

SAFETY DATA SHEET



Lambda Zap II Undigested Vector Kit, Part Number 236201

Section 1. Identification

1.1 Product identifier

Product name : Lambda Zap II Undigested Vector Kit, Part Number 236201
Part No. (Chemical Kit) : 236201
Part No. : Undigested Lambda Zap II DNA 236201-51
 VCSM13 Interference-Resistant Helper Phage 200251-81
 ExAssist Interference-Resistant Helper Phage 200253-81
 XL1-Blue MRF' E.coli Strain 200301-81
 SOLR Bacterial Strain 200298-81
Validation date : 4/21/2017

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

Material uses : Analytical reagent.
 Undigested Lambda Zap II DNA 0.02 ml (20 µg 1 µg/µl)
 VCSM13 Interference-Resistant Helper Phage 1 ml (>1 x 10e11 pfu/ml)
 ExAssist Interference-Resistant Helper Phage 1 ml (>1 x E10 pfu/ml)
 XL1-Blue MRF' E.coli Strain 0.5 ml
 SOLR Bacterial Strain 0.5 ml

1.3 Details of the supplier of the safety data sheet

Supplier/Manufacturer : Agilent Technologies, Inc.
 5301 Stevens Creek Blvd
 Santa Clara, CA 95051, USA
 800-227-9770

1.4 Emergency telephone number

In case of emergency : CHEMTREC®: 1-800-424-9300

Section 2. Hazards identification

2.1 Classification of the substance or mixture

OSHA/HCS status	: <input checked="" type="checkbox"/> Undigested Lambda Zap II DNA	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
	: <input type="checkbox"/> VCSM13 Interference-Resistant Helper Phage	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
	: <input type="checkbox"/> ExAssist Interference-Resistant Helper Phage	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
	: <input type="checkbox"/> XL1-Blue MRF' E.coli Strain	This material is considered hazardous by the OSHA

Section 2. Hazards identification

SOLR Bacterial Strain

Hazard Communication Standard (29 CFR 1910.1200).
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

: Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage No signal word.
No signal word.
ExAssist Interference-Resistant Helper Phage No signal word.
XL1-Blue MRF' E.coli Strain Warning
SOLR Bacterial Strain Warning

Hazard statements

: Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage No known significant effects or critical hazards.
No known significant effects or critical hazards.
ExAssist Interference-Resistant Helper Phage No known significant effects or critical hazards.
XL1-Blue MRF' E.coli Strain GHS SYMBOL - **Exclamation mark** - H319 - Causes serious eye irritation.
SOLR Bacterial Strain GHS SYMBOL - **Exclamation mark** - H319 - Causes serious eye irritation.

Precautionary statements

Prevention

: Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage Not applicable.
Not applicable.
ExAssist Interference-Resistant Helper Phage Not applicable.
XL1-Blue MRF' E.coli Strain P280 - Wear eye or face protection.
P264 - Wash hands thoroughly after handling.
SOLR Bacterial Strain P280 - Wear eye or face protection.
P264 - Wash hands thoroughly after handling.

Response

: Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage Not applicable.
Not applicable.
ExAssist Interference-Resistant Helper Phage Not applicable.
XL1-Blue MRF' E.coli Strain 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.
SOLR Bacterial Strain 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.
Storage	: <input checked="" type="checkbox"/> Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.
Disposal	: <input checked="" type="checkbox"/> Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.
Supplemental label elements	: <input checked="" type="checkbox"/> Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain	None known. None known. None known. None known. None known.
2.3 Other hazards		
Hazards not otherwise classified	: <input checked="" type="checkbox"/> Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain	None known. None known. None known. None known. None known.

Section 3. Composition/information on ingredients

Substance/mixture	: <input checked="" type="checkbox"/> Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain	Mixture Mixture Mixture Mixture Mixture
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Ingredient name	%	CAS number
<input checked="" type="checkbox"/> XL1-Blue MRF' E.coli Strain Glycerol Sodium chloride	≥10 - ≤25 ≤3	56-81-5 7647-14-5
SOLR Bacterial Strain Glycerol Sodium chloride	≥10 - ≤25 ≤3	56-81-5 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

Eye contact	: <input checked="" type="checkbox"/> Undigested Lambda Zap II DNA	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.
	VCSM13 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.
	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.
	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.
	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.
Inhalation	: <input checked="" type="checkbox"/> Undigested Lambda Zap II DNA	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	VCSM13 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.
	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.
	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.
	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

: Undigested Lambda Zap II DNA

collar, tie, belt or waistband.

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

VCSM13 Interference-Resistant Helper Phage

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

ExAssist Interference-Resistant Helper Phage

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

XL1-Blue MRF' 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.

SOLR Bacterial 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.

Ingestion

: Undigested Lambda Zap II DNA

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.

