

SAFETY DATA SHEET



SureSelect Max Enzymatic Fragmentation Library Preparation Module, 16_96 Reactions

Section 1. Identification

Product identifier : SureSelect Max Enzymatic Fragmentation Library Preparation Module, 16_96 Reactions

Part no. (chemical kit) : 5280-0063, 5280-0064

Part no. : Frag/A-Tail Buffer 5271-0076 / 5271-0080
 Frag/A-Tail Enzyme Mix 5271-0077 / 5271-0081
 Ligation Master Mix 5271-0078 / 5271-0082
 Amplification Master Mix 5271-0079 / 5271-0083

Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Analytical reagent.
 For research use only.

Frag/A-Tail Buffer 0.072 ml (16 reactions) / 0.512 ml (96 reactions)

Frag/A-Tail Enzyme Mix 0.108 ml (16 reactions) / 0.768 ml (96 reactions)

Ligation Master Mix 0.36 ml (16 reactions) / 2.32 ml (96 reactions)

Amplification Master Mix 0.45 ml (16 reactions) / 2.84 ml (96 reactions)

Uses advised against : Not for use in diagnostic procedures.

Supplier/Manufacturer : Agilent Technologies Australia Pty Ltd
 679 Springvale Road
 Mulgrave
 Victoria 3170, Australia
 1800 802 402

Emergency telephone number (with hours of operation) : CHEMTREC®: +(61)-290372994

Section 2. Hazard(s) identification

Classification of the substance or mixture

Frag/A-Tail Buffer

H302 ACUTE TOXICITY (oral) - Category 4
 H371 SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - Category 2
 H411 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2

Frag/A-Tail Enzyme Mix

H320 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2B

Ligation Master Mix

H320 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2B

Amplification Master Mix

H302 ACUTE TOXICITY (oral) - Category 4
 H315 SKIN CORROSION/IRRITATION - Category 2
 H319 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2A
 H371 SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - Category 2
 H412 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3

Frag/A-Tail Buffer Percentage of the mixture consisting of ingredient(s) of unknown acute oral toxicity: 1 - 10%

Section 2. Hazard(s) identification

Frag/A-Tail Buffer

Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 1%

GHS label elements

Hazard pictograms

: Frag/A-Tail Buffer



Amplification Master Mix



Signal word

: Frag/A-Tail Buffer
Frag/A-Tail Enzyme Mix
Ligation Master Mix
Amplification Master Mix

WARNING
WARNING
WARNING
WARNING

Hazard statements

: Frag/A-Tail Buffer

Frag/A-Tail Enzyme Mix
Ligation Master Mix
Amplification Master Mix

H302 - Harmful if swallowed.
H371 - May cause damage to organs. (central nervous system (CNS))
H411 - Toxic to aquatic life with long lasting effects.
H320 - Causes eye irritation.
H320 - Causes eye irritation.
H302 - Harmful if swallowed.
H315 - Causes skin irritation.
H319 - Causes serious eye irritation.
H371 - May cause damage to organs. (central nervous system (CNS))
H412 - Harmful to aquatic life with long lasting effects.

Precautionary statements

Prevention

: Frag/A-Tail Buffer

Frag/A-Tail Enzyme Mix
Ligation Master Mix
Amplification Master Mix

P273 - Avoid release to the environment.
P260 - Do not breathe vapour.
P270 - Do not eat, drink or smoke when using this product.
P264 - Wash thoroughly after handling.
Not applicable.
Not applicable.
P280 - Wear protective gloves. Wear eye or face protection.
P273 - Avoid release to the environment.
P260 - Do not breathe vapour.
P270 - Do not eat, drink or smoke when using this product.

Response

: Frag/A-Tail Buffer
Frag/A-Tail Enzyme Mix

Ligation Master Mix

Amplification Master Mix

P391 - Collect spillage.
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313 - If eye irritation persists: Get medical advice or attention.
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313 - If eye irritation persists: Get medical advice or attention.
P308 + P311 - IF exposed or concerned: Call a POISON CENTER or doctor.

