

• SAFETY DATA SHEET

Version 6.10
Revision Date 10/30/2025
Print Date 10/31/2025

SECTION 1. IDENTIFICATION

1.1 Product identifiers

Product name : McCown's Woody Plant Basal Salt Mixture

Product Number : M6774

Brand : Sigma

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

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765

Fax : +1 800 325-5052

1.4 Emergency telephone number

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Hazards for the product as supplied

Oxidizing solids : Category 3

Acute toxicity (Oral) : Category 4

Serious eye damage : Category 1
Reproductive toxicity : Category 1B
Specific target organ toxicity - repeated exposure (Inhalation) : Category 2 (Respiratory Tract)
Short-term (acute) aquatic hazard : Category 3
Long-term (chronic) aquatic hazard : Category 3

Other hazards

None known.

GHS label elements

Hazard pictograms : 

Signal word : Danger

Hazard statements : H272 May intensify fire; oxidizer.
H302 Harmful if swallowed.
H318 Causes serious eye damage.
H360 May damage fertility or the unborn child.
H373 May cause damage to organs (Respiratory Tract) through prolonged or repeated exposure if inhaled.
H412 Harmful to aquatic life with long lasting effects.

Supplemental Hazard Statements : Corrosive to the respiratory tract.

Precautionary statements : **Prevention:**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P220 Keep away from clothing and other combustible materials.
P260 Do not breathe dust.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye

protection/ face protection.

Response:

P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.

P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage:

P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

CAS-No. : Not Assigned

Components

Chemical name	CAS No./Unique ID	Concentration (% w/w)	Trade secret
Ammonium nitrate	6484-52-2*	>= 10 - <= 30	TSC
calcium nitrate	10124-37-5*	>= 10 - <= 30	TSC
calcium chloride	10043-52-4*	>= 1 - <= 5	TSC
Edetate disodium dihydrate	6381-92-6*	>= 1 - <= 5	TSC
Ferrous sulfate heptahydrate	7782-63-0*	>= 0.5 - <= 1.5	TSC
Zinc sulfate heptahydrate	7446-20-0*	>= 0.1 - <= 1	TSC
boric acid	10043-35-3*	>= 0.1 - <= 1	TSC
Copper sulphate pentahydrate	7758-99-8*	>= 0 - <= 0.1	TSC

* Indicates that the identifier is a CAS No.

TSC- the actual concentration or concentration range is withheld as a trade secret

SECTION 4. FIRST AID MEASURES

General advice	: Show this safety data sheet to the doctor in attendance.
If inhaled	: After inhalation: fresh air.
In case of skin contact	: In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.
In case of eye contact	: After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.
If swallowed	: After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.
Most important symptoms and effects, both acute and delayed	: The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11
Protection of first-aiders	: For personal protection see section 8.
Notes to physician	: No data available

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	: Water Foam Carbon dioxide (CO ₂) Dry powder
Unsuitable extinguishing media	: For this substance/mixture no limitations of extinguishing agents are given.
Specific hazards during fire fighting	: Combustible.

Development of hazardous combustion gases or vapours possible in the event of fire.

Has a fire-promoting effect due to release of oxygen.

Hazardous combustion products	: Carbon oxides Nitrogen oxides (NOx) Sulphur oxides Oxides of phosphorus Hydrogen chloride gas Potassium oxides Sodium oxides Magnesium oxide Iron oxides Calcium oxide
Specific extinguishing methods	: No data available
Further information	: Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.
Special protective equipment for fire-fighters	: In the event of fire, wear self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	: Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.
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Advice for emergency responders:
For personal protection see section 8.

- Environmental precautions : Do not let product enter drains.
- Methods and materials for containment and cleaning up : Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10).
Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

SECTION 7. HANDLING AND STORAGE

For precautions see section 2.2.

