

SAFETY DATA SHEET

ZAP Express Predigested Gigapack III Gold Cloning Kit, Part Number 239615

Section 1. Identification

Product identifier	: ZAP Express Predigested Gigapack III Gold Cloning Kit, Part Number 239615
Part no. (chemical kit)	: 239615
Part no.	: Gigapack III packaging extract 200201-41 Wild-Type Lambda DNA c1857ind 1 Sam7 246203-51 VCS257 E. coli Strain 200256-51 ZAP Express Vector Digested With BamH I 239212-51 CIAP Treated pBub BamH I Test Insert 239212-52 R408 Interference-Resistant Helper Phage 200252-81 ExAssist Interference-Resistant Helper Phage 200253-81 XL1-Blue MRF' E.coli Strain 200301-81 XL0LR E. coli Strain 200304-81
Material uses	: Analytical reagent. Gigapack III packaging extract 0.275 ml Wild-Type Lambda DNA c1857ind 1 Sam7 0.005 ml (1.05 µg 0.21 µg/µl) VCS257 E. coli Strain 1 ml ZAP Express Vector Digested With BamH I 0.005 ml (10 µg 1 µg/µl) CIAP Treated pBub BamH I Test Insert 0.01 ml (2.5 µg 0.25 µg/µl) R408 Interference-Resistant Helper Phage 1 ml ExAssist Interference-Resistant Helper Phage 1 ml >1 X E10 pfu/ml XL1-Blue MRF' E.coli Strain 0.5 ml XL0LR E. coli Strain 0.5 ml
Supplier/Manufacturer	: Agilent Technologies, Inc. 5301 Stevens Creek Blvd Santa Clara, CA 95051, USA 800-227-9770
Emergency telephone number (with hours of operation)	: CHEMTREC®: 1-800-424-9300

Section 2. Hazard identification

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
XL0LR E. coli Strain H319	EYE IRRITATION - Category 2A

GHS label elements

Section 2. Hazard identification

Hazard pictograms : VCS257 E. coli Strain



XL1-Blue MRF' E.coli Strain



XLOLR E. coli Strain



Signal word :

Gigapack III packaging extract	No signal word.
Wild-Type Lambda DNA c1857ind 1 Sam7	No signal word.
VCS257 E. coli Strain	Warning
ZAP Express Vector	No signal word.
Digested With BamH I CIAP Treated	
pBub BamH I Test Insert	No signal word.
R408 Interference-Resistant Helper Phage	No signal word.
ExAssist Interference-Resistant Helper Phage	No signal word.
XL1-Blue MRF' E.coli Strain	Warning
XLOLR E. coli Strain	Warning

Hazard statements :

Gigapack III packaging extract	No known significant effects or critical hazards.
Wild-Type Lambda DNA c1857ind 1 Sam7	No known significant effects or critical hazards.
VCS257 E. coli Strain	H319 - Causes serious eye irritation.
ZAP Express Vector	No known significant effects or critical hazards.
Digested With BamH I CIAP Treated	
pBub BamH I Test Insert	No known significant effects or critical hazards.
R408 Interference-Resistant Helper Phage	No known significant effects or critical hazards.
ExAssist Interference-Resistant Helper Phage	No known significant effects or critical hazards.
XL1-Blue MRF' E.coli Strain	H319 - Causes serious eye irritation.
XLOLR E. coli Strain	H319 - Causes serious eye irritation.

Precautionary statements

Prevention :

Gigapack III packaging extract	Not applicable.
Wild-Type Lambda DNA c1857ind 1 Sam7	Not applicable.
VCS257 E. coli Strain	P280 - Wear eye or face protection.
ZAP Express Vector	Not applicable.
Digested With BamH I CIAP Treated	
pBub BamH I Test Insert	Not applicable.
R408 Interference-Resistant Helper Phage	Not applicable.
ExAssist Interference-	Not applicable.

Section 2. Hazard identification

	Resistant Helper Phage	
	XL1-Blue MRF' E.coli Strain	P280 - Wear eye or face protection.
	XL0LR E. coli Strain	P280 - Wear eye or face protection.
Response	: Gigapack III packaging extract	Not applicable.
	Wild-Type Lambda DNA c1857ind 1 Sam7	Not applicable.
	VCS257 E. coli Strain	P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical advice or attention.
	ZAP Express Vector Digested With BamH I CIAP Treated	Not applicable.
	pBub BamH I Test Insert	Not applicable.
	R408 Interference-Resistant Helper Phage	Not applicable.
	ExAssist Interference-Resistant Helper Phage	Not applicable.
	XL1-Blue MRF' E.coli Strain	P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical advice or attention.
	XL0LR E. coli Strain	P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical advice or attention.
Storage	: Gigapack III packaging extract	Not applicable.
	Wild-Type Lambda DNA c1857ind 1 Sam7	Not applicable.
	VCS257 E. coli Strain	Not applicable.
	ZAP Express Vector Digested With BamH I CIAP Treated	Not applicable.
	pBub BamH I Test Insert	Not applicable.
	R408 Interference-Resistant Helper Phage	Not applicable.
	ExAssist Interference-Resistant Helper Phage	Not applicable.
	XL1-Blue MRF' E.coli Strain	Not applicable.
	XL0LR E. coli Strain	Not applicable.
Disposal	: Gigapack III packaging extract	Not applicable.
	Wild-Type Lambda DNA c1857ind 1 Sam7	Not applicable.
	VCS257 E. coli Strain	Not applicable.
	ZAP Express Vector Digested With BamH I CIAP Treated	Not applicable.
	pBub BamH I Test Insert	Not applicable.
	R408 Interference-Resistant Helper Phage	Not applicable.
	ExAssist Interference-Resistant Helper Phage	Not applicable.

Section 2. Hazard identification

	XL1-Blue MRF' E.coli Strain	Not applicable.
	XL0LR E. coli Strain	Not applicable.
Supplemental label elements	: Gigapack III packaging extract	None known.
	Wild-Type Lambda DNA c1857ind 1 Sam7	None known.
	VCS257 E. coli Strain	None known.
	ZAP Express Vector	None known.
	Digested With BamH I CIAP Treated	
	pBub BamH I Test Insert	None known.
	R408 Interference-Resistant Helper Phage	None known.
	ExAssist Interference-Resistant Helper Phage	None known.
	XL1-Blue MRF' E.coli Strain	None known.
	XL0LR E. coli Strain	None known.
Other hazards which do not result in classification	: Gigapack III packaging extract	None known.
	Wild-Type Lambda DNA c1857ind 1 Sam7	None known.
	VCS257 E. coli Strain	None known.
	ZAP Express Vector	None known.
	Digested With BamH I CIAP Treated	
	pBub BamH I Test Insert	None known.
	R408 Interference-Resistant Helper Phage	None known.
	ExAssist Interference-Resistant Helper Phage	None known.
	XL1-Blue MRF' E.coli Strain	None known.
	XL0LR E. coli Strain	None known.