Storage

: Frag/A-Tail Buffer
Frag/A-Tail Enzyme Mix
Ligation Master Mix
Amplification Master Mix

Not applicable.
Not applicable.
Not applicable.
Not applicable.

Section 2. Hazard(s) identification

Disposal	: Frag/A-Tail Buffer	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
	Frag/A-Tail Enzyme Mix	Not applicable.
	Ligation Master Mix	Not applicable.
	Amplification Master Mix	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
Supplemental label elements		
Additional warning phrases	: Frag/A-Tail Buffer	Not applicable.
	Frag/A-Tail Enzyme Mix	Not applicable.
	Ligation Master Mix	Not applicable.
	Amplification Master Mix	Not applicable.
Other hazards which do not result in classification	: Frag/A-Tail Buffer	None known.
	Frag/A-Tail Enzyme Mix	None known.
	Ligation Master Mix	None known.
	Amplification Master Mix	None known.

Section 3. Composition and ingredient information

Substance/mixture	: Frag/A-Tail Buffer	Mixture
	Frag/A-Tail Enzyme Mix	Mixture
	Ligation Master Mix	Mixture
	Amplification Master Mix	Mixture

CAS number/other identifiers

Ingredient name	% (w/w)	CAS number
Frag/A-Tail Buffer		
Magnesium chloride	≥10 - <25	7786-30-3
tetramethylammonium chloride	<10	75-57-0
Frag/A-Tail Enzyme Mix		
Glycerol	≥30 - ≤60	56-81-5
Ligation Master Mix		
Glycerol	≥30 - ≤60	56-81-5
Poly(oxy-1,2-ethanediyl),α-hydro-ω-hydroxy- Ethane-1,2-diol, ethoxylated	≥10 - ≤30	25322-68-3
Amplification Master Mix		
Glycerol	≥30 - ≤60	56-81-5
Trometamol	≤10	77-86-1
tetramethylammonium chloride	<10	75-57-0

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

The total concentration of ingredients in this product, reported or not in this section, is 100%.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact	: Frag/A-Tail Buffer	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention following exposure or if feeling unwell. If necessary, call a poison center or physician.
	Frag/A-Tail Enzyme Mix	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. If irritation persists, get medical attention.
	Ligation Master Mix	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. If irritation persists, get medical attention.
	Amplification Master Mix	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention. If necessary, call a poison center or physician.
Inhalation	: Frag/A-Tail Buffer	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention following exposure or if feeling unwell. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
	Frag/A-Tail Enzyme Mix	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
	Ligation Master Mix	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
	Amplification Master Mix	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs,

Section 4. First aid measures

Skin contact

: Frag/A-Tail Buffer

provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention following exposure or if feeling unwell. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Frag/A-Tail Enzyme Mix

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention following exposure or if feeling unwell. If necessary, call a poison center or physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ligation Master Mix

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Amplification Master Mix

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. If necessary, call a poison center or physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion

: Frag/A-Tail Buffer

Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Frag/A-Tail Enzyme Mix

Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Ligation Master Mix

Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to

Section 4. First aid measures

Amplification Master Mix	<p>drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.</p> <p>Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.</p>
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Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact	: Frag/A-Tail Buffer Frag/A-Tail Enzyme Mix Ligation Master Mix Amplification Master Mix	<p>No known significant effects or critical hazards. Causes eye irritation. Causes eye irritation. Causes serious eye irritation.</p>
Inhalation	: Frag/A-Tail Buffer Frag/A-Tail Enzyme Mix Ligation Master Mix Amplification Master Mix	<p>May cause damage to organs following a single exposure if inhaled. No known significant effects or critical hazards. No known significant effects or critical hazards. May cause damage to organs following a single exposure if inhaled.</p>
Skin contact	: Frag/A-Tail Buffer Frag/A-Tail Enzyme Mix Ligation Master Mix Amplification Master Mix	<p>May cause damage to organs following a single exposure in contact with skin. No known significant effects or critical hazards. No known significant effects or critical hazards. May cause damage to organs following a single exposure in contact with skin. Causes skin irritation.</p>
Ingestion	: Frag/A-Tail Buffer Frag/A-Tail Enzyme Mix Ligation Master Mix Amplification Master Mix	<p>Harmful if swallowed. May cause damage to organs following a single exposure if swallowed. No known significant effects or critical hazards. No known significant effects or critical hazards. Harmful if swallowed. May cause damage to organs following a single exposure if swallowed.</p>

