Environmental exposure controls:

Prevent the contamination of soil, surface water or groundwater

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance and colour:	brown microgranules
Odour:	N.A.
Odour threshold:	N.A.
pH 1%:	3,3
Melting point / freezing point:	N.A.
Initial boiling point and boiling range:	N.A.
Solid/gas flammability:	N.A.
Upper/lower flammability or explosive limits:	N.A.
Vapour density:	N.A.
Flash point:	N.A.
Evaporation rate:	N.A.
Vapour pressure:	N.A.
Apparent density:	0.65 Kg/dm3
Solubility in water:	400 g/l at 20 °C
Solubility in oil:	N.A.
Partition coefficient (n-octanol/water):	N.A.
Auto-ignition temperature:	N.A.
Decomposition temperature:	N.A.
Viscosity:	N.A.
Explosive properties:	N.A.
Oxidizing properties:	N.A.

9.2. Other information

Miscibility:	N.A.
Fat Solubility:	N.A.
Conductivity:	0,44 mS/cm 18°C
Substance Groups relevant properties	N.A.

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable under normal conditions

10.2. Chemical stability

Stable under normal conditions

10.3. Possibility of hazardous reactions

The product can release gaseous ammonia if in contact with alkaline substances such as lime

10.4. Conditions to avoid

Stable under normal conditions.
Avoid heating the product at high temperatures
Avoid dust generation.
Dusts at sufficient concentrations can form explosive mixtures with air
Avoid any accumulation of electrostatic charge which may create a hazardous condition and cause an ignition.

10.5. Incompatible materials

Bases, oxidizing and reducing agents.

10.6. Hazardous decomposition products

The product can release gaseous ammonia if in contact with alkaline substances such as lime
In case of fire can develop carbon oxides, nitrogen oxides, sulfur oxides, Manganese oxide

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Toxicological information of the mixture:

N.A.

Toxicological information of the main substances found in the mixture:

a) acute toxicity:

- manganese sulphate Index number: 025-003-00-4, CAS: 7785-87-7, EC: 232-089-9
  LD50 Oral = 2150 mg/Kg Singh PP and Junnarkar AY (1991)
  LC50 Inhalation > 4.98 mg/l Griffiths, DR (2010)
  Skin: Manganese sulphate, absorption through skin is unlikely

b) skin corrosion/irritation:

- manganese sulphate Index number: 025-003-00-4, CAS: 7785-87-7, EC: 232-089-9
  in vivo test on rabbit OECD 404: Not irritating - Ref .Pooles (2010)

c) serious eye damage/irritation:

- manganese sulphate Index number: 025-003-00-4, CAS: 7785-87-7, EC: 232-089-9
  Irreversible eye damage (test based on one rabbit)

d) respiratory or skin sensitisation:

- manganese sulphate Index number: 025-003-00-4, CAS: 7785-87-7, EC: 232-089-9
  Skin: Not classified as a sensitizer
  Respiratory system: N.A.

e) germ cell mutagenicity:

- manganese sulphate Index number: 025-003-00-4, CAS: 7785-87-7, EC: 232-089-9
  not mutagenic

f) carcinogenicity:

- manganese sulphate Index number: 025-003-00-4, CAS: 7785-87-7, EC: 232-089-9
  not classified as cancerogenic

g) reproductive toxicity:

- manganese sulphate Index number: 025-003-00-4, CAS: 7785-87-7, EC: 232-089-9
  not classified

h) STOT-single exposure:
- manganese sulphate Index number: 025-003-00-4, CAS: 7785-87-7, EC: 232-089-9
  not classified

i) STOT-repeated exposure:

- manganese sulphate Index number: 025-003-00-4, CAS: 7785-87-7, EC: 232-089-9
  STOT RE 2 May cause damage to the brain through prolonged or repeated exposure by inhalation.

j) aspiration hazard:

- manganese sulphate Index number: 025-003-00-4, CAS: 7785-87-7, EC: 232-089-9
  STOT RE 2 May cause damage to the brain through prolonged or repeated exposure by inhalation.