- Advice on protection against fire and explosion : Keep away from open flames, hot surfaces and sources of ignition.
- Further information on storage conditions : Tightly closed.
Away from combustible materials and sources of ignition and heat.
Do not store near combustible materials.
- Storage class : 5.1B, Oxidizing hazardous materials
- Recommended storage temperature : 36 - 46 °F / 2 - 8 °C

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Ferrous sulfate heptahydrate	7782-63-0	TWA	1 mg/m ³ (Iron)	ACGIH
		TWA	1 mg/m ³ (Iron)	NIOSH REL
boric acid	10043-35-3	TWA (Inhalable particulate matter)	2 mg/m ³ (Borate)	ACGIH
		STEL (Inhalable particulate matter)	6 mg/m ³ (Borate)	ACGIH
Copper sulphate	7758-99-8	TWA	1 mg/m ³	NIOSH REL

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pentahydrate			(Copper)	
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Engineering measures : No data available

Personal protective equipment

Respiratory protection : required when dusts are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: : Filter type P2

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Hand protection

Material : Nitrile rubber
 Break through time : 480 min
 Glove thickness : 0.11 mm
 Protective index : Full contact
 Manufacturer : KCL 741 Dermatril® L

Material : Nitrile rubber
 Break through time : 480 min
 Glove thickness : 0.11 mm
 Protective index : Splash contact
 Manufacturer : KCL 741 Dermatril® L

Remarks : Handle with impervious gloves.
 This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Eye protection : Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
 Tightly fitting safety goggles

Skin and body protection : protective clothing

Hygiene measures : Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : powder

Color : No data available

Odor : No data available

Odor Threshold : No data available
pH : No data available

Melting point : No data available

Boiling point/boiling range : No data available

Flash point : Not applicable

Evaporation rate : No data available

Flammability (solid, gas) : No data available

Flammability (liquids) : No data available

Burning rate : No data available

Upper explosion limit /
Upper flammability limit : No data available

Lower explosion limit /
Lower flammability limit : No data available

Vapor pressure : No data available

Relative vapour density : No data available

Relative density : No data available

Density : No data available

Water solubility : No data available

Partition coefficient: n-
octanol/water : No data available

Autoignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, dynamic	: No data available
Viscosity, kinematic	: No data available
Flow time	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Particle characteristics Particle size	: No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	: The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.
Chemical stability	: The product is chemically stable under standard ambient conditions (room temperature) .
Possibility of hazardous reactions	: No data available
Conditions to avoid	: no information available
Incompatible materials	: Reducing agents Powdered metals Strong acids
Hazardous decomposition products	: In the event of fire: see section 5

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Mixture

Acute toxicity

Oral: No data available

Acute toxicity estimate Oral - 1,206 mg/kg

(Calculation method)

Acute toxicity estimate Inhalation - 4 h - 98.74 mg/l - dust/mist(Calculation method)

Symptoms: Possible symptoms:, mucosal irritations

Acute toxicity estimate Dermal - 4,182 mg/kg

(Calculation method)

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

Remarks: Mixture causes serious eye damage.

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity

May harm the unborn child.

May impair fertility.

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

Mixture may cause damage to organs through prolonged or repeated exposure.

- Respiratory Tract

Aspiration hazard

No data available

11.2 Additional Information

Gastrointestinal disturbance, Blood disorders, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

Stomach - Irregularities - Based on Human Evidence

Components

Ammonium nitrate

Acute toxicity

LD50 Oral - Rat - male and female - 2,950 mg/kg

(OECD Test Guideline 401)

Symptoms: Nausea, Vomiting, Diarrhoea, Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

LC50 Inhalation - Rat - 4 h - > 88.8 mg/l - dust/mist

Remarks: (IUCLID)

Symptoms: Symptoms may be delayed., mucosal irritations

LD50 Dermal - Rat - male and female - > 5,000 mg/kg

(OECD Test Guideline 402)

Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 4 h

(OECD Test Guideline 404)

Serious eye damage/eye irritation

Eyes - Rabbit

Result: Irritating to eyes. - 24 h

(OECD Test Guideline 405)

Respiratory or skin sensitization

Local lymph node assay (LLNA) - Mouse

Result: negative

(OECD Test Guideline 429)

Remarks: The value is given in analogy to the following substances: Nitric acid ammonium calcium salt (1:?:?)

