Conforms to US OSHA Hazard Communication 29CFR1910.1200

SAFETY DATA SHEET

Agilent Technologies

Lambda ZAP II Predigested Vector Kit, Part Number 236211

Section 1. Identification

1.1 Product identifier

Product name : Lambda ZAP II Predigested Vector Kit, Part Number 236211

Part no. (chemical kit) : 236211

Part no. :

Lambda ZAP II Vector Predigested With EcoR I	236211-51
pRheo/EcoR I Test Insert	210200-51
XL1-Blue MRF' E.coli Strain	200301-81
ExAssist Interference-Resistant Helper Phage	200253-81
SOLR Bacterial Strain	200298-81

Validation date : 10/15/2020

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

Material uses : Analytical reagent.

Lambda ZAP II Vector Predigested With EcoR I	0.01 ml (10 µg 1 µg/µl)
pRheo/EcoR I Test Insert	0.01 ml (1.25 µg 0.25 µg/µl)
XL1-Blue MRF' E.coli Strain	0.5 ml
ExAssist Interference-Resistant Helper Phage	1 ml (>1 x E10 pfu/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 :

Lambda ZAP II Vector Predigested With EcoR I	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.
pRheo/EcoR I Test Insert	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.
XL1-Blue MRF' E.coli Strain	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
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

Section 2. Hazards identification

		and other users of this product.
	SOLR Bacterial Strain	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 : XL1-Blue MRF' E.coli Strain

SOLR Bacterial Strain

Signal word	:	Lambda ZAP II Vector Predigested With EcoR I	No signal word.
		pRheo/EcoR I Test Insert	No signal word.
		XL1-Blue MRF' E.coli Strain	Warning
		ExAssist Interference-Resistant Helper Phage	No signal word.
		SOLR Bacterial Strain	Warning
Hazard statements	:	Lambda ZAP II Vector Predigested With EcoR I	No known significant effects or critical hazards.
		pRheo/EcoR I Test Insert	No known significant effects or critical hazards.
		XL1-Blue MRF' E.coli Strain	H319 - Causes serious eye irritation.
		ExAssist Interference-Resistant Helper Phage	No known significant effects or critical hazards.
		SOLR Bacterial Strain	H319 - Causes serious eye irritation.

Precautionary statements

Prevention	:	Lambda ZAP II Vector Predigested With EcoR I	Not applicable.
		pRheo/EcoR I Test Insert	Not applicable.
		XL1-Blue MRF' E.coli Strain	P280 - Wear eye or face protection.
		ExAssist Interference-Resistant Helper Phage	Not applicable.
		SOLR Bacterial Strain	P280 - Wear eye or face protection.
Response	:	Lambda ZAP II Vector Predigested With EcoR I	Not applicable.
		pRheo/EcoR I Test Insert	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 advice or attention.
		ExAssist Interference-Resistant Helper Phage	Not applicable.
		SOLR Bacterial Strain	P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove

Section 2. Hazards identification

			contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical advice or attention.
Storage	:	Lambda ZAP II Vector Predigested With EcoR I	Not applicable.
		pRheo/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.
Disposal	:	Lambda ZAP II Vector Predigested With EcoR I	Not applicable.
		pRheo/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.
Supplemental label elements	:	Lambda ZAP II Vector Predigested With EcoR I	None known.
		pRheo/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.

2.3 Other hazards

Hazards not otherwise classified	:	Lambda ZAP II Vector Predigested With EcoR I	None known.
		pRheo/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

Substance/mixture	:	Lambda ZAP II Vector Predigested With EcoR I	Mixture
		pRheo/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
XL1-Blue MRF' E.coli Strain		
Glycerol	≥10 - ≤25	56-81-5
Sodium chloride	≤3	7647-14-5
SOLR Bacterial Strain		
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

Eye contact	:	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.
		pRheo/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.
Inhalation	:	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.
		pRheo/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

			collar, tie, belt or waistband.
Skin contact	:	Lambda ZAP II Vector Predigested With EcoR I	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
		pRheo/EcoR I Test Insert	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.
		ExAssist Interference-Resistant Helper Phage	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
		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	:	Lambda ZAP II Vector Predigested With EcoR I	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.
		pRheo/EcoR I Test Insert	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
		XL1-Blue 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.
		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.
		SOLR Bacterial Strain	Wash out mouth with water. Remove dentures if

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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.

