

1 Identification

- **Product identifier**
- **Trade name:** Hoagland's Modified Basal Salt Mixture
- **Article number:** 26218
- **Molecular Formula** N/A
- **Molecular Weight** N/A g/mol
- **Application of the substance / the mixture** For Research Use Only
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
MP Biomedicals, LLC
29525 Fountain Parkway
Solon, OH 44139
United States
www.mpbio.com
- **Information department:** Quality Control Department
- **Emergency telephone number:** CHEMTREC: 1-800-424-9300 (1-703-527-3887)

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS08 Health hazard

Repr. 1B H360 May damage fertility or the unborn child.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

STOT SE 3 H335 May cause respiratory irritation.

- **Label elements**

· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms**



GHS07



GHS08

- **Signal word** Danger

- **Hazard-determining components of labeling:**

Calcium Nitrate Tetrahydrate

Potassium Nitrate

Ferrous Sulfate Heptahydrate

- **Hazard statements**

Harmful if swallowed.

Causes skin irritation.

Causes serious eye irritation.

May damage fertility or the unborn child.

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/03/2018

Reviewed on 05/03/2018

Trade name: Hoagland's Modified Basal Salt Mixture

(Contd. of page 1)

May cause respiratory irritation.

· **Precautionary statements**

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Avoid breathing dust/fume/gas/mist/vapors/spray

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

Wear protective gloves/protective clothing/eye protection/face protection.

If swallowed: Call a poison center/doctor if you feel unwell.

If on skin: Wash with plenty of water.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

IF exposed or concerned: Get medical advice/attention.

Specific treatment (see on this label).

Rinse mouth.

If skin irritation occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

Take off contaminated clothing and wash it before reuse.

Store in a well-ventilated place. Keep container tightly closed.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



Health = 2

Fire = 0

Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = *2

Fire = 0

Reactivity = 0

· **Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Substances**

· **CAS No. Description**

Hoagland's Modified Basal Salt Mixture

· **Chemical characterization: Mixtures**

· **Description:** Mixture: consisting of the following components.

(Contd. on page 3)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/03/2018

Reviewed on 05/03/2018

Trade name: Hoagland's Modified Basal Salt Mixture

(Contd. of page 2)

· Dangerous components:		
CAS: 13477-34-4 EINECS: 233-332-1 RTECS: EW3000000	Calcium Nitrate Tetrahydrate	10-50%
CAS: 7757-79-1 EINECS: 231-818-8 RTECS: TT 3700000	Potassium Nitrate	10-50%
CAS: 7782-63-0 EINECS: 231-753-5 RTECS: NO8510000	Ferrous Sulfate Heptahydrate	1-2.5%
CAS: 10043-35-3 EINECS: 233-139-2 RTECS: ED4550000	Boric Acid	0.1-1%

4 First-aid measures

- **Description of first aid measures**
- **After inhalation:** If breathed in, supply fresh air. If not breathing, give artificial respiration. Consult a Doctor.
- **After skin contact:** Wash off with soap and plenty of water. Consult a Doctor.
- **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:**
Never give anything by mouth to an unconscious person. Rinse mouth with water. If symptoms persist consult a Doctor.
- **Information for doctor**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Pick up mechanically, dispose contaminated material as waste according to Section 13.
Ensure adequate ventilation.
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.

(Contd. on page 4)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/03/2018

Reviewed on 05/03/2018

Trade name: Hoagland's Modified Basal Salt Mixture

(Contd. of page 3)

See Section 13 for disposal information.

· Protective Action Criteria for Chemicals

· PAC-1:

13477-34-4	Calcium Nitrate Tetrahydrate	12 mg/m ³
7757-79-1	Potassium Nitrate	9 mg/m ³
10034-99-8	Magnesium Sulfate Heptahydrate	33 mg/m ³
7722-76-1	ammonium dihydrogenorthophosphate	17 mg/m ³
6381-92-6	Ethylenediamine Tetraacetic Acid Disodium Salt Dihydrate	30 mg/m ³
7782-63-0	Ferrous Sulfate Heptahydrate	15 mg/m ³
10043-35-3	Boric Acid	6 mg/m ³
13446-34-9	Manganese Chloride Tetrahydrate	11 mg/m ³
7446-20-0	Zinc Sulfate	27 mg/m ³
7758-99-8	Cupric Sulfate Pentahydrate	12 mg/m ³
1313-27-5	Molybdenum Trioxide	2.3 mg/m ³

· PAC-2:

13477-34-4	Calcium Nitrate Tetrahydrate	130 mg/m ³
7757-79-1	Potassium Nitrate	100 mg/m ³
10034-99-8	Magnesium Sulfate Heptahydrate	370 mg/m ³
7722-76-1	ammonium dihydrogenorthophosphate	190 mg/m ³
6381-92-6	Ethylenediamine Tetraacetic Acid Disodium Salt Dihydrate	330 mg/m ³
7782-63-0	Ferrous Sulfate Heptahydrate	170 mg/m ³
10043-35-3	Boric Acid	23 mg/m ³
13446-34-9	Manganese Chloride Tetrahydrate	18 mg/m ³
7446-20-0	Zinc Sulfate	170 mg/m ³
7758-99-8	Cupric Sulfate Pentahydrate	32 mg/m ³
1313-27-5	Molybdenum Trioxide	43 mg/m ³

· PAC-3:

13477-34-4	Calcium Nitrate Tetrahydrate	770 mg/m ³
7757-79-1	Potassium Nitrate	600 mg/m ³
10034-99-8	Magnesium Sulfate Heptahydrate	2,300 mg/m ³
7722-76-1	ammonium dihydrogenorthophosphate	1,100 mg/m ³
6381-92-6	Ethylenediamine Tetraacetic Acid Disodium Salt Dihydrate	2,000 mg/m ³
7782-63-0	Ferrous Sulfate Heptahydrate	990 mg/m ³
10043-35-3	Boric Acid	830 mg/m ³
13446-34-9	Manganese Chloride Tetrahydrate	290 mg/m ³
7446-20-0	Zinc Sulfate	1,000 mg/m ³
7758-99-8	Cupric Sulfate Pentahydrate	190 mg/m ³
1313-27-5	Molybdenum Trioxide	260 mg/m ³

7 Handling and storage

· Handling:

· Precautions for safe handling

Avoid direct contact with skin. Use protective clothing including gloves, lab coat, face/eye protection.

(Contd. on page 5)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/03/2018

Reviewed on 05/03/2018

Trade name: Hoagland's Modified Basal Salt Mixture

(Contd. of page 4)

- **Information about protection against explosions and fires:** No special requirements.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:** 2-8°C
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Further information about storage conditions:**
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see Section 7.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**
The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.
At this time, the other constituents have no known exposure limits.

7782-63-0 Ferrous Sulfate Heptahydrate

REL	Long-term value: 1 mg/m ³ as Fe
TLV	Long-term value: 1 mg/m ³ as Fe

10043-35-3 Boric Acid

TLV	Short-term value: 6* mg/m ³ Long-term value: 2* mg/m ³ *as inhalable fraction
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- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
- **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

(Contd. on page 6)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/03/2018

Reviewed on 05/03/2018

Trade name: Hoagland's Modified Basal Salt Mixture

(Contd. of page 5)

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Tightly sealed goggles

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

Form: Powder

Color: White

· **Odor:** Indeterminate

· **Odor threshold:** Not determined.

· **pH-value:** Not applicable.

· **Change in condition**

Boiling point/Boiling range: Undetermined.

· **Flash point:** Not applicable.

· **Flammability (solid, gaseous):** Not determined.

· **Decomposition temperature:** Not determined.

· **Auto igniting:** Product is not selfigniting.

· **Danger of explosion:** See section 10

· **Explosion limits:**

Lower: Not Applicable

Upper: Not Applicable

· **Vapor pressure:** Not applicable.

· **Density:** Not Applicable

· **Relative density** Not determined.

· **Vapor density** Not applicable.

· **Evaporation rate** Not applicable.

· **Solubility in / Miscibility with** Not Determined

· **Water:** Soluble.

· **Partition coefficient (n-octanol/water):** Not determined.

· **Viscosity:**

Dynamic: Not applicable.

Kinematic: Not applicable.

· **Solvent content:**

VOC content: 0.00 %

0.0 g/l / 0.00 lb/gl

Solids content: 100.0 %

(Contd. on page 7)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/03/2018

Reviewed on 05/03/2018

Trade name: Hoagland's Modified Basal Salt Mixture

(Contd. of page 6)

· **Other information** No further relevant information available.

10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

· **Information on toxicological effects**

· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

ATE (Acute Toxicity Estimate)

Dermal | LD50 | 73,131 mg/kg (rat)

· **Primary irritant effect:**

· **on the skin:** Irritant to skin and mucous membranes.

· **on the eye:** Irritating effect.

· **Sensitization:** No sensitizing effects known.

· **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

Harmful

Irritant

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

· **NTP (National Toxicology Program)**

None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

12 Ecological information

· **Toxicity**

· **Aquatic toxicity:**

ATE (Acute Toxicity Estimate)

Oral | LC50 / 96 h | 235 mg/L

· **Persistence and degradability** No further relevant information available.

· **Behavior in environmental systems:**

· **Bioaccumulative potential** No further relevant information available.

· **Mobility in soil** No further relevant information available.

(Contd. on page 8)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/03/2018

Reviewed on 05/03/2018

Trade name: Hoagland's Modified Basal Salt Mixture

(Contd. of page 7)

- **Additional ecological information:**
- **General notes:**
Water hazard class 1 (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Can not be disposed together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Discard must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleaning agents.