Section 3. Composition/information on ingredients

Substance/mixture	: Gigapack III packaging extract	Mixture
	Wild-Type Lambda DNA c1857ind 1 Sam7	Mixture
	VCS257 E. coli Strain	Mixture
	ZAP Express Vector	Mixture
	Digested With BamH I CIAP Treated	
	pBub BamH I Test Insert	Mixture
	R408 Interference-Resistant Helper Phage	Mixture
	ExAssist Interference-Resistant Helper Phage	Mixture
	XL1-Blue MRF' E.coli Strain	Mixture
	XL0LR E. coli Strain	Mixture

Section 3. Composition/information on ingredients

Ingredient name	% (w/w)	CAS number
VCS257 E. coli Strain		
Glycerol	10 - 30	56-81-5
Sodium chloride	0.1 - 1	7647-14-5
XL1-Blue MRF' E.coli Strain		
Glycerol	10 - 30	56-81-5
Sodium chloride	0.1 - 1	7647-14-5
XLOLR E. coli Strain		
Glycerol	10 - 30	56-81-5
Sodium chloride	0.1 - 1	7647-14-5

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

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

Section 4. First-aid measures

Description of necessary first aid measures

Eye contact	: 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.
	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.
	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.
	ZAP Express Vector Digested With BamH I CIAP Treated	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.
	pBub BamH 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.
	R408 Interference-Resistant Helper Phage	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
	ExAssist Interference-Resistant Helper Phage	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
	XL1-Blue MRF' E.coli Strain	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
	XLOLR 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.

Section 4. First-aid measures

Inhalation	: Gigapack III packaging extract	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	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.
	VCS257 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.
	ZAP Express Vector Digested With BamH I CIAP Treated	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	pBub BamH I Test Insert	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	R408 Interference-Resistant Helper Phage	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	ExAssist Interference-Resistant Helper Phage	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	XL1-Blue MRF' E.coli Strain	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
	XL0LR 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.
	Skin contact	: Gigapack III packaging extract
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.
VCS257 E. coli Strain		Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get

Section 4. First-aid measures

	ZAP Express Vector Digested With BamH I CIAP Treated	medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	pBub BamH I Test Insert	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	R408 Interference-Resistant Helper Phage	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	ExAssist Interference- Resistant Helper Phage	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	XL1-Blue MRF' E.coli Strain	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
	XL0LR 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.
Ingestion	: 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.
	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 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.
	ZAP Express Vector Digested With BamH I CIAP Treated	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

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pBub BamH I Test Insert	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
R408 Interference-Resistant Helper Phage	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
ExAssist Interference-Resistant Helper Phage	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
XL1-Blue MRF' E.coli Strain	Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
XL0LR 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.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Section 4. First-aid measures

Eye contact	: Gigapack III packaging extract	No known significant effects or critical hazards.
	Wild-Type Lambda DNA c1857ind 1 Sam7	No known significant effects or critical hazards.
	VCS257 E. coli Strain	Causes serious eye irritation.
	ZAP Express Vector	No known significant effects or critical hazards.
	Digested With BamH I CIAP Treated	
	pBub BamH I Test Insert	No known significant effects or critical hazards.
	R408 Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	ExAssist Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	XL1-Blue MRF' E.coli Strain	Causes serious eye irritation.
	XL0LR E. coli Strain	Causes serious eye irritation.
Inhalation	: Gigapack III packaging extract	No known significant effects or critical hazards.
	Wild-Type Lambda DNA c1857ind 1 Sam7	No known significant effects or critical hazards.
	VCS257 E. coli Strain	No known significant effects or critical hazards.
	ZAP Express Vector	No known significant effects or critical hazards.
	Digested With BamH I CIAP Treated	
	pBub BamH I Test Insert	No known significant effects or critical hazards.
	R408 Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	ExAssist Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
	XL0LR E. coli Strain	No known significant effects or critical hazards.
Skin contact	: Gigapack III packaging extract	No known significant effects or critical hazards.
	Wild-Type Lambda DNA c1857ind 1 Sam7	No known significant effects or critical hazards.
	VCS257 E. coli Strain	No known significant effects or critical hazards.
	ZAP Express Vector	No known significant effects or critical hazards.
	Digested With BamH I CIAP Treated	
	pBub BamH I Test Insert	No known significant effects or critical hazards.
	R408 Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	ExAssist Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
	XL0LR E. coli Strain	No known significant effects or critical hazards.
Ingestion	: Gigapack III packaging extract	No known significant effects or critical hazards.
	Wild-Type Lambda DNA c1857ind 1 Sam7	No known significant effects or critical hazards.
	VCS257 E. coli Strain	No known significant effects or critical hazards.
	ZAP Express Vector	No known significant effects or critical hazards.
	Digested With BamH I CIAP Treated	
	pBub BamH I Test Insert	No known significant effects or critical hazards.
	R408 Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	ExAssist Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
	XL0LR E. coli Strain	No known significant effects or critical hazards.

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XL1-Blue MRF' E.coli Strain No known significant effects or critical hazards.
 XLOLR E. coli Strain No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact

: Gigapack III packaging extract No specific data.
 Wild-Type Lambda DNA c1857ind 1 Sam7 No specific data.
 VCS257 E. coli Strain Adverse symptoms may include the following:
 pain or irritation
 watering
 redness
 ZAP Express Vector No specific data.
 Digested With BamH I CIAP Treated
 pBub BamH I Test Insert No specific data.
 R408 Interference-Resistant Helper Phage No specific data.
 ExAssist Interference-Resistant Helper Phage No specific data.
 XL1-Blue MRF' E.coli Strain Adverse symptoms may include the following:
 pain or irritation
 watering
 redness
 XLOLR E. coli Strain Adverse symptoms may include the following:
 pain or irritation
 watering
 redness

Inhalation

: Gigapack III packaging extract No specific data.
 Wild-Type Lambda DNA c1857ind 1 Sam7 No specific data.
 VCS257 E. coli Strain No specific data.
 ZAP Express Vector No specific data.
 Digested With BamH I CIAP Treated
 pBub BamH I Test Insert No specific data.
 R408 Interference-Resistant Helper Phage No specific data.
 ExAssist Interference-Resistant Helper Phage No specific data.
 XL1-Blue MRF' E.coli Strain No specific data.
 XLOLR E. coli Strain No specific data.