4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

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

Over-exposure signs/symptoms

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

Section 4. First aid measures

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

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

Notes to physician	:	Lambda ZAP II Vector Predigested With EcoR I	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		pRheo/EcoR I Test Insert	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		XL1-Blue MRF' E.coli Strain	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		ExAssist Interference-Resistant Helper Phage	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		SOLR Bacterial Strain	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	:	Lambda ZAP II Vector Predigested With EcoR I	No specific treatment.
		pRheo/EcoR I Test Insert	No specific treatment.
		XL1-Blue MRF' E.coli Strain	No specific treatment.
		ExAssist Interference-Resistant Helper Phage	No specific treatment.
		SOLR Bacterial Strain	No specific treatment.
Protection of first-aiders	:	Lambda ZAP II Vector Predigested With EcoR I	No action shall be taken involving any personal risk or without suitable training.
		pRheo/EcoR I Test Insert	No action shall be taken involving any personal risk or without suitable training.
		XL1-Blue MRF' E.coli Strain	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
		ExAssist Interference-Resistant	No action shall be taken involving any personal risk

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Helper Phage	or without suitable training.
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	Use an extinguishing agent suitable for the surrounding fire.
		pRheo/EcoR I Test Insert	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	Use an extinguishing agent suitable for the surrounding fire.
		SOLR Bacterial Strain	Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	:	Lambda ZAP II Vector Predigested With EcoR I	None known.
		pRheo/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.

5.2 Special hazards arising from the substance or mixture

Specific hazards arising from the chemical	:	Lambda ZAP II Vector Predigested With EcoR I	In a fire or if heated, a pressure increase will occur and the container may burst.
		pRheo/EcoR I Test Insert	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	In a fire or if heated, a pressure increase will occur and the container may burst.
		SOLR Bacterial Strain	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	No specific data.
		pRheo/EcoR I Test Insert	No specific data.
		XL1-Blue MRF' E.coli Strain	Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds metal oxide/oxides
		ExAssist Interference-Resistant Helper Phage	No specific data.
		SOLR Bacterial Strain	Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds metal oxide/oxides

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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.

Section 6. Accidental release measures

	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.
	ExAssist 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.
	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.
For emergency responders :	Lambda ZAP II Vector Predigested With EcoR I	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".
	pRheo/EcoR I Test Insert	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	XL1-Blue MRF' E.coli Strain	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	ExAssist Interference-Resistant Helper Phage	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".
	SOLR Bacterial Strain	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
6.2 Environmental precautions :	Lambda ZAP II Vector Predigested With EcoR I	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).
	pRheo/EcoR I Test Insert	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	XL1-Blue MRF' E.coli Strain	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has

Section 6. Accidental release measures

	caused environmental pollution (sewers, waterways, soil or air).
ExAssist Interference-Resistant Helper Phage	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	Put on appropriate personal protective equipment (see Section 8).
	pRheo/EcoR I Test Insert	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

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		retain product residue and can be hazardous. Do not reuse container.
	ExAssist Interference-Resistant Helper Phage	Put on appropriate personal protective equipment (see Section 8).
	SOLR Bacterial Strain	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
Advice on general occupational hygiene :	Lambda ZAP II Vector Predigested With EcoR I	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.
	pRheo/EcoR I Test Insert	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
	XL1-Blue MRF' E.coli Strain	Potentially biohazardous material. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
	ExAssist Interference-Resistant Helper Phage	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.
	SOLR Bacterial Strain	Potentially biohazardous material. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
7.2 Conditions for safe storage, including any incompatibilities :	Lambda ZAP II Vector Predigested With EcoR I	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

Section 7. Handling and storage

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

7.3 Specific end use(s)

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

Section 7. Handling and storage

Industrial sector specific solutions	:	Lambda ZAP II Vector Predigested With EcoR I	Not available.
		pRheo/EcoR I Test Insert	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
		ExAssist Interference-Resistant Helper Phage	Not available.
		SOLR Bacterial Strain	Not available.

