

# SAFETY DATA SHEET

Lambda EMBL 3 BamHI Vector Kit, Part Number 241211

## Section 1. Identification

<b>Product identifier</b>	: Lambda EMBL 3 BamHI Vector Kit, Part Number 241211
<b>Part no. (chemical kit)</b>	: 241211
<b>Part no.</b>	: Lambda EMBL3 Vector Double Digested With 241211-51 EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert 210200-53 XL1-Blue MRA E.coli Strain 200302-81 XL1-Blue MRA (p2) E.coli Strain 200303-81
<b>Material uses</b>	: Analytical reagent.  Lambda EMBL3 Vector Double Digested With 0.01 ml (10 µg 1 µg/µl) EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert 0.01 ml (2.5 µg 0.25 µg/µl) XL1-Blue MRA E.coli Strain 0.5 ml XL1-Blue MRA (p2) E.coli Strain 0.5 ml
<b>Supplier/Manufacturer</b>	: Agilent Technologies, Inc. 5301 Stevens Creek Blvd Santa Clara, CA 95051, USA 800-227-9770
<b>Emergency telephone number (with hours of operation)</b>	: CHEMTREC®: 1-800-424-9300



## Section 2. Hazard identification

### Classification of the substance or mixture

**XL1-Blue MRA E.coli Strain**  
H319 EYE IRRITATION - Category 2A

**XL1-Blue MRA (p2) E.coli Strain**  
H319 EYE IRRITATION - Category 2A

### GHS label elements

<b>Hazard pictograms</b>	: <input checked="" type="checkbox"/> XL1-Blue MRA E.coli Strain 
	: <input type="checkbox"/> XL1-Blue MRA (p2) E.coli Strain 
<b>Signal word</b>	: <input checked="" type="checkbox"/> Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert No signal word. <input type="checkbox"/> XL1-Blue MRA E.coli Strain No signal word. <input type="checkbox"/> XL1-Blue MRA (p2) E.coli Strain Warning <input type="checkbox"/> Strain Warning

## Section 2. Hazard identification

<b>Hazard statements</b>	<p>☒ Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert XL1-Blue MRA E.coli Strain XL1-Blue MRA (p2) E.coli Strain</p>	<p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards. H319 - Causes serious eye irritation. H319 - Causes serious eye irritation.</p>
<b>Precautionary statements</b>		
<b>Prevention</b>	<p>☒ Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert XL1-Blue MRA E.coli Strain</p> <p>XL1-Blue MRA (p2) E.coli Strain</p>	<p>Not applicable.</p> <p>Not applicable. P280 - Wear eye or face protection. P264 - Wash hands thoroughly after handling. P280 - Wear eye or face protection.</p> <p>P264 - Wash hands thoroughly after handling.</p>
<b>Response</b>	<p>☒ Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert XL1-Blue MRA E.coli Strain</p> <p>XL1-Blue MRA (p2) E.coli Strain</p>	<p>Not applicable.</p> <p>Not applicable. 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 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 attention.</p>
<b>Storage</b>	<p>☒ Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert XL1-Blue MRA E.coli Strain XL1-Blue MRA (p2) E.coli Strain</p>	<p>Not applicable.</p> <p>Not applicable. Not applicable. Not applicable.</p>
<b>Disposal</b>	<p>☒ Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert XL1-Blue MRA E.coli Strain XL1-Blue MRA (p2) E.coli Strain</p>	<p>Not applicable.</p> <p>Not applicable. Not applicable. Not applicable.</p>
<b>Supplemental label elements</b>	<p>☒ Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert XL1-Blue MRA E.coli Strain XL1-Blue MRA (p2) E.coli Strain</p> <p>☒ XL1-Blue MRA E.coli Strain</p> <p>XL1-Blue MRA (p2) E.coli Strain</p>	<p>None known.</p> <p>None known. None known. None known.</p> <p>Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 10 - 30%</p> <p>Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 10 - 30%</p>

## Section 2. Hazard identification

<b>Other hazards which do not result in classification</b>	: Lambda EMBL3 Vector	None known.
	Double Digested With EcoR	
	I And BamH I CIAP Treated	
	pME/Bam HI Test Insert	None known.
	XL1-Blue MRA E.coli Strain	None known.
	XL1-Blue MRA (p2) E.coli Strain	None known.

