
VALAGRO SDS according to Regulation (EU) N. 453/2010
Date: 28/05/2014 Rev. 2.1
Product: McSET
Code: 12254
Print Date: 28 May 2014

SAFETY DATA SHEET

McSET

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

1.1. Product identifier

Mixture identification:

Trade name: McSET

Trade code: 12254

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 Atesa (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:

None.

EC regulation criteria 1272/2008 (CLP):

The mixture is not classified as dangerous according to EC Regulation 1272/2008 (CLP).

Adverse physicochemical, human health and environmental effects:

No other hazards

2.2. Label elements

The preparation should not be considered as dangerous according to dir. 1999/45/EC.

The mixture is not classified as dangerous according to EC Regulation 1272/2008 (CLP).

Symbols:

None

Hazard statements:

None

Precautionary statements:

None

Special Provisions:

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EUH210 Safety data sheet available on request.

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:

2% - 3% Disodium octaborate

CAS: 12280-03-4, EC: 234-541-0; Reach Registration number: 01-2119490860-33-xxxx

Repr. Cat. 2; R60-61



3.7/1B Repr. 1B H360FD

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:

Wash with plenty of water and soap.

In case of eyes contact:

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

In case of Ingestion:

Do not under any circumstances induce vomiting. OBTAIN A MEDICAL EXAMINATION IMMEDIATELY.

In case of Inhalation:

Remove casualty to fresh air and keep warm and at rest.

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

There are no known health effects of the mixture as a whole.

In base on the components present:

Ingestion: Gastrointestinal symptoms such as nausea, vomiting and diarrhea

Contact with the skin: not irritant in normal use of the product through the skin

Eye:N.A.

May cause irritation to skin and eyes according to the contact time with the product

Ingestion

Inhalation: unlikely route of exposure

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

Treatment:

See paragraph 4.1

SECTION 5: Firefighting measures

5.1. Extinguishing media

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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 boron oxide, carbon oxides and nitrogen oxides, Zin oxide.

5.3. Advice for firefighters

Use suitable breathing apparatus .

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.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel:

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

Wear protective clothes giving a total skin protection, gloves and safety glasses.

Keep away from the affected area people not involved in the emergency intervention.

Ensure adequate ventilation.

Alert the internal emergency team.

For emergency responders:

Wear protective clothes giving a total skin protection, latex gloves and safety glasses.

See protective measures under point 7 and 8.

Remove people to safety.

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, sol, sand.

6.3. Methods and material for containment and cleaning up

Wash with plenty of water, contain the spill with absorbent material

Collect the product for example using shovel and broom

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.

Do not eat or drink while working.

See also section 8 for recommended protective equipment.

7.2. Conditions for safe storage, including any incompatibilities

Keep away from food, drink and feed.

Incompatible materials:

Bases, acids, oxidizing and reducing agents

Instructions as regards storage premises:

Adequately ventilated premises.

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7.3. Specific end use(s)
Fertilizer

SECTION 8: Exposure controls/personal protection

8.1. Control parameters:

- Disodium octaborate EC: 234-541-0

DNELs (Derived No Effects Level) for workers:

Worker-DNEL long-term, inhalation, systemic = 6.92 mg/ m³ or 1.45 mg B/m³.

Worker-DNEL long-term, cutaneous, systemic = 22901 mg/day or 4800 mg B/day.

DNELs (Derived No Effects Level) for the population (consumers):

DNEL long-term, oral, systemic = 0.81 mg/kg or 0.17 mg B/kg bw /day.

DNEL long-term, inhalation, systemic = 3.48 mg/m³ or 0.73 mg B/m³.

DNEL long-term, cutaneous, systemic = 164 mg / kg body weight/day or 34.3 mg B/kg bw/day.

DNEL long-term, oral, local = 12 mg/m³ or 2.52 mg B/m³.

PNECs (Predicted No Effect Concentrations):

PNEC add, water = 2.02 mg B/L (fresh water and sea water) and 13.7 mg B/L (water with intermittent releases).

PNEC add, sediment = No exposure expected.

PNEC soil = 5.4 mg B / kg soil weight daily.

PNEC STP (sewage treatment plant - industrial waste water) = 10 mg B/L

8.2. Exposure controls

Eye protection:

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

Protection for skin:

Use clothing that provides comprehensive protection to the skin, e.g. cotton, rubber, PVC according to EN 14605.

