

SAFETY DATA SHEET (SDS)



Product Name: *Label IT*[®] Tracker[™] Intracellular Nucleic Acid Localization Kits

Product Number: MIR 7020, MIR 7021, MIR 7022, MIR 7023, MIR 7024, MIR 7025

Revision Date: JAN 03 2017

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

- *Label IT*[®] Tracker[™] Labeling Reagent
- Reconstitution Solution
- 10X Labeling Buffer A

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1. PRODUCT AND COMPANY IDENTIFICATION

1.1. Product Name: *Label/IT*® Labeling Reagent

1.2. Product Numbers: Part of MIR 3100, 3125, 3200, 3225, 3300, 3325, 3400, 3425, 3600, 3625, 3700, 3725, 3800, 3825, 3900, 3925, 4100, 4125, 6510, 6512, 6513, 6514, 6520, 6522, 6523, 6524, 7020, 7021, 7022, 7023, 7024, 7025, 7212, 7213, 7214, 7215, 7216, 7217, 8010, 8050, 8105, 8125, 8205, 8225, 8710, 8750, 8810, 8850, 9305, 9325, 9410, 9450, 9510, 9550, 9610, 9650

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 *Label/IT*® Labeling Reagent (100% by weight) are potentially harmful, although the chemical, physical, and toxicological properties have not been thoroughly investigated by Mirus Bio LLC. For proper usage, *Label/IT*® Labeling Reagent is dissolved in Reconstitution Solution; this Safety Data Sheet is intended to provide general guidelines about its use when reconstituted. 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)

Flammable liquids (Category 4), H227

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

2.2. GHS label elements, including precautionary statements:

Pictogram None

Signal word Warning

Hazard statement(s)

H227 Combustible liquid.

Precautionary statement(s)

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P280 Wear protective gloves.

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)	Volume%
DMSO	67-68-5	200-664-3	Methyl sulfoxide	100

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.

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

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. 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:	Wear nitrile rubber gloves with a minimal layer thickness of 0.2 mm.
Hand protection:	Always wear gloves.
Eye protection:	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:** sulfurous

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

9.4. **pH:** No data available

9.5. **Melting point/freezing point:** Melting point/range: 16 - 19 °C (61 - 66 °F)

9.6. **Initial boiling point and boiling range:** 189 °C (372 °F)

- 9.7. **Flash point:** 87 °C (189 °F) - closed cup - ASTM D 93
- 9.8. **Evaporation rate:** No data available
- 9.9. **Flammability (solid, gas):** No data available
- 9.10. **Upper/lower flammability or explosive limits:** Upper explosion limit: 42 %(V)
Lower explosion limit: 3.5 %(V)
- 9.11. **Vapor pressure:** 0.55 hPa (0.41 mmHg) at 20 °C (68 °F)
4 hPa (3 mmHg) at 50 °C (122 °F)
- 9.12. **Vapor density:** 2.70 - (Air = 1.0)
- 9.13. **Relative density:** 1.1 g/mL
- 9.14. **Solubility(ies):** completely miscible; alcohol soluble; Diethylether soluble
- 9.15. **Partition coefficient: n-octanol/water** log Pow: -1.349
- 9.16. **Auto-ignition temperature:** 300 - 302 °C (572 - 576 °F)
- 9.17. **Decomposition temperature:** > 190 °C (> 374 °F)
- 9.18. **Viscosity:** No data available
- 9.19. **Other information:**
- | | |
|------------------------|----------------------------|
| Surface tension | 43.5 mN/m at 20 °C (68 °F) |
| Relative vapor density | 2.70 - (Air = 1.0) |

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):** Heat, flames and sparks.
- 10.5. **Incompatible materials:** Acid chlorides, Phosphorus halides, Strong acids, Strong oxidizing agents, Strong reducing agents
- 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 - 14,500 mg/kg
LC50 Inhalation - Rat - 4 h - 40250 ppm
LD50 Dermal - Rabbit - > 5,000 mg/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

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

Experiments have shown reproductive toxicity effects on laboratory animals.

