

Printing date 07/24/2019

Reviewed on 07/24/2019

1 Identification

- **Product identifier**
- **Trade name:** Murashige & Skoog Basal Medium with Gamborg's Vitamins
- **Article number:** 2623220
- **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**



GHS03 Flame over circle

Ox. Sol. 2 H272 May intensify fire; oxidizer.



GHS08 Health hazard

Repr. 2 H361 Suspected of damaging fertility or the unborn child.



GHS07

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**



GHS03



GHS07



GHS08

- **Signal word** Danger

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

Potassium Nitrate

Ammonium Nitrate

- **Hazard statements**

May intensify fire; oxidizer.

Causes skin irritation.

Causes serious eye irritation.

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Suspected of damaging fertility or the unborn child.

May cause respiratory irritation.

· Precautionary statements

Obtain special instructions before use.

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

Keep away from heat.

Keep/Store away from clothing/combustible materials.

Take any precaution to avoid mixing with combustibles.

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

Wash thoroughly after handling.

Use only outdoors or in a well-ventilated area.

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

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.

Call a poison center/doctor if you feel unwell.

Specific treatment (see on this label).

Take off contaminated clothing and wash it before reuse.

If skin irritation occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

In case of fire: Use for extinction: CO₂, powder or water spray.

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 = 2

The substance possesses oxidizing properties.

· HMIS-ratings (scale 0 - 4)



Health = *2

Fire = 0

Reactivity = 2

· Other hazards

· Results of PBT and vPvB assessment

· PBT: Not applicable.

· vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures

· Description: Mixture: consisting of the following components.

· Dangerous components:

CAS: 7757-79-1	Potassium Nitrate	≥20-≤50%
EINECS: 231-818-8		
RTECS: TT 3700000		

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CAS: 6484-52-2 EINECS: 229-347-8 RTECS: BR9050000	Ammonium Nitrate	≥20-≤50%
CAS: 10043-52-4 EINECS: 233-140-8 RTECS: EV 9800000	Calcium Chloride	≥2.5-<10%
CAS: 10043-35-3 EINECS: 233-139-2 RTECS: ED4550000	Boric Acid	0.1-1%

4 First-aid measures

- **Description of first aid measures**
- **General information:**
Consult your Doctor. Show the safety data sheet to the Doctor. Away from the dangerous area.
- **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:** If symptoms persist consult 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.
See Section 13 for disposal information.

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· Protective Action Criteria for Chemicals

· PAC-1:

7757-79-1	Potassium Nitrate	9 mg/m ³
6484-52-2	Ammonium Nitrate	6.7 mg/m ³
10043-52-4	Calcium Chloride	12 mg/m ³
7487-88-9	magnesium sulphate	20 mg/m ³
7778-77-0	Potassium Phosphate Monobasic Anhydrous	9.6 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
10034-96-5	Manganese Sulfate Monohydrate	9.2 mg/m ³
7446-20-0	Zinc Sulfate (Pentahydrate)	27 mg/m ³
10043-35-3	Boric Acid	6 mg/m ³
7681-11-0	Potassium Iodide	1.3 mg/m ³
10102-40-6	Molybdic Acid Disodium Salt Dihydrate	3.8 mg/m ³
7758-99-8	Cupric Sulfate Pentahydrate	12 mg/m ³
7791-13-1	Cobalt Chloride Hexahydrate	0.24 mg/m ³

· PAC-2:

7757-79-1	Potassium Nitrate	100 mg/m ³
6484-52-2	Ammonium Nitrate	73 mg/m ³
10043-52-4	Calcium Chloride	130 mg/m ³
7487-88-9	magnesium sulphate	220 mg/m ³
7778-77-0	Potassium Phosphate Monobasic Anhydrous	110 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
10034-96-5	Manganese Sulfate Monohydrate	15 mg/m ³
7446-20-0	Zinc Sulfate (Pentahydrate)	170 mg/m ³
10043-35-3	Boric Acid	23 mg/m ³
7681-11-0	Potassium Iodide	15 mg/m ³
10102-40-6	Molybdic Acid Disodium Salt Dihydrate	34 mg/m ³
7758-99-8	Cupric Sulfate Pentahydrate	32 mg/m ³
7791-13-1	Cobalt Chloride Hexahydrate	25 mg/m ³

· PAC-3:

7757-79-1	Potassium Nitrate	600 mg/m ³
6484-52-2	Ammonium Nitrate	440 mg/m ³
10043-52-4	Calcium Chloride	790 mg/m ³
7487-88-9	magnesium sulphate	1,300 mg/m ³
7778-77-0	Potassium Phosphate Monobasic Anhydrous	630 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
10034-96-5	Manganese Sulfate Monohydrate	90 mg/m ³
7446-20-0	Zinc Sulfate (Pentahydrate)	1,000 mg/m ³
10043-35-3	Boric Acid	830 mg/m ³
7681-11-0	Potassium Iodide	87 mg/m ³

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10102-40-6	Molybdcic Acid Disodium Salt Dihydrate	210 mg/m ³
7758-99-8	Cupric Sulfate Pentahydrate	190 mg/m ³
7791-13-1	Cobalt Chloride Hexahydrate	150 mg/m ³

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace. Avoid direct contact with skin and eyes.
Open and handle receptacle with care.
- **Information about protection against explosions and fires:** Keep respiratory protective device available.
- **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 constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.
At this time, the other constituents have no known exposure limits.

