

SAFETY DATA SHEET (SDS)



Product Name: CHOgro® High Yield Expression System

Product Number: MIR 6270

Revision Date: APR 25 2019

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This kit contains the following components. The required Safety Data Sheets for identified hazardous components are appended.

- CHOgro® Expression Medium
- CHOgro® Complex Formation Solution
- L-Glutamine, 200 mM Solution in 0.85% NaCl
- Poloxamer 188, 10% Solution
- *TransIT-PRO*® Transfection Reagent
- CHOgro® Titer Enhancer

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1. PRODUCT AND COMPANY IDENTIFICATION

1.1. **Product Name:** CHOgro® Expression Medium

1.2. **Product Numbers:** MIR 6200

1.3. **Identified Product Use:** For research 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 (< 65% 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:**

Not a hazardous substance or mixture.

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

Not a hazardous substance or mixture.

2.3. **Other Hazards which do not result in the classification or are not covered by GHS:** None

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. **Substances (Mixtures)**

Chemical Name	CAS-No	EINECS-No	Common Name(s)	Weight %
Proprietary	n/a	n/a	n/a	</65% w/v
Water	7732-18-5	231-791-2	n/a	</35% v/v

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 water spray, alcohol-resistant foam, dry chemical or carbon dioxide

5.1.2. Unsuitable extinguishing media

None

5.2. Specific hazards arising from the substance or mixture

No data available

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

Soak up with inert absorbent material (e.g. vermiculite, sand or earth), and dispose of per regulations. Keep in suitable, closed containers for disposal.

6.4. References to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1. Precautions for safe handling

Avoid inhalation of vapor 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.

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: liquid
Color: light yellow, clear
- 9.2. **Odor:** No data available
- 9.3. **Odor threshold:** No data available
- 9.4. **pH:** 7-7.4
- 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):** No data available
- 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: No data available

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): No data available

12.2. Persistence and degradability: No data available

12.3. Bioaccumulative potential: No data available

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

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

HMIS Rating

Health hazard: 1

Chronic Health Hazard:

Flammability: 0

Physical Hazard 0

NFPA Rating

Health hazard: 1

Fire Hazard: 0

Reactivity Hazard: 0

Disclaimer: Mirus Bio LLC believes that the information on this MSDS was obtained from reliable sources. However, the information is provided without any warranty, expressed or implied, regarding its correctness. Some information presented and conclusions drawn herein are from sources other than direct test data on the substance itself. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, Mirus Bio LLC does not assume responsibility and expressly disclaims liability for loss, damage, or expense arising out of or in any way connected with handling.

1. PRODUCT AND COMPANY IDENTIFICATION

1.1. **Product Name:** CHOgro® Complex Formation Solution

1.2. **Product Numbers:** MIR 6210

1.3. **Identified Product Use:** For research 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 Complex formation Solution (< 65% 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:**

Not a hazardous substance or mixture.

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

Not a hazardous substance or mixture.

2.3. **Other Hazards which do not result in the classification or are not covered by GHS:** None

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. **Substances (Mixtures)**

Chemical Name	CAS-No	EINECS-No	Common Name(s)	Weight %
Proprietary	n/a	n/a	n/a	</65% w/v
Water	7732-18-5	231-791-2	n/a	</35% v/v

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 water spray, alcohol-resistant foam, dry chemical or carbon dioxide

5.1.2. Unsuitable extinguishing media

None

5.2. Specific hazards arising from the substance or mixture

No data available

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

Soak up with inert absorbent material (e.g. vermiculite, sand or earth), and dispose of per regulations. Keep in suitable, closed containers for disposal.

6.4. References to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1. Precautions for safe handling

Avoid inhalation of vapor 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.