Skin contact

: Gigapack III packaging extract No specific data.
 Wild-Type Lambda DNA c1857ind 1 Sam7 No specific data.
 VCS257 E. coli Strain No specific data.
 ZAP Express Vector No specific data.
 Digested With BamH I CIAP Treated
 pBub BamH I Test Insert No specific data.
 R408 Interference-Resistant Helper Phage No specific data.
 ExAssist Interference-Resistant Helper Phage No specific data.
 XL1-Blue MRF' E.coli Strain No specific data.
 XLOLR E. coli Strain No specific data.

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Ingestion	: Gigapack III packaging extract	No specific data.
	Wild-Type Lambda DNA c1857ind 1 Sam7	No specific data.
	VCS257 E. coli Strain	No specific data.
	ZAP Express Vector Digested With BamH I CIAP Treated	No specific data.
	pBub BamH I Test Insert	No specific data.
	R408 Interference-Resistant Helper Phage	No specific data.
	ExAssist Interference-Resistant Helper Phage	No specific data.
	XL1-Blue MRF' E.coli Strain	No specific data.
	XL0LR E. coli Strain	No specific data.

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

Notes to physician	: Gigapack III packaging extract	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.
	VCS257 E. coli Strain	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	ZAP Express Vector Digested With BamH I CIAP Treated	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	pBub BamH I Test Insert	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	R408 Interference-Resistant Helper Phage	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	ExAssist Interference-Resistant Helper Phage	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	XL1-Blue MRF' E.coli Strain	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	XL0LR E. coli Strain	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments	: Gigapack III packaging extract	No specific treatment.
	Wild-Type Lambda DNA c1857ind 1 Sam7	No specific treatment.
	VCS257 E. coli Strain	No specific treatment.
	ZAP Express Vector Digested With BamH I CIAP Treated	No specific treatment.
	pBub BamH I Test Insert	No specific treatment.
	R408 Interference-Resistant Helper Phage	No specific treatment.
	ExAssist Interference-Resistant Helper Phage	No specific treatment.
	XL1-Blue MRF' E.coli Strain	No specific treatment.

Section 4. First-aid measures

Protection of first-aiders	<p>XLOLR E. coli Strain Gigapack III packaging extract Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain</p> <p>ZAP Express Vector Digested With BamH I CIAP Treated pBub BamH I Test Insert</p> <p>R408 Interference-Resistant Helper Phage ExAssist Interference- Resistant Helper Phage XL1-Blue MRF' E.coli Strain</p> <p>XLOLR E. coli Strain</p>	<p>No specific treatment.</p> <p>No action shall be taken involving any personal risk or without suitable training.</p> <p>No action shall be taken involving any personal risk or without suitable training.</p> <p>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.</p> <p>No action shall be taken involving any personal risk or without suitable training.</p> <p>No action shall be taken involving any personal risk or without suitable training.</p> <p>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.</p> <p>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.</p>
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See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media	<p>Gigapack III packaging extract Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain</p> <p>ZAP Express Vector Digested With BamH I CIAP Treated pBub BamH I Test Insert</p> <p>R408 Interference-Resistant Helper Phage ExAssist Interference- Resistant Helper Phage XL1-Blue MRF' E.coli Strain</p> <p>XLOLR E. coli Strain</p>	<p>Use an extinguishing agent suitable for the surrounding fire.</p> <p>Use an extinguishing agent suitable for the surrounding fire.</p> <p>Use an extinguishing agent suitable for the surrounding fire.</p> <p>Use an extinguishing agent suitable for the surrounding fire.</p> <p>Use an extinguishing agent suitable for the surrounding fire.</p> <p>Use an extinguishing agent suitable for the surrounding fire.</p> <p>Use an extinguishing agent suitable for the surrounding fire.</p> <p>Use an extinguishing agent suitable for the surrounding fire.</p> <p>Use an extinguishing agent suitable for the surrounding fire.</p>
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Section 5. Fire-fighting measures

Unsuitable extinguishing media	: Gigapack III packaging extract Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain ZAP Express Vector Digested With BamH I CIAP Treated pBub BamH I Test Insert R408 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain XL0LR E. coli Strain	None known. None known. None known. None known. None known. None known. None known. None known. None known. None known.
Specific hazards arising from the chemical	: Gigapack III packaging extract Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain ZAP Express Vector Digested With BamH I CIAP Treated pBub BamH I Test Insert R408 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain XL0LR E. coli Strain	In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst.
Hazardous thermal decomposition products	: Gigapack III packaging extract Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain ZAP Express Vector Digested With BamH I CIAP Treated pBub BamH I Test Insert R408 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain	Decomposition products may include the following materials: carbon dioxide carbon monoxide No specific data. Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds metal oxide/oxides No specific data. No specific data. No specific data. No specific data. Decomposition products may include the following materials: carbon dioxide

Section 5. Fire-fighting measures

	XLOLR E. coli Strain	carbon monoxide halogenated compounds metal oxide/oxides Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds metal oxide/oxides
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.
	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.
	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.
	ZAP Express Vector Digested With BamH I CIAP Treated	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
	pBub BamH 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.
	R408 Interference-Resistant Helper Phage	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
	ExAssist Interference-Resistant Helper Phage	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
	XL1-Blue MRF' E.coli Strain	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
	XLOLR 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.
	Special protective equipment for fire-fighters	: Gigapack III packaging extract
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.
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.

Section 5. Fire-fighting measures

ZAP Express Vector Digested With BamH I CIAP Treated	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
pBub BamH I Test Insert	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
R408 Interference-Resistant Helper Phage	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
ExAssist Interference- Resistant Helper Phage	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
XL1-Blue MRF' E.coli Strain	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
XL0LR E. coli Strain	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

: 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.
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.
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.
ZAP Express Vector Digested With BamH I CIAP Treated	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.
pBub BamH 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

Section 6. Accidental release measures

R408 Interference-Resistant Helper Phage	protective equipment. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.
ExAssist Interference-Resistant Helper Phage	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.
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.
XL0LR 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.
For emergency responders : 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".
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".
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".
ZAP Express Vector Digested With BamH I CIAP Treated	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
pBub BamH 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".
R408 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".
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".
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

Section 6. Accidental release measures

	XL0LR E. coli Strain	suitable and unsuitable materials. See also the information in "For non-emergency personnel". 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".
Environmental precautions	: 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).
	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).
	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).
	ZAP Express Vector Digested With BamH I CIAP Treated	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	pBub BamH 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).
	R408 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).
	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).
	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).
	XL0LR 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).