## Section 3. Composition/information on ingredients

<b>Substance/mixture</b>	: Lambda EMBL3 Vector	Mixture
	Double Digested With EcoR	
	I And BamH I CIAP Treated	
	pME/Bam HI Test Insert	Mixture
	XL1-Blue MRA E.coli Strain	Mixture
	XL1-Blue MRA (p2) E.coli Strain	Mixture

Ingredient name	% (w/w)	CAS number
<b>XL1-Blue MRA E.coli Strain</b>		
Glycerol	≥10 - ≤25	56-81-5
Sodium chloride	≤3	7647-14-5
<b>XL1-Blue MRA (p2) E.coli Strain</b>		
Glycerol	≥10 - ≤25	56-81-5
Sodium chloride	≤3	7647-14-5

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

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

## Section 4. First-aid measures

### Description of necessary first aid measures

<b>Eye contact</b>	: Lambda EMBL3 Vector	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
	Double Digested With EcoR	
	I And BamH I CIAP Treated	
	pME/Bam HI Test Insert	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
	XL1-Blue MRA E.coli Strain	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.
	XL1-Blue MRA (p2) E.coli Strain	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.
<b>Inhalation</b>	: Lambda EMBL3 Vector	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	Double Digested With EcoR	
	I And BamH I CIAP Treated	
	pME/Bam HI Test Insert	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	XL1-Blue MRA E.coli Strain	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if

## Section 4. First-aid measures

		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.
	XL1-Blue MRA (p2) E.coli Strain	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.
<b>Skin contact</b>	: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	XL1-Blue MRA E.coli Strain	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.
	XL1-Blue MRA (p2) E.coli Strain	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.
<b>Ingestion</b>	: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
	pME/Bam HI Test Insert	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
	XL1-Blue MRA E.coli Strain	Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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

## Section 4. First-aid measures

XL1-Blue MRA (p2) E.coli Strain

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.

Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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.

### Most important symptoms/effects, acute and delayed

#### Potential acute health effects

<b>Eye contact</b>	: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert XL1-Blue MRA E.coli Strain XL1-Blue MRA (p2) E.coli Strain	No known significant effects or critical hazards.  No known significant effects or critical hazards. Causes serious eye irritation. Causes serious eye irritation.
<b>Inhalation</b>	: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert XL1-Blue MRA E.coli Strain XL1-Blue MRA (p2) E.coli Strain	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.
<b>Skin contact</b>	: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert XL1-Blue MRA E.coli Strain XL1-Blue MRA (p2) E.coli Strain	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.
<b>Ingestion</b>	: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert XL1-Blue MRA E.coli Strain XL1-Blue MRA (p2) E.coli Strain	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.

#### Over-exposure signs/symptoms

## Section 4. First-aid measures

<b>Eye contact</b>	: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert XL1-Blue MRA E.coli Strain	No specific data.
	: XL1-Blue MRA (p2) E.coli Strain	No specific data. Adverse symptoms may include the following: pain or irritation watering redness Adverse symptoms may include the following: pain or irritation watering redness
<b>Inhalation</b>	: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert XL1-Blue MRA E.coli Strain	No specific data.
	: XL1-Blue MRA (p2) E.coli Strain	No specific data.
	: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert XL1-Blue MRA E.coli Strain	No specific data.
	: XL1-Blue MRA (p2) E.coli Strain	No specific data.
<b>Skin contact</b>	: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert XL1-Blue MRA E.coli Strain	No specific data.
	: XL1-Blue MRA (p2) E.coli Strain	No specific data.
	: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert XL1-Blue MRA E.coli Strain	No specific data.
	: XL1-Blue MRA (p2) E.coli Strain	No specific data.
<b>Ingestion</b>	: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert XL1-Blue MRA E.coli Strain	No specific data.
	: XL1-Blue MRA (p2) E.coli Strain	No specific data.
	: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert XL1-Blue MRA E.coli Strain	No specific data.
	: XL1-Blue MRA (p2) E.coli Strain	No specific data.