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: liquid
Color: light yellow, clear
- 9.2. **Odor:** No data available
- 9.3. **Odor threshold:** No data available
- 9.4. **pH:** 7-7.4
- 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):** No data available
- 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: No data available

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): No data available

12.2. Persistence and degradability: No data available

12.3. Bioaccumulative potential: No data available

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

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

HMIS Rating

Health hazard: 1

Chronic Health Hazard:

Flammability: 0

Physical Hazard 0

NFPA Rating

Health hazard: 1

Fire Hazard: 0

Reactivity Hazard: 0

Disclaimer: Mirus Bio LLC believes that the information on this MSDS was obtained from reliable sources. However, the information is provided without any warranty, expressed or implied, regarding its correctness. Some information presented and conclusions drawn herein are from sources other than direct test data on the substance itself. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, Mirus Bio LLC does not assume responsibility and expressly disclaims liability for loss, damage, or expense arising out of or in any way connected with handling.

1. PRODUCT AND COMPANY IDENTIFICATION

1.1. **Product Name:** L-Glutamine, 200 mM Solution in 0.85% NaCl

1.2. **Product Numbers:** MIR 6240

1.3. **Identified Product Use:** For research 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 L-Glutamine Solution (< 3.773% by weight) are not 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. The information included within this SDS pertains to sodium chloride, which is used in the solution.

2. HAZARDS IDENTIFICATION

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

Not a hazardous substance or mixture.

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

Not a hazardous substance or mixture.

2.3. **Other Hazards which do not result in the classification or are not covered by GHS:** None

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. **Substances**

Chemical Name	CAS-No	EINECS-No	Common Name(s)	Weight %
Sodium chloride	7647-14-5	231-598-3	n/a	0-10
Water	7732-18-5	231-791-2	n/a	>/=60
L-Glutamine	56-85-9	200-292-1	n/a	</= 10

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

Rinse thoroughly with plenty of water. Consult a physician.

If swallowed

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

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 water spray, alcohol-resistant foam, dry chemical or carbon dioxide

5.1.2. Unsuitable extinguishing media

None

5.2. Specific hazards arising from the substance or mixture

No data available

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

Soak up with inert absorbent material (e.g. vermiculite, sand or earth), and dispose of per regulations. Keep in suitable, closed containers for disposal.

6.4. References to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1. Precautions for safe handling

Wear personal protective equipment. Ensure adequate ventilation. Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. 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.

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 work day.

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

Appropriate engineering controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation.

Personal protective equipment: Avoid all unnecessary exposure.

Hand protection:

Gloves.

Eye protection:

Safety glasses.

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 EN149 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: liquid, clear
Color: colorless

9.2. **Odor:** No data available

9.3. **Odor threshold:** No data available

9.4. **pH:** Not applicable

9.5. **Melting point/freezing point:** - No data available

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

9.7. **Flash point:** Not applicable

9.8. **Evaporation rate:** No data available

9.9. **Flammability (solid, gas):** Not applicable

9.10. **Upper/lower flammability or explosive limits:** Not applicable

9.11. **Vapor pressure:** No data available

9.12. **Vapor density:** No data available

9.13. **Relative density:** No information available

9.14. **Solubility(ies):** Water soluble

9.15. **Partition coefficient: n-octanol/water** No data available

- 9.16. **Auto-ignition temperature:** Not applicable
- 9.17. **Decomposition temperature:** Not applicable
- 9.18. **Viscosity:** 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:** None under normal processing
- 10.4. **Conditions to avoid (e.g. static discharge, shock or vibration):** No data available
- 10.5. **Incompatible materials:** None known
- 10.6. **Hazardous decomposition products:** Other decomposition products – no data available. In the event of a fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects: Sodium chloride

Acute toxicity

LD50 Oral - Rat 3 g/kg

LC50 Inhalation - Rat – 42g/m³

Dermal: Rabbit.10 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): No data available

12.2. Persistence and degradability: No data available

12.3. Bioaccumulative potential: No data available

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 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

14.5. Environmental hazards (e.g.: Marine pollutant (Yes/No)): No

14.6. Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code): Not applicable

14.7. 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: Not applicable

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

Full text of H-phrases: see section 2 and 3:

NFPA health hazard: 1

NFPA fire hazard: 0

NFPA reactivity: 0

HMIS III Rating

Health Hazard: 1

Chronic Health Hazard: 0

Flammability: 0

Physical Hazard: 0

Disclaimer: Mirus Bio LLC believes that the information on this MSDS was obtained from reliable sources. However, the information is provided without any warranty, expressed or implied, regarding its correctness. Some information presented and conclusions drawn herein are from sources other than direct test data on the substance itself. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, Mirus Bio LLC does not assume responsibility and expressly disclaims liability for loss, damage, or expense arising out of or in any way connected with handling.

