

# Safety Data Sheet

acc. to OSHA HCS

Printing date 10/13/2023

Reviewed on 10/13/2023

## 1 Identification

- **Product identifier**
- **Trade name:** Murashige and Skoog minimal organic powder medium
- **Article number:** 47515
- **Application of the substance / the mixture:** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
SERVA Electrophoresis GmbH  
Carl-Benz-Str. 7  
D-69115 Heidelberg  
Tel.: +49 6221 13840-0  
FAX: +49 6221 13840-10  
msds.info@serva.de
- **Information department:** Product Safety Department Tel.: +49 6221 13840-35
- **Emergency telephone number:**  
Emergency medical information in case of poisoning  
Poison Information Center Mainz-Tel: +49 (0) 6131 19240  
(Advice in German and English)



## 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS03

Oxidizing Solids 3 H272 May intensify fire; oxidizer.

- **Label elements**
- **GHS label elements**  
The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms:** GHS03
- **Signal word:** Warning
- **Hazard statements:**  
May intensify fire; oxidizer.
- **Precautionary statements**  
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
Keep/Store away from clothing/combustible materials.  
Wear protective gloves/protective clothing/eye protection/face protection.  
In case of fire: Use CO2, powder or water spray to extinguish.  
Dispose of contents/container in accordance with local/regional/national/international regulations.
- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



Health = 0

Fire = 3

Reactivity = 0

The substance possesses oxidizing properties.

- **HMIS-ratings (scale 0 - 4)**



Health = 0

Fire = 3

Reactivity = 0

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- **Other hazards**
- **Results of PBT and vPvB assessment:**
- **PBT:** PBT - Assessment not available.
- **vPvB:** vPvB - Assessment not available.

## 3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** Mixture of the substances listed below with nonhazardous additions.

- **Dangerous components:**

7757-79-1	potassium nitrate	30-50%
6484-52-2	ammonium nitrate	20-40%
10043-52-4	calcium chloride	5-15%
10043-35-3	boric acid	0.1-0.2%

- **Additional information:**  
the product contains no further substances which shall be indicated according to REACH-Regulation (Regulation (EC) No. 1907/2006).  
For the wording of the listed hazard phrases refer to section 16.

## 4 First-aid measures

- **Description of first aid measures**
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:**  
Wash off immediately with soap and water and rinse thoroughly. In case of complaints, consult a doctor.
- **After eye contact:**  
Rinse opened eye for several minutes with running water. Remove existing contact lenses, if possible, and continue rinsing. Consult an ophthalmologist immediately.
- **After swallowing:** Rinse out mouth. Call a doctor immediately.
- **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:**  
CO<sub>2</sub> extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture**  
In case of fire, the following can be released:  
Nitrogen oxides (NO<sub>x</sub>)  
Carbon monoxide and carbon dioxide
- **Advice for firefighters**
- **Protective equipment:** Wear self-contained breathing apparatus.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective clothing.  
Ensure adequate ventilation  
Avoid formation of dust.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.

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- **Methods and material for containment and cleaning up**  
Dispose contaminated material as waste according to section 13.  
Pick up mechanically.

- **Protective Action Criteria for Chemicals**

- **PAC-1:**

7757-79-1	potassium nitrate	9 mg/m <sup>3</sup>
6484-52-2	ammonium nitrate	6.7 mg/m <sup>3</sup>
10034-99-8	Magnesiumsulfate heptahydrate	33 mg/m <sup>3</sup>
10043-52-4	calcium chloride	12 mg/m <sup>3</sup>
7778-77-0	potassium dihydrogenorthophosphate	9.6 mg/m <sup>3</sup>
6381-92-6	Disodium dihydrogen ethylenediaminetetraacetate dihydrate	30 mg/m <sup>3</sup>
7782-63-0	ferrous sulfate heptahydrate	15 mg/m <sup>3</sup>
10034-96-5	manganese sulphate monohydrate	9.2 mg/m <sup>3</sup>
	zinc sulphate	27 mg/m <sup>3</sup>
10043-35-3	boric acid	6 mg/m <sup>3</sup>
7681-11-0	potassium iodide	1.3 mg/m <sup>3</sup>
10102-40-6	Disodium molybdate dihydrate	3.8 mg/m <sup>3</sup>
7791-13-1	Cobalt(II)chloride.6H <sub>2</sub> O	0.24 mg/m <sup>3</sup>
7758-99-8	copper(II) sulfate, pentahydrate	12 mg/m <sup>3</sup>

