

# SAFETY DATA SHEET



Lambda ZAP II Predigested Vector Kit with Gigapack III Gold Packaging Extract, Part Number 236612

## Section 1. Identification

### 1.1 Product identifier

**Product name** : Lambda ZAP II Predigested Vector Kit with Gigapack III Gold Packaging Extract, Part Number 236612

**Part No. (Chemical Kit)** : 236612

**Part No.** :

Gigapack III packaging extract	200201-41
VCS257 E. coli Strain	200256-51
Wild-Type Lambda DNA c1857ind 1 Sam7	246203-51
Lambda ZAP II Vector Predigested With EcoR I	236211-51
pRho/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** : 3/22/2017

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

**Material uses** : Analytical reagent.

Gigapack III packaging extract	275 µl (11 x 25 µl)
VCS257 E. coli Strain	1 ml
Wild-Type Lambda DNA c1857ind 1 Sam7	5 µl (1.05 µg 0.21 µg/µl)
Lambda ZAP II Vector Predigested With EcoR I	10 µl (10 µg 1 µg/µl)
pRho/EcoR I Test Insert	5 µl (1.25 µg 0.25 µg/µl)
XL1-Blue MRF' E. coli Strain	500 µl
ExAssist Interference-Resistant Helper Phage	1 ml >1 x E10 pfu/ml
SOLR Bacterial Strain	500 µl

### 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

<b>OSHA/HCS status</b> :	Gigapack III packaging extract	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.
	VCS257 E. coli Strain	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
	Wild-Type Lambda DNA c1857ind 1 Sam7	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to

## Section 2. Hazards identification

	the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
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.
pRho/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 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

#### VCS257 E. coli Strain

H319 EYE IRRITATION - Category 2A

#### 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

:	Gigapack III packaging extract	No signal word.
	VCS257 E. coli Strain	Warning
	Wild-Type Lambda DNA c1857ind 1 Sam7	No signal word.
	Lambda ZAP II Vector Predigested With EcoR I	No signal word.
	pRho/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

:

## Section 2. Hazards identification

Gigapack III packaging extract VCS257 E. coli Strain	No known significant effects or critical hazards. GHS SYMBOL - <b>Exclamation mark</b> - H319 - Causes serious eye irritation.
Wild-Type Lambda DNA c1857ind 1 Sam7	No known significant effects or critical hazards.
Lambda ZAP II Vector Predigested With EcoR I	No known significant effects or critical hazards.
pRho/EcoR I Test Insert XL1-Blue MRF' E. coli Strain	No known significant effects or critical hazards. GHS SYMBOL - <b>Exclamation mark</b> - H319 - Causes serious eye irritation.
ExAssist Interference-Resistant Helper Phage	No known significant effects or critical hazards.
SOLR Bacterial Strain	GHS SYMBOL - <b>Exclamation mark</b> - H319 - Causes serious eye irritation.

### Precautionary statements

#### Prevention

: Gigapack III packaging extract VCS257 E. coli Strain	Not applicable. P280 - Wear eye or face protection. P264 - Wash hands thoroughly after handling.
Wild-Type Lambda DNA c1857ind 1 Sam7	Not applicable.
Lambda ZAP II Vector Predigested With EcoR I	Not applicable.
pRho/EcoR I Test Insert XL1-Blue MRF' E. coli Strain	Not applicable. P280 - Wear eye or face protection. P264 - Wash hands thoroughly after handling.
ExAssist Interference-Resistant Helper Phage	Not applicable.
SOLR Bacterial Strain	P280 - Wear eye or face protection. P264 - Wash hands thoroughly after handling.

#### Response

: Gigapack III packaging extract VCS257 E. coli Strain	Not applicable. P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical attention.
Wild-Type Lambda DNA c1857ind 1 Sam7	Not applicable.
Lambda ZAP II Vector Predigested With EcoR I	Not applicable.
pRho/EcoR I Test Insert XL1-Blue MRF' E. coli Strain	Not applicable. P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical attention.
ExAssist Interference-Resistant Helper Phage	Not applicable.
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 rinsing. P337 + P313 - If eye irritation persists: Get medical attention.

## Section 2. Hazards identification

<b>Storage</b>	:	Gigapack III packaging extract	Not applicable.
		VCS257 E. coli Strain	Not applicable.
		Wild-Type Lambda DNA c1857ind 1 Sam7	Not applicable.
		Lambda ZAP II Vector	Not applicable.
		Predigested With EcoR I	
		pRho/EcoR I Test Insert	Not applicable.
		XL1-Blue MRF' E. coli Strain	Not applicable.
		ExAssist Interference-Resistant Helper Phage	Not applicable.
		SOLR Bacterial Strain	Not applicable.

<b>Disposal</b>	:	Gigapack III packaging extract	Not applicable.
		VCS257 E. coli Strain	Not applicable.
		Wild-Type Lambda DNA c1857ind 1 Sam7	Not applicable.
		Lambda ZAP II Vector	Not applicable.
		Predigested With EcoR I	
		pRho/EcoR I Test Insert	Not applicable.
		XL1-Blue MRF' E. coli Strain	Not applicable.
		ExAssist Interference-Resistant Helper Phage	Not applicable.
		SOLR Bacterial Strain	Not applicable.