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

<b>Notes to physician</b>	: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	: XL1-Blue MRA E.coli Strain	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	: XL1-Blue MRA (p2) E.coli Strain	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert XL1-Blue MRA E.coli Strain	No specific treatment.
<b>Specific treatments</b>	: XL1-Blue MRA (p2) E.coli Strain	No specific treatment.
	: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert XL1-Blue MRA E.coli Strain	No specific treatment.
	: XL1-Blue MRA (p2) E.coli Strain	No specific treatment.

## Section 4. First-aid measures

<b>Protection of first-aiders</b>	: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert	No action shall be taken involving any personal risk or without suitable training.
	XL1-Blue MRA E.coli Strain	No action shall be taken involving any personal risk or without suitable training. 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.
	XL1-Blue MRA (p2) E.coli Strain	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. Fire-fighting measures

### Extinguishing media

<b>Suitable extinguishing media</b>	: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert	Use an extinguishing agent suitable for the surrounding fire.
	XL1-Blue MRA E.coli Strain	Use an extinguishing agent suitable for the surrounding fire.
	XL1-Blue MRA (p2) E.coli Strain	Use an extinguishing agent suitable for the surrounding fire.
<b>Unsuitable extinguishing media</b>	: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert	None known.
	XL1-Blue MRA E.coli Strain	None known.
	XL1-Blue MRA (p2) E.coli Strain	None known.

### Specific hazards arising from the chemical

: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert	In a fire or if heated, a pressure increase will occur and the container may burst.
XL1-Blue MRA E.coli Strain	In a fire or if heated, a pressure increase will occur and the container may burst.
XL1-Blue MRA (p2) E.coli Strain	In a fire or if heated, a pressure increase will occur and the container may burst.

### Hazardous thermal decomposition products

: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert	No specific data.
XL1-Blue MRA E.coli Strain	No specific data. Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds metal oxide/oxides
XL1-Blue MRA (p2) E.coli Strain	Decomposition products may include the following materials: carbon dioxide

## Section 5. Fire-fighting measures

carbon monoxide  
halogenated compounds  
metal oxide/oxides

<b>Special protective actions for fire-fighters</b>	: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated	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.
	pME/Bam HI Test Insert	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.
	XL1-Blue MRA E.coli Strain	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.
	XL1-Blue MRA (p2) E.coli Strain	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.
<b>Special protective equipment for fire-fighters</b>	: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	pME/Bam HI Test Insert	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	XL1-Blue MRA E.coli Strain	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	XL1-Blue MRA (p2) E.coli Strain	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## Section 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

<b>For non-emergency personnel</b>	: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated	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 spilled material. Put on appropriate personal protective equipment.
	pME/Bam HI Test Insert	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 spilled material. Put on appropriate personal protective equipment.
	XL1-Blue MRA E.coli Strain	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 spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear

## Section 6. Accidental release measures

	XL1-Blue MRA (p2) E.coli Strain	appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment. 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 spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
<b>For emergency responders</b>	: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated	If specialized 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".
	pME/Bam HI Test Insert	If specialized 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".
	XL1-Blue MRA E.coli Strain	If specialized 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".
	XL1-Blue MRA (p2) E.coli Strain	If specialized 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".
<b>Environmental precautions</b>	: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated	Avoid dispersal of spilled 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).
	pME/Bam HI Test Insert	Avoid dispersal of spilled 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).
	XL1-Blue MRA E.coli Strain	Avoid dispersal of spilled 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).
	XL1-Blue MRA (p2) E.coli Strain	Avoid dispersal of spilled 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).
<b><u>Methods and materials for containment and cleaning up</u></b>		
<b>Methods for cleaning up</b>	: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated	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.
	pME/Bam HI Test Insert	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble.

## Section 6. Accidental release measures

XL1-Blue MRA E.coli Strain	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.
XL1-Blue MRA (p2) E.coli Strain	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.

## Section 7. Handling and storage

### Precautions for safe handling

#### Protective measures

: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert	Put on appropriate personal protective equipment (see Section 8).  Put on appropriate personal protective equipment (see Section 8).
XL1-Blue MRA E.coli Strain	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor 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.
XL1-Blue MRA (p2) E.coli Strain	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor 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.