- **PAC-2:**

7757-79-1	potassium nitrate	100 mg/m <sup>3</sup>
6484-52-2	ammonium nitrate	73 mg/m <sup>3</sup>
10034-99-8	Magnesiumsulfate heptahydrate	370 mg/m <sup>3</sup>
10043-52-4	calcium chloride	130 mg/m <sup>3</sup>
7778-77-0	potassium dihydrogenorthophosphate	110 mg/m <sup>3</sup>
6381-92-6	Disodium dihydrogen ethylenediaminetetraacetate dihydrate	330 mg/m <sup>3</sup>
7782-63-0	ferrous sulfate heptahydrate	170 mg/m <sup>3</sup>
10034-96-5	manganese sulphate monohydrate	15 mg/m <sup>3</sup>
	zinc sulphate	170 mg/m <sup>3</sup>
10043-35-3	boric acid	23 mg/m <sup>3</sup>
7681-11-0	potassium iodide	15 mg/m <sup>3</sup>
10102-40-6	Disodium molybdate dihydrate	34 mg/m <sup>3</sup>
7791-13-1	Cobalt(II)chloride.6H <sub>2</sub> O	25 mg/m <sup>3</sup>
7758-99-8	copper(II) sulfate, pentahydrate	32 mg/m <sup>3</sup>

- **PAC-3:**

7757-79-1	potassium nitrate	600 mg/m <sup>3</sup>
6484-52-2	ammonium nitrate	440 mg/m <sup>3</sup>
10034-99-8	Magnesiumsulfate heptahydrate	2,300 mg/m <sup>3</sup>
10043-52-4	calcium chloride	790 mg/m <sup>3</sup>
7778-77-0	potassium dihydrogenorthophosphate	630 mg/m <sup>3</sup>
6381-92-6	Disodium dihydrogen ethylenediaminetetraacetate dihydrate	2,000 mg/m <sup>3</sup>
7782-63-0	ferrous sulfate heptahydrate	990 mg/m <sup>3</sup>
10034-96-5	manganese sulphate monohydrate	90 mg/m <sup>3</sup>
	zinc sulphate	1,000 mg/m <sup>3</sup>
10043-35-3	boric acid	830 mg/m <sup>3</sup>
7681-11-0	potassium iodide	87 mg/m <sup>3</sup>

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10102-40-6	Disodium molybdate dihydrate	210 mg/m <sup>3</sup>
7791-13-1	Cobalt(II)chloride.6H <sub>2</sub> O	150 mg/m <sup>3</sup>
7758-99-8	copper(II) sulfate, pentahydrate	190 mg/m <sup>3</sup>

· **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.

## 7 Handling and storage

· **Precautions for safe handling:** Prevent formation of dust.

· **Information about protection against explosions and fires:**

Keep ignition sources away - Do not smoke.

Protect from heat.

· **Conditions for safe storage, including any incompatibilities**

· **Storage:**

· **Requirements to be met by storerooms and receptacles:**

Storage at +2 to +8 °C

Store only in the original receptacle.

· **Information about storage in one common storage facility:** Store away from flammable substances.

· **Further information about storage conditions:** Protect from heat and direct sunlight.

· **Specific end use(s):** No further relevant information available.

## 8 Exposure controls/personal protection

· **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 (0.1-0.2%)

TLV	Short-term value: 6* mg/m <sup>3</sup> Long-term value: 2* mg/m <sup>3</sup> *as inhalable fraction, A4
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· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**

· **Additional information about design of technical systems:** No further data; see section 7.

· **Personal protective equipment:**

· **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Store protective clothing separately.

Immediately remove all soiled and contaminated clothing.