<b>Supplemental label elements</b>	:	Gigapack III packaging extract	None known.
		VCS257 E. coli Strain	None known.
		Wild-Type Lambda DNA c1857ind 1 Sam7	None known.
		Lambda ZAP II Vector	None known.
		Predigested With EcoR I	
		pRho/EcoR I Test Insert	None known.
		XL1-Blue MRF' E. coli Strain	None known.
		ExAssist Interference-Resistant Helper Phage	None known.
		SOLR Bacterial Strain	None known.

### 2.3 Other hazards

<b>Hazards not otherwise classified</b>	:	Gigapack III packaging extract	None known.
		VCS257 E. coli Strain	None known.
		Wild-Type Lambda DNA c1857ind 1 Sam7	None known.
		Lambda ZAP II Vector	None known.
		Predigested With EcoR I	
		pRho/EcoR I Test Insert	None known.
		XL1-Blue MRF' E. coli Strain	None known.
		ExAssist Interference-Resistant Helper Phage	None known.
		SOLR Bacterial Strain	None known.

## Section 3. Composition/information on ingredients

<b>Substance/mixture</b>	:	Gigapack III packaging extract	Mixture
		VCS257 E. coli Strain	Mixture
		Wild-Type Lambda DNA c1857ind 1 Sam7	Mixture
		Lambda ZAP II Vector Predigested With EcoR I	Mixture
		pRho/EcoR I Test Insert	Mixture
		XL1-Blue MRF' E. coli Strain	Mixture
		ExAssist Interference-Resistant Helper Phage	Mixture

## Section 3. Composition/information on ingredients

SOLR Bacterial Strain

Mixture

Ingredient name	%	CAS number
<b>VCS257 E. coli Strain</b>		
Glycerol	≥10 - ≤25	56-81-5
Sodium chloride	≤3	7647-14-5
<b>XL1-Blue MRF' E. coli Strain</b>		
Glycerol	≥10 - ≤25	56-81-5
Sodium chloride	≤3	7647-14-5
<b>SOLR Bacterial Strain</b>		
Glycerol	≥10 - ≤25	56-81-5
Sodium chloride	≤3	7647-14-5

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

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

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

## Section 4. First aid measures

### 4.1 Description of necessary first aid measures

<b>Eye contact</b>	: Gigapack III packaging extract	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.
	VCS257 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.
	Wild-Type Lambda DNA c1857ind 1 Sam7	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.
	Lambda ZAP II Vector Predigested With EcoR I	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
	pRho/EcoR I Test Insert	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
	XL1-Blue MRF' E. coli Strain	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
	ExAssist Interference-Resistant Helper Phage	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
	SOLR Bacterial Strain	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses.

## Section 4. First aid measures

### Inhalation

: Gigapack III packaging extract

Continue to rinse for at least 10 minutes. Get medical attention.

VCS257 E. coli Strain

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

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.

Wild-Type Lambda DNA c1857ind  
1 Sam7

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

Lambda ZAP II Vector  
Predigested With EcoR I

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

pRho/EcoR I Test Insert

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

XL1-Blue MRF' E. coli Strain

Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

ExAssist Interference-Resistant  
Helper Phage

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

SOLR Bacterial Strain

Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

## Section 4. First aid measures

<b>Skin contact</b>	: Gigapack III packaging extract	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	VCS257 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.
	Wild-Type Lambda DNA c1857ind 1 Sam7	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	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.
<b>Ingestion</b>	: Gigapack III packaging extract	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.
	VCS257 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.
	Wild-Type Lambda DNA c1857ind 1 Sam7	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



## Section 4. First aid measures

<p>Lambda ZAP II Vector Predigested With EcoR I</p>	<p>medical attention if symptoms occur. Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.</p>
<p>pRho/EcoR I Test Insert</p>	<p>Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.</p>
<p>XL1-Blue MRF' E. coli Strain</p>	<p>Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.</p>
<p>ExAssist Interference-Resistant Helper Phage</p>	<p>Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.</p>
<p>SOLR Bacterial Strain</p>	<p>Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.</p>

[4.2 Most important symptoms/effects, acute and delayed](#)  
[Potential acute health effects](#)



## Section 4. First aid measures

<b>Eye contact</b>	: Gigapack III packaging extract VCS257 E. coli Strain Wild-Type Lambda DNA c1857ind 1 Sam7 Lambda ZAP II Vector Predigested With EcoR I pRheo/EcoR I Test Insert XL1-Blue MRF' E. coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	No known significant effects or critical hazards. Causes serious eye irritation. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. Causes serious eye irritation. No known significant effects or critical hazards.
<b>Inhalation</b>	: Gigapack III packaging extract VCS257 E. coli Strain Wild-Type Lambda DNA c1857ind 1 Sam7 Lambda ZAP II Vector Predigested With EcoR I pRheo/EcoR I Test Insert XL1-Blue MRF' E. coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Skin contact</b>	: Gigapack III packaging extract VCS257 E. coli Strain Wild-Type Lambda DNA c1857ind 1 Sam7 Lambda ZAP II Vector Predigested With EcoR I pRheo/EcoR I Test Insert XL1-Blue MRF' E. coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Ingestion</b>	: Gigapack III packaging extract VCS257 E. coli Strain Wild-Type Lambda DNA c1857ind 1 Sam7 Lambda ZAP II Vector Predigested With EcoR I pRheo/EcoR I Test Insert XL1-Blue MRF' E. coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.