Germ cell mutagenicity

Test Type: Chromosome aberration test in vitro

Test system: Chinese hamster ovary cells

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Test system: mouse lymphoma cells

Result: negative

Test Type: Ames test

Test system: Escherichia coli/Salmonella typhimurium

Result: negative

Carcinogenicity

No data available

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

Acute oral toxicity - Nausea, Vomiting, Diarrhoea, Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

Acute inhalation toxicity - Symptoms may be delayed., mucosal irritations

Specific target organ toxicity - repeated exposure

Aspiration hazard

No data available

calcium nitrate

Acute toxicity

LD50 Oral - Rat - 302 mg/kg

Remarks: (RTECS)

Symptoms: Irritation symptoms in the respiratory tract.

LD50 Dermal - Rat - male and female - > 2,000 mg/kg

(OECD Test Guideline 402)

Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 4 h

(OECD Test Guideline 404)

Serious eye damage/eye irritation

Eyes - Rabbit

Result: Irreversible effects on the eye

(OECD Test Guideline 405)

Remarks: The value is given in analogy to the following substances: Calcium nitrate tetrahydrate

Respiratory or skin sensitization

Local lymph node assay (LLNA) - Mouse

Result: negative

(OECD Test Guideline 429)

Germ cell mutagenicity

Test Type: Ames test

Test system: Escherichia coli/Salmonella typhimurium

Result: negative

Test Type: Chromosome aberration test in vitro

Test system: Human lymphocytes

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Test system: mouse lymphoma cells

Result: negative

Carcinogenicity

No data available

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

Acute inhalation toxicity - Irritation symptoms in the respiratory tract.

Specific target organ toxicity - repeated exposure

Aspiration hazard

No data available

calcium chloride

Acute toxicity

LD50 Oral - Rabbit - male - 500 - 1,000 mg/kg

(OECD Test Guideline 401)

Oral: No data available

Symptoms: After uptake of large quantities:, Stomach/intestinal disorders, Nausea

Symptoms: Possible damages:, mucosal irritations

LD50 Dermal - Rabbit - male and female - > 5,000 mg/kg

Remarks: (ECHA)

No data available

Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 4 h

(OECD Test Guideline 404)

Serious eye damage/eye irritation

Eyes - Rabbit

Result: Moderate eye irritation

(OECD Test Guideline 405)

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

Test Type: Mutagenicity (mammal cell test): chromosome aberration.

Test system: Chinese hamster fibroblasts

Result: negative

Test Type: Ames test

Test system: S. typhimurium

Result: negative

Remarks: (Lit.)

Carcinogenicity

No data available

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

Acute oral toxicity - After uptake of large quantities:, Stomach/intestinal disorders, Nausea

Acute inhalation toxicity - Possible damages:, mucosal irritations

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Edetate disodium dihydrate

Acute toxicity

LD50 Oral - Rat - male and female - 2,800 mg/kg

(OECD Test Guideline 401)

Remarks: The value is given in analogy to the following substances:

Ethylenedinitrilotetraacetic acid disodium salt

Inhalation: No data available

Dermal: No data available

Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation

(OECD Test Guideline 404)

Remarks: (ECHA)

The value is given in analogy to the following substances: Ethylenedinitrilotetraacetic acid disodium salt

Serious eye damage/eye irritation

Eyes - Rabbit

Result: No eye irritation

(OECD Test Guideline 405)

Remarks: (ECHA)

The value is given in analogy to the following substances: Ethylenedinitrilotetraacetic acid disodium salt

Respiratory or skin sensitization

Maximisation Test - Guinea pig

Result: negative

(OECD Test Guideline 406)

Remarks: (ECHA)

The value is given in analogy to the following substances: Ethylenedinitrilotetraacetic acid disodium salt

Germ cell mutagenicity

Test Type: Chromosome aberration test in vitro

Test system: Chinese hamster ovary cells

Result: negative

Remarks: (ECHA)

The value is given in analogy to the following substances: Ethylenedinitrilotetraacetic acid trisodium salt