#### Advice on general occupational hygiene

: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated	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.
pME/Bam HI Test Insert	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.
XL1-Blue MRA E.coli Strain	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

## Section 7. Handling and storage

	<p>XL1-Blue MRA (p2) E.coli Strain</p>	<p>and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.</p> <p>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.</p>
<p><b>Conditions for safe storage, including any incompatibilities</b></p>	<p>Lambda EMBL3 Vector Double Digested With EcoRI I And BamHI CIAP Treated</p>	<p>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 unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.</p>
	<p>pME/Bam HI Test Insert</p>	<p>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 unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.</p>
	<p>XL1-Blue MRA E.coli Strain</p>	<p>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 unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.</p>
	<p>XL1-Blue MRA (p2) E.coli Strain</p>	<p>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 unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.</p>

## Section 8. Exposure controls/personal protection

### [Control parameters](#)

### [Occupational exposure limits](#)

Ingredient name	Exposure limits
<p><input checked="" type="checkbox"/> <b>XL1-Blue MRA E.coli Strain</b> Glycerol</p>	<p><b>CA Alberta Provincial (Canada, 6/2018).</b> 8 hrs OEL: 10 mg/m<sup>3</sup> 8 hours. Form: Mist <b>CA British Columbia Provincial (Canada, 7/2018).</b> TWA: 10 mg/m<sup>3</sup> 8 hours. Form: Mist TWA: 3 mg/m<sup>3</sup> 8 hours. Form: respirable mist <b>CA Quebec Provincial (Canada, 1/2014).</b> TWAEV: 10 mg/m<sup>3</sup> 8 hours. Form: mist <b>CA Saskatchewan Provincial (Canada, 7/2013).</b> STEL: 20 mg/m<sup>3</sup> 15 minutes. Form: mist TWA: 10 mg/m<sup>3</sup> 8 hours. Form: mist <b>CA Ontario Provincial (Canada, 1/2018).</b> TWA: 10 mg/m<sup>3</sup> 8 hours. Form: mist</p>
<p><b>XL1-Blue MRA (p2) E.coli Strain</b> Glycerol</p>	<p><b>CA Alberta Provincial (Canada, 6/2018).</b> 8 hrs OEL: 10 mg/m<sup>3</sup> 8 hours. Form: Mist <b>CA British Columbia Provincial (Canada, 7/2018).</b> TWA: 10 mg/m<sup>3</sup> 8 hours. Form: Mist TWA: 3 mg/m<sup>3</sup> 8 hours. Form: respirable mist <b>CA Quebec Provincial (Canada, 1/2014).</b> TWAEV: 10 mg/m<sup>3</sup> 8 hours. Form: mist <b>CA Saskatchewan Provincial (Canada, 7/2013).</b> STEL: 20 mg/m<sup>3</sup> 15 minutes. Form: mist TWA: 10 mg/m<sup>3</sup> 8 hours. Form: mist <b>CA Ontario Provincial (Canada, 1/2018).</b> TWA: 10 mg/m<sup>3</sup> 8 hours. Form: mist</p>

### [Appropriate engineering controls](#)

: Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

### [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.

## Section 8. Exposure controls/personal protection

- 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: safety glasses with side-shields.
- 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.
- 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.
- 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

### Appearance

- Physical state** : Lambda EMBL3 Vector      Liquid.  
 Double Digested With EcoR  
 I And BamH I CIAP Treated  
 pME/Bam HI Test Insert      Liquid.  
 XL1-Blue MRA E.coli Strain      Liquid.  
 XL1-Blue MRA (p2) E.coli      Liquid.  
 Strain
- Color** : Lambda EMBL3 Vector      Not available.  
 Double Digested With EcoR  
 I And BamH I CIAP Treated  
 pME/Bam HI Test Insert      Not available.  
 XL1-Blue MRA E.coli Strain      Not available.  
 XL1-Blue MRA (p2) E.coli      Not available.  
 Strain
- Odor** : Lambda EMBL3 Vector      Not available.  
 Double Digested With EcoR  
 I And BamH I CIAP Treated  
 pME/Bam HI Test Insert      Not available.  
 XL1-Blue MRA E.coli Strain      Not available.  
 XL1-Blue MRA (p2) E.coli      Not available.  
 Strain
- Odor threshold** : Lambda EMBL3 Vector      Not available.  
 Double Digested With EcoR  
 I And BamH I CIAP Treated  
 pME/Bam HI Test Insert      Not available.  
 XL1-Blue MRA E.coli Strain      Not available.  
 XL1-Blue MRA (p2) E.coli      Not available.  
 Strain
- pH** :