Over-exposure signs/symptoms

Eye contact	: Frag/A-Tail Buffer Frag/A-Tail Enzyme Mix Ligation Master Mix Amplification Master Mix	<p>No specific data. Adverse symptoms may include the following: irritation watering redness Adverse symptoms may include the following: irritation watering redness Adverse symptoms may include the following:</p>
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Section 4. First aid measures

		pain or irritation watering redness
Inhalation	: Frag/A-Tail Buffer Frag/A-Tail Enzyme Mix Ligation Master Mix Amplification Master Mix	No specific data. No specific data. No specific data. No specific data.
Skin contact	: Frag/A-Tail Buffer Frag/A-Tail Enzyme Mix Ligation Master Mix Amplification Master Mix	No specific data. No specific data. No specific data. Adverse symptoms may include the following: irritation redness
Ingestion	: Frag/A-Tail Buffer Frag/A-Tail Enzyme Mix Ligation Master Mix Amplification Master Mix	No specific data. No specific data. No specific data. No specific data.

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

Notes to physician	: Frag/A-Tail Buffer Frag/A-Tail Enzyme Mix Ligation Master Mix Amplification Master Mix	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Specific treatments	: Frag/A-Tail Buffer Frag/A-Tail Enzyme Mix Ligation Master Mix Amplification Master Mix	No specific treatment. No specific treatment. No specific treatment. No specific treatment.
Protection of first-aiders	: Frag/A-Tail Buffer Frag/A-Tail Enzyme Mix Ligation Master Mix Amplification Master Mix	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Firefighting measures

Extinguishing media

Suitable extinguishing media	: Frag/A-Tail Buffer	Use an extinguishing agent suitable for the surrounding fire.
	Frag/A-Tail Enzyme Mix	Use an extinguishing agent suitable for the surrounding fire.
	Ligation Master Mix	Use an extinguishing agent suitable for the surrounding fire.
	Amplification Master Mix	Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	: Frag/A-Tail Buffer	None known.
	Frag/A-Tail Enzyme Mix	None known.
	Ligation Master Mix	None known.
	Amplification Master Mix	None known.
Specific hazards arising from the chemical	: Frag/A-Tail Buffer	In a fire or if heated, a pressure increase will occur and the container may burst. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
	Frag/A-Tail Enzyme Mix	In a fire or if heated, a pressure increase will occur and the container may burst.
	Ligation Master Mix	In a fire or if heated, a pressure increase will occur and the container may burst.
	Amplification Master Mix	In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
Hazardous thermal decomposition products	: Frag/A-Tail Buffer	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides phosphorus oxides halogenated compounds metal oxide/oxides
	Frag/A-Tail Enzyme Mix	Decomposition products may include the following materials: carbon dioxide carbon monoxide
	Ligation Master Mix	Decomposition products may include the following materials: carbon dioxide carbon monoxide
	Amplification Master Mix	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides halogenated compounds
Special protective actions for fire-fighters	: Frag/A-Tail Buffer	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
	Frag/A-Tail Enzyme Mix	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Section 5. Firefighting measures

	Ligation Master Mix	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
	Amplification Master Mix	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Special protective equipment for fire-fighters	: Frag/A-Tail Buffer	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	Frag/A-Tail Enzyme Mix	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	Ligation Master Mix	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	Amplification Master Mix	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
Hazchem code	: Frag/A-Tail Buffer	•3Z
	Frag/A-Tail Enzyme Mix	Not available.
	Ligation Master Mix	Not available.
	Amplification Master Mix	Not available.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	: Frag/A-Tail Buffer	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
	Frag/A-Tail Enzyme Mix	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
	Ligation Master Mix	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
	Amplification Master Mix	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on

Section 6. Accidental release measures

For emergency responders : Frag/A-Tail Buffer

Frag/A-Tail Enzyme Mix

Ligation Master Mix

Amplification Master Mix

appropriate personal protective equipment.