Test Type: In vitro mammalian cell gene mutation test

Test system: mouse lymphoma cells

Result: negative

Remarks: (ECHA)

The value is given in analogy to the following substances: Ethylenedinitrilotetraacetic acid disodium salt

The value is given in analogy to the following substances:

Ethylenedinitrilotetraacetic acid trisodium salt

Test Type: Ames test

Result: negative

Remarks: (ECHA)

The value is given in analogy to the following substances: Ethylenedinitrilotetraacetic acid trisodium salt

Method: OECD Test Guideline 474

Species: Mouse

Remarks: (ECHA)

The value is given in analogy to the following substances: Ethylenedinitrilotetraacetic acid disodium salt

Carcinogenicity

No data available

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

Inhalation - May cause damage to organs through prolonged or repeated exposure.

- Respiratory Tract

Aspiration hazard

No data available

Ferrous sulfate heptahydrate

Acute toxicity

LD50 Oral - Mouse - 1,520 mg/kg

Remarks: (RTECS)

Oral: absorption

Inhalation: No data available

Dermal: No data available

No data available

Skin corrosion/irritation

Skin - Rabbit

Result: Irritating to skin. - 4 h

(OECD Test Guideline 404)

Remarks: The value is given in analogy to the following substances: Iron(II) sulphate

Serious eye damage/eye irritation

Eyes - Rabbit

Result: Causes serious eye irritation.

(OECD Test Guideline 405)

Remarks: The value is given in analogy to the following substances: iron dichloride

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

Test Type: Ames test

Result: negative

Remarks: (Lit.)

Carcinogenicity

No data available

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Zinc sulfate heptahydrate**Acute toxicity**

LD50 Oral - Mouse - male - 926 mg/kg

(OECD Test Guideline 401)

Inhalation: No data available

LD50 Dermal - Rat - male and female - > 2,000 mg/kg

(OECD Test Guideline 402)

Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 4 h

(OECD Test Guideline 404)

Serious eye damage/eye irritation

Eyes - Rabbit

Result: Causes serious eye damage.

(OECD Test Guideline 405)

Respiratory or skin sensitization

Local lymph node assay (LLNA) - Mouse

Result: negative

Remarks: (ECHA)

Germ cell mutagenicity

Test Type: Ames test

Test system: Salmonella typhimurium

Result: negative

Remarks: (ECHA)

Species: Mouse - male and female - Red blood cells (erythrocytes)

Result: negative

Remarks: (ECHA)

Carcinogenicity

No data available

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

boric acid**Acute toxicity**

LD50 Oral - Rat - male and female - 3,450 mg/kg

Remarks: (ECHA)

LC50 Inhalation - Rat - male and female - 4 h - > 2.12 mg/l - dust/mist
(OECD Test Guideline 403)

LD50 Dermal - Rabbit - male and female - > 2,000 mg/kg

Remarks: (ECHA)

Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 24 h

Remarks: (ECHA)

Serious eye damage/eye irritation

Eyes - Rabbit

Result: No eye irritation - 24 h

(OECD Test Guideline 405)

Respiratory or skin sensitization

Buehler Test - Guinea pig

Result: negative

(OECD Test Guideline 406)

Germ cell mutagenicity

Test Type: sister chromatid exchange assay

Test system: Chinese hamster ovary cells

Result: negative

Remarks: (ECHA)

Test Type: Ames test

Test system: *S. typhimurium*

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Test system: mouse lymphoma cells

Result: negative

Test Type: Mutagenicity (mammal cell test):

Test system: Chinese hamster ovary cells

Result: negative

Method: OECD Test Guideline 474

Species: Mouse - male and female

Result: negative

Carcinogenicity

No data available

Reproductive toxicity

May damage fertility.

May damage the unborn child.

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

Aspiration hazard

No data available

Copper sulphate pentahydrate

Acute toxicity

LD50 Oral - Rat - male and female - 481 mg/kg

(OECD Test Guideline 401)

Remarks: (anhydrous substance)

(ECHA)

The value is given in analogy to the following substances: Copper(II) sulphate

Inhalation: No data available

LD50 Dermal - Rat - male and female - > 2,000 mg/kg

(OECD Test Guideline 402)

Remarks: (anhydrous substance)

No data available

Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 4 h

(OECD Test Guideline 404)

Serious eye damage/eye irritation

Eyes - Rabbit

Result: Causes serious eye damage.

