SAFETY DATA SHEET (SDS)

Mirus | The Transfection Experts

Product Name: *Label* IT® siRNA Tracker Intracellular Localization Kits

Product Number: MIR 7212, MIR 7213, MIR 7214, MIR 7215, MIR 7216, MIR 7217

Revision Date: FEB 20 2015

Print Date: MAR 04 2015

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

- *Label* IT® siRNA Tracker Labeling Reagent
- Reconstitution Solution
- 10X Labeling Buffer A
- siRNA Dilution Buffer

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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. Hydroscopic.
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. Hydroscopic.
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: 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	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
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 %
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 (NOx), 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

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: siRNA Dilution Buffer

1.2. Product Numbers: Part of MIR 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 siRNA Dilution Buffer (< 0.13% 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:

Chemical Name	CAS-No	EINECS-No	Common Name(s)	Weight %
Tris(hydroxymethyl)-aminomethane	77-86-1	201-064-4	TRIS	0.025-0.075% w/v
Sodium Chloride	7647-14-5	231-598-3	NaCl, salt	0.058% w/v
Water	7732-18-5	231-791-2	n/a	100% v/v

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
CAS-No. 77-86-1 only:
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319

Other components: Not classified as hazardous substance or mixture.
For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2. GHS label elements, including precautionary statements:

CAS-No. 77-86-1:

Pictogram

Signal word Warning

Hazard statement(s)

H315 Causes skin irritation.

H319 Causes serious eye irritation.

Precautionary statement(s)

P264	Wash skin thoroughly after handling.
P280	Wear protective gloves/ eye protection/ face protection.
P302+P352	IF ON SKIN: Wash with plenty of soap and water.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332+P313	If skin irritation occurs: Get medical advice/ attention.
P337+P313	If eye irritation persists: Get medical advice/ attention.
P362	Take off contaminated clothing and wash before reuse.

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 %
Tris(hydroxymethyl)-aminomethane	77-86-1	201-064-4	TRIS	0.25-0.75% w/v
Sodium Chloride	7647-14-5		NaCl, salt	0.58% 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.
In case of skin contact
Wash off with soap and water
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

CAS-No. 77-86-1: Carbon oxides, nitrogen oxides (NOx), Hydrogen chloride gas

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. 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). 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, mist, or dust. 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: colorless

9.2. Odor: No data available
9.3. Odor threshold: No data available
9.4. pH: 7.5
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:

Component	CAS-No.	LD50 Oral	LD50 Dermal	LC50
Tris(hydroxymethyl)-aminomethane	77-86-1	> 3,000 mg/kg (rat)	> 5,000 mg/kg (rat)	no data available
Sodium Chloride	7647-14-5	No data available	No data available	5,840 mg/l - 96 h (Bluegill)
Water	7732-18-5	No data available	No data available	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. 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.

14. TRANSPORT INFORMATION

14.1. UN number: Not regulated as a hazardous material
14.2. UN proper shipping name: Not regulated as a hazardous material
14.3. Transport hazard class(es): Not regulated as a hazardous material
14.4. Packing group, if applicable: Not regulated as a hazardous material

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.

CAS-No. 77-86-1 (Tris(hydroxymethyl)-aminomethane):

H315	Causes skin irritation.
H319	Causes serious eye irritation.

HMIS Rating		**NFPA Rating**	
Health hazard:	2	Health Hazard:	2
Chronic Health Hazard:	*	Fire Hazard:	0
Flammability:	0	Reactivity Hazard:	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.