Protection for hands:

Use protective gloves that provides comprehensive protection, e.g. Latex, NBR, P.V.C., neoprene or rubber.

Respiratory protection:

Not needed for normal use.

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: liquid black

Odour: N.A.

Odour threshold: N.A.

pH: 8.2 at 20 °C

Melting point / freezing point: N.A.

Initial boiling point and boiling range: > 100 °C

Solid/gas flammability: N.A.

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Upper/lower flammability or explosive limits: N.A.
Vapour density: N.A.
Flash point: N.A.
Evaporation rate: N.A.
Vapour pressure: N.A.
Density: 1,1 Kg/dm³ at 20 °C
Solubility in water: Soluble
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: N.A.
Substance Groups relevant properties N.A.

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable under normal conditions of handling and storage.

10.2. Chemical stability

Stable under normal conditions of handling and storage.

10.3. Possibility of hazardous reactions

None Known

10.4. Conditions to avoid

Avoid heating the product

10.5. Incompatible materials

Bases, acids, oxidizing and reducing agents

10.6. Hazardous decomposition products

In case of fire and high temperatures can develop boron oxide, carbon oxides, nitrogen oxides, Zinc 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:

- Disodium octaborate EC: 234-541-0

Oral: Low acute oral toxicity.

LD50 (Lethal dose - lethal doses) (male rat): 2.55 g / kg body weight (test material: octaborate disodium tetrahydrate, according to guidelines FIFRA 40 CFR)

LD50 (male rat): > 2600 mg / kg body weight (test material: boron trioxide, OECD Guideline 401 (Acute Oral Toxicity))

Inhalation: Low acute toxicity by inhalation.

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LD50 (4h) (rat male / female):> 2.01 mg / L air (Test equipment: Disodium octoborate tetrahydrate, OECD Guideline 403 (Acute Inhalation Toxicity)).

Dermal toxicity: No acute dermal toxicity

LD50 (rabbit male / female)> 2000 mg / kg body weight (test material: octoborate disodium tetrahydrate, according to FIFRA 40 CFR 158, 162; TSCA (40 CFR 798) and OECD Guideline 402 (Acute Dermal Toxicity)).

No acute dermal toxicity, were not observed clinical signs or pathological. The octoborate disodium tetrahydrate has a low absorption through the intact skin

b) skin corrosion/irritation:

- Disodium octaborate EC: 234-541-0

Studies on rabbits didn't show any irritation. (Material Test: Disodium octoborate tetrahydrate, according to FIFRA (40 CFR 158, 162, 163) and Toxic Substances Control Act (40 CFR 798)). Based on the available data, the classification criteria are not met as a skin irritant.

c) serious eye damage/irritation:

- Disodium octaborate EC: 234-541-0

No evidence of corrosion (FIFRA guidelines (40 CFR 162) and TSCA (40 CFR 798)).

The test material applied by washing every 24 hours on the eyes of New Zealand white rabbits causes conjunctival irritation and iris. (FIFRA guidelines (40 CFR 162) and TSCA (40 CFR 798)). (FIFRA guidelines (40 CFR 162) and TSCA (40 CFR 798)). Years of occupational exposure to disodium tetrahydrate octoborate showed no adverse effects on the human eye. Consequently the product is not irritating to eyes in normal use Industrial.

Based on the available data, the classification criteria as eye irritant are not met.

d) respiratory or skin sensitisation:

- Disodium octaborate EC: 234-541-0

Not skin sensitizer for for guinea pigs, OECD Guideline 406 (Skin Sensitization).

Based on the available data, the classification criteria are not met as a sensitizer

e) germ cell mutagenicity:

- Disodium octaborate EC: 234-541-0

The bacterial reverse mutation test (Ames test) was performed on *S. typhimurium* TA 1535, TA 1537, TA 98 and TA 100. There was no mutagenic activity. (Material Test: Boric acid).

Based on the available data, the classification criteria as a mutagen are not met.

f) carcinogenicity:

- Disodium octaborate EC: 234-541-0

The test performed according to OECD Guideline 451 B6C3F1 (mice treated in the diet for 103 weeks with Boric acid 0, 2500 or 5000 ppm) showed no evidence of carcinogenicity.