(OECD Test Guideline 405)

Respiratory or skin sensitization

Maximisation Test - Guinea pig

Result: negative

(OECD Test Guideline 406)

Germ cell mutagenicity

Test Type: Ames test

Test system: Salmonella typhimurium

Result: negative

Species: Mouse - male and female - Bone marrow

Result: negative

Remarks: (National Toxicology Program)

Method: OECD Test Guideline 486

Species: Rat - male - Liver cells

Result: negative

Carcinogenicity

No data available

Reproductive toxicity

Possible risk of congenital malformation in the fetus.

Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

Ammonium nitrate:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 490 mg/l
Exposure time: 48 h
Remarks: (ECHA)

The value is given in analogy to the following substances:

The value is given in analogy to the following substances: potassium nitrate

Toxicity to algae/aquatic plants : ErC50 (diatoms): > 1,700 mg/l
Exposure time: 10 Days

Test Type: static test

Analytical monitoring: yes

Remarks: (ECHA)

The value is given in analogy to the following substances:

The value is given in analogy to the following substances: potassium nitrate

Toxicity to microorganisms : EC50 (activated sludge): > 1,000 mg/l
Exposure time: 3 h

Method: OECD Test Guideline 209

GLP: yes

Remarks: The value is given in analogy to the following substances:

The value is given in analogy to the following substances: sodium nitrate

calcium nitrate:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l

End point: mortality

Exposure time: 96 h

Test Type: static test

Analytical monitoring: yes

Method: OECD Test Guideline 203

GLP: yes

Toxicity to daphnia and Sigma - M6774 : EC50 (Daphnia magna (Water flea)): 490 mg/l

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The value is given in analogy to the following substances:

The value is given in analogy to the following substances: Sodium ferredetate

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 140 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: static test
Method: DIN 38412
Remarks: (ECHA)
The value is given in analogy to the following substances:
The value is given in analogy to the following substances: Ethylenedinitrilotetraacetic acid disodium salt

NOEC (Daphnia magna (Water flea)): 25 mg/l
Exposure time: 21 d
Remarks: (ECHA)
The value is given in analogy to the following substances:
The value is given in analogy to the following substances: Ethylenedinitrilotetraacetic acid disodium salt

Toxicity to algae/aquatic plants : (Pseudokirchneriella subcapitata (green algae)): > 60 mg/l
End point: Growth inhibition
Exposure time: 72 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 201
GLP: yes
Remarks: (ECHA)
The value is given in analogy to the following substances:
The value is given in analogy to the following substances: Sodium ferredetate

Toxicity to microorganisms : NOEC (activated sludge): > 640 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209
GLP: yes
Remarks: (ECHA)
The value is given in analogy to the following substances:
The value is given in analogy to the following substances: Sodium ferredetate

Ferrous sulfate heptahydrate:

Toxicity to fish : Remarks: No data available

Zinc sulfate heptahydrate:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 0.330 mg/l

End point: mortality
Exposure time: 96 h
Test Type: static test
Analytical monitoring: yes
Remarks: (ECHA)

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 1.4 mg/l

End point: Immobilization
Exposure time: 48 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 202

Toxicity to algae/aquatic plants : EC50 (Chlorella vulgaris (Fresh water algae)): 64.8 mg/l

Exposure time: 72 h
Remarks: (IUCLID)

M-Factor (Acute aquatic toxicity) : 1

Toxicity to fish (Chronic toxicity) : NOEC (Salmo trutta): 0.056 mg/l

Exposure time: 116 d
Test Type: flow-through test
Analytical monitoring: yes
Method: OECD Test Guideline 210

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Shrimp): 0.0318 mg/l

End point: mortality
Exposure time: 7 d
Test Type: semi-static test
Analytical monitoring: yes
Method: US-EPA