### Over-exposure signs/symptoms

<b>Eye contact</b>	: Gigapack III packaging extract VCS257 E. coli Strain  Wild-Type Lambda DNA c1857ind 1 Sam7 Lambda ZAP II Vector Predigested With EcoR I pRheo/EcoR I Test Insert XL1-Blue MRF' E. coli Strain	No specific data. Adverse symptoms may include the following: pain or irritation watering redness No specific data. No specific data. No specific data. Adverse symptoms may include the following: pain or irritation watering
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## Section 4. First aid measures

	ExAssist Interference-Resistant Helper Phage	redness No specific data.
	SOLR Bacterial Strain	Adverse symptoms may include the following: pain or irritation watering redness
<b>Inhalation</b>	: Gigapack III packaging extract	No specific data.
	VCS257 E. coli Strain	No specific data.
	Wild-Type Lambda DNA c1857ind 1 Sam7	No specific data.
	Lambda ZAP II Vector Predigested With EcoR I	No specific data.
	pRho/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.
<b>Skin contact</b>	: Gigapack III packaging extract	No specific data.
	VCS257 E. coli Strain	No specific data.
	Wild-Type Lambda DNA c1857ind 1 Sam7	No specific data.
	Lambda ZAP II Vector Predigested With EcoR I	No specific data.
	pRho/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.
<b>Ingestion</b>	: Gigapack III packaging extract	No specific data.
	VCS257 E. coli Strain	No specific data.
	Wild-Type Lambda DNA c1857ind 1 Sam7	No specific data.
	Lambda ZAP II Vector Predigested With EcoR I	No specific data.
	pRho/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

<b>Notes to physician</b>	: Gigapack III packaging extract	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	VCS257 E. coli Strain	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	Wild-Type Lambda DNA c1857ind 1 Sam7	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	Lambda ZAP II Vector Predigested With EcoR I	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	pRho/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

## Section 4. First aid measures

	ExAssist Interference-Resistant Helper Phage	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.
	SOLR Bacterial Strain	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
<b>Specific treatments</b>	: Gigapack III packaging extract	No specific treatment.
	VCS257 E. coli Strain	No specific treatment.
	Wild-Type Lambda DNA c1857ind 1 Sam7	No specific treatment.
	Lambda ZAP II Vector Predigested With EcoR I pRho/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.
<b>Protection of first-aiders</b>	: Gigapack III packaging extract	No action shall be taken involving any personal risk or without suitable training.
	VCS257 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.
	Wild-Type Lambda DNA c1857ind 1 Sam7	No action shall be taken involving any personal risk or without suitable training.
	Lambda ZAP II Vector Predigested With EcoR I pRho/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 Helper Phage	No action shall be taken involving any personal risk 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

<b>Suitable extinguishing media</b>	: Gigapack III packaging extract	Use an extinguishing agent suitable for the surrounding fire.
	VCS257 E. coli Strain	Use an extinguishing agent suitable for the surrounding fire.
	Wild-Type Lambda DNA c1857ind 1 Sam7	Use an extinguishing agent suitable for the surrounding fire.
	Lambda ZAP II Vector Predigested With EcoR I pRho/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.

## Section 5. Fire-fighting measures

	ExAssist Interference-Resistant Helper Phage	surrounding fire. Use an extinguishing agent suitable for the surrounding fire.
	SOLR Bacterial Strain	Use an extinguishing agent suitable for the surrounding fire.
<b>Unsuitable extinguishing media</b>	: Gigapack III packaging extract	None known.
	VCS257 E. coli Strain	None known.
	Wild-Type Lambda DNA c1857ind 1 Sam7	None known.
	Lambda ZAP II Vector	None known.
	Predigested With EcoR I	
	pRho/EcoR I Test Insert	None known.
	XL1-Blue MRF' E. coli Strain	None known.
	ExAssist Interference-Resistant Helper Phage	None known.
	SOLR Bacterial Strain	None known.

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

<b>Specific hazards arising from the chemical</b>	: Gigapack III packaging extract	In a fire or if heated, a pressure increase will occur and the container may burst.
	VCS257 E. coli Strain	In a fire or if heated, a pressure increase will occur and the container may burst.
	Wild-Type Lambda DNA c1857ind 1 Sam7	In a fire or if heated, a pressure increase will occur and the container may burst.
	Lambda ZAP II Vector	In a fire or if heated, a pressure increase will occur and the container may burst.
	Predigested With EcoR I	
	pRho/EcoR I Test Insert	In a fire or if heated, a pressure increase will occur and the container may burst.
	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.
<b>Hazardous thermal decomposition products</b>	: Gigapack III packaging extract	Decomposition products may include the following materials: carbon dioxide carbon monoxide
	VCS257 E. coli Strain	Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds metal oxide/oxides
	Wild-Type Lambda DNA c1857ind 1 Sam7	No specific data.
	Lambda ZAP II Vector	No specific data.
	Predigested With EcoR I	
	pRho/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

## Section 5. Fire-fighting measures

materials:  
 carbon dioxide  
 carbon monoxide  
 halogenated compounds  
 metal oxide/oxides

### 5.3 Advice for firefighters

#### Special protective actions for fire-fighters

: Gigapack III packaging extract	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.
VCS257 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.
Wild-Type Lambda DNA c1857ind 1 Sam7	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.
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

: Gigapack III packaging extract	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
VCS257 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.
Wild-Type Lambda DNA c1857ind 1 Sam7	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
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

## Section 5. Fire-fighting measures

XL1-Blue MRF' E. coli Strain	pressure mode. 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

<b>For non-emergency personnel</b>	: Gigapack III packaging extract	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.
	VCS257 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.
	Wild-Type Lambda DNA c1857ind 1 Sam7	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.
	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.
	pRho/EcoR I Test Insert	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.
	XL1-Blue MRF' E. coli Strain	No action shall be taken involving any personal 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.