Methods and materials for containment and cleaning up

Section 6. Accidental release measures

Methods for cleaning up	: 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.
	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.
	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.
	ZAP Express Vector Digested With BamH I CIAP Treated	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
	pBub BamH I Test Insert	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
	R408 Interference-Resistant Helper Phage	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
	ExAssist Interference-Resistant Helper Phage	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
	XL1-Blue MRF' E.coli Strain	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
	XL0LR E. coli Strain	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Section 7. Handling and storage

Precautions for safe handling

Protective measures	: Gigapack III packaging extract	Put on appropriate personal protective equipment (see Section 8).
	Wild-Type Lambda DNA c1857ind 1 Sam7	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.
	ZAP Express Vector Digested With BamH I CIAP Treated	Put on appropriate personal protective equipment (see Section 8).
	pBub BamH I Test Insert	Put on appropriate personal protective equipment (see Section 8).
	R408 Interference-Resistant Helper Phage	Put on appropriate personal protective equipment (see Section 8).
Advice on general occupational hygiene	ExAssist Interference-Resistant Helper Phage	Put on appropriate personal protective equipment (see Section 8).
	XL1-Blue MRF' E.coli Strain	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
	XL0LR 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.
	: Gigapack III packaging extract	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.
	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.

Section 7. Handling and storage

ZAP Express Vector Digested With BamH I CIAP Treated	See also Section 8 for additional information on hygiene measures. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
pBub BamH 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.
R408 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.
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.
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.
XL0LR 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.

Conditions for safe storage, including any incompatibilities : Gigapack III packaging extract

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

Wild-Type Lambda DNA

Section 7. Handling and storage

c1857ind 1 Sam7	original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
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. See Section 10 for incompatible materials before handling or use.
ZAP Express Vector Digested With BamH I CIAP Treated	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
pBub BamH I Test Insert	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
R408 Interference-Resistant Helper Phage	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
ExAssist Interference- Resistant Helper Phage	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until

Section 7. Handling and storage

XL1-Blue MRF' E.coli Strain

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

XL0LR E. coli Strain

Section 8. Exposure controls/personal protection

[Control parameters](#)

[Occupational exposure limits](#)

Ingredient name	Exposure limits
<p>CS257 E. coli Strain Glycerol</p>	<p>CA Alberta Provincial (Canada, 6/2018). 8 hrs OEL: 10 mg/m³ 8 hours. Form: Mist CA Quebec Provincial (Canada, 1/2014). TWA: 10 mg/m³ 8 hours. Form: mist CA Saskatchewan Provincial (Canada, 7/2013). STEL: 20 mg/m³ 15 minutes. Form: mist TWA: 10 mg/m³ 8 hours. Form: mist CA Ontario Provincial (Canada, 1/2018). TWA: 10 mg/m³ 8 hours. Form: mist CA British Columbia Provincial (Canada, 5/2019). TWA: 3 mg/m³ 8 hours. Form: respirable mist TWA: 10 mg/m³ 8 hours. Form: total mist</p>
<p>XL1-Blue MRF' E.coli Strain Glycerol</p>	<p>CA Alberta Provincial (Canada, 6/2018). 8 hrs OEL: 10 mg/m³ 8 hours. Form: Mist CA Quebec Provincial (Canada, 1/2014). TWA: 10 mg/m³ 8 hours. Form: mist</p>

Section 8. Exposure controls/personal protection

XLOLR E. coli Strain
Glycerol

CA Saskatchewan Provincial (Canada, 7/2013).

STEL: 20 mg/m³ 15 minutes. Form: mist
TWA: 10 mg/m³ 8 hours. Form: mist

CA Ontario Provincial (Canada, 1/2018).

TWA: 10 mg/m³ 8 hours. Form: mist

CA British Columbia Provincial (Canada, 5/2019).

TWA: 3 mg/m³ 8 hours. Form: respirable mist

TWA: 10 mg/m³ 8 hours. Form: total mist

CA Alberta Provincial (Canada, 6/2018).

8 hrs OEL: 10 mg/m³ 8 hours. Form: Mist

CA Quebec Provincial (Canada, 1/2014).

TWAEV: 10 mg/m³ 8 hours. Form: mist

CA Saskatchewan Provincial (Canada, 7/2013).

STEL: 20 mg/m³ 15 minutes. Form: mist

TWA: 10 mg/m³ 8 hours. Form: mist

CA Ontario Provincial (Canada, 1/2018).

TWA: 10 mg/m³ 8 hours. Form: mist

CA British Columbia Provincial (Canada, 5/2019).

TWA: 3 mg/m³ 8 hours. Form: respirable mist

TWA: 10 mg/m³ 8 hours. Form: total mist

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

Appearance

Physical state	Gigapack III packaging extract	Liquid.	
	Wild-Type Lambda DNA c1857ind 1 Sam7	Liquid.	
	VCS257 E. coli Strain	Liquid.	
	ZAP Express Vector	Liquid.	
	Digested With BamH I CIAP Treated		
	pBub BamH I Test Insert	Liquid.	
	R408 Interference-Resistant Helper Phage	Liquid.	
	ExAssist Interference-Resistant Helper Phage	Liquid.	
	XL1-Blue MRF' E.coli Strain	Liquid.	
	XLOLR E. coli Strain	Liquid.	
	Color	Gigapack III packaging extract	Not available.
		Wild-Type Lambda DNA c1857ind 1 Sam7	Not available.
		VCS257 E. coli Strain	Not available.
		ZAP Express Vector	Not available.
Digested With BamH I CIAP Treated			
pBub BamH I Test Insert		Not available.	
R408 Interference-Resistant Helper Phage		Not available.	
ExAssist Interference-Resistant Helper Phage		Not available.	
XL1-Blue MRF' E.coli Strain		Not available.	
XLOLR E. coli Strain		Not available.	