M-Factor (Chronic aquatic toxicity) : 1

Toxicity to microorganisms : EC50 (activated sludge): 5.2 mg/l

Exposure time: 3 h
Test Type: static test
Method: OECD Test Guideline 209

boric acid:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 79.7 mg/l

Exposure time: 96 h
Test Type: static test
Analytical monitoring: yes
Method: US-EPA

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 133 mg/l
Exposure time: 48 h
Test Type: static test
Remarks: (ECOTOX Database)

Toxicity to algae/aquatic plants : EC50 (Pseudokirchneriella subcapitata (green algae)): 52.4 mg/l
Exposure time: 74.5 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 201
GLP: yes

Ecotoxicology Assessment

Chronic aquatic toxicity : This product has no known ecotoxicological effects.

Copper sulphate pentahydrate:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 0.032 mg/l
End point: mortality
Exposure time: 96 h
Test Type: static test
Remarks: (ECOTOX Database)

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.092 mg/l
End point: Immobilization
Exposure time: 48 h
Test Type: static test
Analytical monitoring: yes
Method: OECD Test Guideline 202
Remarks: (anhydrous substance)

M-Factor (Acute aquatic toxicity) : 10

M-Factor (Chronic aquatic toxicity) : 1

Persistence and degradability

Components:

Ammonium nitrate:

Biodegradability : Remarks: The methods for determining biodegradability are not applicable to inorganic substances.

calcium nitrate:

Biodegradability : Remarks: The methods for determining the biological degradability are not applicable to inorganic substances.

calcium chloride:

Biodegradability : Remarks: The methods for determining the biological degradability are not applicable to inorganic substances.

Edetate disodium dihydrate:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 2 %
Exposure time: 28 d
Method: OECD Test Guideline 301D
GLP: yes
Remarks: The value is given in analogy to the following substances:
The value is given in analogy to the following substances: Ethylenedinitrilotetraacetic acid disodium salt

Ferrous sulfate heptahydrate:

Biodegradability : Remarks: The methods for determining biodegradability are not applicable to inorganic substances.

Zinc sulfate heptahydrate:

Biodegradability : Remarks: The methods for determining the biological degradability are not applicable to inorganic substances.

boric acid:

Biodegradability : Remarks: The methods for determining biodegradability are not applicable to inorganic substances.

Copper sulphate pentahydrate:

Biodegradability : Remarks: The methods for determining the biological degradability are not applicable to inorganic substances.

Bioaccumulative potential

Components:

Ammonium nitrate:

Partition coefficient: n-octanol/water : Remarks: Not applicable for inorganic substances

calcium nitrate:

Partition coefficient: n-octanol/water : Remarks: Not applicable for inorganic substances

calcium chloride:

Partition coefficient: n-octanol/water : Remarks: Not applicable for inorganic substances

Edetate disodium dihydrate:

Bioaccumulation : Species: Lepomis macrochirus (Bluegill sunfish)
Bioconcentration factor (BCF): 1.8
Exposure time: 28 d
Temperature: 70 °F / 21 °C
Concentration: ca. 0.08 mg/l
Method: OECD Test Guideline 305
Remarks: The value is given in analogy to the following substances:
The value is given in analogy to the following substances: Ethylenedinitrilotetraacetic acid, Tetrasodiumsalt

Ferrous sulfate heptahydrate:

Partition coefficient: n-octanol/water : Remarks: Not applicable for inorganic substances

Zinc sulfate heptahydrate:

Bioaccumulation : Species: Channa punctata
Bioconcentration factor (BCF): 0.4
Exposure time: 45 d
Temperature: 81 °F / 27 °C

Partition coefficient: n-octanol/water : Remarks: Not applicable for inorganic substances

boric acid:

Partition coefficient: n-octanol/water : log Pow: -1.09 (72 °F / 22 °C)
pH: 7.5
Method: Regulation (EC) No. 440/2008, Annex, A.8
GLP: yes
Remarks: Bioaccumulation is not expected.