## Section 6. Accidental release measures

	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.
<b>For emergency responders</b>	: Gigapack III packaging extract	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".
	VCS257 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".
	Wild-Type Lambda DNA c1857ind 1 Sam7	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".
	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".
<b>6.2 Environmental precautions</b>	: Gigapack III packaging extract	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).
	VCS257 E. coli Strain	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

## Section 6. Accidental release measures

Wild-Type Lambda DNA c1857ind 1 Sam7	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).
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).
pRho/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 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

<b>Methods for cleaning up</b>	: Gigapack III packaging extract	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.
	VCS257 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.
	Wild-Type Lambda DNA c1857ind 1 Sam7	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.
	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.
	pRho/EcoR I Test Insert	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble.

## Section 6. Accidental release measures

XL1-Blue MRF' E. coli Strain	Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor. Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
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

: Gigapack III packaging extract	Put on appropriate personal protective equipment (see Section 8).
VCS257 E. coli Strain	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
Wild-Type Lambda DNA c1857ind 1 Sam7	Put on appropriate personal protective equipment (see Section 8).
Lambda ZAP II Vector Predigested With EcoR I pRho/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 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

## Section 7. Handling and storage

### Advice on general occupational hygiene

: Gigapack III packaging extract

not reuse container.

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.

VCS257 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.

Wild-Type Lambda DNA c1857ind 1 Sam7

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.

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.

pRho/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

## Section 7. Handling and storage

### 7.2 Conditions for safe storage, including any incompatibilities

: Gigapack III packaging extract

information on hygiene measures.

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.

VCS257 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.

Wild-Type Lambda DNA c1857ind  
1 Sam7

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.

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 containers. Use appropriate containment to avoid environmental contamination.

pRho/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.

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

## Section 7. Handling and storage

ExAssist Interference-Resistant  
Helper Phage

to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid 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.

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

- : Gigapack III packaging extract Industrial applications, Professional applications.
- VCS257 E. coli Strain Industrial applications, Professional applications.
- Wild-Type Lambda DNA c1857ind Industrial applications, Professional applications.
- 1 Sam7
- Lambda ZAP II Vector Industrial applications, Professional applications.
- Predigested With EcoR I
- pRho/EcoR I Test Insert Industrial applications, Professional applications.
- XL1-Blue MRF' E. coli Strain Industrial applications, Professional applications.
- ExAssist Interference-Resistant Industrial applications, Professional applications.
- Helper Phage
- SOLR Bacterial Strain Industrial applications, Professional applications.

#### Industrial sector specific solutions

- : Gigapack III packaging extract Not applicable.
- VCS257 E. coli Strain Not applicable.
- Wild-Type Lambda DNA c1857ind Not applicable.
- 1 Sam7
- Lambda ZAP II Vector Not applicable.
- Predigested With EcoR I
- pRho/EcoR I Test Insert Not applicable.
- XL1-Blue MRF' E. coli Strain Not applicable.
- ExAssist Interference-Resistant Not applicable.
- Helper Phage
- SOLR Bacterial Strain Not applicable.

## Section 8. Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational exposure limits



## Section 8. Exposure controls/personal protection

Ingredient name	Exposure limits
<p><b>CS257 E. coli Strain</b> Glycerol</p> <p>Sodium chloride</p>	<p><b>OSHA PEL 1989 (United States, 3/1989).</b> TWA: 5 mg/m<sup>3</sup> 8 hours. Form: Respirable fraction TWA: 10 mg/m<sup>3</sup> 8 hours. Form: Total dust <b>OSHA PEL (United States, 6/2016).</b> TWA: 5 mg/m<sup>3</sup> 8 hours. Form: Respirable fraction TWA: 15 mg/m<sup>3</sup> 8 hours. Form: Total dust None.</p>
<p><b>XL1-Blue MRF' E. coli Strain</b> Glycerol</p> <p>Sodium chloride</p>	<p><b>OSHA PEL 1989 (United States, 3/1989).</b> TWA: 5 mg/m<sup>3</sup> 8 hours. Form: Respirable fraction TWA: 10 mg/m<sup>3</sup> 8 hours. Form: Total dust <b>OSHA PEL (United States, 6/2016).</b> TWA: 5 mg/m<sup>3</sup> 8 hours. Form: Respirable fraction TWA: 15 mg/m<sup>3</sup> 8 hours. Form: Total dust None.</p>
<p><b>SOLR Bacterial Strain</b> Glycerol</p> <p>Sodium chloride</p>	<p><b>OSHA PEL 1989 (United States, 3/1989).</b> TWA: 5 mg/m<sup>3</sup> 8 hours. Form: Respirable fraction TWA: 10 mg/m<sup>3</sup> 8 hours. Form: Total dust <b>OSHA PEL (United States, 6/2016).</b> TWA: 5 mg/m<sup>3</sup> 8 hours. Form: Respirable fraction TWA: 15 mg/m<sup>3</sup> 8 hours. Form: Total dust None.</p>