1. PRODUCT AND COMPANY IDENTIFICATION

1.1. **Product Name:** Poloxamer 188, 10% Solution

1.2. **Product Numbers:** MIR 6230

1.3. **Identified Product Use:** For research 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 Poloxamer 188 Solution (<10% 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:**

Not a hazardous substance or mixture.

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

Not a hazardous substance or mixture.

2.3. **Other Hazards which do not result in the classification or are not covered by GHS:** None

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. **Substances (Mixtures)**

Chemical Name	CAS-No	EINECS-No	Common Name(s)	Weight %
Poloxamer 188	9003-11-6	n/a	n/a	<10% w/v
Water	7732-18-5	231-791-2	n/a	<90% v/v

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 for at least 15 minutes. Consult a physician.

In case of eye contact

Flush eyes with water immediately for at least 15 minutes. Consult a physician.

If swallowed

Do not induce vomiting. Never give anything by mouth to an unconscious person. Consult a physician.

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

Substance is nonflammable. Use an agent that is appropriate to extinguish the flames.

5.1.2. Unsuitable extinguishing media

No data available

5.2. Specific hazards arising from the substance or mixture

Thermal decomposition can lead to the release of irritating gases and vapors.

5.3. Special protective equipment and precautions for firefighters

Wear self-contained breathing apparatus for firefighting if necessary. Wear full protective gear.

5.4. Further information: None

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid contact with skin, eyes and clothing. 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

Soak up with inert absorbent material (e.g. vermiculite, sand or earth), and dispose of per regulations. Keep in suitable, closed containers for disposal.

6.4. References to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1. Precautions for safe handling

Avoid inhalation of vapor or mist. Avoid contact with skin, eyes and clothing.

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.

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: liquid
Color: colorless
- 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):** No data available
- 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):** Excess heat
- 10.5. **Incompatible materials:** Strong oxidizing agents
- 10.6. **Hazardous decomposition products:** Carbon monoxide (CO), Carbon dioxide (CO₂) – In the event of a fire, see section 5.

11. TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects:

Acute toxicity:

LD50 Oral – Rat – 5,700 mg/kg

LD50 Dermal – No data available

LC50 Inhalation – No data available

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: Do not empty into drains.

12. ECOLOGICAL INFORMATION

12.1. Ecotoxicity (aquatic and terrestrial, where available): No data available

12.2. Persistence and degradability: No data available

12.3. Bioaccumulative potential: No data available

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

This material is not subjected to the reporting requirements of SARA Title III, Section 311,312.

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

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

HMIS Rating

Health hazard: 1

Chronic Health Hazard:

Flammability: 0

Physical Hazard 0

NFPA Rating

Health hazard: 1

Fire Hazard: 0

Reactivity Hazard: 0

Disclaimer: Mirus Bio LLC believes that the information on this MSDS was obtained from reliable sources. However, the information is provided without any warranty, expressed or implied, regarding its correctness. Some information presented and conclusions drawn herein are from sources other than direct test data on the substance itself. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, Mirus Bio LLC does not assume responsibility and expressly disclaims liability for loss, damage, or expense arising out of or in any way connected with handling.

1. PRODUCT AND COMPANY IDENTIFICATION

1.1. **Product Name:** *TransIT-PRO*[®] Transfection Reagent

1.2. **Product Numbers:** MIR 5740

1.3. **Identified Product Use:** For research 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 *TransIT-PRO* Transfection Reagent (< 0.5% 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. The information included within this SDS pertains to ethanol, which is used as a solvent.

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture:

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 2), H225

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

Danger

Hazard statement(s)

H225

Highly flammable liquid and vapor.