Copper sulphate pentahydrate:

Bioaccumulation : Remarks: No data available

Partition coefficient: n-octanol/water : Remarks: Not applicable for inorganic substances

Mobility in soil

No data available

Other adverse effects**Product:**

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Components:**Ammonium nitrate:**

Additional ecological information : Biological effects:

Hazard for drinking water supplies.

Fertilising effect possible.

Discharge into the environment must be avoided.

calcium nitrate:

Additional ecological information : Discharge into the environment must be avoided.

calcium chloride:

Results of PBT and vPvB assessment : PBT/vPvB: Not applicable for inorganic substances

Edetate disodium dihydrate:

Results of PBT and vPvB assessment : Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

Ferrous sulfate heptahydrate:

Additional ecological information : Discharge into the environment must be avoided.

information

Zinc sulfate heptahydrate:

Results of PBT and vPvB assessment : PBT/vPvB: Not applicable for inorganic substances

boric acid:

Additional ecological information : Discharge into the environment must be avoided.

Copper sulphate pentahydrate:

Additional ecological information : Fungicide

Discharge into the environment must be avoided.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR

UN/ID No. : UN 1477
Proper shipping name : Nitrates, inorganic, n.o.s.
Class : 5.1
Packing group : III
Labels : Division 5.1 - Oxidizing substances
Packing instruction (cargo aircraft) : 563
Packing instruction (passenger aircraft) : 559

IMDG-Code

UN number : UN 1477
Proper shipping name : NITRATES, INORGANIC, N.O.S.

Class : 5.1
Packing group : III
Labels : 5.1
EmS Code : F-A, S-Q
Marine pollutant : no

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Transport in bulk according to IMO instruments

Not applicable for product as supplied.

National Regulations

49 CFR Road

UN/ID/NA number : UN 1477
Proper shipping name : Nitrates, inorganic, n.o.s.

Class : 5.1
Packing group : III
Labels : Division 5.1 - Oxidizing substances
ERG Code : 140
Marine pollutant : no

Poison Inhalation Hazard : No

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION

CERCLA Reportable Quantity

Listed substances in the product are at low enough levels to not be expected to exceed the RQ

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Reactivity Hazard
Acute Health Hazard
Chronic Health Hazard

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

Ammonium nitrate	6484-52-2	>= 10 - < 20 %
calcium nitrate	10124-37-5	>= 10 - < 20 %

Clean Air Act

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCOMI Intermediate or Final VOC's (40 CFR 60.489).

Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

Ferrous sulfate heptahydrate	7782-63-0	>= 1 - < 5 %
Zinc sulfate heptahydrate	7446-20-0	>= 0.1 - < 1 %
Copper sulphate pentahydrate	7758-99-8	>= 0 - < 0.1 %

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

Ferrous sulfate heptahydrate	7782-63-0	>= 1 - < 5 %
Zinc sulfate heptahydrate	7446-20-0	>= 0.1 - < 1 %
Copper sulphate pentahydrate	7758-99-8	>= 0 - < 0.1 %

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

This product does not contain any priority pollutants related to the U.S. Clean Water Act

US State Regulations

Massachusetts Right To Know

Ammonium nitrate	6484-52-2
Ferrous sulfate heptahydrate	7782-63-0

Pennsylvania Right To Know

Ammonium nitrate	6484-52-2
Ferrous sulfate heptahydrate	7782-63-0
Manganese Sulfate Monohydrate	10034-96-5
Zinc sulfate heptahydrate	7446-20-0
Copper sulphate pentahydrate	7758-99-8

Maine Chemicals of High Concern

Product does not contain any listed chemicals

Vermont Chemicals of High Concern

Product does not contain any listed chemicals

Washington Chemicals of High Concern

Product does not contain any listed chemicals

The components of this product are reported in the following inventories:

TSCA : Product contains substance(s) not listed on TSCA inventory.

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
NIOSH REL	:	USA. NIOSH Recommended Exposure Limits
ACGIH / TWA	:	8-hour, time-weighted average
ACGIH / STEL	:	Short-term exposure limit
NIOSH REL / TWA	:	Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonised System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organisation for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Revision Date : 10/30/2025

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