### 8.2 Exposure controls

#### Appropriate engineering controls


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

#### Environmental exposure controls

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

### Individual protection measures

#### Hygiene measures

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

#### Eye/face protection

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

#### Skin protection

## 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

<b>Physical state</b>	:	Gigapack III packaging extract	Liquid.
		VCS257 E. coli Strain	Liquid.
		Wild-Type Lambda DNA c1857ind	Liquid.
		1 Sam7	
		Lambda ZAP II Vector	Liquid.
		Predigested With EcoR I	
		pRho/EcoR I Test Insert	Liquid.
		XL1-Blue MRF' E. coli Strain	Liquid.
		ExAssist Interference-Resistant	Liquid.
		Helper Phage	
		SOLR Bacterial Strain	Liquid.
<b>Color</b>	:	Gigapack III packaging extract	Not available.
		VCS257 E. coli Strain	Not available.
		Wild-Type Lambda DNA c1857ind	Not available.
		1 Sam7	
		Lambda ZAP II Vector	Not available.
		Predigested With EcoR I	
		pRho/EcoR I Test Insert	Not available.
		XL1-Blue MRF' E. coli Strain	Not available.
		ExAssist Interference-Resistant	Not available.
		Helper Phage	
		SOLR Bacterial Strain	Not available.
<b>Odor</b>	:	Gigapack III packaging extract	Not available.
		VCS257 E. coli Strain	Not available.
		Wild-Type Lambda DNA c1857ind	Not available.
		1 Sam7	
		Lambda ZAP II Vector	Not available.
		Predigested With EcoR I	
		pRho/EcoR I Test Insert	Not available.
		XL1-Blue MRF' E. coli Strain	Not available.
		ExAssist Interference-Resistant	Not available.
		Helper Phage	
		SOLR Bacterial Strain	Not available.

## Section 9. Physical and chemical properties

<b>Odor threshold</b>	:	Gigapack III packaging extract	Not available.
		VCS257 E. coli Strain	Not available.
		Wild-Type Lambda DNA c1857ind 1 Sam7	Not available.
		Lambda ZAP II Vector	Not available.
		Predigested With EcoR I	
		pRho/EcoR I Test Insert	Not available.
		XL1-Blue MRF' E. coli Strain	Not available.
		ExAssist Interference-Resistant Helper Phage	Not available.
		SOLR Bacterial Strain	Not available.
<b>pH</b>	:	Gigapack III packaging extract	8
		VCS257 E. coli Strain	7
		Wild-Type Lambda DNA c1857ind 1 Sam7	7
		Lambda ZAP II Vector	7.5
		Predigested With EcoR I	
		pRho/EcoR I Test Insert	7.5
		XL1-Blue MRF' E. coli Strain	7
		ExAssist Interference-Resistant Helper Phage	7.5
		SOLR Bacterial Strain	7
<b>Melting point</b>	:	Gigapack III packaging extract	Not available.
		VCS257 E. coli Strain	Not available.
		Wild-Type Lambda DNA c1857ind 1 Sam7	0°C (32°F)
		Lambda ZAP II Vector	0°C (32°F)
		Predigested With EcoR I	
		pRho/EcoR I Test Insert	0°C (32°F)
		XL1-Blue MRF' E. coli Strain	Not available.
		ExAssist Interference-Resistant Helper Phage	0°C (32°F)
		SOLR Bacterial Strain	Not available.
<b>Boiling point</b>	:	Gigapack III packaging extract	Not available.
		VCS257 E. coli Strain	Not available.
		Wild-Type Lambda DNA c1857ind 1 Sam7	100°C (212°F)
		Lambda ZAP II Vector	100°C (212°F)
		Predigested With EcoR I	
		pRho/EcoR I Test Insert	100°C (212°F)
		XL1-Blue MRF' E. coli Strain	Not available.
		ExAssist Interference-Resistant Helper Phage	100°C (212°F)
		SOLR Bacterial Strain	Not available.
<b>Flash point</b>	:	Gigapack III packaging extract	Not available.
		VCS257 E. coli Strain	Not available.
		Wild-Type Lambda DNA c1857ind 1 Sam7	Not available.
		Lambda ZAP II Vector	Not available.
		Predigested With EcoR I	
		pRho/EcoR I Test Insert	Not available.
		XL1-Blue MRF' E. coli Strain	Not available.
		ExAssist Interference-Resistant Helper Phage	Not available.
		SOLR Bacterial Strain	Not available.

## Section 9. Physical and chemical properties

<b>Evaporation rate</b>	: Gigapack III packaging extract VCS257 E. coli Strain Wild-Type Lambda DNA c1857ind 1 Sam7 Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E. coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available.
<b>Flammability (solid, gas)</b>	: Gigapack III packaging extract VCS257 E. coli Strain Wild-Type Lambda DNA c1857ind 1 Sam7 Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E. coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.
<b>Lower and upper explosive (flammable) limits</b>	: Gigapack III packaging extract VCS257 E. coli Strain Wild-Type Lambda DNA c1857ind 1 Sam7 Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E. coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available.
<b>Vapor pressure</b>	: Gigapack III packaging extract VCS257 E. coli Strain Wild-Type Lambda DNA c1857ind 1 Sam7 Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E. coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available.
<b>Vapor density</b>	: Gigapack III packaging extract VCS257 E. coli Strain Wild-Type Lambda DNA c1857ind 1 Sam7 Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E. coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available.