H315 + H320

Causes skin and eye irritation

H335

May cause respiratory irritation

Precautionary statement(s)

P210

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

P233

Keep container tightly closed.

P240

Ground/bond container and receiving equipment.

P241

Use explosion-proof electrical/ventilating/lighting equipment.

P242

Use only non-sparking tools.

P243

Take precautionary measures against static discharge.

P280

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

P303 + P361 + P353

IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/ shower.

P370 + P378

In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

P403 + P235

Store in a well-ventilated place. Keep cool.

P501

Dispose of contents/ container to an approved waste disposal plant.

2.3. Other Hazards which do not result in the classification or are not covered by GHS: None

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Chemical Name	CAS-No	EINECS-No	Common Name(s)	Weight %
Ethanol	64-17-5	200-578-6	Ethyl alcohol	80
Water	7732-18-5	231-791-2	n/a	20

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

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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 water spray, alcohol-resistant foam, dry chemical or carbon dioxide

5.1.2. Unsuitable extinguishing media

None

5.2. Specific hazards arising from the substance or mixture

No data available

5.3. Special protective equipment and precautions for firefighters

Wear self-contained breathing apparatus for firefighting if necessary

5.4. Further information

Use water spray to cool unopened containers.

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. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. For personal protection, refer to section 8.

6.2. Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3. Methods and Materials for Containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4. References to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1. Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. Use explosion-proof equipment. Keep away from sources of ignition - no smoking. Take measures to prevent the buildup of electrostatic charge. 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. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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

Ethanol (64-17-5)		
USA OSHA	OSHA PEL (TWA) (mg/m ³)	1900 mg/m ³
USA OSHA	OSHA PEL (TWA) (ppm)	1000 ppm

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.

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

Appropriate engineering controls:	Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation.
Personal protective equipment:	Avoid all unnecessary exposure.
Materials for protective clothing:	GIVE EXCELLENT RESISTANCE: butyl rubber. viton. GIVE GOOD RESISTANCE: neoprene. tetrafluoroethylene. GIVE LESS RESISTANCE: nitrile rubber. polyethylene. GIVE POOR RESISTANCE: natural rubber. PVA. PVC.
Hand protection:	Gloves.
Eye protection:	Safety glasses.
Skin and body protection:	Protective clothing.
Respiratory protection:	Wear gas mask with filter type A if conc. in air > exposure limit.
Other information:	Do not eat, drink or smoke during use.

9. PHYSICAL AND CHEMICAL PROPERTIES

- 9.1. **Appearance (physical state, color etc.):** Form: liquid, clear
Color: colorless
- 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:** -144 °C (-227.2 °F) (for 100% ethanol)
- 9.6. **Initial boiling point and boiling range:** 80 °C (176 °F) (for 100% ethanol)
- 9.7. **Flash point:** 20.0 °C (68 °F) - closed cup
- 9.8. **Evaporation rate:** No data available
- 9.9. **Flammability (solid, gas):** Flammable
- 9.10. **Upper/lower flammability or explosive limits:** 19%(V) / 3.3% (V) (for 100% ethanol)
- 9.11. **Vapor pressure:** 59.5 hPA (44.6 mmHg) at 20 °C (68 °F) (for 100% ethanol)
- 9.12. **Vapor density:** 1.6
- 9.13. **Relative density:** 0.855 g/mL at 25 °C (77 °F) (for 100% ethanol)
- 9.14. **Solubility(ies):** Water soluble
- 9.15. **Partition coefficient: n-octanol/water** No data available
- 9.16. **Auto-ignition temperature:** 363 °C (685 °F) (for 100% ethanol)
- 9.17. **Decomposition temperature:** No data available
- 9.18. **Viscosity:** 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:** Vapors may form explosive mixture with air.
- 10.4. **Conditions to avoid (e.g. static discharge, shock or vibration):** Heat, flames and sparks. Extremes of temperature and direct sunlight.
- 10.5. **Incompatible materials:** Alkali metals, Oxidizing agents, Peroxides, Strong Inorganic Acids
- 10.6. **Hazardous decomposition products:** Other decomposition products – no data available. In the event of a fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects: Ethanol

Acute toxicity

LD50 Oral - Rat - 7,060 mg/kg

Remarks: Lungs, Thorax, or Respiration: Other changes.