Based on the available data, the classification criteria as a carcinogen are not met.

g) reproductive toxicity:

- Disodium octaborate EC: 234-541-0

The exposure tests at 50 and 155 mg Borax Deca Hydrate/kg body weight (equivalent to 5.9 and 17.5 mg B/kg body weight) made of three generations of Sprague-Dawley rats showed no adverse effects on fertility, lactation, litter size, weight or other abnormalities of the unborn.

NOAEL (No Observed Adverse Effect Level) for fertility (male rats): 17.5 mg B/kg / day.

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Rats exposed to doses of 518 mg Borax decahydrate / kg body weight (equivalent to 58.5 mg B / kg body weight) were infertile. Microscopic examination of the testes atrophied of all the males in this group showed no viable sperm. Furthermore, the examination of the ovaries in the female rats, exposed to 58.5 mg B / kg body weight has detected a decreased ovulation in most of the ovaries examined. None of the females exposed to high doses has generated pups as a result of mating with males in the control group.

LOAEL (Lowest Observed Adverse Effect Level) for fertility (rat female / male): 58.5 mg B / kg bw / day. The group of male and female rats at high dose (58.5 mg B / kg body weight) showed clinical signs of toxicity such as sleeping rough, scaly tail, respiratory distress and inflamed eyelids.

Based on the data obtained from this study it was concluded that the exposure of rats at levels up to 17.5 mg B / kg body weight does not cause adverse reproductive effects.

Animal feeding studies in rat, mouse and dog, at high doses, have demonstrated negative effects on fertility and testes, effects on the fetus, including fetal weight loss and minor skeletal variations.

Studies of workers exposed to high boron, have not shown any adverse effects on the developing fetus.

The Disodium octaborate tetrahydrate is autoclassificato as toxic for reproduction, Repro 1B, H360FD according to the new classification criteria of the EC Regulation 1272/2008 (CLP).

h) STOT-single exposure:

- Disodium octaborate EC: 234-541-0

Based on the available data, the classification criteria as STOT-single exposure are not met.

i) STOT-repeated exposure:

- Disodium octaborate EC: 234-541-0

Repeated dose toxicity: 2-year feeding studies of Sprague Dawley rats (male / female) exposed to different concentrations of boric acid (0, 33 (5.9) 100 (17.5), 334 (58, 5) mg boric acid (B) / kg body weight daily) showed adverse effects such as: rough coat, hunched posture, fingers swollen, eyes inflamed and bleeding, atrophy testicular, degeneration of the seminiferous tubules, effects observed in animals exposed to the highest levels of boric acid.

NOAEL 17.5 mg boron / kg body weight / day

LOAEL 58.5 mg boron / kg body weight / day

There were no adverse effects in the group exposed to a minimum and medium level.

j) aspiration hazard:

- Disodium octaborate EC: 234-541-0

Based on the available data, the classification criteria are not met.

Symptoms related to the physical, chemical and toxicological properties:

There are no known health effects of the mixture as a whole.

In base on the components present:

Inhalation: unlikely route of exposure

Ingestion: Gastrointestinal symptoms such as nausea, vomiting and diarrhea

Contact with the skin: not irritant in normal use of the product through the skin

Eyes: N.A.

May cause irritation to skin and eyes according to the contact time with the product

Ingestion

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SECTION 12: Ecological information

12.1. Toxicity

Adopt good working practices, so that the product is not released into the environment.

a) Aquatic acute toxicity:

- Disodium octaborate EC: 234-541-0

Aquatic compartment

Short-term toxicity to fish:

Fathead minnow, *Pimephales promelas*: 96-hr LC50 = 79.7 mg B/L (mortality)

Long-term toxicity to fish:

Fathead minnow, *Pimephales promelas*:

32-d NOEC (No Observed Effect Concentration) = 11.2 mg B/L

32-d LOEC (Lowest Observed Effect Concentration) = 23 mg B/L

Short-term toxicity to aquatic invertebrates:

Daphnids, *Daphnia magna*: 48-hr LC50 = 133 mg B / L (mortality)

Long-term toxicity to aquatic invertebrates:

Daphnids, *Daphnia magna*: 21-d LC50 = 34 mg B / L

21-d LOEC = 56 mg B/L

Hyalella azteca: 42-d NOEC = 25.9 mg B / L

42-d LOEC = 51.1 mg B/L

Short-term toxicity to algae:

Green algae, *Pseudokirchneriella subcapitata*: 72-hr EC50 - biomass = 40 mg B/L (mortality)

Long-term toxicity to algae:

Blue-green algae, *Agmenellum quadruplicatum*: 10-d NOEC ≥ 100 mg B/L (growth rate)

Toxicity to microorganisms:

The study was performed in accordance with OECD Guideline 209 (Activated Sludge, Respiration Inhibition Test). It was found an inhibitory effect on the respiratory rate of microorganisms:

3-hr EC50 = 175 mg B/L

3-hr EC20 = 112 mg B/L

3-hr EC10 = 35.4 mg B/L

3-d NOEC = 17.5 mg B/L

Bodies of sediment:

Chironomus riparius: 28-d NOEC = 180 mg B / kg sediment, daily weights (mortality)

28-d LOEC = 320 mg B / kg sediment, daily weights (mortality and emergency)

28-d LD50 = 278 mg B / kg sediment, daily weight (nominal)

Terrestrial compartment

Toxicity to terrestrial arthropods:

The study was performed in accordance with ISO 11267 (Inhibition of Reproduction of *Collembola* by Soil Pollutants) on the *Folsomia candida*, *Collembola*. The results obtained on artificial soil are:

28-d EC10 = 68.1 mg B / kg body weight (mortality)

28-d EC10 = 13.8 mg B / kg body weight (reproduction)

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28-d EC50 = 26.1 mg B / kg body weight (reproduction)

28-d LC50 > 70 mg B / kg body weight

Toxicity to terrestrial plants:

The studies were performed on different species of plants of the group of Monocotyledonae (as *Allium cepa*) and the Dicotyledonae (as *Brassica rapa*) with the following results:

Allium cepa, 7-d NOEC = 56 mg B / kg soil, daily weight (growth in length of the bud) - clay soil.

Brassica rapa, 5-d NOEC = 28 mg B / kg soil, daily weight (root growth) - artificial soil

Toxicity to soil microorganisms:

The study was performed in accordance with OECD Guideline 216 (Soil Microorganisms: Nitrogen Transformation Test) based on the calculation of the rate of nitrification on the basis of the concentration of nitrates in the soil after x days (without taking into account the value of the concentration of nitrates of the day 0) for a number of days. Rate of formation of nitrate:

102-d EC10 = 15.4 mg B / kg soil weight daily (sandy soil)

102-d EC50 > 17.5 mg B / kg soil weight daily (sandy soil and sandy loam)

102-d EC10 = 17.2 mg B / kg daily weight soil (sandy loam)

12.2. Persistence and degradability

Not applicable for inorganic substances

12.3. Bioaccumulative potential

The product doesn't contain any bioaccumulative substance

12.4. Mobility in soil

The product is soluble and mobile in both terrestrial and aquatic compartments

12.5. Results of PBT and vPvB assessment

vPvB Substances: None - PBT Substances: None

12.6. Other adverse effects

None Known

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product :Recover if possible. In so doing, comply with the local and national regulations currently in force. Contact local authorities who will provide guidance regarding the disposal of special waste.

Packaging: Dispose according to regulations.

SECTION 14: Transport information

14.1. UN number

Not classified as dangerous in the meaning of transport regulations.

14.2. UN proper shipping name

N.A.

14.3. Transport hazard class(es)

N.A.

14.4. Packing group

N.A.

14.5. Environmental hazards

ADR-Environmental Pollutant: No

IMDG-Marine pollutant: No

14.6. Special precautions for user

N.A.

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

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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)
 - Regulation (EU) n. 453/2010 (Annex II)
 - Regulation (EU) n. 286/2011 (ATP 2 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)

- 15.2. Chemical safety assessment

No

SECTION 16: Other information

Text of phrases referred to under heading 3:

- R60 May impair fertility.
- R61 May cause harm to the unborn child.
- H319 Causes serious eye irritation.
- H360FD May damage fertility. May damage the unborn child.

This document was prepared by a competent person who has received appropriate training.

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.

Sections revised from previous version: all the sections

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

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	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