No data available for the mixture.
Possible symptoms that may occur:
Inhalation: may cause irritation to the respiratory tract
Symptoms: cough, shortness of breath
Ingestion:
The manganese salts are hydrolyzing in an acidic environment. May cause severe irritation and burns of the mouth, throat and digestive tract.
Symptoms: vomiting, abdominal pain,gastrointestinal disorders
Contact with skin:
May cause irritation to the skin
Symptoms: redness, itching, pain.
Contact with eyes:
Causes severe eye irritation, causes serious eye damage
Symptoms include pain and redness

SECTION 12: Ecological information

12.1. Toxicity

Adopt good working practices, so that the product is not released into the environment.
Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Aquatic compartment	Results	Substance	Reference
Short-term toxicity: *Oncorhynchus mykiss* Fresh water	LC50 (96 h): 14.5 mg/L Mn	Test material Manganese sulphate monohydrate	Davies PH (1980)
Long-term toxicity: *Oncorhynchus mykiss,*	NOEC (4 mo): 0.6 mg/L Mn	Test material (EC	Davies P & Brinkman S (1994)

fresh water		name): manganese sulphate	
Short-term toxicity: Daphnia magna, fresh water	LC50 (48 h): 9.8 mg/L dissolved (meas. (arithm. mean)) based on: as Mn2+	Test material (EC name): manganese chloride	Biesinger KE & Christensen GM (1972)
Long-term toxicity: *Daphnia magna,* salt water	LC50 (3 settimane): 5700 µg/L dissolved (meas. (arithm. mean)) based on: mortality	Test material (EC name): manganese chloride	Biesinger KE & Christensen GM (1972)
Algae: Desmodesmus subspicatus (algae, Growth Inhibition Test), fresh water	EC50 (72 h): 61 mg/L test mat. (nominal) based on: growth rate	Test material manganese sulphate monohydrate	Vryenhoef H (2010)

12.2. Persistence and degradability
Not relevant for inorganic substances.
The mixture contain Lignisulfonato ammonium that is a natural product biodegradable
12.3. Bioaccumulative potential
The mixture doesn't contain any bioaccumulative component
12.4. Mobility in soil
The product is soluble and mobile in both terrestrial and aquatic compartments
In general, the mobility in the soil of the manganese in the mixture is influenced by several factors such as pH, CO_2 concentration, redox conditions, availability of organic and inorganic complexing agents
12.5. Results of PBT and vPvB assessment
vPvB Substances: None - PBT Substances: None
12.6. Other adverse effects
None

SECTION 13: Disposal considerations

13.1. Waste treatment methods
-Product: Recover if possible. Operate according to local and national.
Contact local authorities who will provide guidance regarding the disposal of special waste.
-Packaging: Dispose according to current regulations

SECTION 14: Transport information

14.1. UN number

ADR-UN Number:	3077
IATA-UN Number:	3077
IMDG-UN Number:	3077

14.2. UN proper shipping name

ADR-Shipping Name:	SOLID SUBSTANCE - HARMFUL FOR THE ENVIRONMENT, N.A.S. (manganese sulphate)
IATA-Shipping Name:	SOLID SUBSTANCE - HARMFUL FOR THE ENVIRONMENT, N.A.S. (manganese sulphate)
IMDG-Shipping Name:	SOLID SUBSTANCE - HARMFUL FOR THE ENVIRONMENT, N.A.S. (manganese sulphate)

14.3. Transport hazard class(es)

ADR-Class:	9
ADR - Hazard identification number:	90
IATA-Class:	9
IATA-Label:	9
IMDG-Class:	9

14.4. Packing group

ADR-Packing Group:	III
IATA-Packing group:	III
IMDG-Packing group:	III

14.5. Environmental hazards

ADR-Enviromental Pollutant:	Yes
IMDG-Marine pollutant:	Marine Pollutant
Most important toxic component:	manganese sulphate

14.6. Special precautions for user

ADR-Subsidiary risks:	-
ADR-S.P.:	274 335 375 601
ADR-Tunnel Restriction Code:	(E)
IATA-Passenger Aircraft:	956
IATA-Subsidiary risks:	-
IATA-Cargo Aircraft:	956
IATA-S.P.:	A97 A158 A179
IATA-ERG:	9L
IMDG-EmS:	F-A , S-F
IMDG-Subsidiary risks:	-
IMDG-Storage category:	Category A
IMDG-Storage notes:	-