## Section 9. Physical and chemical properties

<b>Relative density</b>	: Gigapack III packaging extract VCS257 E. coli Strain Wild-Type Lambda DNA c1857ind 1 Sam7 Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E. coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available.
<b>Solubility</b>	: Gigapack III packaging extract  VCS257 E. coli Strain  Wild-Type Lambda DNA c1857ind 1 Sam7 Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert  XL1-Blue MRF' E. coli Strain  ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	Easily soluble in the following materials: cold water and hot water.  Easily soluble in the following materials: cold water and hot water.  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.  Easily soluble in the following materials: cold water and hot water.  Soluble in the following materials: cold water and hot water.
<b>Partition coefficient: n-octanol/water</b>	: Gigapack III packaging extract VCS257 E. coli Strain Wild-Type Lambda DNA c1857ind 1 Sam7 Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E. coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available.
<b>Auto-ignition temperature</b>	: Gigapack III packaging extract VCS257 E. coli Strain Wild-Type Lambda DNA c1857ind 1 Sam7 Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E. coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available.
<b>Decomposition temperature</b>	: Gigapack III packaging extract VCS257 E. coli Strain Wild-Type Lambda DNA c1857ind 1 Sam7 Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E. coli Strain ExAssist Interference-Resistant	Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available.

## Section 9. Physical and chemical properties

	Helper Phage	
	SOLR Bacterial Strain	Not available.
<b>Viscosity</b>	: Gigapack III packaging extract	Not available.
	VCS257 E. coli Strain	Not available.
	Wild-Type Lambda DNA c1857ind	Not available.
	1 Sam7	
	Lambda ZAP II Vector	Not available.
	Predigested With EcoR I	
	pRho/EcoR I Test Insert	Not available.
	XL1-Blue MRF' E. coli Strain	Not available.
	ExAssist Interference-Resistant	Not available.
	Helper Phage	
	SOLR Bacterial Strain	Not available.

## Section 10. Stability and reactivity

<b>10.1 Reactivity</b>	: Gigapack III packaging extract	No specific test data related to reactivity available for this product or its ingredients.
	VCS257 E. coli Strain	No specific test data related to reactivity available for this product or its ingredients.
	Wild-Type Lambda DNA c1857ind	No specific test data related to reactivity available for this product or its ingredients.
	1 Sam7	
	Lambda ZAP II Vector	No specific test data related to reactivity available for this product or its ingredients.
	Predigested With EcoR I	
	pRho/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	No specific test data related to reactivity available for this product or its ingredients.
	Helper Phage	
	SOLR Bacterial Strain	No specific test data related to reactivity available for this product or its ingredients.

<b>10.2 Chemical stability</b>	: Gigapack III packaging extract	The product is stable.
	VCS257 E. coli Strain	The product is stable.
	Wild-Type Lambda DNA c1857ind	The product is stable.
	1 Sam7	
	Lambda ZAP II Vector	The product is stable.
	Predigested With EcoR I	
	pRho/EcoR I Test Insert	The product is stable.
	XL1-Blue MRF' E. coli Strain	The product is stable.
	ExAssist Interference-Resistant	The product is stable.
	Helper Phage	
	SOLR Bacterial Strain	The product is stable.

<b>10.3 Possibility of hazardous reactions</b>	: Gigapack III packaging extract	Under normal conditions of storage and use, hazardous reactions will not occur.
	VCS257 E. coli Strain	Under normal conditions of storage and use, hazardous reactions will not occur.
	Wild-Type Lambda DNA c1857ind	Under normal conditions of storage and use, hazardous reactions will not occur.
	1 Sam7	
	Lambda ZAP II Vector	Under normal conditions of storage and use, hazardous reactions will not occur.
	Predigested With EcoR I	
	pRho/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	Under normal conditions of storage and use,



## Section 10. Stability and reactivity

Helper Phage SOLR Bacterial Strain	hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur.
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<b>10.4 Conditions to avoid</b>	: Gigapack III packaging extract VCS257 E. coli Strain Wild-Type Lambda DNA c1857ind 1 Sam7 Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E. coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data.
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<b>10.5 Incompatible materials</b>	: Gigapack III packaging extract  VCS257 E. coli Strain  Wild-Type Lambda DNA c1857ind 1 Sam7 Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert  XL1-Blue MRF' E. coli Strain  ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	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. May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials.
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<b>10.6 Hazardous decomposition products</b>	: Gigapack III packaging extract  VCS257 E. coli Strain  Wild-Type Lambda DNA c1857ind 1 Sam7  Lambda ZAP II Vector Predigested With EcoR I  pRho/EcoR I Test Insert  XL1-Blue MRF' E. coli Strain  ExAssist Interference-Resistant Helper Phage  SOLR Bacterial Strain	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. 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.
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## Section 11. Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
<b>VCS257 E. coli Strain</b>				
Glycerol	LD50 Oral	Rat	12600 mg/kg	-
Sodium chloride	LD50 Oral	Rat	3000 mg/kg	-
<b>XL1-Blue MRF' E. coli Strain</b>				
Glycerol	LD50 Oral	Rat	12600 mg/kg	-
Sodium chloride	LD50 Oral	Rat	3000 mg/kg	-
<b>SOLR Bacterial Strain</b>				
Glycerol	LD50 Oral	Rat	12600 mg/kg	-
Sodium chloride	LD50 Oral	Rat	3000 mg/kg	-

#### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
<b>VCS257 E. coli Strain</b>					
Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
Sodium chloride	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	10 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
<b>XL1-Blue MRF' E. coli Strain</b>					
Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
Sodium chloride	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	10 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
<b>SOLR Bacterial Strain</b>					
Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
Sodium chloride	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	10 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-

#### Sensitization

Not available.