LC50 Inhalation - Rat - 10 h - 20000 ppm

Dermal: No data available

Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation - 24 h

(OECD Test Guideline 404)

Serious eye damage/eye irritation

Eyes - Rabbit

Result: Mild eye irritation - 24 h

(OECD Test Guideline 405)

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

Carcinogenicity - Mouse - Oral

Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Liver: Tumors. Blood: Lymphomas including Hodgkin's disease.

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

Reproductive toxicity - Human - female - Oral

Effects on Newborn: Apgar score (human only). Effects on Newborn: Other neonatal measures or effects.

Effects on Newborn: Drug dependence.

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Information on toxicological effects: Water

LD50 Oral - Rat - > 90000 mg/kg

Water summary: There is no data available for the teratogenic, mutagenic, or reproductive toxicity effect of water. No data available to designate as causing specific target organ toxicity through single or repeated exposure. No data available to designate as an aspiration hazard or as a respiratory skin sensitizer.

12. ECOLOGICAL INFORMATION**12.1. Ecotoxicity (aquatic and terrestrial, where available):****Acute Fish toxicity (ethanol):**

LC50 / 96 hour *Oncorhynchus mykiss* (rainbow trout) > 10,000 mg/l

LC50 / 96 hour *Pimephales promelas* (fathead minnow) > 13,400 mg/l

Toxicity to aquatic plants (ethanol):

Growth inhibition / 96 hours *Chlorella vulgaris* (Fresh water algae) 1,000 mg/l

Toxicity to microorganisms (ethanol):

Toxicity Threshold / *Pseudomonas putida* 6,500 mg/l

Summary: Inhibition of cell multiplication begins.

12.2. Persistence and degradability: No data available

12.3. Bioaccumulative potential: No data available

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. Hazardous waste should not be mixed with other waste or different types of hazardous waste if mixing leads to pollution or increased difficulty in properly disposing of the waste. All entities that store, transport or handle hazardous waste should take the necessary measures to prevent risks of pollution or damage to people or animals.

Recycle by distillation. Remove to an authorized waste incinerator for solvents with energy recovery. Do not discharge into surface water. May be discharged to wastewater treatment installation.

14. TRANSPORT INFORMATION

- 14.1. **UN number:** 1170
- 14.2. **UN proper shipping name:** Ethanol solutions
- 14.3. **Transport hazard class(es):** Class 3
- 14.4. **Packing group, if applicable:** Packing Group II
- 14.5. **Environmental hazards (e.g.: Marine pollutant (Yes/No)):** No
- 14.6. **Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code):** DOT Quantity
Limitations – Passenger/Cargo: 1L; Cargo: 60L
- 14.7. **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:** Refer to section 8

Covers specifications required for DOT(US), IMDG, and IATA.

15. REGULATORY INFORMATION

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

OSHA Hazards: Flammable liquid, Target Organ Effect, Irritant

SARA 311/312 Hazards: Fire Hazard, Chronic Health Hazard

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.

WHMIS Classification: B2 – Flammable and combustible material – flammable liquid
D2B – Poisonous and infectious material – other effects – Toxic

16. OTHER INFORMATION

Full text of H-phrases: see section 16:

Acute Tox. 3 (Dermal)	Acute toxicity (dermal), Category 3
Acute Tox. 3 (Inhalation)	Acute toxicity (inhal.), Category 3
Acute Tox. 3 (Oral)	Acute toxicity (oral), Category 3
Carc. 1A	Carcinogenicity, Category 1A
Eye Irrit. 2A	Serious eye damage/eye irritation, Category 2A
Flam. Liq. 2	Flammable liquids, Category 2
Flam. Liq. 3	Flammable liquids, Category 3
Repr. 2	Reproductive toxicity, Category 2
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT SE 1	Specific target organ toxicity — single exposure, Category 1
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Narcosis
H225	Highly flammable liquid and vapor
H226	Flammable liquid and vapor
H301	Toxic if swallowed
H311	Toxic in contact with skin
H315	Causes skin irritation
H319	Causes serious eye irritation
H331	Toxic if inhaled
H336	May cause drowsiness or dizziness
H350	May cause cancer
H361	Suspected of damaging fertility or the unborn child
H370	Causes damage to organs

NFPA health hazard: 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.