VCSM13 Interference-Resistant Helper Phage

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.

ExAssist Interference-Resistant Helper Phage

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 MRF' 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 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.

SOLR Bacterial Strain

Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in

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

Eye contact	: Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. Causes serious eye irritation. Causes serious eye irritation.
Inhalation	: Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain 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.
Skin contact	: Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain 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.
Ingestion	: Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain 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

Eye contact	: Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain	No specific data. No specific data. No specific data. Adverse symptoms may include the following: pain or irritation watering redness Adverse symptoms may include the following: pain or irritation
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Section 4. First aid measures

		watering redness
Inhalation	: Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain	No specific data. No specific data. No specific data.
Skin contact	: Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain	No specific data. No specific data. No specific data.
Ingestion	: Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain	No specific data. No specific data. No specific data.

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

Notes to physician	: Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain 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.
Specific treatments	: Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain	No specific treatment. No specific treatment. No specific treatment. No specific treatment. No specific treatment.
Protection of first-aiders	: Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' 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. 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.

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

: Undigested Lambda Zap II DNA
 VCSM13 Interference-Resistant Helper Phage
 ExAssist Interference-Resistant Helper Phage
 XL1-Blue MRF' E.coli Strain
 SOLR Bacterial Strain

Use an extinguishing agent suitable for the surrounding fire.
 Use an extinguishing agent suitable for the surrounding fire.
 Use an extinguishing agent suitable for the surrounding fire.
 Use an extinguishing agent suitable for the surrounding fire.
 Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media

: Undigested Lambda Zap II DNA
 VCSM13 Interference-Resistant Helper Phage
 ExAssist Interference-Resistant Helper Phage
 XL1-Blue MRF' E.coli Strain
 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

: Undigested Lambda Zap II DNA
 VCSM13 Interference-Resistant Helper Phage
 ExAssist Interference-Resistant Helper Phage
 XL1-Blue MRF' E.coli Strain
 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.
 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.
 In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products

: Undigested Lambda Zap II DNA
 VCSM13 Interference-Resistant Helper Phage
 ExAssist Interference-Resistant Helper Phage
 XL1-Blue MRF' E.coli Strain

No specific data.
 No specific data.
 No specific data.

SOLR Bacterial Strain

Decomposition products may include the following materials:
 carbon dioxide
 carbon monoxide
 halogenated compounds
 metal oxide/oxides
 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

: Undigested Lambda Zap II DNA

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.

VCSM13 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.

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.

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.

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

: Undigested Lambda Zap II DNA

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

VCSM13 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.

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.

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.

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

: Undigested Lambda Zap II DNA

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.

VCSM13 Interference-Resistant Helper Phage

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.

ExAssist Interference-Resistant

No action shall be taken involving any personal


Section 6. Accidental release measures

	Helper Phage	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 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.
	SOLR Bacterial 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 appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
<p>For emergency responders :</p>	<p>☑ Undigested Lambda Zap II DNA</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>
	VCSM13 Interference-Resistant Helper Phage	<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>
	ExAssist Interference-Resistant Helper Phage	<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>
	XL1-Blue MRF' E.coli Strain	<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>
	SOLR Bacterial Strain	<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>6.2 Environmental precautions</p>	<p>☑ Undigested Lambda Zap II DNA</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>
	VCSM13 Interference-Resistant Helper Phage	<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>
	ExAssist Interference-Resistant Helper Phage	<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


XL1-Blue MRF' E.coli Strain	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 :  ndigested Lambda Zap II DNA	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.
VCSM13 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.
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.
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.
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 :  ndigested Lambda Zap II DNA	Put on appropriate personal protective equipment (see Section 8).
VCSM13 Interference-Resistant Helper Phage	Put on appropriate personal protective equipment (see Section 8).
ExAssist Interference-Resistant Helper Phage	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

Section 7. Handling and storage

	SOLR Bacterial Strain	<p>tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.</p> <p>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>Advice on general occupational hygiene</p>	<p>:  Undigested Lambda Zap II DNA</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.</p>
	VCSM13 Interference-Resistant Helper Phage	<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.</p>
	ExAssist Interference-Resistant Helper Phage	<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.</p>
	XL1-Blue MRF' E.coli Strain	<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>
	SOLR Bacterial Strain	<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>7.2 Conditions for safe storage, including any incompatibilities</p>	<p>:  Undigested Lambda Zap II DNA</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

VCSM13 Interference-Resistant Helper Phage

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.

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.

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.

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

- ☑ Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage
 Industrial applications, Professional applications. Industrial applications, Professional applications.
- ☑ ExAssist Interference-Resistant Helper Phage
 Industrial applications, Professional applications.
- ☑ XL1-Blue MRF' E.coli Strain
 Industrial applications, Professional applications.
- ☑ SOLR Bacterial Strain
 Industrial applications, Professional applications.