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
N.A.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
Dir. 67/548/EEC (Classification, packaging and labelling of dangerous substances)
Dir. 99/45/EC (Classification, packaging and labelling of dangerous preparations)
Dir. 98/24/EC (Risks related to chemical agents at work)
Dir. 2000/39/EC (Occupational exposure limit values)
Dir. 2006/8/EC
Regulation (EC) n. 1907/2006 (REACH)
Regulation (EC) n. 1272/2008 (CLP)

Regulation (EC) n. 790/2009 (ATP 1 CLP) and (EU) n. 758/2013
Regulation (EU) n. 453/2010 (Annex I)
Regulation (EU) n. 286/2011 (ATP 2 CLP)
Regulation (EU) n. 618/2012 (ATP 3 CLP)
Regulation (EU) n. 487/2013 (ATP 4 CLP)
Regulation (EU) n. 944/2013 (ATP 5 CLP)
Regulation (EU) n. 605/2014 (ATP 6 CLP)

Restrictions related to the product or the substances contained according to Annex XVII Regulation (EC) 1907/2006 (REACH) and subsequent modifications:

None

Where applicable, refer to the following regulatory provisions :

Directive 82/501/EEC ('Activities linked to risks of serious accidents') and subsequent amendments.
Regulation (EC) nr 648/2004 (detergents).
1999/13/EC (VOC directive)

Provisions related to directives 82/501/EC(Seveso), 96/82/EC(Seveso II):

N.A.

15.2. Chemical safety assessment

No

SECTION 16: Other information

Text of phrases referred to under heading 3:

R41 Risk of serious damage to eyes.
R48/20/22 Harmful: danger of serious damage to health by prolonged exposure through inhalation and if swallowed.
R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

H318 Causes serious eye damage.
H373 May cause damage to the brain through prolonged or repeated exposure per inhalation.
H411 Toxic to aquatic life with long lasting effects.

This document was prepared by a competent person who has received appropriate training.
Sections modified from the previous revision: all sections

Main bibliographic sources:

ECDIN - Environmental Chemicals Data and Information Network - Joint Research Centre, Commission of the European Communities
SAX's DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS - Eight Edition - Van Nostrand Reinold
CCNL - Appendix 1
Insert further consulted bibliography

The information contained herein is based on our state of knowledge at the above-specified date. It refers solely to the product indicated and constitutes no guarantee of particular quality.
It is the duty of the user to ensure that this information is appropriate and complete with respect to the specific use intended.
This MSDS cancels and replaces any preceding release.

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.

CAS:	Chemical Abstracts Service (division of the American Chemical Society).
CLP:	Classification, Labeling, Packaging.
DNEL:	Derived No Effect Level.
EINECS:	European Inventory of Existing Commercial Chemical Substances.
GefStoffVO:	Ordinance on Hazardous Substances, Germany.
GHS:	Globally Harmonized System of Classification and Labeling of Chemicals.
IATA:	International Air Transport Association.
IATA-DGR:	Dangerous Goods Regulation by the "International Air Transport Association" (IATA).
ICAO:	International Civil Aviation Organization.
ICAO-TI:	Technical Instructions by the "International Civil Aviation Organization" (ICAO).
IMDG:	International Maritime Code for Dangerous Goods.
INCI:	International Nomenclature of Cosmetic Ingredients.
KSt:	Explosion coefficient.
LC50:	Lethal concentration, for 50 percent of test population.
LD50:	Lethal dose, for 50 percent of test population.
LTE:	Long-term exposure.
PNEC:	Predicted No Effect Concentration.
RID:	Regulation Concerning the International Transport of Dangerous Goods by Rail.
STE:	Short-term exposure.
STEL:	Short Term Exposure limit.
STOT:	Specific Target Organ Toxicity.
TLV:	Threshold Limiting Value.
TWATLV:	Threshold Limit Value for the Time Weighted Average 8 hour day. (ACGIH Standard).
WGK:	German Water Hazard Class.
N.A.:	No data available