#### Mutagenicity

## Section 11. Toxicological information

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

Not available.

### Information on the likely routes of exposure

: Gigapack III packaging extract VCS257 E. coli Strain	Not available. Routes of entry anticipated: Oral, Dermal, Inhalation.
Wild-Type Lambda DNA c1857ind 1 Sam7	Not available.
Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E. coli Strain	Not available. Routes of entry anticipated: Oral, Dermal, Inhalation.
ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	Not available. Routes of entry anticipated: Oral, Dermal, Inhalation.

### Potential acute health effects

#### Eye contact

: Gigapack III packaging extract VCS257 E. coli Strain	No known significant effects or critical hazards. Causes serious eye irritation.
Wild-Type Lambda DNA c1857ind 1 Sam7	No known significant effects or critical hazards.
Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E. coli Strain	No known significant effects or critical hazards. Causes serious eye irritation.
ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	No known significant effects or critical hazards. Causes serious eye irritation.

#### Inhalation

: Gigapack III packaging extract VCS257 E. coli Strain	No known significant effects or critical hazards. No known significant effects or critical hazards.
Wild-Type Lambda DNA c1857ind 1 Sam7	No known significant effects or critical hazards.
Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E. coli Strain	No known significant effects or critical hazards. No known significant effects or critical hazards.
ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	No known significant effects or critical hazards. No known significant effects or critical hazards.

## Section 11. Toxicological information

<b>Skin contact</b>	: Gigapack III packaging extract	No known significant effects or critical hazards.
	VCS257 E. coli Strain	No known significant effects or critical hazards.
	Wild-Type Lambda DNA c1857ind	No known significant effects or critical hazards.
	1 Sam7	
	Lambda ZAP II Vector	No known significant effects or critical hazards.
	Predigested With EcoR I	
	pRho/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	No known significant effects or critical hazards.
	Helper Phage	
<b>Ingestion</b>	SOLR Bacterial Strain	No known significant effects or critical hazards.
	: Gigapack III packaging extract	No known significant effects or critical hazards.
	VCS257 E. coli Strain	No known significant effects or critical hazards.
	Wild-Type Lambda DNA c1857ind	No known significant effects or critical hazards.
	1 Sam7	
	Lambda ZAP II Vector	No known significant effects or critical hazards.
	Predigested With EcoR I	
	pRho/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	No known significant effects or critical hazards.
Helper Phage		
SOLR Bacterial Strain	No known significant effects or critical hazards.	

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

<b>Eye contact</b>	: Gigapack III packaging extract	No specific data.
	VCS257 E. coli Strain	Adverse symptoms may include the following: pain or irritation watering redness
	Wild-Type Lambda DNA c1857ind	No specific data.
	1 Sam7	
	Lambda ZAP II Vector	No specific data.
	Predigested With EcoR I	
	pRho/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	No specific data.
	Helper Phage	
<b>Inhalation</b>	SOLR Bacterial Strain	Adverse symptoms may include the following: pain or irritation watering redness
	: Gigapack III packaging extract	No specific data.
	VCS257 E. coli Strain	No specific data.
	Wild-Type Lambda DNA c1857ind	No specific data.
	1 Sam7	
	Lambda ZAP II Vector	No specific data.
	Predigested With EcoR I	
	pRho/EcoR I Test Insert	No specific data.
	XL1-Blue MRF' E. coli Strain	No specific data.
	ExAssist Interference-Resistant	No specific data.
Helper Phage		
SOLR Bacterial Strain	No specific data.	

## Section 11. Toxicological information

<b>Skin contact</b>	: Gigapack III packaging extract VCS257 E. coli Strain Wild-Type Lambda DNA c1857ind 1 Sam7 Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E. coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data.
<b>Ingestion</b>	: Gigapack III packaging extract VCS257 E. coli Strain Wild-Type Lambda DNA c1857ind 1 Sam7 Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E. coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	No specific data. No specific data. No specific data. No specific data. No specific data. 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

<b>Potential immediate effects</b>	: Not available.
<b>Potential delayed effects</b>	: Not available.

#### Long term exposure

<b>Potential immediate effects</b>	: Not available.
<b>Potential delayed effects</b>	: Not available.

#### Potential chronic health effects

<b>General</b>	: Gigapack III packaging extract VCS257 E. coli Strain Wild-Type Lambda DNA c1857ind 1 Sam7 Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E. coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Carcinogenicity</b>	: Gigapack III packaging extract VCS257 E. coli Strain Wild-Type Lambda DNA c1857ind 1 Sam7 Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E. coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. 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

<b>Mutagenicity</b>	: Gigapack III packaging extract VCS257 E. coli Strain Wild-Type Lambda DNA c1857ind 1 Sam7 Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E. coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Teratogenicity</b>	: Gigapack III packaging extract VCS257 E. coli Strain Wild-Type Lambda DNA c1857ind 1 Sam7 Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E. coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Developmental effects</b>	: Gigapack III packaging extract VCS257 E. coli Strain Wild-Type Lambda DNA c1857ind 1 Sam7 Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E. coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Fertility effects</b>	: Gigapack III packaging extract VCS257 E. coli Strain Wild-Type Lambda DNA c1857ind 1 Sam7 Lambda ZAP II Vector Predigested With EcoR I pRho/EcoR I Test Insert XL1-Blue MRF' E. coli Strain ExAssist Interference-Resistant Helper Phage SOLR Bacterial Strain	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. 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
<b>VCS257 E. coli Strain</b> Oral	300000 mg/kg
<b>XL1-Blue MRF' E. coli Strain</b> Oral	300000 mg/kg
<b>SOLR Bacterial Strain</b> Oral	300000 mg/kg