If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

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Environmental precautions : Frag/A-Tail Buffer

Frag/A-Tail Enzyme Mix

Ligation Master Mix

Amplification Master Mix

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

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Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

Methods and material for containment and cleaning up

Methods for cleaning up : Frag/A-Tail Buffer

Frag/A-Tail Enzyme Mix

Ligation Master Mix

Amplification Master Mix

Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Stop leak if without risk. Move containers from spill

Section 6. Accidental release measures

area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Frag/A-Tail Buffer

Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Avoid release to the environment. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Frag/A-Tail Enzyme Mix

Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Ligation Master Mix

Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Amplification Master Mix

Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Avoid release to the environment. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Frag/A-Tail Buffer

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Frag/A-Tail Enzyme Mix

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Ligation Master Mix

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and

Section 7. Handling and storage

Amplification Master Mix

processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures. Potentially biohazardous material. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Frag/A-Tail Buffer

Frag/A-Tail Enzyme Mix

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Ligation Master Mix

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Amplification Master Mix

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls and personal protection

[Control parameters](#)

[Occupational exposure limits](#)

Ingredient name	Exposure limits
Frag/A-Tail Enzyme Mix Glycerol	Safe Work Australia (Australia, 10/2022). TWA: 10 mg/m ³ 8 hours.
Ligation Master Mix Glycerol Poly(oxy-1,2-ethanediyl), α -hydro- ω -hydroxy- Ethane-1,2-diol, ethoxylated	Safe Work Australia (Australia, 10/2022). TWA: 10 mg/m ³ 8 hours. DFG MAC-values list (Germany, 7/2023). [Polyethylene glycol (average molecular weight 200 – 600)] PEAK: 400 mg/m ³ , 4 times per shift, 15 minutes. Form: inhalable fraction TWA: 200 mg/m ³ 8 hours. Form: inhalable fraction
Amplification Master Mix Glycerol	Safe Work Australia (Australia, 10/2022). TWA: 10 mg/m ³ 8 hours.

[Biological exposure indices](#)

No exposure indices known.

[Appropriate engineering controls](#)

: If user operations generate dust, fumes, gas, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

[Environmental exposure controls](#)

: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

[Individual protection measures](#)

[Hygiene measures](#)

: Handle as biohazard material (Biosafety level 1). Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

[Eye/face protection](#)

: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

[Skin protection](#)

[Hand protection](#)

: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

[Body protection](#)

: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Section 8. Exposure controls and personal protection

- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

- Physical state** : Frag/A-Tail Buffer Liquid.
 Frag/A-Tail Enzyme Mix Liquid.
 Ligation Master Mix Liquid.
 Amplification Master Mix Liquid.
- Colour** : Frag/A-Tail Buffer Not available.
 Frag/A-Tail Enzyme Mix Not available.
 Ligation Master Mix Not available.
 Amplification Master Mix Not available.
- Odour** : Frag/A-Tail Buffer Not available.
 Frag/A-Tail Enzyme Mix Not available.
 Ligation Master Mix Not available.
 Amplification Master Mix Not available.
- Odour threshold** : Frag/A-Tail Buffer Not available.
 Frag/A-Tail Enzyme Mix Not available.
 Ligation Master Mix Not available.
 Amplification Master Mix Not available.
- pH** : Frag/A-Tail Buffer 8.3
 Frag/A-Tail Enzyme Mix 7
 Ligation Master Mix 7.8
 Amplification Master Mix 8.5
- Melting point/freezing point** : Frag/A-Tail Buffer Not available.
 Frag/A-Tail Enzyme Mix Not available.
 Ligation Master Mix Not available.
 Amplification Master Mix Not available.
- Boiling point, initial boiling point, and boiling range** : Frag/A-Tail Buffer Not available.
 Frag/A-Tail Enzyme Mix Not available.
 Ligation Master Mix Not available.
 Amplification Master Mix Not available.