Section 9. Physical and chemical properties

Odor	: Gigapack III packaging extract	Not available.	
	Wild-Type Lambda DNA c1857ind 1 Sam7	Not available.	
	VCS257 E. coli Strain	Not available.	
	ZAP Express Vector	Not available.	
	Digested With BamH I CIAP Treated		
	pBub BamH I Test Insert	Not available.	
	R408 Interference-Resistant Helper Phage	Not available.	
	ExAssist Interference-Resistant Helper Phage	Not available.	
	XL1-Blue MRF' E.coli Strain	Not available.	
	XL0LR E. coli Strain	Not available.	
	Odor threshold	: Gigapack III packaging extract	Not available.
		Wild-Type Lambda DNA c1857ind 1 Sam7	Not available.
		VCS257 E. coli Strain	Not available.
ZAP Express Vector		Not available.	
Digested With BamH I CIAP Treated			
pBub BamH I Test Insert		Not available.	
R408 Interference-Resistant Helper Phage		Not available.	
ExAssist Interference-Resistant Helper Phage		Not available.	
XL1-Blue MRF' E.coli Strain		Not available.	
XL0LR E. coli Strain		Not available.	
pH		: Gigapack III packaging extract	8
		Wild-Type Lambda DNA c1857ind 1 Sam7	7
		VCS257 E. coli Strain	7
	ZAP Express Vector	7.5	
	Digested With BamH I CIAP Treated		
	pBub BamH I Test Insert	7.5	
	R408 Interference-Resistant Helper Phage	7.5	
	ExAssist Interference-Resistant Helper Phage	7.5	
	XL1-Blue MRF' E.coli Strain	7	
	XL0LR E. coli Strain	7	
	Melting point	: Gigapack III packaging extract	Not available.
		Wild-Type Lambda DNA c1857ind 1 Sam7	0°C (32°F)
		VCS257 E. coli Strain	Not available.
ZAP Express Vector		0°C (32°F)	
Digested With BamH I CIAP Treated			
pBub BamH I Test Insert		0°C (32°F)	
R408 Interference-Resistant Helper Phage		0°C (32°F)	
ExAssist Interference-Resistant Helper Phage		0°C (32°F)	

Section 9. Physical and chemical properties

	XL1-Blue MRF' E.coli Strain	Not available.
	XLOLR E. coli Strain	Not available.
Boiling point	: Gigapack III packaging extract	Not available.
	Wild-Type Lambda DNA c1857ind 1 Sam7	100°C (212°F)
	VCS257 E. coli Strain	Not available.
	ZAP Express Vector	100°C (212°F)
	Digested With BamH I CIAP Treated	
	pBub BamH I Test Insert	100°C (212°F)
	R408 Interference-Resistant Helper Phage	100°C (212°F)
	ExAssist Interference-Resistant Helper Phage	100°C (212°F)
	XL1-Blue MRF' E.coli Strain	Not available.
	XLOLR E. coli Strain	Not available.
Flash point	: Gigapack III packaging extract	Not available.
	Wild-Type Lambda DNA c1857ind 1 Sam7	Not available.
	VCS257 E. coli Strain	Not available.
	ZAP Express Vector	Not available.
	Digested With BamH I CIAP Treated	
	pBub BamH I Test Insert	Not available.
	R408 Interference-Resistant Helper Phage	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
	XL1-Blue MRF' E.coli Strain	Not available.
	XLOLR E. coli Strain	Not available.
Evaporation rate	: Gigapack III packaging extract	Not available.
	Wild-Type Lambda DNA c1857ind 1 Sam7	Not available.
	VCS257 E. coli Strain	Not available.
	ZAP Express Vector	Not available.
	Digested With BamH I CIAP Treated	
	pBub BamH I Test Insert	Not available.
	R408 Interference-Resistant Helper Phage	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
	XL1-Blue MRF' E.coli Strain	Not available.
	XLOLR E. coli Strain	Not available.
Flammability (solid, gas)	: Gigapack III packaging extract	Not applicable.
	Wild-Type Lambda DNA c1857ind 1 Sam7	Not applicable.
	VCS257 E. coli Strain	Not applicable.
	ZAP Express Vector	Not applicable.
	Digested With BamH I CIAP Treated	
	pBub BamH I Test Insert	Not applicable.
	R408 Interference-Resistant Helper Phage	Not applicable.

Section 9. Physical and chemical properties

	ExAssist Interference-Resistant Helper Phage	Not applicable.
	XL1-Blue MRF' E.coli Strain	Not applicable.
	XL0LR E. coli Strain	Not applicable.
Lower and upper explosive (flammable) limits	: Gigapack III packaging extract	Not available.
	Wild-Type Lambda DNA c1857ind 1 Sam7	Not available.
	VCS257 E. coli Strain	Not available.
	ZAP Express Vector	Not available.
	Digested With BamH I CIAP Treated	
	pBub BamH I Test Insert	Not available.
	R408 Interference-Resistant Helper Phage	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
	XL1-Blue MRF' E.coli Strain	Not available.
	XL0LR E. coli Strain	Not available.
Vapor pressure	: Gigapack III packaging extract	Not available.
	Wild-Type Lambda DNA c1857ind 1 Sam7	Not available.
	VCS257 E. coli Strain	Not available.
	ZAP Express Vector	Not available.
	Digested With BamH I CIAP Treated	
	pBub BamH I Test Insert	Not available.
	R408 Interference-Resistant Helper Phage	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
	XL1-Blue MRF' E.coli Strain	Not available.
	XL0LR E. coli Strain	Not available.
Vapor density	: Gigapack III packaging extract	Not available.
	Wild-Type Lambda DNA c1857ind 1 Sam7	Not available.
	VCS257 E. coli Strain	Not available.
	ZAP Express Vector	Not available.
	Digested With BamH I CIAP Treated	
	pBub BamH I Test Insert	Not available.
	R408 Interference-Resistant Helper Phage	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
	XL1-Blue MRF' E.coli Strain	Not available.
	XL0LR E. coli Strain	Not available.
Relative density	: Gigapack III packaging extract	Not available.
	Wild-Type Lambda DNA c1857ind 1 Sam7	Not available.
	VCS257 E. coli Strain	Not available.
	ZAP Express Vector	Not available.
	Digested With BamH I CIAP Treated	
	pBub BamH I Test Insert	Not available.

Section 9. Physical and chemical properties

	R408 Interference-Resistant Helper Phage	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
	XL1-Blue MRF' E.coli Strain	Not available.
	XL0LR E. coli Strain	Not available.
Solubility	: Gigapack III packaging extract	Easily soluble in the following materials: cold water and hot water.
	Wild-Type Lambda DNA c1857ind 1 Sam7	Easily soluble in the following materials: cold water and hot water.
	VCS257 E. coli Strain	Easily soluble in the following materials: cold water and hot water.
	ZAP Express Vector Digested With BamH I CIAP Treated	Easily soluble in the following materials: cold water and hot water.
	pBub BamH I Test Insert	Easily soluble in the following materials: cold water and hot water.
	R408 Interference-Resistant Helper Phage	Easily soluble in the following materials: cold water and hot water.
	ExAssist Interference-Resistant Helper Phage	Easily soluble in the following materials: cold water and hot water.
	XL1-Blue MRF' E.coli Strain	Soluble in the following materials: cold water and hot water.
	XL0LR E. coli Strain	Soluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water	: Gigapack III packaging extract	Not available.
	Wild-Type Lambda DNA c1857ind 1 Sam7	Not available.
	VCS257 E. coli Strain	Not available.
	ZAP Express Vector Digested With BamH I CIAP Treated	Not available.
	pBub BamH I Test Insert	Not available.
	R408 Interference-Resistant Helper Phage	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
	XL1-Blue MRF' E.coli Strain	Not available.
	XL0LR E. coli Strain	Not available.
Auto-ignition temperature	: Gigapack III packaging extract	Not available.
	Wild-Type Lambda DNA c1857ind 1 Sam7	Not available.
	VCS257 E. coli Strain	Not available.
	ZAP Express Vector Digested With BamH I CIAP Treated	Not available.
	pBub BamH I Test Insert	Not available.
	R408 Interference-Resistant Helper Phage	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
	XL1-Blue MRF' E.coli Strain	Not available.
	XL0LR E. coli Strain	Not available.