## Section 11. Toxicological information

## Section 12. Ecological information

### 12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
<b>✓CS257 E. coli Strain</b> Glycerol Sodium chloride	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Acute EC50 2430000 µg/l Fresh water	Algae - Navicula seminulum	96 hours
	Acute EC50 28.85 mg/dm <sup>3</sup> Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 519.6 mg/l Fresh water	Crustaceans - Cypris subglobosa	48 hours
	Acute IC50 6.87 g/L Fresh water	Aquatic plants - Lemna minor	96 hours
	Acute LC50 1.56 g/L Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 1000000 µg/l Fresh water	Fish - Morone saxatilis - Larvae	96 hours
	Chronic LC10 781 mg/l Fresh water	Crustaceans - Hyalella azteca - Juvenile (Fledgling, Hatchling, Weanling)	3 weeks
	Chronic NOEC 6 g/L Fresh water	Aquatic plants - Lemna minor	96 hours
	Chronic NOEC 0.314 g/L Fresh water	Daphnia - Daphnia pulex	21 days
Chronic NOEC 100 mg/l Fresh water	Fish - Gambusia holbrooki - Adult	8 weeks	
<b>XL1-Blue MRF' E. coli Strain</b> Glycerol Sodium chloride	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Acute EC50 2430000 µg/l Fresh water	Algae - Navicula seminulum	96 hours
	Acute EC50 28.85 mg/dm <sup>3</sup> Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 519.6 mg/l Fresh water	Crustaceans - Cypris subglobosa	48 hours
	Acute IC50 6.87 g/L Fresh water	Aquatic plants - Lemna minor	96 hours
	Acute LC50 1.56 g/L Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 1000000 µg/l Fresh water	Fish - Morone saxatilis - Larvae	96 hours
	Chronic LC10 781 mg/l Fresh water	Crustaceans - Hyalella azteca - Juvenile (Fledgling, Hatchling, Weanling)	3 weeks
	Chronic NOEC 6 g/L Fresh water	Aquatic plants - Lemna minor	96 hours
	Chronic NOEC 0.314 g/L Fresh water	Daphnia - Daphnia pulex	21 days
Chronic NOEC 100 mg/l Fresh water	Fish - Gambusia holbrooki - Adult	8 weeks	
<b>SOLR Bacterial Strain</b> Glycerol Sodium chloride	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Acute EC50 2430000 µg/l Fresh water	Algae - Navicula seminulum	96 hours
	Acute EC50 28.85 mg/dm <sup>3</sup> Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 519.6 mg/l Fresh water	Crustaceans - Cypris subglobosa	48 hours
	Acute IC50 6.87 g/L Fresh water	Aquatic plants - Lemna minor	96 hours
	Acute LC50 1.56 g/L Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 1000000 µg/l Fresh water	Fish - Morone saxatilis - Larvae	96 hours
	Chronic LC10 781 mg/l Fresh water	Crustaceans - Hyalella azteca - Juvenile (Fledgling, Hatchling, Weanling)	3 weeks
	Chronic NOEC 6 g/L Fresh water	Aquatic plants - Lemna minor	96 hours
	Chronic NOEC 0.314 g/L Fresh water	Daphnia - Daphnia pulex	21 days
Chronic NOEC 100 mg/l Fresh water	Fish - Gambusia holbrooki - Adult	8 weeks	

### 12.2 Persistence and degradability

Not available.

## Section 12. Ecological information

### 12.3 Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
VCS257 E. coli Strain Glycerol	-1.76	-	low
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<sub>oc</sub>) : Not available.

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

## Section 13. Disposal considerations

### 13.1 Waste treatment methods

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

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

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

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

## Section 14. Transport information

### Regulatory information

DOT / IMDG / IATA : Not regulated.

## Section 15. Regulatory information

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

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

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

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

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

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

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

#### SARA 302/304

##### Composition/information on ingredients

No products were found.

**SARA 304 RQ** : Not applicable.

#### SARA 311/312

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

##### Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
<b>VCS257 E. coli Strain</b>						
Glycerol	≥10 - ≤25	No.	No.	No.	Yes.	No.
Sodium chloride	≤3	No.	No.	No.	Yes.	No.
<b>XL1-Blue MRF' E. coli Strain</b>						
Glycerol	≥10 - ≤25	No.	No.	No.	Yes.	No.
Sodium chloride	≤3	No.	No.	No.	Yes.	No.
<b>SOLR Bacterial Strain</b>						
Glycerol	≥10 - ≤25	No.	No.	No.	Yes.	No.
Sodium chloride	≤3	No.	No.	No.	Yes.	No.

#### State regulations

**Massachusetts** : The following components are listed: SUCROSE DUST; 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: .ALPHA.-D-GLUCOPYRANOSIDE, .BETA.-D-FRUCTOFURANOSYL; 1,2,3-PROPANETRIOL

#### California Prop. 65

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

## Section 15. Regulatory information

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
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

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

## Section 16. Other information

### History

<b>Date of issue</b>	: 03/22/2017
<b>Date of previous issue</b>	: 02/29/2016.
<b>Version</b>	: 5

Indicates information that has changed from previously issued version.

### Notice to reader

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