Industrial sector specific solutions

- ☑ Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage
 Not applicable. Not applicable.
- ☑ ExAssist Interference-Resistant Helper Phage
 Not applicable.
- ☑ XL1-Blue MRF' E.coli Strain
 Not applicable.
- ☑ SOLR Bacterial Strain
 Not applicable.

Section 8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
<p><input checked="" type="checkbox"/> XL1-Blue MRF' E.coli Strain Glycerol</p> <p>Sodium chloride</p>	<p>OSHA PEL 1989 (United States, 3/1989). TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 10 mg/m³ 8 hours. Form: Total dust OSHA PEL (United States, 6/2016). TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 15 mg/m³ 8 hours. Form: Total dust None.</p>
<p>SOLR Bacterial Strain Glycerol</p> <p>Sodium chloride</p>	<p>OSHA PEL 1989 (United States, 3/1989). TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 10 mg/m³ 8 hours. Form: Total dust OSHA PEL (United States, 6/2016). TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 15 mg/m³ 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

Physical state	<input checked="" type="checkbox"/> Undigested Lambda Zap II DNA	Liquid.
	VCSM13 Interference-Resistant Helper Phage	Liquid.
	ExAssist Interference-Resistant Helper Phage	Liquid.
	XL1-Blue MRF' E.coli Strain	Liquid.
	SOLR Bacterial Strain	Liquid.
Color	<input checked="" type="checkbox"/> Undigested Lambda Zap II DNA	Not available.
	VCSM13 Interference-Resistant Helper Phage	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
	XL1-Blue MRF' E.coli Strain	Not available.
	SOLR Bacterial Strain	Not available.
Odor	<input checked="" type="checkbox"/> Undigested Lambda Zap II DNA	Not available.
	VCSM13 Interference-Resistant Helper Phage	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
	XL1-Blue MRF' E.coli Strain	Not available.
	SOLR Bacterial Strain	Not available.
Odor threshold	<input checked="" type="checkbox"/> Undigested Lambda Zap II DNA	Not available.
	VCSM13 Interference-Resistant Helper Phage	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
	XL1-Blue MRF' E.coli Strain	Not available.
	SOLR Bacterial Strain	Not available.
pH	<input checked="" type="checkbox"/> Undigested Lambda Zap II DNA	7.5
	VCSM13 Interference-Resistant Helper Phage	7.5
	ExAssist Interference-Resistant Helper Phage	7.5
	XL1-Blue MRF' E.coli Strain	7
	SOLR Bacterial Strain	7
Melting point	<input checked="" type="checkbox"/> Undigested Lambda Zap II DNA	0°C (32°F)
	VCSM13 Interference-Resistant Helper Phage	0°C (32°F)
	ExAssist Interference-Resistant Helper Phage	0°C (32°F)
	XL1-Blue MRF' E.coli Strain	Not available.
	SOLR Bacterial Strain	Not available.

Section 9. Physical and chemical properties

Boiling point	: Undigested Lambda Zap II DNA	100°C (212°F)
	VCSM13 Interference-Resistant	100°C (212°F)
	Helper Phage	
	ExAssist Interference-Resistant	100°C (212°F)
	Helper Phage	
Flash point	: Undigested Lambda Zap II DNA	Not available.
	VCSM13 Interference-Resistant	Not available.
	Helper Phage	
	ExAssist Interference-Resistant	Not available.
	Helper Phage	
Evaporation rate	: Undigested Lambda Zap II DNA	Not available.
	VCSM13 Interference-Resistant	Not available.
	Helper Phage	
	ExAssist Interference-Resistant	Not available.
	Helper Phage	
Flammability (solid, gas)	: Undigested Lambda Zap II DNA	Not applicable.
	VCSM13 Interference-Resistant	Not applicable.
	Helper Phage	
	ExAssist Interference-Resistant	Not applicable.
	Helper Phage	
Lower and upper explosive (flammable) limits	: Undigested Lambda Zap II DNA	Not available.
	VCSM13 Interference-Resistant	Not available.
	Helper Phage	
	ExAssist Interference-Resistant	Not available.
	Helper Phage	
Vapor pressure	: Undigested Lambda Zap II DNA	Not available.
	VCSM13 Interference-Resistant	Not available.
	Helper Phage	
	ExAssist Interference-Resistant	Not available.
	Helper Phage	
Vapor density	: Undigested Lambda Zap II DNA	Not available.
	VCSM13 Interference-Resistant	Not available.
	Helper Phage	
	ExAssist Interference-Resistant	Not available.
	Helper Phage	
Relative density	: Undigested Lambda Zap II DNA	Not available.
	VCSM13 Interference-Resistant	Not available.
	Helper Phage	
	ExAssist Interference-Resistant	Not available.
	Helper Phage	
Relative density	: Undigested Lambda Zap II DNA	Not available.
	VCSM13 Interference-Resistant	Not available.
	Helper Phage	
	ExAssist Interference-Resistant	Not available.
	Helper Phage	
Relative density	: Undigested Lambda Zap II DNA	Not available.
	VCSM13 Interference-Resistant	Not available.
	Helper Phage	
	ExAssist Interference-Resistant	Not available.
	Helper Phage	
Relative density	: Undigested Lambda Zap II DNA	Not available.
	VCSM13 Interference-Resistant	Not available.
	Helper Phage	
	ExAssist Interference-Resistant	Not available.
	Helper Phage	
Relative density	: Undigested Lambda Zap II DNA	Not available.
	VCSM13 Interference-Resistant	Not available.
	Helper Phage	
	ExAssist Interference-Resistant	Not available.
	Helper Phage	

