



## Section 2. Hazards identification

SOLR Bacterial Strain

other users of this product.  
This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

### Classification of the substance or mixture

#### XL1-Blue MRF' E.coli Strain

H319 EYE IRRITATION - Category 2A

#### SOLR Bacterial Strain

H319 EYE IRRITATION - Category 2A

### 2.2 GHS label elements

#### Hazard pictograms

:



#### Signal word

: Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E.coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain

No signal word.  
No signal word.  
Warning  
No signal word.  
Warning

#### Hazard statements

: Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E.coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain

No known significant effects or critical hazards.  
No known significant effects or critical hazards.  
GHS SYMBOL - **Exclamation mark** - H319 - Causes serious eye irritation.  
No known significant effects or critical hazards.  
GHS SYMBOL - **Exclamation mark** - H319 - Causes serious eye irritation.

### Precautionary statements

#### Prevention

: Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E.coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain

Not applicable.  
Not applicable.  
P280 - Wear eye or face protection.  
P264 - Wash hands thoroughly after handling.  
Not applicable.  
P280 - Wear eye or face protection.  
P264 - Wash hands thoroughly after handling.

#### Response

: Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E.coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain

Not applicable.  
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.  
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

## Section 2. Hazards identification

		rinsing. P337 + P313 - If eye irritation persists: Get medical attention.
<b>Storage</b>	: <input checked="" type="checkbox"/> Lambda ZAP II Vector Predigested With EcoR I	Not applicable.
	pRho/EcoR I Test Insert	Not applicable.
	XL1-Blue MRF' E.coli Strain	Not applicable.
	ExAssist Interference-Resistant Helper Phage	Not applicable.
	SOLR Bacterial Strain	Not applicable.
<b>Disposal</b>	: <input checked="" type="checkbox"/> Lambda ZAP II Vector Predigested With EcoR I	Not applicable.
	pRho/EcoR I Test Insert	Not applicable.
	XL1-Blue MRF' E.coli Strain	Not applicable.
	ExAssist Interference-Resistant Helper Phage	Not applicable.
	SOLR Bacterial Strain	Not applicable.
<b>Supplemental label elements</b>	: <input checked="" type="checkbox"/> Lambda ZAP II Vector Predigested With EcoR I	None known.
	pRho/EcoR I Test Insert	None known.
	XL1-Blue MRF' E.coli Strain	None known.
	ExAssist Interference-Resistant Helper Phage	None known.
	SOLR Bacterial Strain	None known.
<b>2.3 Other hazards</b>		
<b>Hazards not otherwise classified</b>	: <input checked="" type="checkbox"/> Lambda ZAP II Vector Predigested With EcoR I	None known.
	pRho/EcoR I Test Insert	None known.
	XL1-Blue MRF' E.coli Strain	None known.
	ExAssist Interference-Resistant Helper Phage	None known.
	SOLR Bacterial Strain	None known.

## Section 3. Composition/information on ingredients

<b>Substance/mixture</b>	: <input checked="" type="checkbox"/> Lambda ZAP II Vector Predigested With EcoR I	Mixture
	pRho/EcoR I Test Insert	Mixture
	XL1-Blue MRF' E.coli Strain	Mixture
	ExAssist Interference-Resistant Helper Phage	Mixture
	SOLR Bacterial Strain	Mixture

Ingredient name	%	CAS number
<input checked="" type="checkbox"/> <b>XL1-Blue MRF' E.coli Strain</b>		
Glycerol	≥10 - ≤25	56-81-5
Sodium chloride	≤3	7647-14-5
<b>SOLR Bacterial Strain</b>		
Glycerol	≥10 - ≤25	56-81-5
Sodium chloride	≤3	7647-14-5

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

**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.**

## Section 3. Composition/information on ingredients

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


## Section 4. First aid measures

### 4.1 Description of necessary first aid measures


<b>Eye contact</b>	:  Lambda ZAP II Vector Predigested With EcoR I	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.
	pRho/EcoR I 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 MRF' 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.
	ExAssist Interference-Resistant Helper Phage	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.
	SOLR Bacterial 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 ZAP II Vector Predigested With EcoR I	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	pRho/EcoR I 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 MRF' 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.
	ExAssist Interference-Resistant Helper Phage	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	SOLR Bacterial 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