14 Transport information

· UN-Number	
· DOT, ADR, ADN, IMDG, IATA	Not regulated
· UN proper shipping name	
· DOT, ADR, ADN, IMDG, IATA	Not regulated
· Transport hazard class(es)	
· DOT, ADR, ADN, IMDG, IATA	
· Class	Not regulated
· Packing group	
· DOT, ADR, IMDG, IATA	Not regulated
· Environmental hazards:	Not applicable.
· Special precautions for user	Not applicable.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· UN "Model Regulation":	Not regulated

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Sara**

· Section 355 (extremely hazardous substances):	
None of the ingredients is listed.	
· Section 313 (Specific toxic chemical listings):	
13477-34-4	Calcium Nitrate Tetrahydrate
7757-79-1	Potassium Nitrate

(Contd. on page 9)

US

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/03/2018

Reviewed on 05/03/2018

Trade name: Hoagland's Modified Basal Salt Mixture

(Contd. of page 8)

13446-34-9	Manganese Chloride Tetrahydrate
1313-27-5	Molybdenum Trioxide

· TSCA (Toxic Substances Control Act):

7757-79-1	Potassium Nitrate
7722-76-1	ammonium dihydrogenorthophosphate
10043-35-3	Boric Acid
1313-27-5	Molybdenum Trioxide

· TSCA new (21st Century Act) (Substances not listed)

13477-34-4	Calcium Nitrate Tetrahydrate
7782-63-0	Ferrous Sulfate Heptahydrate

· Proposition 65

· Chemicals known to cause cancer:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.

· Chemicals known to cause developmental toxicity:

None of the ingredients is listed.

· Carcinogenic categories

· EPA (Environmental Protection Agency)

10043-35-3	Boric Acid	I (oral)
13446-34-9	Manganese Chloride Tetrahydrate	D

· TLV (Threshold Limit Value established by ACGIH)

10043-35-3	Boric Acid	A4
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· NIOSH-Ca (National Institute for Occupational Safety and Health)

None of the ingredients is listed.

· GHS label elements The product is classified and labeled according to the Globally Harmonized System (GHS).

· Hazard pictograms



GHS07 GHS08

· Signal word *Danger*

· Hazard-determining components of labeling:

Calcium Nitrate Tetrahydrate

Potassium Nitrate

Ferrous Sulfate Heptahydrate

· Hazard statements

Harmful if swallowed.

Causes skin irritation.

Causes serious eye irritation.

May damage fertility or the unborn child.

May cause respiratory irritation.

(Contd. on page 10)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/03/2018

Reviewed on 05/03/2018

Trade name: Hoagland's Modified Basal Salt Mixture

(Contd. of page 9)

· **Precautionary statements**

- Obtain special instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Avoid breathing dust/fume/gas/mist/vapors/spray
- Wash thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Use only outdoors or in a well-ventilated area.
- Wear protective gloves/protective clothing/eye protection/face protection.
- If swallowed: Call a poison center/doctor if you feel unwell.
- If on skin: Wash with plenty of water.
- IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- IF exposed or concerned: Get medical advice/attention.
- Specific treatment (see on this label).
- Rinse mouth.
- If skin irritation occurs: Get medical advice/attention.
- If eye irritation persists: Get medical advice/attention.
- Take off contaminated clothing and wash it before reuse.
- Store in a well-ventilated place. Keep container tightly closed.
- Store locked up.
- Dispose of contents/container in accordance with local/regional/national/international regulations.
- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing SDS:** Quality Control Dept.
- **Date of preparation / last revision** 05/03/2018 / -
- **Abbreviations and acronyms:**
 - ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
 - IMDG: International Maritime Code for Dangerous Goods
 - DOT: US Department of Transportation
 - IATA: International Air Transport Association
 - ACGIH: American Conference of Governmental Industrial Hygienists
 - EINECS: European Inventory of Existing Commercial Chemical Substances
 - ELINCS: European List of Notified Chemical Substances
 - CAS: Chemical Abstracts Service (division of the American Chemical Society)
 - NFPA: National Fire Protection Association (USA)
 - HMIS: Hazardous Materials Identification System (USA)
 - VOC: Volatile Organic Compounds (USA, EU)
 - LC50: Lethal concentration, 50 percent
 - LD50: Lethal dose, 50 percent
 - PBT: Persistent, Bioaccumulative and Toxic
 - vPvB: very Persistent and very Bioaccumulative
 - NIOSH: National Institute for Occupational Safety
 - OSHA: Occupational Safety & Health
 - TLV: Threshold Limit Value
 - PEL: Permissible Exposure Limit
 - REL: Recommended Exposure Limit
 - Acute Tox. 4: Acute toxicity – Category 4
 - Skin Irrit. 2: Skin corrosion/irritation – Category 2
 - Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
 - Repr. 1B: Reproductive toxicity – Category 1B
 - STOT SE 3: Specific target organ toxicity (single exposure) – Category 3