NFPA fire hazard: 3 - Liquids and solids that can be ignited under almost all ambient conditions.

NFPA reactivity: 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.

HMIS III Rating

Health: 2 Moderate Hazard - Temporary or minor injury may occur
 Flammability: 3 Serious Hazard
 Physical: 1 Slight Hazard
 Personal Protection: D

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1. PRODUCT AND COMPANY IDENTIFICATION

1.1. **Product Name:** CHOgro® Titer Enhancer

1.2. **Product Numbers:** MIR 6220, Part of MIR 6225, MIR 6270

1.3. **Identified Product Use:** For research 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® Titer Enhancer (> 77% by volume) 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:

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 4), H302

Acute aquatic toxicity (Category 2), H401

Flammable liquids (Category 4), H227 and Flammable liquids (Category 2), H225

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

Danger

Hazard statement(s)

H227

Combustible liquid

H302

Harmful if swallowed

H315 + H320

Causes skin and eye irritation

H335

May cause respiratory irritation

H401

Toxic to aquatic life

Precautionary statement(s)

P210

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

P233

Keep container tightly closed.

P241

Use explosion-proof electrical/ventilating/lighting equipment.

P243

Take precautionary measures against static discharge.

P264

Wash skin thoroughly after handling

P270

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

P273

Avoid release to the environment.

P280

Wear protective gloves.

P301 + P312

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel

P303 + P361 + P353	unwell IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/ shower.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.
P403 + P235 P501	Store in a well-ventilated place. Keep cool. Dispose of contents/ container to an approved waste disposal plant.

2.3. Other Hazards which do not result in the classification or are not covered by GHS: None

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Chemical Name	CAS-No	EINECS-No	Common Name(s)	Weight %
DMSO	67-68-5	200-664-3	Methyl sulfoxide	75%
Water	7732-18-5	231-791-2	n/a	25%
Proprietary	n/a	n/a	n/a	< 0.05%

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

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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 water spray, alcohol-resistant foam, dry chemical or carbon dioxide

5.1.2. Unsuitable extinguishing media

None

5.2. Specific hazards arising from the substance or mixture

Carbon oxides, Sulphur oxides

5.3. Special protective equipment and precautions for firefighters

Wear self-contained breathing apparatus for firefighting if necessary

5.4. Further information: Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid breathing vapors, mist or gas. Remove all sources of ignition. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas. Ensure adequate ventilation. Evacuate personnel to safe areas. For personal protection, refer to section 8.

6.2. Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3. Methods and Materials for Containment and cleaning up

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations. Keep in suitable, closed containers for disposal.

6.4. References to other sections

For disposal see section 13.

7. HANDLING AND STORAGE

7.1. Precautions for safe handling

Avoid inhalation of vapor or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build-up of electrostatic charge. Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. 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. Store under inert gas. Hygroscopic. Storage class (TRGS 510): Combustible liquids. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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

DMSO (67-68-5)		
USA OSHA	OSHA PEL (TWA) (ppm)	250 ppm

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. Use explosion-proof electrical / ventilating / lighting / equipment.