Avoid contact with the eyes and skin.

Wash hands before breaks and at the end of work.

· **Breathing equipment:** Suitable respiratory protective device recommended.

· **Protection of hands:**

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Protective gloves

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

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- **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.

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.

- **For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable:**

Natural rubber, NR

Nitrile rubber, NBR

- **Eye protection:** Safety glasses

- **Body protection:** Protective work clothing

## 9 Physical and chemical properties

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

- **General Information:**

- **Color:** off-white to light yellow

- **Odor:** Characteristic

- **Odor threshold:** Not determined.

- **Melting point/Melting range:** No information available

- **Boiling point/Boiling range:** No information available

- **Flammability (solid, gaseous):** Contact with combustible material may cause fire.

- **Explosion limits:**

- **Lower:** No information available

- **Upper:** No information available

- **Flash point:** No information available

- **Decomposition temperature:** No information available

- **pH-value at 20 °C (68 °F):** 3.8-4.5

- **Viscosity:**

- **Kinematic viscosity:** No information available

- **Dynamic viscosity:** No information available

- **Solubility in / Miscibility with:**

- **Water:** Soluble.

- **Partition coefficient (n-octanol/water):** No information available

- **Vapor pressure:** No information available

- **Vapor pressure:** No information available

- **Density:** No information available

- **Relative density:** No information available

- **Other information** Further physicochemical data are not available.

- **Appearance:**

- **Form:** Powder

- **Important information on protection of health and environment, and on safety:**

- **Danger of explosion:** Explosive when mixed with combustible material.

- **VOC %:**

- **VOC content:** 0.00 %

## 10 Stability and reactivity

- **Reactivity:** No further relevant information available.

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- **Chemical stability:**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions:** Contact with combustible material may cause fire.
- **Conditions to avoid:** Avoid high temperatures, flames, sparks
- **Incompatible materials:**  
Avoid contact with:  
combustible materials.
- **Hazardous decomposition products:** In case of fire: see section 5

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:** Based on available data, the classification criteria are not met.
- **on the skin:** Based on available data, the classification criteria are not met.
- **on the eye:** Based on available data, the classification criteria are not met.
- **Sensitization:** Based on available data, the classification criteria are not met.
- **Germ cell mutagenicity:** Based on available data, the classification criteria are not met.
- **Carcinogenicity:** Based on available data, the classification criteria are not met.
- **Reproductive toxicity:** Based on available data, the classification criteria are not met.
- **Specific target organ toxicity - single exposure:**  
Based on available data, the classification criteria are not met.
- **Specific target organ toxicity - repeated exposure:**  
Based on available data, the classification criteria are not met.
- **Aspiration hazard:** Based on available data, the classification criteria are not met.
- **Additional toxicological information:**
- **Carcinogenic categories**

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

7791-13-1 Cobalt(II)chloride.6H2O

2B

### · 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:** No further relevant information available.
- **Persistence and degradability:** No further relevant information available.
- **Bioaccumulative potential:** No further relevant information available.
- **Mobility in soil:** No further relevant information available.
- **Results of PBT and vPvB assessment:**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects:**
- **Additional ecological information:**
- **General notes:**  
Do not allow product to reach ground water, water course or sewage system.  
Water hazard class 1 (Self-assessment): slightly hazardous for water

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## 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
Dispose of in accordance with official regulations.  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:**  
Uncleaned packaging must be disposed of in the same way as the product in accordance with official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