## Section 9. Physical and chemical properties

	Lambda EMBL3 Vector	7
	Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert	7.5
	XL1-Blue MRA E.coli Strain	7
	XL1-Blue MRA (p2) E.coli Strain	7
<b>Melting point</b>	: Lambda EMBL3 Vector	0°C (32°F)
	Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert	0°C (32°F)
	XL1-Blue MRA E.coli Strain	Not available.
	XL1-Blue MRA (p2) E.coli Strain	Not available.
<b>Boiling point</b>	: Lambda EMBL3 Vector	100°C (212°F)
	Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert	100°C (212°F)
	XL1-Blue MRA E.coli Strain	Not available.
	XL1-Blue MRA (p2) E.coli Strain	Not available.
<b>Flash point</b>	: Lambda EMBL3 Vector	Not available.
	Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert	Not available.
	XL1-Blue MRA E.coli Strain	Not available.
	XL1-Blue MRA (p2) E.coli Strain	Not available.
<b>Evaporation rate</b>	: Lambda EMBL3 Vector	Not available.
	Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert	Not available.
	XL1-Blue MRA E.coli Strain	Not available.
	XL1-Blue MRA (p2) E.coli Strain	Not available.
<b>Flammability (solid, gas)</b>	: Lambda EMBL3 Vector	Not applicable.
	Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert	Not applicable.
	XL1-Blue MRA E.coli Strain	Not applicable.
	XL1-Blue MRA (p2) E.coli Strain	Not applicable.
<b>Lower and upper explosive (flammable) limits</b>	: Lambda EMBL3 Vector	Not available.
	Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert	Not available.
	XL1-Blue MRA E.coli Strain	Not available.
	XL1-Blue MRA (p2) E.coli Strain	Not available.
<b>Vapor pressure</b>	: Lambda EMBL3 Vector	Not available.
	Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert	Not available.
	XL1-Blue MRA E.coli Strain	Not available.
	XL1-Blue MRA (p2) E.coli Strain	Not available.
<b>Vapor density</b>	:	

## Section 9. Physical and chemical properties

	Lambda EMBL3 Vector	Not available.
	Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert	Not available.
	XL1-Blue MRA E.coli Strain	Not available.
	XL1-Blue MRA (p2) E.coli Strain	Not available.
<b>Relative density</b>	: Lambda EMBL3 Vector	Not available.
	Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert	Not available.
	XL1-Blue MRA E.coli Strain	Not available.
	XL1-Blue MRA (p2) E.coli Strain	Not available.
<b>Solubility</b>	: Lambda EMBL3 Vector	Easily soluble in the following materials: cold water and hot water.
	Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert	Easily soluble in the following materials: cold water and hot water.
	XL1-Blue MRA E.coli Strain	Soluble in the following materials: cold water and hot water.
	XL1-Blue MRA (p2) E.coli Strain	Soluble in the following materials: cold water and hot water.
<b>Partition coefficient: n- octanol/water</b>	: Lambda EMBL3 Vector	Not available.
	Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert	Not available.
	XL1-Blue MRA E.coli Strain	Not available.
	XL1-Blue MRA (p2) E.coli Strain	Not available.
<b>Auto-ignition temperature</b>	: Lambda EMBL3 Vector	Not available.
	Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert	Not available.
	XL1-Blue MRA E.coli Strain	Not available.
	XL1-Blue MRA (p2) E.coli Strain	Not available.
<b>Decomposition temperature</b>	: Lambda EMBL3 Vector	Not available.
	Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert	Not available.
	XL1-Blue MRA E.coli Strain	Not available.
	XL1-Blue MRA (p2) E.coli Strain	Not available.
<b>Viscosity</b>	: Lambda EMBL3 Vector	Not available.
	Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert	Not available.
	XL1-Blue MRA E.coli Strain	Not available.
	XL1-Blue MRA (p2) E.coli Strain	Not available.