## Section 4. First aid measures

### Skin contact

<p>:  Lambda ZAP II Vector Predigested With EcoR I</p> <p>pRho/EcoR I Test Insert</p> <p>XL1-Blue MRF' E.coli Strain</p> <p>ExAssist Interference-Resistant Helper Phage</p> <p>SOLR Bacterial Strain</p>	<p>collar, tie, belt or waistband. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.</p> <p>Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.</p> <p>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.</p> <p>Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.</p> <p>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.</p>
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### Ingestion

<p>:  Lambda ZAP II Vector Predigested With EcoR I</p> <p>pRho/EcoR I Test Insert</p> <p>XL1-Blue MRF' E.coli Strain</p> <p>ExAssist Interference-Resistant Helper Phage</p> <p>SOLR Bacterial Strain</p>	<p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in</p>
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## Section 4. First aid measures

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.

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

#### Potential acute health effects

<b>Eye contact</b>	: Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E.coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	No known significant effects or critical hazards.  No known significant effects or critical hazards. Causes serious eye irritation. No known significant effects or critical hazards.
<b>Inhalation</b>	: Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E.coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	Causes serious eye irritation. 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 ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E.coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial 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. No known significant effects or critical hazards.
<b>Ingestion</b>	: Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E.coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial 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. No known significant effects or critical hazards.

#### Over-exposure signs/symptoms

<b>Eye contact</b>	: Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E.coli Strain	No specific data.  No specific data. Adverse symptoms may include the following: pain or irritation watering redness
	ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	No specific data.  Adverse symptoms may include the following: pain or irritation

## Section 4. First aid measures

		watering redness
<b>Inhalation</b>	: Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E.coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	No specific data. No specific data. No specific data. No specific data. No specific data.
<b>Skin contact</b>	: Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E.coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	No specific data. No specific data. No specific data. No specific data. No specific data.
<b>Ingestion</b>	: Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E.coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	No specific data. No specific data. No specific data. No specific data. No specific data.

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

<b>Notes to physician</b>	: Lambda ZAP II Vector Predigested With EcoR I  pRho/EcoR I Test Insert  XL1-Blue MRF' E.coli Strain  ExAssist Interference-Resistant Helper Phage  SOLR Bacterial Strain	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. 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. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
<b>Specific treatments</b>	: Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E.coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	No specific treatment. No specific treatment. No specific treatment. No specific treatment.
<b>Protection of first-aiders</b>	: Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert  XL1-Blue MRF' E.coli Strain  ExAssist Interference-Resistant Helper Phage	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. 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.

## Section 4. First aid measures

SOLR Bacterial 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

### 5.1 Extinguishing media

#### Suitable extinguishing media

: Lambda ZAP II Vector  
Predigested With EcoR I  
pRho/EcoR I Test Insert

Use an extinguishing agent suitable for the surrounding fire.

Use an extinguishing agent suitable for the surrounding fire.

XL1-Blue MRF' E.coli Strain

Use an extinguishing agent suitable for the surrounding fire.

ExAssist Interference-Resistant  
Helper Phage  
SOLR Bacterial Strain

Use an extinguishing agent suitable for the surrounding fire.

Use an extinguishing agent suitable for the surrounding fire.

#### Unsuitable extinguishing media

: Lambda ZAP II Vector  
Predigested With EcoR I  
pRho/EcoR I Test Insert  
XL1-Blue MRF' E.coli Strain  
ExAssist Interference-Resistant  
Helper Phage  
SOLR Bacterial Strain

None known.

None known.

None known.

None known.

None known.

### 5.2 Special hazards arising from the substance or mixture

#### Specific hazards arising from the chemical

: Lambda ZAP II Vector  
Predigested With EcoR I  
pRho/EcoR I Test Insert

In a fire or if heated, a pressure increase will occur and the container may burst.

In a fire or if heated, a pressure increase will occur and the container may burst.

XL1-Blue MRF' E.coli Strain

In a fire or if heated, a pressure increase will occur and the container may burst.

ExAssist Interference-Resistant  
Helper Phage  
SOLR Bacterial Strain

In a fire or if heated, a pressure increase will occur and the container may burst.

In a fire or if heated, a pressure increase will occur and the container may burst.

#### Hazardous thermal decomposition products

: Lambda ZAP II Vector  
Predigested With EcoR I  
pRho/EcoR I Test Insert  
XL1-Blue MRF' E.coli Strain

No specific data.

No specific data.