Section 8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
XL1-Blue MRF' E.coli Strain	
Glycerol	**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, 5/2018).** TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 15 mg/m³ 8 hours. Form: Total dust
Sodium chloride	None.
SOLR Bacterial Strain	
Glycerol	**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, 5/2018).** TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 15 mg/m³ 8 hours. Form: Total dust
Sodium chloride	None.

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

Section 8. Exposure controls/personal protection

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

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

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	:	Lambda ZAP II Vector Predigested With EcoR I	Liquid.
		pRheo/EcoR I Test Insert	Liquid.
		XL1-Blue MRF' E.coli Strain	Liquid.
		ExAssist Interference-Resistant Helper Phage	Liquid.
		SOLR Bacterial Strain	Liquid.
Color	:	Lambda ZAP II Vector Predigested With EcoR I	Not available.
		pRheo/EcoR I Test Insert	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
		ExAssist Interference-Resistant Helper Phage	Not available.
		SOLR Bacterial Strain	Not available.
Odor	:	Lambda ZAP II Vector Predigested With EcoR I	Not available.
		pRheo/EcoR I Test Insert	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
		ExAssist Interference-Resistant Helper Phage	Not available.
		SOLR Bacterial Strain	Not available.
Odor threshold	:	Lambda ZAP II Vector Predigested With EcoR I	Not available.
		pRheo/EcoR I Test Insert	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
		ExAssist Interference-Resistant Helper Phage	Not available.
		SOLR Bacterial Strain	Not available.
pH	:	Lambda ZAP II Vector Predigested With EcoR I	7.5
		pRheo/EcoR I Test Insert	7.5
		XL1-Blue MRF' E.coli Strain	7
		ExAssist Interference-Resistant Helper Phage	7.5
		SOLR Bacterial Strain	7

Section 9. Physical and chemical properties

Melting point	:	Lambda ZAP II Vector Predigested With EcoR I	0°C (32°F)
		pRheo/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.
Boiling point	:	Lambda ZAP II Vector Predigested With EcoR I	100°C (212°F)
		pRheo/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)
		SOLR Bacterial Strain	Not available.
Flash point	:	Lambda ZAP II Vector Predigested With EcoR I	Not available.
		pRheo/EcoR I Test Insert	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
		ExAssist Interference-Resistant Helper Phage	Not available.
		SOLR Bacterial Strain	Not available.
Evaporation rate	:	Lambda ZAP II Vector Predigested With EcoR I	Not available.
		pRheo/EcoR I Test Insert	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
		ExAssist Interference-Resistant Helper Phage	Not available.
		SOLR Bacterial Strain	Not available.
Flammability (solid, gas)	:	Lambda ZAP II Vector Predigested With EcoR I	Not applicable.
		pRheo/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.
Lower and upper explosive (flammable) limits	:	Lambda ZAP II Vector Predigested With EcoR I	Not available.
		pRheo/EcoR I Test Insert	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
		ExAssist Interference-Resistant Helper Phage	Not available.
		SOLR Bacterial Strain	Not available.
Vapor pressure	:	Lambda ZAP II Vector Predigested With EcoR I	Not available.
		pRheo/EcoR I Test Insert	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
		ExAssist Interference-Resistant Helper Phage	Not available.
		SOLR Bacterial Strain	Not available.
Vapor density	:	Lambda ZAP II Vector Predigested With EcoR I	Not available.
		pRheo/EcoR I Test Insert	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
		ExAssist Interference-Resistant Helper Phage	Not available.
		SOLR Bacterial Strain	Not available.