Section 9. Physical and chemical properties

Decomposition temperature	: Gigapack III packaging extract	Not available.	
	Wild-Type Lambda DNA c1857ind 1 Sam7	Not available.	
	VCS257 E. coli Strain	Not available.	
	ZAP Express Vector	Not available.	
	Digested With BamH I CIAP Treated		
	pBub BamH I Test Insert	Not available.	
	R408 Interference-Resistant Helper Phage	Not available.	
	ExAssist Interference-Resistant Helper Phage	Not available.	
	XL1-Blue MRF' E.coli Strain	Not available.	
	XL0LR E. coli Strain	Not available.	
	Viscosity	: Gigapack III packaging extract	Not available.
		Wild-Type Lambda DNA c1857ind 1 Sam7	Not available.
		VCS257 E. coli Strain	Not available.
ZAP Express Vector		Not available.	
Digested With BamH I CIAP Treated			
pBub BamH I Test Insert		Not available.	
R408 Interference-Resistant Helper Phage		Not available.	
ExAssist Interference-Resistant Helper Phage		Not available.	
XL1-Blue MRF' E.coli Strain		Not available.	
XL0LR E. coli Strain		Not available.	

Section 10. Stability and reactivity

Reactivity	: Gigapack III packaging extract	No specific test data related to reactivity available for this product or its ingredients.
	Wild-Type Lambda DNA c1857ind 1 Sam7	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.
	ZAP Express Vector	No specific test data related to reactivity available for this product or its ingredients.
	Digested With BamH I CIAP Treated	
	pBub BamH I Test Insert	No specific test data related to reactivity available for this product or its ingredients.
	R408 Interference-Resistant Helper Phage	No specific test data related to reactivity available for this product or its ingredients.
	ExAssist Interference-Resistant Helper Phage	No specific test data related to reactivity available for this product or its ingredients.
	XL1-Blue MRF' E.coli Strain	No specific test data related to reactivity available for this product or its ingredients.
	XL0LR E. coli Strain	No specific test data related to reactivity available for this product or its ingredients.

Section 10. Stability and reactivity

Chemical stability	: Gigapack III packaging extract	The product is stable.
	Wild-Type Lambda DNA c1857ind 1 Sam7	The product is stable.
	VCS257 E. coli Strain	The product is stable.
	ZAP Express Vector Digested With BamH I CIAP Treated	The product is stable.
	pBub BamH I Test Insert	The product is stable.
	R408 Interference-Resistant Helper Phage	The product is stable.
	ExAssist Interference-Resistant Helper Phage	The product is stable.
	XL1-Blue MRF' E.coli Strain	The product is stable.
	XL0LR E. coli Strain	The product is stable.
	Possibility of hazardous reactions	: Gigapack III packaging extract
Wild-Type Lambda DNA c1857ind 1 Sam7		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.
ZAP Express Vector Digested With BamH I CIAP Treated		Under normal conditions of storage and use, hazardous reactions will not occur.
pBub BamH I Test Insert		Under normal conditions of storage and use, hazardous reactions will not occur.
R408 Interference-Resistant Helper Phage		Under normal conditions of storage and use, hazardous reactions will not occur.
ExAssist Interference-Resistant Helper Phage		Under normal conditions of storage and use, hazardous reactions will not occur.
XL1-Blue MRF' E.coli Strain		Under normal conditions of storage and use, hazardous reactions will not occur.
XL0LR E. coli Strain		Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid		: Gigapack III packaging extract
	Wild-Type Lambda DNA c1857ind 1 Sam7	No specific data.
	VCS257 E. coli Strain	No specific data.
	ZAP Express Vector Digested With BamH I CIAP Treated	No specific data.
	pBub BamH I Test Insert	No specific data.
	R408 Interference-Resistant Helper Phage	No specific data.
	ExAssist Interference-Resistant Helper Phage	No specific data.
	XL1-Blue MRF' E.coli Strain	No specific data.
	XL0LR E. coli Strain	No specific data.

Section 10. Stability and reactivity

Incompatible materials	: Gigapack III packaging extract Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain ZAP Express Vector Digested With BamH I CIAP Treated pBub BamH I Test Insert R408 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain XL0LR E. coli 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. May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials.
Hazardous decomposition products	: Gigapack III packaging extract Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain ZAP Express Vector Digested With BamH I CIAP Treated pBub BamH I Test Insert R408 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E.coli Strain XL0LR E. coli 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. Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

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

Section 11. Toxicological information

XLOR E. coli Strain				
Glycerol	LD50 Oral	Rat	12600 mg/kg	-
Sodium chloride	LD50 Oral	Rat	3000 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
✓CS257 E. coli Strain					
Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
Sodium chloride	Eyes - Moderate irritant	Rabbit	-	24 hours 100 mg	-
	Eyes - Moderate irritant	Rabbit	-	10 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
XL1-Blue MRF⁺ E.coli Strain					
Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
Sodium chloride	Eyes - Moderate irritant	Rabbit	-	24 hours 100 mg	-
	Eyes - Moderate irritant	Rabbit	-	10 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
XLOR E. coli Strain					
Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
Sodium chloride	Eyes - Moderate irritant	Rabbit	-	24 hours 100 mg	-
	Eyes - Moderate irritant	Rabbit	-	10 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-

Sensitization

Not available.

Mutagenicity**Conclusion/Summary** : Not available.**Carcinogenicity****Conclusion/Summary** : Not available.**Reproductive toxicity****Conclusion/Summary** : Not available.**Teratogenicity****Conclusion/Summary** : Not available.**Specific target organ toxicity (single exposure)**

Not available.