## Section 10. Stability and reactivity

<b>Reactivity</b>	<p>: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert</p> <p>XL1-Blue MRA E.coli Strain</p> <p>XL1-Blue MRA (p2) E.coli Strain</p>	<p>No specific test data related to reactivity available for this product or its ingredients.</p> <p>No specific test data related to reactivity available for this product or its ingredients.</p> <p>No specific test data related to reactivity available for this product or its ingredients.</p> <p>No specific test data related to reactivity available for this product or its ingredients.</p>
<b>Chemical stability</b>	<p>: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert XL1-Blue MRA E.coli Strain XL1-Blue MRA (p2) E.coli Strain</p>	<p>The product is stable.</p> <p>The product is stable.</p> <p>The product is stable.</p> <p>The product is stable.</p>
<b>Possibility of hazardous reactions</b>	<p>: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert</p> <p>XL1-Blue MRA E.coli Strain</p> <p>XL1-Blue MRA (p2) E.coli Strain</p>	<p>Under normal conditions of storage and use, hazardous reactions will not occur.</p> <p>Under normal conditions of storage and use, hazardous reactions will not occur.</p> <p>Under normal conditions of storage and use, hazardous reactions will not occur.</p> <p>Under normal conditions of storage and use, hazardous reactions will not occur.</p>
<b>Conditions to avoid</b>	<p>: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert XL1-Blue MRA E.coli Strain XL1-Blue MRA (p2) E.coli Strain</p>	<p>No specific data.</p> <p>No specific data.</p> <p>No specific data.</p> <p>No specific data.</p>
<b>Incompatible materials</b>	<p>: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert XL1-Blue MRA E.coli Strain XL1-Blue MRA (p2) E.coli Strain</p>	<p>May react or be incompatible with oxidizing materials.</p> <p>May react or be incompatible with oxidizing materials.</p> <p>May react or be incompatible with oxidizing materials.</p> <p>May react or be incompatible with oxidizing materials.</p>
<b>Hazardous decomposition products</b>	<p>: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert</p> <p>XL1-Blue MRA E.coli Strain</p> <p>XL1-Blue MRA (p2) E.coli Strain</p>	<p>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</p> <p>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</p> <p>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</p> <p>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</p>

## Section 11. Toxicological information

### Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
<b>XL1-Blue MRA E.coli Strain</b>				
Glycerol	LD50 Oral	Rat	12600 mg/kg	-
Sodium chloride	LD50 Oral	Rat	3000 mg/kg	-
<b>XL1-Blue MRA (p2) E.coli Strain</b>				
Glycerol	LD50 Oral	Rat	12600 mg/kg	-
Sodium chloride	LD50 Oral	Rat	3000 mg/kg	-

#### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
<b>XL1-Blue MRA E.coli Strain</b>					
Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
Sodium chloride	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	10 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
<b>XL1-Blue MRA (p2) E.coli Strain</b>					
Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
Sodium chloride	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	10 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-

#### Sensitization

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)

Not available.

#### Specific target organ toxicity (repeated exposure)

## Section 11. Toxicological information

Not available.

### Aspiration hazard

Not available.

**Information on the likely routes of exposure** : Lambda EMBL3 Vector Not available.  
 Double Digested With EcoR  
 I And BamH I CIAP Treated Not available.  
 pME/Bam HI Test Insert Routes of entry anticipated: Oral, Dermal, Inhalation.  
 XL1-Blue MRA E.coli Strain Routes of entry anticipated: Oral, Dermal, Inhalation.  
 XL1-Blue MRA (p2) E.coli Strain

### Potential acute health effects

**Eye contact** : Lambda EMBL3 Vector No known significant effects or critical hazards.  
 Double Digested With EcoR  
 I And BamH I CIAP Treated  
 pME/Bam HI Test Insert No known significant effects or critical hazards.  
 XL1-Blue MRA E.coli Strain Causes serious eye irritation.  
 XL1-Blue MRA (p2) E.coli Strain Causes serious eye irritation.

**Inhalation** : Lambda EMBL3 Vector No known significant effects or critical hazards.  
 Double Digested With EcoR  
 I And BamH I CIAP Treated  
 pME/Bam HI Test Insert No known significant effects or critical hazards.  
 XL1-Blue MRA E.coli Strain No known significant effects or critical hazards.  
 XL1-Blue MRA (p2) E.coli Strain No known significant effects or critical hazards.