Flash point	Ingredient name	Closed cup			Open cup		
		°C	°F	Method	°C	°F	Method
	Frag/A-Tail Enzyme Mix						
	Glycerol	-	-	-	177	350.6	-
	Ligation Master Mix						
	Poly(oxy-1,2-ethanediyl), α -hydro- ω -hydroxy-Ethane-1,2-diol, ethoxylated	171 to 235	339.8 to 455	-	199 to 238	390.2 to 460.4	-
	Glycerol	-	-	-	177	350.6	-

Section 9. Physical and chemical properties and safety characteristics

	Amplification Master Mix						
	Glycerol	-	-	-	177	350.6	-

Evaporation rate : Frag/A-Tail Buffer Not available.
 Frag/A-Tail Enzyme Mix Not available.
 Ligation Master Mix Not available.
 Amplification Master Mix Not available.

Flammability : Frag/A-Tail Buffer Not applicable.
 Frag/A-Tail Enzyme Mix Not applicable.
 Ligation Master Mix Not applicable.
 Amplification Master Mix Not applicable.

Lower and upper explosion limit/flammability limit : Frag/A-Tail Buffer Not available.
 Frag/A-Tail Enzyme Mix Not available.
 Ligation Master Mix Not available.
 Amplification Master Mix Not available.

Vapour pressure :

Ingredient name	Vapour Pressure at 20°C			Vapour pressure at 50°C		
	mm Hg	kPa	Method	mm Hg	kPa	Method
Frag/A-Tail Buffer						
water	17.5	2.3	-	92.258	12.3	-
tetramethylammonium chloride	0.000000001	0.0000000013	EU A.4	-	-	-
Frag/A-Tail Enzyme Mix						
water	17.5	2.3	-	92.258	12.3	-
Glycerol	0.000075	0.00001	-	0.0025	0.00033	-
Ligation Master Mix						
water	17.5	2.3	-	92.258	12.3	-
Glycerol	0.000075	0.00001	-	0.0025	0.00033	-
Amplification Master Mix						
water	17.5	2.3	-	92.258	12.3	-
Trometamol	<0.00075006	<0.0001	-	-	-	-

Relative vapour density : Frag/A-Tail Buffer Not available.
 Frag/A-Tail Enzyme Mix Not available.
 Ligation Master Mix Not available.
 Amplification Master Mix Not available.

Relative density : Frag/A-Tail Buffer Not available.
 Frag/A-Tail Enzyme Mix Not available.
 Ligation Master Mix Not available.
 Amplification Master Mix Not available.

Section 9. Physical and chemical properties and safety characteristics

Solubility(ies)	Media	Result
	Frag/A-Tail Buffer water	Soluble
	Frag/A-Tail Enzyme Mix water	Soluble
	Ligation Master Mix water	Soluble
	Amplification Master Mix water	Soluble

Partition coefficient: n-octanol/water		
	Frag/A-Tail Buffer	Not applicable.
	Frag/A-Tail Enzyme Mix	Not applicable.
	Ligation Master Mix	Not applicable.
	Amplification Master Mix	Not applicable.

Auto-ignition temperature	Ingredient name	°C	°F	Method
	Frag/A-Tail Enzyme Mix			
	Glycerol	370	698	-
	Ligation Master Mix			
	Poly(oxy-1,2-ethanediyl), α -hydro- ω -hydroxy- Ethane-1,2-diol, ethoxylated	360	680	-
	Glycerol	370	698	-
	Amplification Master Mix			
	Glycerol	370	698	-

Decomposition temperature		
	Frag/A-Tail Buffer	Not available.
	Frag/A-Tail Enzyme Mix	Not available.
	Ligation Master Mix	Not available.
	Amplification Master Mix	Not available.

Viscosity		
	Frag/A-Tail Buffer	Not available.
	Frag/A-Tail Enzyme Mix	Not available.
	Ligation Master Mix	Not available.
	Amplification Master Mix	Not available.

Particle characteristics

Median particle size		
	Frag/A-Tail Buffer	Not applicable.
	Frag/A-Tail Enzyme Mix	Not applicable.
	Ligation Master Mix	Not applicable.
	Amplification Master Mix	Not applicable.