Specific target organ toxicity (repeated exposure)

Section 11. Toxicological information

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure	: Gigapack III packaging extract	Not available.
	Wild-Type Lambda DNA c1857ind 1 Sam7	Not available.
	VCS257 E. coli Strain	Routes of entry anticipated: Oral, Dermal, Inhalation.
	ZAP Express Vector	Not available.
	Digested With BamH I CIAP Treated	
	pBub BamH I Test Insert	Not available.
	R408 Interference-Resistant Helper Phage	Not available.
	ExAssist Interference-Resistant Helper Phage	Not available.
	XL1-Blue MRF' E.coli Strain	Routes of entry anticipated: Oral, Dermal, Inhalation.
	XL0LR E. coli Strain	Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

Eye contact

: Gigapack III packaging extract	No known significant effects or critical hazards.
Wild-Type Lambda DNA c1857ind 1 Sam7	No known significant effects or critical hazards.
VCS257 E. coli Strain	Causes serious eye irritation.
ZAP Express Vector	No known significant effects or critical hazards.
Digested With BamH I CIAP Treated	
pBub BamH I Test Insert	No known significant effects or critical hazards.
R408 Interference-Resistant Helper Phage	No known significant effects or critical hazards.
ExAssist Interference-Resistant Helper Phage	No known significant effects or critical hazards.
XL1-Blue MRF' E.coli Strain	Causes serious eye irritation.
XL0LR E. coli Strain	Causes serious eye irritation.

Inhalation

: Gigapack III packaging extract	No known significant effects or critical hazards.
Wild-Type Lambda DNA c1857ind 1 Sam7	No known significant effects or critical hazards.
VCS257 E. coli Strain	No known significant effects or critical hazards.
ZAP Express Vector	No known significant effects or critical hazards.
Digested With BamH I CIAP Treated	
pBub BamH I Test Insert	No known significant effects or critical hazards.
R408 Interference-Resistant Helper Phage	No known significant effects or critical hazards.
ExAssist Interference-Resistant Helper Phage	No known significant effects or critical hazards.
XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
XL0LR E. coli Strain	No known significant effects or critical hazards.

Section 11. Toxicological information

Skin contact	: Gigapack III packaging extract	No known significant effects or critical hazards.
	Wild-Type Lambda DNA c1857ind 1 Sam7	No known significant effects or critical hazards.
	VCS257 E. coli Strain	No known significant effects or critical hazards.
	ZAP Express Vector	No known significant effects or critical hazards.
	Digested With BamH I CIAP Treated	
	pBub BamH I Test Insert	No known significant effects or critical hazards.
	R408 Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	ExAssist Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
	XL0LR E. coli Strain	No known significant effects or critical hazards.
Ingestion	: Gigapack III packaging extract	No known significant effects or critical hazards.
	Wild-Type Lambda DNA c1857ind 1 Sam7	No known significant effects or critical hazards.
	VCS257 E. coli Strain	No known significant effects or critical hazards.
	ZAP Express Vector	No known significant effects or critical hazards.
	Digested With BamH I CIAP Treated	
	pBub BamH I Test Insert	No known significant effects or critical hazards.
	R408 Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	ExAssist Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
	XL0LR E. coli Strain	No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	: Gigapack III packaging extract	No specific data.
	Wild-Type Lambda DNA c1857ind 1 Sam7	No specific data.
	VCS257 E. coli Strain	Adverse symptoms may include the following: pain or irritation watering redness
	ZAP Express Vector	No specific data.
	Digested With BamH I CIAP Treated	
	pBub BamH I Test Insert	No specific data.
	R408 Interference-Resistant Helper Phage	No specific data.
	ExAssist Interference-Resistant Helper Phage	No specific data.
	XL1-Blue MRF' E.coli Strain	Adverse symptoms may include the following: pain or irritation watering redness
	XL0LR E. coli Strain	Adverse symptoms may include the following: pain or irritation watering redness

Section 11. Toxicological information

Inhalation	: Gigapack III packaging extract Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain ZAP Express Vector Digested With BamH I CIAP Treated pBub BamH I Test Insert R408 Interference-Resistant Helper Phage ExAssist Interference- Resistant Helper Phage XL1-Blue MRF' E.coli Strain XL0LR E. coli 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. No specific data.
Skin contact	: Gigapack III packaging extract Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain ZAP Express Vector Digested With BamH I CIAP Treated pBub BamH I Test Insert R408 Interference-Resistant Helper Phage ExAssist Interference- Resistant Helper Phage XL1-Blue MRF' E.coli Strain XL0LR E. coli 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. No specific data. No specific data.
Ingestion	: Gigapack III packaging extract Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain ZAP Express Vector Digested With BamH I CIAP Treated pBub BamH I Test Insert R408 Interference-Resistant Helper Phage ExAssist Interference- Resistant Helper Phage XL1-Blue MRF' E.coli Strain XL0LR E. coli 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. No specific data. No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Section 11. Toxicological information

General	: Gigapack III packaging extract	No known significant effects or critical hazards.
	Wild-Type Lambda DNA c1857ind 1 Sam7	No known significant effects or critical hazards.
	VCS257 E. coli Strain	No known significant effects or critical hazards.
	ZAP Express Vector	No known significant effects or critical hazards.
	Digested With BamH I CIAP Treated	
	pBub BamH I Test Insert	No known significant effects or critical hazards.
	R408 Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	ExAssist Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
	XL0LR E. coli Strain	No known significant effects or critical hazards.
Carcinogenicity	: Gigapack III packaging extract	No known significant effects or critical hazards.
	Wild-Type Lambda DNA c1857ind 1 Sam7	No known significant effects or critical hazards.
	VCS257 E. coli Strain	No known significant effects or critical hazards.
	ZAP Express Vector	No known significant effects or critical hazards.
	Digested With BamH I CIAP Treated	
	pBub BamH I Test Insert	No known significant effects or critical hazards.
	R408 Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	ExAssist Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
	XL0LR E. coli Strain	No known significant effects or critical hazards.
Mutagenicity	: Gigapack III packaging extract	No known significant effects or critical hazards.
	Wild-Type Lambda DNA c1857ind 1 Sam7	No known significant effects or critical hazards.
	VCS257 E. coli Strain	No known significant effects or critical hazards.
	ZAP Express Vector	No known significant effects or critical hazards.
	Digested With BamH I CIAP Treated	
	pBub BamH I Test Insert	No known significant effects or critical hazards.
	R408 Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	ExAssist Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
	XL0LR E. coli Strain	No known significant effects or critical hazards.
Teratogenicity	: Gigapack III packaging extract	No known significant effects or critical hazards.
	Wild-Type Lambda DNA c1857ind 1 Sam7	No known significant effects or critical hazards.
	VCS257 E. coli Strain	No known significant effects or critical hazards.
	ZAP Express Vector	No known significant effects or critical hazards.
	Digested With BamH I CIAP Treated	
	pBub BamH I Test Insert	No known significant effects or critical hazards.
	R408 Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	ExAssist Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
	XL0LR E. coli Strain	No known significant effects or critical hazards.

