SAFETY DATA SHEET

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

1.1 Product identifiers

Product name	Murashige & Skoog Medium (incl. Micro and Macro elements, Vitamins)
Product code	GMNB-MSM125-1
Brand	GMExpression

1.2 Other means of identification

None

1.3 Relevant identified uses and uses advised against

Identified uses:	For laboratory research use only.
Uses advised against:	This product should not be used for pharmaceutical, household or other uses.

1.4 Details of the supplier of the safety data sheet

Company:	General Molecular Expression Service Pty Ltd. Address: ThincLab, Hannford Building, Waite Road, SA 5064 AUSTRALIA
E-mail:	support@gmexpression.com

1.5 Emergency telephone

Emergency Phone	Company emergency contact. +61 481 192 170

SECTION 2: Hazards identification

2.1 GHS Classification

Oxidizing solids (Category 3), H272

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram

Signal Word	Warning
Hazard statement(s)	
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.3
Precautionary statement(s)	
P261	Avoid breathing dust.
P302+P352	If on skin: Wash with plenty of water.
P306+P351	If in eyes: Rinse cautiously with water for several minutes.

Other	This medium has no oxidising or explosive properties.

2.3 Other hazards - none

SECTION 3: Composition/information on ingredients

3.1 Substance/Mixture: Mixture

3.2 Mixtures

Hazardous ingredients

Component	Classification	Concentration
Ammonium nitrate		
CAS No. 6484-52-2 EC No. 229-347-8	Ox. Sol. 2; Eye Irrit. 2A; H272, H319	>= 30 - < 50%
Calcium chloride		
CAS No. 10043-52-4 EC No. 233-140-8 Index No. 017-013-00-2	Eye Irrit. 2A; H319	>= 1 - < 10%
Edetate disodium dihydrate		
CAS No. 6381-92-6 EC No. 205-358-3	Acute Tox. 4; STOT RE 2; H332, H373	>= 1 - < 10%
Zinc sulfate heptahydrate		
CAS No. 7446-20-0 EC No. 231-793-3 Index No. 030-006-00-9	Acute Tox. 4; Eye Irrit. 1; Aquatic Acute 1; Aquatic Chronic 1; H302, H318, H400, H410	>= 0.1 - < 0.25%

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
Consult a physician. Show this material safety data sheet to the doctor in attendance.

In case of skin contact
Take off immediately all contaminated clothing. Rinse skin with water or shower.

In case of eye contact
Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration.

If swallowed
Immediately make victim drink water (two glasses at most). If you feel unwell, seek medical advice.

Notes to Physician
Treat symptomatically.

4.2 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

4.3 Indication of any immediate medical attention and special treatment needed

No data available.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media
Use alcohol-resistant foam, dry chemical, carbon dioxide, or water spray.

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Under fire conditions, hazardous fumes will be present:
- COx
- NOx
- SOx
- Not combustible.
- Ambient fire may liberate hazardous vapours.

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 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, and consult an expert. For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 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.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Advice on protection against fire and explosion
Keep away from open flames, hot surfaces and sources of ignition.

Hygiene measures
Change contaminated clothing. Wash hands after working with substance.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities Storage conditions

Store conditions

Keep container tightly closed. Do not store near combustible materials.

Store at room temperature.
Store in dry, well-ventilated area.
Hygroscopic.
Keep container tightly closed and dry.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.3 no other specific uses are stipulated.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters
We are not aware of any national exposure limit.

8.2 Exposure controls

Appropriate engineering controls
Change contaminated clothing. Wash hands after working with substance.

Personal protective equipment

Eye/face protection
Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

Body Protection
Impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

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.

Control of environmental exposure
Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

A) Physical state	Powder
B) Colour	No data available
C) Odour	No data available
D) Melting point/freezing point	No data available
E) Initial boiling point and boiling range	No data available
F) Flammability (solid, gas)	The product is not flammable.
G) Upper/lower flammability or explosive limits	No data available

H) Flash point	No data available
I) Autoignition temperature	No data available
J) Decomposition temperature	No data available
K) PH	No data available
L) Viscosity	
Viscosity, kinematic:	No data available
Viscosity, dynamic:	No data available
M) Water solubility	No data available
N) Partition coefficient n-octanol/water:	No data available
O) Vapour pressure	No data available
P) Density	No data available
Relative density	No data available
Q) Relative vapour density	No data available
R) Particle characteristics	
Particle Size	D50 = 306.905 µm
Distribution	Type of distribution: volume distribution Measurement method: ISO 13320 Measurement technique: laser diffraction
S) Explosive properties	Not classified as explosive.
T) Oxidizing properties	None

9.2 Other safety information

No data available.

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
Chemically stable under standard ambient conditions (room temperature).

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong reducing agents, Powdered metals, Strong acids, Organic materials

10.6 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.
Dermal: No data available.

Vapour: No data available.

Skin corrosion/irritation
No data available

Serious eye damage/eye irritation
Mixture causes serious eye irritation.

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
No data available

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity -single exposure
May cause respiratory irritation.

Specific target organ toxicity -repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information

Other dangerous properties cannot be excluded.

Handle in accordance with good industrial hygiene and safety practice.

Components

Ammonium nitrate

Acute toxicity
LD50 Oral - Rat - male and female - 2,950 mg/kg
(OECD Test Guideline 401)
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)

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 inhalation toxicity - Symptoms may be delayed, mucosal irritations

Specific target organ toxicity - repeated exposure

Aspiration hazard
No data available

Calcium chloride

Acute toxicity
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)

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
Acute toxicity estimate Inhalation - 1.6 mg/l - dust/mist
(Expert judgment)
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
Maximization 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 saltThe 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

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

SECTION 12: Ecological information

12.1 Toxicity

Mixture
No data available

12.2 Persistence and degradability
No data available

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

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. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

14.1 UN number

ADR/RID: 1477 IMDG: 1477 IATA-DGR: 1477

14.2 UN proper shipping name

ADR/RID: NITRATES, INORGANIC, N.O.S.
IMDG: NITRATES, INORGANIC, N.O.S.
IATA-DGR: NITRATES, INORGANIC, N.O.S.

14.3 Transport hazard classes

ADR/RID: 5.1 IMDG: 5.1 IATA-DGR: 5.1

14.4 Packaging group

ADR/RID: III IMDG: III IATA-DGR: III

14.5 Environmental hazards

ADR/RID: no IMDG Marine pollutant: no IATA-DGR: no

14.6 Special precautions for user

None

14.7 Incompatible materials

Strong reducing agents. Powdered metals. Strong acids.

Other regulations

Hazchem Code: 1Y.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation

Substance or mixture

Standard for the Uniform Scheduling of Medicines and Poisons : No poison schedule number allocated

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H272 May intensify fire; oxidizer.
H302 Harmful if swallowed.
H318 Causes serious eye damage.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H373 May cause damage to organs through prolonged or repeated exposure if inhaled.

H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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