Section 9. Physical and chemical properties

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

Section 10. Stability and reactivity

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

Section 10. Stability and reactivity

10.2 Chemical stability	: Lambda ZAP II Vector Predigested With EcoR I	The product is stable.
	pRheo/EcoR I Test Insert	The product is stable.
	XL1-Blue MRF' E.coli Strain	The product is stable.
	ExAssist Interference-Resistant Helper Phage	The product is stable.
	SOLR Bacterial Strain	The product is stable.
10.3 Possibility of hazardous reactions	: Lambda ZAP II Vector Predigested With EcoR I	Under normal conditions of storage and use, hazardous reactions will not occur.
	pRheo/EcoR I Test Insert	Under normal conditions of storage and use, hazardous reactions will not occur.
	XL1-Blue MRF' E.coli Strain	Under normal conditions of storage and use, hazardous reactions will not occur.
	ExAssist Interference-Resistant Helper Phage	Under normal conditions of storage and use, hazardous reactions will not occur.
	SOLR Bacterial Strain	Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	: Lambda ZAP II Vector Predigested With EcoR I	No specific data.
	pRheo/EcoR I Test Insert	No specific data.
	XL1-Blue MRF' E.coli Strain	No specific data.
	ExAssist Interference-Resistant Helper Phage	No specific data.
	SOLR Bacterial Strain	No specific data.
10.5 Incompatible materials	: Lambda ZAP II Vector Predigested With EcoR I	May react or be incompatible with oxidizing materials.
	pRheo/EcoR I Test Insert	May react or be incompatible with oxidizing materials.
	XL1-Blue MRF' E.coli Strain	May react or be incompatible with oxidizing materials.
	ExAssist Interference-Resistant Helper Phage	May react or be incompatible with oxidizing materials.
	SOLR Bacterial Strain	May react or be incompatible with oxidizing materials.
10.6 Hazardous decomposition products	: Lambda ZAP II Vector Predigested With EcoR I	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	pRheo/EcoR I Test Insert	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	XL1-Blue MRF' E.coli Strain	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	ExAssist Interference-Resistant Helper Phage	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	SOLR Bacterial Strain	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 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
Sodium chloride	Eyes - Moderate irritant	Rabbit	-	24 hours 100 mg	-
	Eyes - Moderate irritant	Rabbit	-	10 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
SOLR Bacterial Strain					
Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
Sodium chloride	Eyes - Moderate irritant	Rabbit	-	24 hours 100 mg	-
	Eyes - Moderate irritant	Rabbit	-	10 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-

Sensitization

Not available.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Section 11. Toxicological information

Information on the likely routes of exposure	:	Lambda ZAP II Vector Predigested With EcoR I	Not available.
		pRheo/EcoR I Test Insert	Not available.
		XL1-Blue MRF' E.coli Strain	Routes of entry anticipated: Oral, Dermal, Inhalation.
		ExAssist Interference-Resistant Helper Phage	Not available.
		SOLR Bacterial Strain	Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

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

Symptoms related to the physical, chemical and toxicological characteristics

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

Section 11. Toxicological information

Inhalation	:	Lambda ZAP II Vector Predigested With EcoR I	No specific data.
		pRheo/EcoR I Test Insert	No specific data.
		XL1-Blue MRF' E.coli Strain	No specific data.
		ExAssist Interference-Resistant Helper Phage	No specific data.
		SOLR Bacterial Strain	No specific data.
Skin contact	:	Lambda ZAP II Vector Predigested With EcoR I	No specific data.
		pRheo/EcoR I Test Insert	No specific data.
		XL1-Blue MRF' E.coli Strain	No specific data.
		ExAssist Interference-Resistant Helper Phage	No specific data.
		SOLR Bacterial Strain	No specific data.
Ingestion	:	Lambda ZAP II Vector Predigested With EcoR I	No specific data.
		pRheo/EcoR I Test Insert	No specific data.
		XL1-Blue MRF' E.coli Strain	No specific data.
		ExAssist Interference-Resistant Helper Phage	No specific data.
		SOLR Bacterial Strain	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	:	Lambda ZAP II Vector Predigested With EcoR I	No known significant effects or critical hazards.
		pRheo/EcoR I Test Insert	No known significant effects or critical hazards.
		XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
		ExAssist Interference-Resistant Helper Phage	No known significant effects or critical hazards.
		SOLR Bacterial Strain	No known significant effects or critical hazards.
Carcinogenicity	:	Lambda ZAP II Vector Predigested With EcoR I	No known significant effects or critical hazards.
		pRheo/EcoR I Test Insert	No known significant effects or critical hazards.
		XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
		ExAssist Interference-Resistant Helper Phage	No known significant effects or critical hazards.
		SOLR Bacterial Strain	No known significant effects or critical hazards.
Mutagenicity	:	Lambda ZAP II Vector Predigested With EcoR I	No known significant effects or critical hazards.
		pRheo/EcoR I Test Insert	No known significant effects or critical hazards.
		XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
		ExAssist Interference-Resistant Helper Phage	No known significant effects or critical hazards.
		SOLR Bacterial Strain	No known significant effects or critical hazards.