Section 10. Stability and reactivity

Reactivity		
	Frag/A-Tail Buffer	No specific test data related to reactivity available for this product or its ingredients.
	Frag/A-Tail Enzyme Mix	No specific test data related to reactivity available for this product or its ingredients.
	Ligation Master Mix	No specific test data related to reactivity available for this product or its ingredients.
	Amplification Master Mix	No specific test data related to reactivity available for this product or its ingredients.

Section 10. Stability and reactivity

Chemical stability	: Frag/A-Tail Buffer Frag/A-Tail Enzyme Mix Ligation Master Mix Amplification Master Mix	The product is stable. The product is stable. The product is stable. The product is stable.
Possibility of hazardous reactions	: Frag/A-Tail Buffer Frag/A-Tail Enzyme Mix Ligation Master Mix Amplification Master Mix	Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: Frag/A-Tail Buffer Frag/A-Tail Enzyme Mix Ligation Master Mix Amplification Master Mix	No specific data. No specific data. No specific data. No specific data.
Incompatible materials	: Frag/A-Tail Buffer Frag/A-Tail Enzyme Mix Ligation Master Mix Amplification Master Mix	May react or be incompatible with oxidising materials. May react or be incompatible with oxidising materials. May react or be incompatible with oxidising materials. May react or be incompatible with oxidising materials.
Hazardous decomposition products	: Frag/A-Tail Buffer Frag/A-Tail Enzyme Mix Ligation Master Mix Amplification Master Mix	Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Frag/A-Tail Buffer Magnesium chloride	LD50 Dermal	Rat - Male, Female	>2000 mg/kg	-
tetramethylammonium chloride	LD50 Oral	Rat	2800 mg/kg	-
	LD50 Dermal	Rabbit - Male, Female	200 to 500 mg/ kg	-
Frag/A-Tail Enzyme Mix Glycerol	LD50 Oral	Rat	50 mg/kg	-
	LD50 Oral	Rat	12600 mg/kg	-
Ligation Master Mix Glycerol	LD50 Oral	Rat	12600 mg/kg	-
	LD50 Oral	Rat	12600 mg/kg	-
Amplification Master Mix Glycerol Trometamol tetramethylammonium chloride	LD50 Oral	Rat	12600 mg/kg	-
	LD50 Dermal	Rat	>5000 mg/kg	-
	LD50 Dermal	Rabbit - Male, Female	200 to 500 mg/ kg	-

Section 11. Toxicological information

	LD50 Oral	Rat	50 mg/kg	-
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Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Frag/A-Tail Enzyme Mix Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
Ligation Master Mix Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
Poly(oxy-1,2-ethanediyl), α -hydro- ω -hydroxy- Ethane-1,2-diol, ethoxylated	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Eyes - Mild irritant	Rabbit	-	500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
Amplification Master Mix Glycerol	Skin - Mild irritant	Rabbit	-	500 mg	-
	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
Trometamol	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Moderate irritant Skin - Severe irritant	Rabbit Rabbit	- -	25 % 500 mg	- -

Sensitisation

Not available.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Frag/A-Tail Buffer tetramethylammonium chloride	Category 1	oral	central nervous system (CNS)
Amplification Master Mix Trometamol	Category 3	-	Respiratory tract irritation
tetramethylammonium chloride	Category 1	oral	central nervous system (CNS)

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Section 11. Toxicological information

Information on likely routes of exposure	: Frag/A-Tail Buffer	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
	Frag/A-Tail Enzyme Mix	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
	Ligation Master Mix	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
	Amplification Master Mix	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