Section 9. Physical and chemical properties

Solubility	: <input checked="" type="checkbox"/> Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain 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. Easily soluble in the following materials: cold water and hot water. Soluble in the following materials: cold water and hot water. Soluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water	: <input checked="" type="checkbox"/> Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain	Not available. Not available. Not available. Not available. Not available.
Auto-ignition temperature	: <input checked="" type="checkbox"/> Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain	Not available. Not available. Not available. Not available. Not available.
Decomposition temperature	: <input checked="" type="checkbox"/> Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain	Not available. Not available. Not available. Not available. Not available.
Viscosity	: <input checked="" type="checkbox"/> Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain	Not available. Not available. Not available. Not available. Not available.

Section 10. Stability and reactivity

10.1 Reactivity	: <input checked="" type="checkbox"/> Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain 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

10.2 Chemical stability	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain 	<ul style="list-style-type: none"> The product is stable. The product is stable. The product is stable. The product is stable. The product is stable.
10.3 Possibility of hazardous reactions	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain 	<ul style="list-style-type: none"> Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain 	<ul style="list-style-type: none"> No specific data. No specific data. No specific data. No specific data. No specific data.
10.5 Incompatible materials	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain 	<ul style="list-style-type: none"> May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials.
10.6 Hazardous decomposition products	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain 	<ul style="list-style-type: none"> Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

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

Information on the likely routes of exposure	<ul style="list-style-type: none"> : Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain 	<p>Not available.</p> <p>Not available.</p> <p>Not available.</p> <p>Routes of entry anticipated: Oral, Dermal, Inhalation.</p> <p>Routes of entry anticipated: Oral, Dermal, Inhalation.</p>
Potential acute health effects		
Eye contact	<ul style="list-style-type: none"> : Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain 	<p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>Causes serious eye irritation.</p> <p>Causes serious eye irritation.</p>
Inhalation	<ul style="list-style-type: none"> : Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain 	<p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p>
Skin contact	<ul style="list-style-type: none"> : Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain 	<p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p>
Ingestion	<ul style="list-style-type: none"> : Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain 	<p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p>

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	<ul style="list-style-type: none"> : Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain 	<p>No specific data.</p> <p>No specific data.</p> <p>No specific data.</p> <p>Adverse symptoms may include the following: pain or irritation watering redness</p> <p>Adverse symptoms may include the following: pain or irritation watering redness</p>
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Section 11. Toxicological information

Inhalation	: Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain	No specific data. No specific data. No specific data. No specific data. No specific data.
Skin contact	: Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain SOLR Bacterial Strain	No specific data. No specific data. No specific data. No specific data. No specific data.
Ingestion	: Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain 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

General	: Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain 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.
Carcinogenicity	: Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain 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.
Mutagenicity	: Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain 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.

Section 11. Toxicological information

Teratogenicity	: <input checked="" type="checkbox"/> Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain 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.
Developmental effects	: <input checked="" type="checkbox"/> Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain 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.
Fertility effects	: <input checked="" type="checkbox"/> Undigested Lambda Zap II DNA VCSM13 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain 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.

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/dm3 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 ³ 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 _{ow}	BCF	Potential
XL1-Blue MRF' E.coli Strain Glycerol	-1.76	-	low
SOLR Bacterial Strain Glycerol	-1.76	-	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : 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
XL1-Blue MRF' E.coli Strain						
Glycerol	≥10 - ≤25	No.	No.	No.	Yes.	No.
Sodium chloride	≤3	No.	No.	No.	Yes.	No.
SOLR Bacterial Strain						
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"/> XL1-Blue MRF' E.coli Strain 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

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

Section 16. Other information

History

Date of issue	: 04/21/2017
Date of previous issue	: 10/28/2015.
Version	: 4

Indicates information that has changed from previously issued version.

Notice to reader

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