## 14 Transport information

- |   |   |
|---|---|
| · <b>UN-Number</b>  | UN1479  |
| · <b>DOT, ADR, IMDG, IATA</b>   |   |
| · <b>UN proper shipping name</b>  | Oxidizing solid, n.o.s. (Potassium nitrate, Ammonium nitrate)   |
| · <b>DOT</b>  |   |
| · <b>ADR</b>  | 1479 OXIDIZING SOLID, N.O.S. (POTASSIUM NITRATE, AMMONIUM NITRATE)  |
| · <b>IMDG</b>   | OXIDIZING SOLID, N.O.S. (POTASSIUM NITRATE, AMMONIUM NITRATE)   |
| · <b>IATA</b>   | OXIDIZING SOLID, N.O.S. (POTASSIUM NITRATE/AMMONIUM NITRATE mixture)  |
| · <b>Transport hazard class(es)</b>   |   |
| · <b>DOT</b>  |   |
|  |   |
| · <b>Class</b>  | 5.1 Oxidizing substances  |
| · <b>Label</b>  | 5.1   |
| · <b>ADR, IMDG, IATA</b>  |   |
|  |   |
| · <b>Class:</b>   | 5.1 Oxidizing substances  |
| · <b>Label:</b>   | 5.1   |
| · <b>Packing group</b>  |   |
| · <b>DOT, ADR, IMDG, IATA</b>   | III   |
| · <b>Environmental hazards</b>  |   |
| · <b>Marine pollutant:</b>  | No  |
| · <b>Special precautions for user</b>   | Warning: Oxidizing substances   |
| · <b>Hazard identification number (Kemler code):</b>                                | 50  |
| · <b>EMS Number:</b>  | F-A,S-Q   |
| · <b>Segregation groups</b>   | (SGG2) Ammonium compounds   |
| · <b>Stowage Category</b>   | B   |
| · <b>Segregation Code</b>   | SG38 Stow "separated from" SGG2-ammonium compounds.<br>SG49 Stow "separated from" SGG6-cyanides<br>SG60 Stow "separated from" SGG16-peroxides |

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·	SG61 Stow "separated from" SGG15-powdered metals
· <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.
· <b>Transport/Additional information:</b>	
· <b>ADR</b>	
· <b>Excepted quantities (EQ)</b>	Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g
· <b>IMDG</b>	
· <b>Limited quantities (LQ)</b>	5 kg
· <b>Excepted quantities (EQ)</b>	Code: E1 Maximum net quantity per inner packaging: 30 g Maximum net quantity per outer packaging: 1000 g
· <b>UN "Model Regulation":</b>	UN 1479 OXIDIZING SOLID, N.O.S. (POTASSIUM NITRATE, AMMONIUM NITRATE), 5.1, III

## 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**  
No further relevant information available.

· **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 sulphate monohydrate
7791-13-1	Cobalt(II)chloride.6H2O

· **TSCA (Toxic Substances Control Act):**

7757-79-1	potassium nitrate	ACTIVE
6484-52-2	ammonium nitrate	ACTIVE
10043-52-4	calcium chloride	ACTIVE
7778-77-0	potassium dihydrogenorthophosphate	ACTIVE
87-89-8	myo-inositol	ACTIVE
10043-35-3	boric acid	ACTIVE
7681-11-0	potassium iodide	ACTIVE
67-03-8	Thiamine hydrochloride	ACTIVE

· **Hazardous Air Pollutants**

10034-96-5	manganese sulphate monohydrate
7791-13-1	Cobalt(II)chloride.6H2O

· **Proposition 65**

None of the ingredients is listed.

· **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.

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· **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.

· **Carcinogenicity categories**

· **EPA (Environmental Protection Agency)**

10034-96-5 manganese sulphate monohydrate

D

10043-35-3 boric acid

I (oral)

· **TLV (Threshold Limit Value)**

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

· **Signal word** Warning

· **Hazard statements**

May intensify fire; oxidizer.

· **Precautionary statements**

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Keep/Store away from clothing/combustible materials.

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

In case of fire: Use CO<sub>2</sub>, powder or water spray to extinguish.

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:** Product Safety Department

· **Contact:** +49 6221 13840-35

· **Date of preparation / last revision** 10/13/2023

· **Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

SVHC: Substance of Very High Concern (REACH)

PBT: persistent, bioaccumulative, toxic substance (REACH)

vPvB: very persistent, very bioaccumulative substance (REACH)

REACH: Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals

CLP: Regulation on classification, labelling and packaging of substances and mixtures

bw: body weight

ADR: Accord relatif au transport international 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

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)

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*

*Oxidizing Solids 3: Oxidizing solids – Category 3*

US