Decomposition products may include the following materials:

carbon dioxide

carbon monoxide

halogenated compounds

metal oxide/oxides

No specific data.

ExAssist Interference-Resistant  
Helper Phage  
SOLR Bacterial Strain

Decomposition products may include the following materials:

carbon dioxide

carbon monoxide

halogenated compounds


metal oxide/oxides



## Section 5. Fire-fighting measures

### 5.3 Advice for firefighters

#### Special protective actions for fire-fighters

:  Lambda ZAP II Vector  
Predigested With EcoR I

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.

pRheo/EcoR I 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 MRF' 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.


ExAssist Interference-Resistant  
Helper Phage

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.

SOLR Bacterial 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.

#### Special protective equipment for fire-fighters

:  Lambda ZAP II Vector  
Predigested With EcoR I

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

pRheo/EcoR I 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 MRF' 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.

ExAssist Interference-Resistant  
Helper Phage

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

SOLR Bacterial 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

### 6.1 Personal precautions, protective equipment and emergency procedures

#### For non-emergency personnel

:  Lambda ZAP II Vector  
Predigested With EcoR I

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.

pRheo/EcoR I 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 MRF' E.coli Strain

No action shall be taken involving any personal

## Section 6. Accidental release measures

	<p>ExAssist Interference-Resistant Helper Phage</p>	<p>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.</p>
	<p>SOLR Bacterial Strain</p>	<p>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.</p>
<p><b>For emergency responders :</b></p>	<p>☑ Lambda ZAP II Vector Predigested With EcoR I</p>	<p>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.</p>
	<p>pRheo/EcoR I Test Insert</p>	<p>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".</p>
	<p>XL1-Blue MRF' E.coli Strain</p>	<p>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".</p>
	<p>ExAssist Interference-Resistant Helper Phage</p>	<p>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".</p>
	<p>SOLR Bacterial Strain</p>	<p>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".</p>
<p><b>6.2 Environmental precautions</b></p>	<p>☑ Lambda ZAP II Vector Predigested With EcoR I</p>	<p>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).</p>
	<p>pRheo/EcoR I Test Insert</p>	<p>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).</p>
	<p>XL1-Blue MRF' E.coli Strain</p>	<p>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,</p>

## Section 6. Accidental release measures

ExAssist Interference-Resistant  
Helper Phage

waterways, soil or air).

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).

SOLR Bacterial 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).

### 6.3 Methods and materials for containment and cleaning up

#### Methods for cleaning up

:  Lambda ZAP II Vector  
Predigested With EcoR I

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.

pRheo/EcoR I Test Insert

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 MRF' 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.

ExAssist Interference-Resistant  
Helper Phage

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.


SOLR Bacterial 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

### 7.1 Precautions for safe handling

#### Protective measures

:  Lambda ZAP II Vector  
Predigested With EcoR I  
pRheo/EcoR I Test Insert

Put on appropriate personal protective equipment (see Section 8).

Put on appropriate personal protective equipment (see Section 8).

XL1-Blue MRF' 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

## Section 7. Handling and storage

	<p>ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain</p>	<p>not reuse container. Put on appropriate personal protective equipment (see Section 8). 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.</p>
<p><b>Advice on general occupational hygiene</b></p>	<p>:  Lambda ZAP II Vector Predigested With EcoR I</p> <p>pRheo/EcoR I Test Insert</p> <p>XL1-Blue MRF' E.coli Strain</p> <p>ExAssist Interference-Resistant Helper Phage</p> <p>SOLR Bacterial Strain</p>	<p>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. 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. 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. 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. 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>7.2 Conditions for safe storage, including any incompatibilities</b></p>	<p>:  Lambda ZAP II Vector Predigested With EcoR I</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</p>

## Section 7. Handling and storage

pRho/EcoR I Test Insert	environmental contamination. 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.
XL1-Blue MRF' E.coli Strain	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.
ExAssist Interference-Resistant Helper Phage	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.
SOLR Bacterial Strain	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.

### 7.3 Specific end use(s)

#### Recommendations

: Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E.coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	Industrial applications, Professional applications.  Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications.
: Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E.coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	Industrial applications, Professional applications. Not applicable.  Not applicable. Not applicable. Not applicable.