Section 11. Toxicological information

Developmental effects	XLOLR E. coli Strain	No known significant effects or critical hazards.
	: Gigapack III packaging extract	No known significant effects or critical hazards.
	Wild-Type Lambda DNA c1857ind 1 Sam7	No known significant effects or critical hazards.
	VCS257 E. coli Strain	No known significant effects or critical hazards.
	ZAP Express Vector	No known significant effects or critical hazards.
	Digested With BamH I CIAP Treated	
	pBub BamH I Test Insert	No known significant effects or critical hazards.
	R408 Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	ExAssist Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
Fertility effects	XLOLR E. coli Strain	No known significant effects or critical hazards.
	: Gigapack III packaging extract	No known significant effects or critical hazards.
	Wild-Type Lambda DNA c1857ind 1 Sam7	No known significant effects or critical hazards.
	VCS257 E. coli Strain	No known significant effects or critical hazards.
	ZAP Express Vector	No known significant effects or critical hazards.
	Digested With BamH I CIAP Treated	
	pBub BamH I Test Insert	No known significant effects or critical hazards.
	R408 Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	ExAssist Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
XLOLR E. coli Strain	No known significant effects or critical hazards.	

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
VCS257 E. coli Strain					
VCS257 E. coli Strain	300000	N/A	N/A	N/A	N/A
Glycerol	12600	N/A	N/A	N/A	N/A
Sodium chloride	3000	N/A	N/A	N/A	N/A
XL1-Blue MRF' E.coli Strain					
XL1-Blue MRF' E.coli Strain	300000	N/A	N/A	N/A	N/A
Glycerol	12600	N/A	N/A	N/A	N/A
Sodium chloride	3000	N/A	N/A	N/A	N/A
XLOLR E. coli Strain					
XLOLR E. coli Strain	300000	N/A	N/A	N/A	N/A
Glycerol	12600	N/A	N/A	N/A	N/A
Sodium chloride	3000	N/A	N/A	N/A	N/A

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
✓CS257 E. coli Strain Glycerol Sodium chloride	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Acute EC50 4.74 g/L Fresh water	Algae - Chlamydomonas reinhardtii	96 hours
	Acute EC50 519.6 mg/l Fresh water	Crustaceans - Cypris subglobosa	48 hours
	Acute IC50 6.87 g/L Fresh water	Aquatic plants - Lemna minor	96 hours
	Acute LC50 1000000 µg/l Fresh water Chronic LC10 781 mg/l Fresh water	Fish - Morone saxatilis - Larvae Crustaceans - Hyalella azteca - Juvenile (Fledgling, Hatchling, Weanling)	96 hours 3 weeks
XL1-Blue MRF' E.coli Strain Glycerol Sodium chloride	Chronic NOEC 6 g/L Fresh water Chronic NOEC 0.314 g/L Fresh water Chronic NOEC 100 mg/l Fresh water	Aquatic plants - Lemna minor Daphnia - Daphnia pulex Fish - Gambusia holbrooki - Adult	96 hours 21 days 8 weeks
	Acute LC50 54000 mg/l Fresh water Acute EC50 4.74 g/L Fresh water	Fish - Oncorhynchus mykiss Algae - Chlamydomonas reinhardtii	96 hours 96 hours
	Acute EC50 519.6 mg/l Fresh water	Crustaceans - Cypris subglobosa	48 hours
	Acute IC50 6.87 g/L Fresh water Acute LC50 1000000 µg/l Fresh water Chronic LC10 781 mg/l Fresh water	Aquatic plants - Lemna minor Fish - Morone saxatilis - Larvae Crustaceans - Hyalella azteca - Juvenile (Fledgling, Hatchling, Weanling)	96 hours 96 hours 3 weeks
	Chronic NOEC 6 g/L Fresh water Chronic NOEC 0.314 g/L Fresh water Chronic NOEC 100 mg/l Fresh water	Aquatic plants - Lemna minor Daphnia - Daphnia pulex Fish - Gambusia holbrooki - Adult	96 hours 21 days 8 weeks
XLOLR E. coli Strain Glycerol Sodium chloride	Acute LC50 54000 mg/l Fresh water Acute EC50 4.74 g/L Fresh water	Fish - Oncorhynchus mykiss Algae - Chlamydomonas reinhardtii	96 hours 96 hours
	Acute EC50 519.6 mg/l Fresh water	Crustaceans - Cypris subglobosa	48 hours
	Acute IC50 6.87 g/L Fresh water Acute LC50 1000000 µg/l Fresh water Chronic LC10 781 mg/l Fresh water	Aquatic plants - Lemna minor Fish - Morone saxatilis - Larvae Crustaceans - Hyalella azteca - Juvenile (Fledgling, Hatchling, Weanling)	96 hours 96 hours 3 weeks
	Chronic NOEC 6 g/L Fresh water Chronic NOEC 0.314 g/L Fresh water Chronic NOEC 100 mg/l Fresh water	Aquatic plants - Lemna minor Daphnia - Daphnia pulex Fish - Gambusia holbrooki - Adult	96 hours 21 days 8 weeks

Conclusion/Summary : Not available.

Persistence and degradability

Section 12. Ecological information

Product/ingredient name	Test	Result	Dose	Inoculum
VCS257 E. coli Strain Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-
XL1-Blue MRF' E.coli Strain Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-
XLOLR E. coli Strain Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
VCS257 E. coli Strain Glycerol	-1.76	-	low
XL1-Blue MRF' E.coli Strain Glycerol	-1.76	-	low
XLOLR E. coli Strain Glycerol	-1.76	-	low

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

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

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. 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.

Section 14. Transport information

TDG / IMDG / IATA : Not regulated.

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

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

Canadian lists

Canadian NPRI : None of the components are listed.

CEPA Toxic substances : None of the components are listed.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia : Not determined.

Canada : Not determined.

China : Not determined.

Europe : All components are listed or exempted.

Japan : **Japan inventory (ENCS):** Not determined.
Japan inventory (ISHL): Not determined.

New Zealand : All components are listed or exempted.

Philippines : Not determined.

Republic of Korea : Not determined.

Taiwan : All components are listed or exempted.

Thailand : Not determined.

Turkey : Not determined.

United States : All components are active or exempted.

Viet Nam : Not determined.

Section 16. Other information

History

Date of issue/Date of revision : 06/03/2020
Date of previous issue : 03/26/2018
Version : 6

Key to abbreviations

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

Procedure used to derive the classification

Classification	Justification
VCS257 E. coli Strain EYE IRRITATION - Category 2A	Calculation method
XL1-Blue MRF' E.coli Strain EYE IRRITATION - Category 2A	Calculation method
XLOLR E. coli Strain EYE IRRITATION - Category 2A	Calculation method

References : Not available.

☑ Indicates information that has changed from previously issued version.

Notice to reader

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