**Skin contact** : Lambda EMBL3 Vector No known significant effects or critical hazards.  
 Double Digested With EcoR  
 I And BamH I CIAP Treated  
 pME/Bam HI Test Insert No known significant effects or critical hazards.  
 XL1-Blue MRA E.coli Strain No known significant effects or critical hazards.  
 XL1-Blue MRA (p2) E.coli Strain No known significant effects or critical hazards.

**Ingestion** : Lambda EMBL3 Vector No known significant effects or critical hazards.  
 Double Digested With EcoR  
 I And BamH I CIAP Treated  
 pME/Bam HI Test Insert No known significant effects or critical hazards.  
 XL1-Blue MRA E.coli Strain No known significant effects or critical hazards.  
 XL1-Blue MRA (p2) E.coli Strain No known significant effects or critical hazards.

### Symptoms related to the physical, chemical and toxicological characteristics

**Eye contact** : Lambda EMBL3 Vector No specific data.  
 Double Digested With EcoR  
 I And BamH I CIAP Treated  
 pME/Bam HI Test Insert No specific data.  
 XL1-Blue MRA E.coli Strain Adverse symptoms may include the following:  
 pain or irritation  
 watering  
 redness  
 XL1-Blue MRA (p2) E.coli Strain Adverse symptoms may include the following:  
 pain or irritation  
 watering  
 redness

## Section 11. Toxicological information

<b>Inhalation</b>	: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert XL1-Blue MRA E.coli Strain XL1-Blue MRA (p2) E.coli Strain	No specific data.  No specific data. No specific data. No specific data.
<b>Skin contact</b>	: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert XL1-Blue MRA E.coli Strain XL1-Blue MRA (p2) E.coli Strain	No specific data.  No specific data. No specific data. No specific data.
<b>Ingestion</b>	: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert XL1-Blue MRA E.coli Strain XL1-Blue MRA (p2) E.coli Strain	No specific data.  No specific data. No specific data. No specific data.

### Delayed and immediate effects and also 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

<b>General</b>	: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert XL1-Blue MRA E.coli Strain XL1-Blue MRA (p2) E.coli Strain	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.
<b>Carcinogenicity</b>	: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert XL1-Blue MRA E.coli Strain XL1-Blue MRA (p2) E.coli Strain	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.
<b>Mutagenicity</b>	: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert XL1-Blue MRA E.coli Strain XL1-Blue MRA (p2) E.coli Strain	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.

## Section 11. Toxicological information

<b>Teratogenicity</b>	: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert XL1-Blue MRA E.coli Strain XL1-Blue MRA (p2) E.coli Strain	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.
<b>Developmental effects</b>	: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert XL1-Blue MRA E.coli Strain XL1-Blue MRA (p2) E.coli Strain	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.
<b>Fertility effects</b>	: Lambda EMBL3 Vector Double Digested With EcoR I And BamH I CIAP Treated pME/Bam HI Test Insert XL1-Blue MRA E.coli Strain XL1-Blue MRA (p2) E.coli Strain	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 (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
<b>XL1-Blue MRA E.coli Strain</b>					
XL1-Blue MRA E.coli Strain	300000	N/A	N/A	N/A	N/A
Glycerol	12600	N/A	N/A	N/A	N/A
Sodium chloride	3000	N/A	N/A	N/A	N/A
<b>XL1-Blue MRA (p2) E.coli Strain</b>					
XL1-Blue MRA (p2) E.coli Strain	300000	N/A	N/A	N/A	N/A
Glycerol	12600	N/A	N/A	N/A	N/A
Sodium chloride	3000	N/A	N/A	N/A	N/A

## Section 12. Ecological information

### Toxicity

Product/ingredient name	Result	Species	Exposure
<b>XL1-Blue MRA E.coli Strain</b>			
Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
Sodium chloride	Acute EC50 4.74 g/L Fresh water	Algae - Chlamydomonas reinhardtii	96 hours
	Acute EC50 519.6 mg/l Fresh water	Crustaceans - Cypris subglobosa	48 hours
	Acute EC50 402.6 mg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute IC50 6.87 g/L Fresh water	Aquatic plants - Lemna minor	96 hours
	Acute LC50 1000000 µg/l Fresh water	Fish - Morone saxatilis - Larvae	96 hours
	Chronic LC10 781 mg/l Fresh water	Crustaceans - Hyalella azteca - Juvenile (Fledgling, Hatchling,	3 weeks