#### Industrial sector specific solutions

: Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E.coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	Industrial applications, Professional applications. Not applicable.  Not applicable. Not applicable. Not applicable.
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## Section 8. Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational exposure limits

Ingredient name	Exposure limits
<p><input checked="" type="checkbox"/> <b>XL1-Blue MRF' E.coli Strain</b> Glycerol</p> <p>Sodium chloride</p>	<p><b>OSHA PEL 1989 (United States, 3/1989).</b> TWA: 5 mg/m<sup>3</sup> 8 hours. Form: Respirable fraction TWA: 10 mg/m<sup>3</sup> 8 hours. Form: Total dust <b>OSHA PEL (United States, 6/2016).</b> TWA: 5 mg/m<sup>3</sup> 8 hours. Form: Respirable fraction TWA: 15 mg/m<sup>3</sup> 8 hours. Form: Total dust None.</p>
<p><b>SOLR Bacterial Strain</b> Glycerol</p> <p>Sodium chloride</p>	<p><b>OSHA PEL 1989 (United States, 3/1989).</b> TWA: 5 mg/m<sup>3</sup> 8 hours. Form: Respirable fraction TWA: 10 mg/m<sup>3</sup> 8 hours. Form: Total dust <b>OSHA PEL (United States, 6/2016).</b> TWA: 5 mg/m<sup>3</sup> 8 hours. Form: Respirable fraction TWA: 15 mg/m<sup>3</sup> 8 hours. Form: Total dust None.</p>

### 8.2 Exposure controls

#### 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.

##### 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.

## Section 8. Exposure controls/personal protection

- 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

### 9.1 Information on basic physical and chemical properties

#### Appearance






<b>Physical state</b>	<input checked="" type="checkbox"/> Lambda ZAP II Vector	Liquid.
	Predigested With EcoR I	
	pRho/EcoR I Test Insert	Liquid.
	XL1-Blue MRF' E.coli Strain	Liquid.
	ExAssist Interference-Resistant Helper Phage	Liquid.
<b>Color</b>	<input checked="" type="checkbox"/> Lambda ZAP II Vector	Not available.
	Predigested With EcoR I	
	pRho/EcoR I Test Insert	Not available.
	XL1-Blue MRF' E.coli Strain	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
<b>Odor</b>	<input checked="" type="checkbox"/> Lambda ZAP II Vector	Not available.
	Predigested With EcoR I	
	pRho/EcoR I Test Insert	Not available.
	XL1-Blue MRF' E.coli Strain	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
<b>Odor threshold</b>	<input checked="" type="checkbox"/> Lambda ZAP II Vector	Not available.
	Predigested With EcoR I	
	pRho/EcoR I Test Insert	Not available.
	XL1-Blue MRF' E.coli Strain	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
<b>pH</b>	<input checked="" type="checkbox"/> Lambda ZAP II Vector	7.5
	Predigested With EcoR I	
	pRho/EcoR I Test Insert	7.5
	XL1-Blue MRF' E.coli Strain	7
	ExAssist Interference-Resistant Helper Phage	7.5
<b>Melting point</b>	<input checked="" type="checkbox"/> Lambda ZAP II Vector	0°C (32°F)
	Predigested With EcoR I	
	pRho/EcoR I Test Insert	0°C (32°F)
	XL1-Blue MRF' E.coli Strain	Not available.
	ExAssist Interference-Resistant Helper Phage	0°C (32°F)
	SOLR Bacterial Strain	Not available.

