

SAFETY DATA SHEET (SDS)



Product Name: CHOgro® Expression Medium

Product Number: MIR 6201

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1. PRODUCT AND COMPANY IDENTIFICATION

1.1. **Product Name:** CHOgro® Expression Medium, Dry Powder

1.2. **Product Numbers:** MIR 6201

1.3. **Identified Product Use:** For research and further manufacturing use only

1.4. **Supplier Details:**

1.4.1. **Company:** Mirus Bio LLC, 545 Science Drive, Madison, WI 53711, USA

1.4.2. **Telephone:** 888.530.0801 (Toll Free within the U.S.) or +1.608.441.2852

1.4.3. **Fax:** +1.608.441.2849

1.4.4. **Emergency Phone No.:** US and Canada: 1.800.633.8253; International: +1.801.629.0667

1.5. **Precautionary Labeling:** The components of CHOgro Expression Medium (100% by weight) are potentially harmful, although the chemical, physical, and toxicological properties have not been thoroughly investigated by Mirus Bio LLC. Handle with care, and practice safe laboratory techniques.

2. HAZARDS IDENTIFICATION

2.1. **Classification of the substance or mixture:**

AQUATIC TOXICITY (CHRONIC) - Category 3.

2.2. **GHS label elements, including precautionary statements:**

No signal word, harmful to aquatic life with long lasting effects. Avoid release to the environment.

2.3. **Other Hazards which do not result in the classification or are not covered by GHS:**

Fine dust clouds may form explosive mixtures with air. Handling and/or processing of this material may generate a dust which can cause mechanical irritation of the eyes, skin, nose and throat.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. **Substances (Mixtures)**

Chemical Name	CAS-No	Weight %
Proprietary	n/a	</65% w/v
Sodium chloride	7647-14-5	8.0069-8.007
L-serine	56-45-1	<3.1
Potassium chloride	7447-40-7	<2.7
L-valine	72-18-4	<1.6
Aspartic acid	56-84-8	<1.4
L-cysteine,hydrochloride, hydrate (1:1:1)	7048-04-6	<1.1

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Impurities and stabilizing additives which are themselves classified and which contribute to the classification of the substance: None

4. FIRST AID MEASURES

4.1. Description of first aid measures:

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Flush eyes with water as a precaution.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water.

4.2. Most important symptoms/effects, acute and delayed

See sections 2 and 11 (hazard and toxicological information) for the most important symptoms and effects.

4.3. Indication of immediate medical attention and special treatment needed, if necessary

No data available

5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media

5.1.1. Suitable Extinguishing media

Use dry chemical powder

5.1.2. Unsuitable extinguishing media

Do not use water jet

5.2. Specific hazards arising from the substance or mixture

Fine dust clouds may form explosive mixtures with air. This material is harmful to aquatic life with long-lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

5.3. Special protective equipment and precautions for firefighters

Wear self-contained breathing apparatus for firefighting if necessary

5.4. Further information: None

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. For personal protection, refer to section 8.

6.2. Environmental precautions

Do not let product enter drains.

6.3. Methods and Materials for Containment and cleaning up

Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Avoid creating dusty conditions and prevent wind dispersal. Dispose of via a licensed waste disposal contractor.

6.4. References to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1. Precautions for safe handling

Avoid inhalation of dust or mist. Avoid contact with skin and eyes. For precautions see section 2.2.

7.2. Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters e.g. occupational exposure limit values or biological limit values.

Use only with adequate ventilation. Contains no substances with occupational exposure limit values.

8.2. Appropriate engineering controls.

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

8.3. Individual protection measures, such as personal protective equipment.

Personal protective equipment:	Avoid all unnecessary exposure.
Materials for protective clothing:	Wear appropriate protective gloves to prevent skin exposure
Hand protection:	Always wear gloves.
Eye protection:	Tightly fitting safety glasses with side shields.
Skin and body protection:	Protective clothing.
Respiratory protection:	Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Other information:	Do not allow product to enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Appearance (physical state, color etc.): Form: solid, powder
Color: off-white

9.2. Odor: No data available

9.3. Odor threshold: No data available

9.4. pH: No data available

9.5. Melting point/freezing point: No data available

9.6. Initial boiling point and boiling range: No data available

9.7. Flash point: No data available

9.8. Evaporation rate: No data available

9.9. Flammability (solid, gas): No data available

9.10. Upper/lower flammability or explosive limits: No data available

9.11. Vapor pressure: No data available

9.12. Vapor density: No data available

9.13. Relative density: No data available

9.14. Solubility(ies): water soluble

9.15. Partition coefficient: No data available

9.16. Auto-ignition temperature: No data available

9.17. Decomposition temperature: No data available

9.18. Viscosity: No data available

9.19. Other information: No data available

10. STABILITY AND REACTIVITY

10.1. Reactivity: No data available

10.2. Chemical stability: Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions: No data available

10.4. Conditions to avoid (e.g. static discharge, shock or vibration): Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by grounding and bonding containers and equipment before transferring material. Prevent dust accumulation.