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.
Store protective clothing separately.
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.

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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.

· **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.

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· Solvent content:	
· VOC content:	0.00 %
· Solids content:	100.0 %
· 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.
Avoid contact with acids. Contact liberates a toxic gas.
- **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)

Inhalative	LC50/4 h	49,173 mg/L (rabbit)
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7446-20-0 Zinc Sulfate (Pentahydrate)

Oral	LD50	200 mg/kg (mouse)
		1,260 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:
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.

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12 Ecological information

- **Toxicity**

- **Aquatic toxicity:**

ATE (Acute Toxicity Estimate)

Oral LC50 / 96 h 2,007 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.

- **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, IMDG, IATA** UN1477

- **UN proper shipping name**

· **DOT** Nitrates, inorganic, n.o.s.
 · **ADR** 1477 NITRATES, INORGANIC, N.O.S.
 · **IMDG, IATA** NITRATES, INORGANIC, N.O.S.

- **Transport hazard class(es)**

- **DOT**



- **Class**

5.1 Oxidizing substances

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· Label	5.1
· ADR, IMDG, IATA	
	
· Class	5.1 Oxidizing substances
· Label	5.1
· Packing group	
· DOT, ADR, IMDG, IATA	II
· Environmental hazards:	Not applicable.
· Special precautions for user	Warning: Oxidizing substances
· Danger code (Kemler):	50
· EMS Number:	F-A,S-Q
· Stowage Category	A
· Segregation Code	SG38 Stow "separated from" SGG2-ammonium compounds. SG49 Stow "separated from" SGG6-cyanides
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	
	Not applicable.
· Transport/Additional information:	
· DOT	
· Quantity limitations	On passenger aircraft/rail: 5 kg On cargo aircraft only: 25 kg
· ADR	
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 500 g
· IMDG	
· Limited quantities (LQ)	1 kg
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 500 g
· UN "Model Regulation":	UN 1477 NITRATES, INORGANIC, N.O.S., 5.1, II

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):

7757-79-1	Potassium Nitrate
6484-52-2	Ammonium Nitrate
10034-96-5	Manganese Sulfate Monohydrate

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· TSCA (Toxic Substances Control Act):		
7757-79-1	Potassium Nitrate	ACTIVE
6484-52-2	Ammonium Nitrate	ACTIVE
10043-52-4	Calcium Chloride	ACTIVE
7487-88-9	magnesium sulphate	ACTIVE
7778-77-0	Potassium Phosphate Monobasic Anhydrous	ACTIVE
87-89-8	D-myo-Inositol	ACTIVE
67-03-8	Thiamine Hydrochloride	ACTIVE
10043-35-3	Boric Acid	ACTIVE
59-67-6	nicotinic acid	ACTIVE
58-56-0	Pyridoxine Hydrochloride	ACTIVE
7681-11-0	Potassium Iodide	ACTIVE

· Hazardous Air Pollutants		
10034-96-5	Manganese Sulfate Monohydrate	
7791-13-1	Cobalt Chloride Hexahydrate	

· 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)		
10034-96-5	Manganese Sulfate Monohydrate	D
10043-35-3	Boric Acid	I (oral)

· TLV (Threshold Limit Value established by ACGIH)		
10043-35-3	Boric Acid	A4

· 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

GHS03 GHS07 GHS08

· Signal word *Danger*

· Hazard-determining components of labeling:

Potassium Nitrate
Ammonium Nitrate

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· **Hazard statements**

- May intensify fire; oxidizer.
- Causes skin irritation.
- Causes serious eye irritation.
- Suspected of damaging fertility or the unborn child.
- May cause respiratory irritation.

· **Precautionary statements**

- Obtain special instructions before use.
 - Do not handle until all safety precautions have been read and understood.
 - Keep away from heat.
 - Keep/Store away from clothing/combustible materials.
 - Take any precaution to avoid mixing with combustibles.
 - Avoid breathing dust/fume/gas/mist/vapors/spray
 - Wash thoroughly after handling.
 - Use only outdoors or in a well-ventilated area.
 - Wear protective gloves/protective clothing/eye protection/face protection.
 - 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.
 - Call a poison center/doctor if you feel unwell.
 - Specific treatment (see on this label).
 - Take off contaminated clothing and wash it before reuse.
 - If skin irritation occurs: Get medical advice/attention.
 - If eye irritation persists: Get medical advice/attention.
 - In case of fire: Use for extinction: CO₂, powder or water spray.
 - 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** 07/24/2019 / -

· **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

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*TLV: Threshold Limit Value**PEL: Permissible Exposure Limit**REL: Recommended Exposure Limit**Ox. Sol. 2: Oxidizing solids – Category 2**Skin Irrit. 2: Skin corrosion/irritation – Category 2**Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A**Repr. 2: Reproductive toxicity – Category 2**STOT SE 3: Specific target organ toxicity (single exposure) – Category 3*

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