## Section 9. Physical and chemical properties


<b>Boiling point</b>	: Lambda ZAP II Vector	100°C (212°F)
	Predigested With EcoR I	
	pRho/EcoR I Test Insert	100°C (212°F)
	XL1-Blue MRF' E.coli Strain	Not available.
	ExAssist Interference-Resistant Helper Phage	100°C (212°F)
<b>Flash point</b>	: Lambda ZAP II Vector	Not available.
	Predigested With EcoR I	
	pRho/EcoR I Test Insert	Not available.
	XL1-Blue MRF' E.coli Strain	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
<b>Evaporation rate</b>	: Lambda ZAP II Vector	Not available.
	Predigested With EcoR I	
	pRho/EcoR I Test Insert	Not available.
	XL1-Blue MRF' E.coli Strain	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
<b>Flammability (solid, gas)</b>	: Lambda ZAP II Vector	Not applicable.
	Predigested With EcoR I	
	pRho/EcoR I Test Insert	Not applicable.
	XL1-Blue MRF' E.coli Strain	Not applicable.
	ExAssist Interference-Resistant Helper Phage	Not applicable.
<b>Lower and upper explosive (flammable) limits</b>	: Lambda ZAP II Vector	Not available.
	Predigested With EcoR I	
	pRho/EcoR I Test Insert	Not available.
	XL1-Blue MRF' E.coli Strain	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
<b>Vapor pressure</b>	: Lambda ZAP II Vector	Not available.
	Predigested With EcoR I	
	pRho/EcoR I Test Insert	Not available.
	XL1-Blue MRF' E.coli Strain	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
<b>Vapor density</b>	: Lambda ZAP II Vector	Not available.
	Predigested With EcoR I	
	pRho/EcoR I Test Insert	Not available.
	XL1-Blue MRF' E.coli Strain	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
<b>Relative density</b>	: Lambda ZAP II Vector	Not available.
	Predigested With EcoR I	
	pRho/EcoR I Test Insert	Not available.
	XL1-Blue MRF' E.coli Strain	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
<b>Relative density</b>	: Lambda ZAP II Vector	Not available.
	Predigested With EcoR I	
	pRho/EcoR I Test Insert	Not available.
	XL1-Blue MRF' E.coli Strain	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
<b>Relative density</b>	: Lambda ZAP II Vector	Not available.
	Predigested With EcoR I	
	pRho/EcoR I Test Insert	Not available.
	XL1-Blue MRF' E.coli Strain	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
<b>Relative density</b>	: Lambda ZAP II Vector	Not available.
	Predigested With EcoR I	
	pRho/EcoR I Test Insert	Not available.
	XL1-Blue MRF' E.coli Strain	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
<b>Relative density</b>	: Lambda ZAP II Vector	Not available.
	Predigested With EcoR I	
	pRho/EcoR I Test Insert	Not available.
	XL1-Blue MRF' E.coli Strain	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.



## Section 9. Physical and chemical properties

<b>Solubility</b>	:  Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert  XL1-Blue MRF' E.coli Strain  ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	Easily soluble in the following materials: cold water and hot water. Easily soluble in the following materials: cold water and hot water. Soluble in the following materials: cold water and hot water. Easily soluble in the following materials: cold water and hot water. Soluble in the following materials: cold water and hot water.
<b>Partition coefficient: n-octanol/water</b>	:  Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E.coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	Not available. Not available. Not available. Not available. Not available.
<b>Auto-ignition temperature</b>	:  Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E.coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	Not available. Not available. Not available. Not available. Not available.
<b>Decomposition temperature</b>	:  Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E.coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	Not available. Not available. Not available. Not available. Not available.
<b>Viscosity</b>	:  Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E.coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	Not available. Not available. Not available. Not available. Not available.

## Section 10. Stability and reactivity

<b>10.1 Reactivity</b>	:  Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert  XL1-Blue MRF' E.coli Strain  ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients.
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## Section 10. Stability and reactivity

<b>10.2 Chemical stability</b>	<ul style="list-style-type: none"> <li>: <input checked="" type="checkbox"/> Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert</li> <li>XL1-Blue MRF' E.coli Strain</li> <li>ExAssist Interference-Resistant Helper Phage</li> <li>SOLR Bacterial Strain</li> </ul>	<p>The product is stable.</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>10.3 Possibility of hazardous reactions</b>	<ul style="list-style-type: none"> <li>: <input checked="" type="checkbox"/> Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert</li> <li>XL1-Blue MRF' E.coli Strain</li> <li>ExAssist Interference-Resistant Helper Phage</li> <li>SOLR Bacterial Strain</li> </ul>	<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> <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>10.4 Conditions to avoid</b>	<ul style="list-style-type: none"> <li>: <input checked="" type="checkbox"/> Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert</li> <li>XL1-Blue MRF' E.coli Strain</li> <li>ExAssist Interference-Resistant Helper Phage</li> <li>SOLR Bacterial Strain</li> </ul>	<p>No specific data.</p> <p>No specific data.</p> <p>No specific data.</p> <p>No specific data.</p> <p>No specific data.</p>
<b>10.5 Incompatible materials</b>	<ul style="list-style-type: none"> <li>: <input checked="" type="checkbox"/> Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert</li> <li>XL1-Blue MRF' E.coli Strain</li> <li>ExAssist Interference-Resistant Helper Phage</li> <li>SOLR Bacterial Strain</li> </ul>	<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> <p>May react or be incompatible with oxidizing materials.</p>
<b>10.6 Hazardous decomposition products</b>	<ul style="list-style-type: none"> <li>: <input checked="" type="checkbox"/> Lambda ZAP II Vector Predigested With EcoR I</li> <li>pRho/EcoR I Test Insert</li> <li>XL1-Blue MRF' E.coli Strain</li> <li>ExAssist Interference-Resistant Helper Phage</li> <li>SOLR Bacterial Strain</li> </ul>	<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> <p>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</p>