10.5. Incompatible materials: Strong oxidizing agents

10.6. Hazardous decomposition products: No data available. In the event of a fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects:

Acute toxicity:

Ingredient Chemical Name	Result	Species	Dose
Sodium chloride	LD50 Oral	Rat	3000 mg/kg
L-serine	LD50 Oral	Rat	14 g/kg
Potassium chloride	LD50 Oral	Rat-Male	2600 mg/kg
L-valine	LD50 Oral	Rat	2000 mg/kg
Aspartic acid	LD50 Oral	Rat	5000 mg/kg
	LD50 Dermal	Rabbit	5000 mg/kg
L-cysteine,hydrochloride, hydrate (1:1:1)	LD50 Dermal	Rat	1.89 g/kg

Skin corrosion/irritation: No data available

Serious eye damage/eye irritation: No data available

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 identified as a carcinogen or potential carcinogen by OSHA.

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

Additional Information: None.

12. ECOLOGICAL INFORMATION

12.1. Ecotoxicity (aquatic and terrestrial, where available):

Ingredient Chemical Name	Result	Species	Exposure
Sodium chloride	Acute EC50 2430000 µg/l	Fresh water Algae - Navicula seminulum	96 hours
	Acute EC50 28.85 mg/dm ³	Fresh water Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 519.6 mg/l	Fresh water Crustaceans - Cypris subglobosa	48 hours
	Acute IC50 6.87 g/L	Fresh water Aquatic plants - Lemna minor	96 hours
	Acute LC50 1661 mg/l	Fresh water Daphnia - Daphnia magna	48 hours
	Acute LC50 1000000 µg/l	Fish - Morone saxatilis - Larvae	96 hours
	Chronic NOEC 6 g/L	Fresh water Aquatic plants - Lemna minor	96 hours
	Chronic NOEC 0.314 g/L	Fresh water Daphnia - Daphnia pulex	21 days
	Chronic NOEC 100 mg/l	Fresh water Fish - Gambusia holbrooki - Adult	8 weeks
L-serine	Acute EC50 83 mg/l	Daphnia	48 hours
	Acute NOEC 1000 mg/l	Algae	72 hours
Potassium chloride	Acute EC50 1337000 µg/l	Fresh water Algae - Navicula seminulum	96 hours
	Acute EC50 149000 µg/l	Fresh water Daphnia - Daphnia magna	48 hours
	Acute LC50 9.68 mg/l	Fresh water Crustaceans - Pseudosida ramosa	48 hours
L-valine	Acute LC50 920 ppm	Fresh water Fish - Gambusia affinis - Adult	96 hours
	LC50 10000 mg/l	Fish	96 hours

12.2. Persistence and degradability:

Ingredient Chemical Name	Test	Result
L-valine	-	82%- 28 days

Ingredient Chemical Name	Aquatic half life	Photolysis	Biodegradability
L-valine	-	82%- 28 days	Readily

12.3. Bioaccumulative potential:

Ingredient Chemical Name	LogP _{ow}	BCF	Potential
L-serine	-3.07	0.609	low
L-valine	-2.26	0.846	low
Aspartic acid	-3.89	-	low
L-cysteine,hydrochloride, hydrate (1:1:1)	-	0.93	low

12.4. Mobility in the soil: No data available

12.5. Other adverse effects: No data available

13. DISPOSAL CONSIDERATIONS**13.1. Waste Treatment Recommendations:**

Remove waste in accordance with local and/or national regulations. Offer surplus and non-recyclable solutions to a licensed disposal company.

14. TRANSPORT INFORMATION

14.1. UN number: Not classified as a hazardous good

14.2. UN proper shipping name: Not classified as a hazardous good

14.3. Transport hazard class(es): Not classified as a hazardous good

14.4. Packing group, if applicable: Not classified as a hazardous good

Special precautions which a user needs to be aware of, or needs to comply with, in connection with the transport or conveyance within or outside their premises: This product is not classified as hazardous according to DOT, IMDG, and IATA regulations.

15. REGULATORY INFORMATION

15.1. Safety, health and environmental regulations specific for the product in question:

SARA 302/313 Components

SARA 302: This material is not subject to the reporting requirements of SARA Title III, Section 302.

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Acute health hazards

California Prop. 65 Components: This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

None

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