## Section 12. Ecological information

<b>XL1-Blue MRA (p2) E.coli Strain</b> Glycerol Sodium chloride	Chronic NOEC 6 g/L Fresh water Chronic NOEC 0.314 g/L Fresh water Chronic NOEC 100 mg/l Fresh water	Weanling) Aquatic plants - Lemna minor Daphnia - Daphnia pulex Fish - Gambusia holbrooki - Adult	96 hours 21 days 8 weeks
	Acute LC50 54000 mg/l Fresh water Acute EC50 4.74 g/L Fresh water  Acute EC50 519.6 mg/l Fresh water  Acute EC50 402.6 mg/l Fresh water Acute IC50 6.87 g/L Fresh water Acute LC50 1000000 µg/l Fresh water Chronic LC10 781 mg/l Fresh water  Chronic NOEC 6 g/L Fresh water Chronic NOEC 0.314 g/L Fresh water Chronic NOEC 100 mg/l Fresh water	Fish - Oncorhynchus mykiss Algae - Chlamydomonas reinhardtii Crustaceans - Cypris subglobosa Daphnia - Daphnia magna Aquatic plants - Lemna minor Fish - Morone saxatilis - Larvae Crustaceans - Hyalella azteca - Juvenile (Fledgling, Hatchling, Weanling) Aquatic plants - Lemna minor Daphnia - Daphnia pulex Fish - Gambusia holbrooki - Adult	96 hours 96 hours  48 hours  48 hours 96 hours 96 hours 3 weeks  96 hours 21 days 8 weeks

### Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
<input checked="" type="checkbox"/> <b>XL1-Blue MRA E.coli Strain</b> Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-
<b>XL1-Blue MRA (p2) E.coli Strain</b> Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-

### Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
<b>XL1-Blue MRA E.coli Strain</b> Glycerol	-1.76	-	low
<b>XL1-Blue MRA (p2) E.coli Strain</b> Glycerol	-1.76	-	low

### Mobility in soil

**Soil/water partition coefficient (K<sub>oc</sub>)** : 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 minimized 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. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

## Section 14. Transport information

**TDG / IMDG / IATA** : Not regulated.

**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 Annex II of MARPOL and the IBC Code** : Not available.

## Section 15. Regulatory information

### Canadian lists

**Canadian NPRI** : None of the components are listed.

**CEPA Toxic substances** : None of the components are listed.

### 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** : All components are listed or exempted.

**Canada** : All components are listed or exempted.

**China** : All components are listed or exempted.

**Europe** : All components are listed or exempted.

**Japan** : **Japan inventory (ENCS):** All components are listed or exempted.  
**Japan inventory (ISHL):** All components are listed or exempted.

**New Zealand** : All components are listed or exempted.

**Philippines** : All components are listed or exempted.

## Section 15. Regulatory information

<b>Republic of Korea</b>	: All components are listed or exempted.
<b>Taiwan</b>	: All components are listed or exempted.
<b>Thailand</b>	: <input checked="" type="checkbox"/> Not determined.
<b>Turkey</b>	: Not determined.
<b>United States</b>	: All components are listed or exempted.
<b>Viet Nam</b>	: <input checked="" type="checkbox"/> Not determined.

## Section 16. Other information

### History

<b>Date of issue/Date of revision</b>	: 06/20/2019
<b>Date of previous issue</b>	: 04/21/2017
<b>Version</b>	: 5

<b>Key to abbreviations</b>	: ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals HPR = Hazardous Products Regulations IATA = International Air Transport Association IBC = Intermediate Bulk Container 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 UN = United Nations
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### Procedure used to derive the classification

Classification	Justification
<b>XL1-Blue MRA E.coli Strain</b> EYE IRRITATION - Category 2A	Calculation method
<b>XL1-Blue MRA (p2) E.coli Strain</b> EYE IRRITATION - Category 2A	Calculation method

<b>References</b>	: Not available.
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Indicates information that has changed from previously issued version.

### Notice to reader

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