## Section 11. Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
<b>XL1-Blue MRF' E.coli Strain</b>				
Glycerol	LD50 Oral	Rat	12600 mg/kg	-
Sodium chloride	LD50 Oral	Rat	3000 mg/kg	-
<b>SOLR Bacterial 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 MRF' 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>SOLR Bacterial 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

Not available.

#### Carcinogenicity

Not available.

#### Reproductive toxicity

Not available.

#### Teratogenicity

Not available.

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

Not available.

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

Not available.

#### Aspiration hazard

## Section 11. Toxicological information

Not available.

<b>Information on the likely routes of exposure</b>	: Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E.coli Strain  ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	Not available.  Not available. Routes of entry anticipated: Oral, Dermal, Inhalation.  Not available.  Routes of entry anticipated: Oral, Dermal, Inhalation.
<b><u>Potential acute health effects</u></b>		
<b>Eye contact</b>	: Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E.coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	No known significant effects or critical hazards.  No known significant effects or critical hazards. Causes serious eye irritation. No known significant effects or critical hazards.  Causes serious eye irritation.
<b>Inhalation</b>	: Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E.coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial 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.  No known significant effects or critical hazards.
<b>Skin contact</b>	: Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E.coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial 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. No known significant effects or critical hazards.
<b>Ingestion</b>	: Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E.coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial 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. No known significant effects or critical hazards.

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

<b>Eye contact</b>	: Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E.coli Strain  ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	No specific data.  No specific data. Adverse symptoms may include the following: pain or irritation watering redness  No specific data.  Adverse symptoms may include the following: pain or irritation watering redness
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## Section 11. Toxicological information

<b>Inhalation</b>	: <input checked="" type="checkbox"/> Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E.coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	No specific data. No specific data. No specific data. No specific data. No specific data.
<b>Skin contact</b>	: <input checked="" type="checkbox"/> Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E.coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	No specific data. No specific data. No specific data. No specific data. No specific data.
<b>Ingestion</b>	: <input checked="" type="checkbox"/> Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E.coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	No specific data. 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>	: <input checked="" type="checkbox"/> Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E.coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial 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. No known significant effects or critical hazards.
<b>Carcinogenicity</b>	: <input checked="" type="checkbox"/> Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E.coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial 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>	: <input checked="" type="checkbox"/> Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E.coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial 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>	: <input checked="" type="checkbox"/> Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E.coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial 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.  No known significant effects or critical hazards.
<b>Developmental effects</b>	: <input checked="" type="checkbox"/> Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E.coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial 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.  No known significant effects or critical hazards.
<b>Fertility effects</b>	: <input checked="" type="checkbox"/> Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E.coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial 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.  No known significant effects or critical hazards.

### Numerical measures of toxicity

#### Acute toxicity estimates

Route	ATE value
<input checked="" type="checkbox"/> XL1-Blue MRF' E.coli Strain Oral	300000 mg/kg
SOLR Bacterial Strain Oral	300000 mg/kg

## Section 12. Ecological information

### 12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
<input checked="" type="checkbox"/> XL1-Blue MRF' E.coli Strain Glycerol Sodium chloride	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Acute EC50 2430000 µg/l Fresh water	Algae - Navicula seminulum	96 hours
	Acute EC50 28.85 mg/dm <sup>3</sup> Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 519.6 mg/l Fresh water	Crustaceans - Cypris subglobosa	48 hours
	Acute IC50 6.87 g/L Fresh water	Aquatic plants - Lemna minor	96 hours
	Acute LC50 1.56 g/L Fresh water	Daphnia - Daphnia magna	48 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, Weanling)	3 weeks
	Chronic NOEC 6 g/L Fresh water	Aquatic plants - Lemna minor	96 hours
	Chronic NOEC 0.314 g/L Fresh water	Daphnia - Daphnia pulex	21 days
Chronic NOEC 100 mg/l Fresh water	Fish - Gambusia holbrooki - Adult	8 weeks	
SOLR Bacterial Strain Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours

## Section 12. Ecological information

Sodium chloride	Acute EC50 2430000 µg/l Fresh water	Algae - Navicula seminulum	96 hours
	Acute EC50 28.85 mg/dm <sup>3</sup> Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 519.6 mg/l Fresh water	Crustaceans - Cypris subglobosa	48 hours
	Acute IC50 6.87 g/L Fresh water	Aquatic plants - Lemna minor	96 hours
	Acute LC50 1.56 g/L Fresh water	Daphnia - Daphnia magna	48 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, Weanling)	3 weeks
	Chronic NOEC 6 g/L Fresh water	Aquatic plants - Lemna minor	96 hours
	Chronic NOEC 0.314 g/L Fresh water	Daphnia - Daphnia pulex	21 days
	Chronic NOEC 100 mg/l Fresh water	Fish - Gambusia holbrooki - Adult	8 weeks

### 12.2 Persistence and degradability

Not available.

### 12.3 Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
<b>XL1-Blue MRF' E.coli Strain</b> Glycerol	-1.76	-	low
<b>SOLR Bacterial Strain</b> Glycerol	-1.76	-	low

### 12.4 Mobility in soil

**Soil/water partition coefficient (K<sub>oc</sub>)** : Not available.

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

## Section 13. Disposal considerations

### 13.1 Waste treatment methods

**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. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

## Section 13. Disposal considerations

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

## Section 14. Transport information

### Regulatory information

DOT / IMDG / IATA : Not regulated.

## Section 15. Regulatory information

### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

**U.S. Federal regulations** : **United States inventory (TSCA 8b)**: All components are listed or exempted.  
**Clean Water Act (CWA) 311**: Edetic acid

**Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)** : Not listed

**Clean Air Act Section 602 Class I Substances** : Not listed

**Clean Air Act Section 602 Class II Substances** : Not listed

**DEA List I Chemicals (Precursor Chemicals)** : Not listed

**DEA List II Chemicals (Essential Chemicals)** : Not listed

### SARA 302/304

#### Composition/information on ingredients

No products were found.

**SARA 304 RQ** : Not applicable.

### SARA 311/312

**Classification** : Immediate (acute) health hazard

#### Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
<b>XL1-Blue MRF' E.coli Strain</b>						
Glycerol	≥10 - ≤25	No.	No.	No.	Yes.	No.
Sodium chloride	≤3	No.	No.	No.	Yes.	No.
<b>SOLR Bacterial Strain</b>						
Glycerol	≥10 - ≤25	No.	No.	No.	Yes.	No.
Sodium chloride	≤3	No.	No.	No.	Yes.	No.

### State regulations

**Massachusetts** : The following components are listed: GLYCERINE MIST

**New York** : None of the components are listed.

**New Jersey** : The following components are listed: GLYCERIN; 1,2,3-PROPANETRIOL

**Pennsylvania** : The following components are listed: 1,2,3-PROPANETRIOL

### California Prop. 65



## Section 15. Regulatory information

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

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
<input checked="" type="checkbox"/> <b>XL1-Blue MRF' E.coli Strain</b> Tetracycline	No.	Yes.	No.	No.

### International regulations

#### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

#### Montreal Protocol (Annexes A, B, C, E)

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

<b>Australia</b>	: Not determined.
<b>Canada inventory</b>	: Not determined.
<b>China</b>	: Not determined.
<b>Europe</b>	: All components are listed or exempted.
<b>Japan</b>	: <input checked="" type="checkbox"/> <b>Japan inventory (ENCS):</b> Not determined. <b>Japan inventory (ISHL):</b> Not determined.
<b>Malaysia</b>	: Not determined.
<b>New Zealand</b>	: Not determined.
<b>Philippines</b>	: Not determined.
<b>Republic of Korea</b>	: Not determined.
<b>Taiwan</b>	: <input checked="" type="checkbox"/> All components are listed or exempted.
<b>Turkey</b>	: <input checked="" type="checkbox"/> Not determined.

## Section 16. Other information

### History

<b>Date of issue</b>	: 03/30/2017
<b>Date of previous issue</b>	: 10/28/2015.
<b>Version</b>	: 4

Indicates information that has changed from previously issued version.

### Notice to reader

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