Potential acute health effects

Eye contact	: Frag/A-Tail Buffer	No known significant effects or critical hazards.
	Frag/A-Tail Enzyme Mix	Causes eye irritation.
	Ligation Master Mix	Causes eye irritation.
	Amplification Master Mix	Causes serious eye irritation.
Inhalation	: Frag/A-Tail Buffer	May cause damage to organs following a single exposure if inhaled.
	Frag/A-Tail Enzyme Mix	No known significant effects or critical hazards.
	Ligation Master Mix	No known significant effects or critical hazards.
	Amplification Master Mix	May cause damage to organs following a single exposure if inhaled.
Skin contact	: Frag/A-Tail Buffer	May cause damage to organs following a single exposure in contact with skin.
	Frag/A-Tail Enzyme Mix	No known significant effects or critical hazards.
	Ligation Master Mix	No known significant effects or critical hazards.
	Amplification Master Mix	May cause damage to organs following a single exposure in contact with skin. Causes skin irritation.
Ingestion	: Frag/A-Tail Buffer	Harmful if swallowed. May cause damage to organs following a single exposure if swallowed.
	Frag/A-Tail Enzyme Mix	No known significant effects or critical hazards.
	Ligation Master Mix	No known significant effects or critical hazards.
	Amplification Master Mix	Harmful if swallowed. May cause damage to organs following a single exposure if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	: Frag/A-Tail Buffer	No specific data.
	Frag/A-Tail Enzyme Mix	Adverse symptoms may include the following: irritation watering redness
	Ligation Master Mix	Adverse symptoms may include the following: irritation watering redness
Inhalation	: Frag/A-Tail Buffer	Adverse symptoms may include the following: pain or irritation watering redness
	Frag/A-Tail Enzyme Mix	No specific data.
	Ligation Master Mix	No specific data.
Skin contact	: Frag/A-Tail Buffer	No specific data.
	Frag/A-Tail Enzyme Mix	No specific data.
	Ligation Master Mix	No specific data.
	Amplification Master Mix	Adverse symptoms may include the following: irritation redness

Section 11. Toxicological information

Ingestion	: Frag/A-Tail Buffer	No specific data.
	Frag/A-Tail Enzyme Mix	No specific data.
	Ligation Master Mix	No specific data.
	Amplification Master Mix	No specific data.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

General	: Frag/A-Tail Buffer Frag/A-Tail Enzyme Mix Ligation Master Mix Amplification Master Mix	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Carcinogenicity	: Frag/A-Tail Buffer Frag/A-Tail Enzyme Mix Ligation Master Mix Amplification Master Mix	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Mutagenicity	: Frag/A-Tail Buffer Frag/A-Tail Enzyme Mix Ligation Master Mix Amplification Master Mix	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Reproductive toxicity	: Frag/A-Tail Buffer Frag/A-Tail Enzyme Mix Ligation Master Mix Amplification Master Mix	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
Frag/A-Tail Buffer					
Frag/A-Tail Buffer	1000	6000.0	N/A	N/A	N/A
Magnesium chloride	2800	N/A	N/A	N/A	N/A
tetramethylammonium chloride	50	300	N/A	N/A	N/A
Frag/A-Tail Enzyme Mix					
Glycerol	12600	N/A	N/A	N/A	N/A
Ligation Master Mix					
Glycerol	12600	N/A	N/A	N/A	N/A
Poly(oxy-1,2-ethanediyl), α -hydro- ω -hydroxy-Ethane-1,2-diol, ethoxylated	28000	N/A	N/A	N/A	N/A
Amplification Master Mix					
Amplification Master Mix	1279.5	7677.0	N/A	N/A	N/A
Glycerol	12600	N/A	N/A	N/A	N/A
tetramethylammonium chloride	50	300	N/A	N/A	N/A