Developmental effects have occurred in experimental animals.

Teratogenic effects have occurred in experimental animals.

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) - 35,000 mg/l - 96 h

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)

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.

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. **UN number:** none
14.2. **UN proper shipping name:** Combustible liquid, n.o.s. (Dimethyl sulfoxide) (Dimethyl sulfoxide)
14.3. **Transport hazard class(es):** none
14.4. **Packing group, if applicable:** none

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

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.

16. OTHER INFORMATION

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

Flam. Liq.	Flammable liquids
H227	Combustible liquid.

HMIS Rating

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

NFPA Rating

Health hazard:	0
Fire Hazard:	2
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: Reconstitution Solution

1.2. Product Numbers: Part of MIR 3100, 3125, 3200, 3225, 3300, 3325, 3400, 3425, 3600, 3625, 3700, 3725, 3800, 3825, 3900, 39254100, 4125, , 6510, 6512, 6513, 6514, 6520, 6522, 6523, 6524, 7020, 7021, 7022, 7023, 7024, 7025, 7212, 7213, 7214, 7215, 7216, 7217, 8010, 8050, 8105, 8125, 8205, 8225, 8710, 8810, 8750, 8850, 9305, 9325, 9410, 9450, 9510, 9550, 9610, 9650

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 Reconstitution Solution (100% 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)

Flammable liquids (Category 4), H227

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

2.2. GHS label elements, including precautionary statements:

Pictogram None

Signal word Warning

Hazard statement(s)

H227 Combustible liquid.

Precautionary statement(s)

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P280 Wear protective gloves.

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 %
DMSO	67-68-5	200-664-3	Methyl sulfoxide	100

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.

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

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. 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:	Wear nitrile rubber gloves with a minimal layer thickness of 0.2 mm.
Hand protection:	Always wear gloves.
Eye protection:	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:** sulfurous

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

9.4. **pH:** No data available

9.5. **Melting point/freezing point:** Melting point/range: 16 - 19 °C (61 - 66 °F)

9.6. **Initial boiling point and boiling range:** 189 °C (372 °F)

9.7. **Flash point:** 87 °C (189 °F) - closed cup - ASTM D 93

- 9.8. **Evaporation rate:** No data available
- 9.9. **Flammability (solid, gas):** No data available
- 9.10. **Upper/lower flammability or explosive limits:** Upper explosion limit: 42 %(V)
Lower explosion limit: 3.5 %(V)
- 9.11. **Vapor pressure:** 0.55 hPa (0.41 mmHg) at 20 °C (68 °F)
4 hPa (3 mmHg) at 50 °C (122 °F)
- 9.12. **Vapor density:** 2.70 - (Air = 1.0)
- 9.13. **Relative density:** 1.1 g/mL
- 9.14. **Solubility(ies):** completely miscible; alcohol soluble; Diethylether soluble
- 9.15. **Partition coefficient: n-octanol/water** log Pow: -1.349
- 9.16. **Auto-ignition temperature:** 300 - 302 °C (572 - 576 °F)
- 9.17. **Decomposition temperature:** > 190 °C (> 374 °F)
- 9.18. **Viscosity:** No data available
- 9.19. **Other information:**
- | | |
|------------------------|----------------------------|
| Surface tension | 43.5 mN/m at 20 °C (68 °F) |
| Relative vapor density | 2.70 - (Air = 1.0) |

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):** Heat, flames and sparks.
- 10.5. **Incompatible materials:** Acid chlorides, Phosphorus halides, Strong acids, Strong oxidizing agents, Strong reducing agents
- 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 - 14,500 mg/kg
LC50 Inhalation - Rat - 4 h - 40250 ppm
LD50 Dermal - Rabbit - > 5,000 mg/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

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

Experiments have shown reproductive toxicity effects on laboratory animals.