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

Personal protective equipment:	Avoid all unnecessary exposure.
Materials for protective clothing:	GIVE EXCELLENT RESISTANCE: butyl rubber. viton. GIVE GOOD RESISTANCE: neoprene. tetrafluoroethylene. GIVE LESS RESISTANCE: nitrile rubber. polyethylene. GIVE POOR RESISTANCE: natural rubber. PVA. PVC.
Hand protection:	Always wear gloves.
Eye protection:	Safety glasses with side shields.
Skin and body protection:	Protective clothing.
Respiratory protection:	Wear gas mask with filter type A if conc. in air > exposure limit. 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 eat, drink or smoke during use. Do not allow product to enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

- 9.1. **Appearance (physical state, color etc.):** Form: liquid, clear
Color: colorless
- 9.2. **Odor:** sulfurous
- 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):** completely miscible; alcohol soluble; Diethylether soluble
- 9.15. **Partition coefficient: n-octanol/water:** 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:**

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:** Vapors may form explosive mixture with air.
- 10.4. **Conditions to avoid (e.g. static discharge, shock or vibration):** Heat, flames and sparks. Extremes of temperature and direct sunlight.
- 10.5. **Incompatible materials:** Acid chlorides, Phosphorus halides, Strong acids, Strong oxidizing agents, Strong reducing agents. Alkali metals, Oxidizing agents, Peroxides
- 10.6. **Hazardous decomposition products:** Carbon monoxide (CO), Carbon dioxide (CO₂), Sulfur oxides, Sulfides, Formaldehyde. In the event of a fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects:

Acute toxicity

LD50 Oral - Rat - 2,000 mg/kg

LC50 Inhalation - Rat - 4 h - 40250 ppm

LD50 Dermal - Rabbit - > 2,500 mg/kg

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

Eyes - Rabbit

Result: no irritation

Respiratory or skin sensitization

No data available

Germ cell mutagenicity

Mutagenic effects have occurred in experimental animals.

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

Reproductive toxicity - Human - female - Oral

Effects on Newborn: Apgar score (human only). Effects on Newborn: Other neonatal measures or effects.

Effects on Newborn: Drug dependence.

Experiments have shown reproductive toxicity effects on laboratory animals.

Developmental effects have occurred in experimental animals.

Teratogenic effects have occurred in experimental animals. Follow safe laboratory practices and wear proper protective when handling this compound. Acute toxicity of these substances is not fully known. Possible risk of harm to the unborn child. Chronic toxicity of these substances is not fully known.

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

12. ECOLOGICAL INFORMATION

12.1. Ecotoxicity (aquatic and terrestrial, where available): Do not empty into drains

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 34,000 mg/l - 96 h LC50 - Oncorhynchus mykiss (rainbow trout) > 10,000 mg/l - 96 h LC50 - Danio rerio (zebra fish) – 4.64 mg/l – 96h LC50 - 96 hour Pimephales promelas (fathead minnow) > 13,400 mg/
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 24,600 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	EC50 - Pseudokirchneriella subcapitata (green algae) - 17,000 mg/l - 72 h (OECD Test Guideline 201)

12.2. Persistence and degradability:

Biodegradability	Result: 31 % - According to the results of tests of biodegradability this product is not readily biodegradable. (OECD Test Guideline 301D)
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12.3. Bioaccumulative potential: No data available

12.4. Mobility in the soil: No data available

12.5. Other adverse effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

13.1. Waste Treatment Recommendations:

Remove waste in accordance with local and/or national regulations. Hazardous waste should not be mixed with other waste or different types of hazardous waste if mixing leads to pollution or increased difficulty in properly disposing of the waste. All entities that store, transport or handle hazardous waste should take the necessary measures to prevent risks of pollution or damage to people or animals.

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

14. TRANSPORT INFORMATION

14.1. IATA - Not Regulated as a dangerous good

15. REGULATORY INFORMATION

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

OSHA Hazards: Harmful by ingestion

SARA 311/312 Hazards: Acute health hazard

California Prop. 65 Components: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

WHMIS Classification: B2 – Flammable and combustible material – flammable liquid
D2B – Poisonous and infectious material – other effects – Toxic

16. OTHER INFORMATION

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

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
H302	Harmful if swallowed.
H401	Harmful to aquatic life.

HMIS Rating

Health hazard:	1
Chronic Health Hazard:	
Flammability:	2
Physical Hazard	0

NFPA Rating

Health hazard:	1
Fire Hazard:	2

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