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Frag/A-Tail Buffer Magnesium chloride	Acute EC50 >100 mg/l Fresh water	Algae - <i>Desmodesmus subspicatus</i>	72 hours
	Acute EC50 180000 µg/l Fresh water	Crustaceans - <i>Eudiaptomus padanus</i> ssp. <i>padanus</i> - Adult	48 hours
	Acute IC50 6.8 mg/l Fresh water	Aquatic plants - <i>Lemna aequinoctialis</i>	96 hours
	Acute LC50 32000 µg/l Fresh water	Daphnia - <i>Daphnia hyalina</i> - Adult	48 hours
	Acute LC50 2120 mg/l Fresh water	Fish - <i>Pimephales promelas</i>	96 hours
	Acute NOEC 100 mg/l Fresh water	Algae - <i>Desmodesmus subspicatus</i>	72 hours
	Chronic NOEC 0.1 mg/l Fresh water	Fish - <i>Cyprinus carpio</i>	35 days
tetramethylammonium chloride	Acute LC50 462 mg/l Fresh water	Fish - <i>Pimephales promelas</i>	96 hours
Frag/A-Tail Enzyme Mix Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - <i>Oncorhynchus mykiss</i>	96 hours
Ligation Master Mix Glycerol Poly(oxy-1,2-ethanediyl), α -hydro- ω -hydroxy- Ethane-1,2-diol, ethoxylated	Acute LC50 54000 mg/l Fresh water	Fish - <i>Oncorhynchus mykiss</i>	96 hours
	Acute EC50 >100 mg/l Fresh water	Daphnia - <i>Daphnia magna</i>	48 hours
	Acute LC50 >1000000 µg/l Fresh water	Fish - <i>Salmo salar</i> - Parr	96 hours
Amplification Master Mix Glycerol Trometamol	Acute LC50 54000 mg/l Fresh water	Fish - <i>Oncorhynchus mykiss</i>	96 hours
	Acute EC50 >980 mg/l Fresh water	Daphnia	48 hours
	Acute NOEC 520 mg/l Fresh water	Daphnia	48 hours
	Acute LC50 462 mg/l Fresh water	Fish - <i>Pimephales promelas</i>	96 hours
tetramethylammonium chloride			

Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
Frag/A-Tail Enzyme Mix Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-
Ligation Master Mix Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-
Poly(oxy-1,2-ethanediyl), α -hydro- ω -hydroxy- Ethane-1,2-diol, ethoxylated	OECD 301D Ready Biodegradability - Closed Bottle Test	74.85 % - Readily - 28 days	4 mg/l	-
Amplification Master Mix Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-
Trometamol	OECD 301F	97.1 % - Readily - 28 days	30 mg/l	-

Section 12. Ecological information

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Frag/A-Tail Buffer tetramethylammonium chloride	-	-	Readily
Ligation Master Mix Poly(oxy-1,2-ethanediyl), α -hydro- ω -hydroxy- Ethane-1,2-diol, ethoxylated	-	-	Readily
Amplification Master Mix Trometamol tetramethylammonium chloride	- -	- -	Readily Readily

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Frag/A-Tail Buffer tetramethylammonium chloride	<-1.6	-	Low
Frag/A-Tail Enzyme Mix Glycerol	-1.76	-	Low
Ligation Master Mix Glycerol Poly(oxy-1,2-ethanediyl), α -hydro- ω -hydroxy- Ethane-1,2-diol, ethoxylated	-1.76 -	- 3.2	Low Low
Amplification Master Mix Glycerol Trometamol tetramethylammonium chloride	-1.76 -2.31 <-1.6	- - -	Low Low Low

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or

Section 13. Disposal considerations

liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

ADG / IMDG / IATA : Not regulated as Dangerous Goods according to the ADG Code .

Additional information

Remarks: De minimis quantities

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

Standard for the Uniform Scheduling of Medicines and Poisons

Not regulated.

Model Work Health and Safety Regulations - Scheduled Substances

No listed substance

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia : Not determined.

New Zealand : Not determined.

United States : Not determined.

Section 16. Any other relevant information

History

Date of issue/Date of revision : 11/09/2024

Date of previous issue : 31/05/2024

Version : 1.1

Key to abbreviations : ADG = Australian Dangerous Goods
ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container

Section 16. Any other relevant information

IMDG = International Maritime Dangerous Goods
 LogPow = logarithm of the octanol/water partition coefficient
 MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
 N/A = Not available
 SUSMP = Standard Uniform Schedule of Medicine and Poisons
 UN = United Nations

Procedure used to derive the classification

Classification	Justification
Frag/A-Tail Buffer ACUTE TOXICITY (oral) - Category 4 SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - Category 2 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2	Calculation method Calculation method Calculation method
Frag/A-Tail Enzyme Mix SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2B	Calculation method
Ligation Master Mix SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2B	Calculation method
Amplification Master Mix ACUTE TOXICITY (oral) - Category 4 SKIN CORROSION/IRRITATION - Category 2 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - Category 2 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3	Calculation method Calculation method Calculation method Calculation method Calculation method

✔ Indicates information that has changed from previously issued version.

Notice to reader

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