Developmental effects have occurred in experimental animals.

Teratogenic effects have occurred in experimental animals.

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) - 35,000 mg/l - 96 h
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: 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.

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. **UN number:** none
14.2. **UN proper shipping name:** Combustible liquid, n.o.s. (Dimethyl sulfoxide) (Dimethyl sulfoxide)
14.3. **Transport hazard class(es):** none
14.4. **Packing group, if applicable:** none

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

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.

16. OTHER INFORMATION

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

Flam. Liq.	Flammable liquids
H227	Combustible liquid.

HMIS Rating

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

NFPA Rating

Health hazard:	0
Fire Hazard:	2
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: 10X Labeling Buffer A

1.2. Product Numbers: Part of MIR 3100, 3125, 3200, 3225, 3300, 3325, 3400, 3425, 3600, 3625, 3700, 3725, 3800, 3825, 3900, 3925, 4100, 4125, 6510, 6512, 6513, 6514, 6520, 6522, 6523, 6524, 7020, 7021, 7022, 7023, 7024, 7025, 7212, 7213, 7214, 7215, 7216, 7217

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 10X Labeling Buffer A (< 5.5% 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.

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture:

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

Skin irritation (Category 2), H315

Eye irritation (Category 2A), H319

Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

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.

Precautionary statement(s)

P261

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

P264

Wash skin thoroughly after handling.

P271

Use only outdoors or in a well-ventilated area.

P280

Wear protective gloves/ eye protection/ face protection.

P302 + P352

IF ON SKIN: Wash with plenty of soap and water.

P304 + P340

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P305 + P351 + P338

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P312

Call a POISON CENTER or doctor/ physician if you feel unwell.

P321

Specific treatment (see supplemental first aid instructions for MOPS).

P332 + P313

If skin irritation occurs: Get medical advice/ attention.

P337 + P313
P362
P403 + P233
P405
P501

If eye irritation persists: Get medical advice/ attention.
Take off contaminated clothing and wash before reuse.
Store in a well-ventilated place. Keep container tightly closed.
Store locked up.
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 %
MOPS	1132-61-2	214-478-5	3-(N-Morpholino)propanesulfonic acid 4-Morpholinepropanesulfonic acid	5.5% w/v
Water	7732-18-5	231-791-2	n/a	100% 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

Rinse thoroughly with plenty of water for at least 15 minutes and 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

Carbon oxides, nitrogen oxides (NO_x), Sulphur oxides

5.3. Special protective equipment and precautions for firefighters

Wear self-contained breathing apparatus for firefighting if necessary

5.4. Further information: No data available

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

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 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. 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

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: 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:** 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, Strong bases
- 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

LD50 Oral - Rat - >2,000 mg/kg

LC50 Inhalation – no data available

LD50 Dermal – 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: Inhalation - May cause respiratory irritation.

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 daphnia and other aquatic invertebrates: EC50 - Daphnia magna (Water flea) - >100 mg/l - 48 h

Toxicity to fish: No data available

Toxicity to algae: No data available

12.2. Persistence and degradability: Biodegradability – 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.

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. UN number: not a dangerous good

14.2. UN proper shipping name: not a dangerous good

14.3. Transport hazard class(es): not a dangerous good

14.4. Packing group, if applicable: not a dangerous 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 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.

16. OTHER INFORMATION

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

Eye Irrit.

Eye irritation

H315

Causes skin irritation.

H319

Causes serious eye irritation.

H335

May cause respiratory irritation.

Skin Irrit.

Skin irritation

STOT SE

Specific target organ toxicity - single exposure

HMIS Rating

Health hazard: 2

Chronic Health Hazard: *

Flammability: 0

Physical Hazard 0

NFPA Rating

Health hazard: 2

Fire Hazard: 0

Reactivity Hazard: 0

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