Section 11. Toxicological information

Reproductive toxicity :

Lambda ZAP II Vector Predigested With EcoR I	No known significant effects or critical hazards.
pRheo/EcoR I Test Insert	No known significant effects or critical hazards.
XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
ExAssist Interference-Resistant Helper Phage	No known significant effects or critical hazards.
SOLR Bacterial Strain	No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
XL1-Blue MRF' E.coli Strain					
XL1-Blue MRF' E.coli Strain	300000	N/A	N/A	N/A	N/A
Glycerol	12600	N/A	N/A	N/A	N/A
Sodium chloride	3000	N/A	N/A	N/A	N/A
SOLR Bacterial Strain					
SOLR Bacterial Strain	300000	N/A	N/A	N/A	N/A
Glycerol	12600	N/A	N/A	N/A	N/A
Sodium chloride	3000	N/A	N/A	N/A	N/A

Section 12. Ecological information

12.1 Toxicity

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

Section 12. Ecological information

	Chronic NOEC 100 mg/l Fresh water	Fish - Gambusia holbrooki - Adult	8 weeks

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
XL1-Blue MRF' E.coli Strain Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-
SOLR Bacterial Strain Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-

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

DOT / TDG / Mexico / IMDG / IATA : Not regulated.

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

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

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

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

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 :

Lambda ZAP II Vector Predigested With EcoR I	Not applicable.
pRheo/EcoR I Test Insert	Not applicable.
XL1-Blue MRF' E.coli Strain	EYE IRRITATION - Category 2A
ExAssist Interference-Resistant Helper Phage	Not applicable.
SOLR Bacterial Strain	EYE IRRITATION - Category 2A

Composition/information on ingredients

Section 15. Regulatory information

Name	%	Classification
XL1-Blue MRF' E.coli Strain		
Glycerol	≥10 - ≤25	EYE IRRITATION - Category 2B
Sodium chloride	≤3	EYE IRRITATION - Category 2A
SOLR Bacterial Strain		
Glycerol	≥10 - ≤25	EYE IRRITATION - Category 2B
Sodium chloride	≤3	EYE IRRITATION - Category 2A

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

This product does not require a Safe Harbor warning under California Prop. 65.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia : Not determined.

Canada : Not determined.

China : Not determined.

Europe : All components are listed or exempted.

Japan : **Japan inventory (ENCS)**: Not determined.
Japan inventory (ISHL): All components are listed or exempted.

New Zealand : Not determined.

Philippines : Not determined.

Republic of Korea : Not determined.

Taiwan : All components are listed or exempted.

Thailand : Not determined.

Turkey : Not determined.

United States : All components are active or exempted.

Viet Nam : Not determined.

Section 16. Other information

History

Date of issue : 10/15/2020

Date of previous issue : 08/23/2018

Version : 6

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
N/A = Not available
UN = United Nations

Procedure used to derive the classification

Classification	Justification
XL1-Blue MRF' E.coli Strain EYE IRRITATION - Category 2A	Calculation method
SOLR Bacterial Strain EYE IRRITATION - Category 2A	Calculation method

Indicates information that has changed from previously issued version.

Notice to reader

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