

SAFETY DATA SHEET



ZAP Express Predigested Gigapack III Gold Cloning Kit, Part Number 239614

Section 1. Identification

1.1 Product identifier

Product name : ZAP Express Predigested Gigapack III Gold Cloning Kit, Part Number 239614
Part No. (Chemical Kit) : 239614
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 239211-51
 R408 Interference-Resistant Helper Phage 200252-81
 ExAssist Interference-Resistant Helper Phage 200253-81
 XL1-Blue MRF' E. coli Strain 200301-81
 XLOLR E. coli Strain 200304-81
 pRheo/EcoR I Test Insert 210200-51
Validation date : 4/27/2016

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

Material uses : Analytical reagent.
 Gigapack III packaging extract 0.275 ml (11 x 0.025 ml)
 Wild-Type Lambda DNA c1857ind 1 Sam7 0.005 ml (0.21 µg/µl)
 VCS257 E. coli Strain 1 ml
 ZAP Express vector 0.01 ml
 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
 XLOLR E. coli Strain 0.5 ml
 pRheo/EcoR I Test Insert 1.25 µg (0.25 µg/µl)

1.3 Details of the supplier of the safety data sheet

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

1.4 Emergency telephone number

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

Section 2. Hazards identification

2.1 Classification of the substance or mixture

OSHA/HCS status : Gigapack III packaging extract While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
 Wild-Type Lambda DNA c1857ind 1 Sam7 While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and

Section 2. Hazards identification

VCS257 E. coli Strain	other users of this product. This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
ZAP Express vector	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
R408 Interference-Resistant Helper Phage	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
ExAssist Interference-Resistant Helper Phage	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
XL1-Blue MRF' E. coli Strain	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
XL0LR E. coli Strain	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
pRheo/EcoR I Test Insert	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

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

Ingredients of unknown toxicity	:	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.
		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.
		pRheo/EcoR I Test Insert	Not applicable.

2.2 GHS label elements

Section 2. Hazards identification

Hazard pictograms



Signal word

Gigapack III packaging extract	No signal word.
Wild-Type Lambda DNA c1857ind	No signal word.
1 Sam7	
VCS257 E. coli Strain	Warning
ZAP Express vector	No signal word.
R408 Interference-Resistant	No signal word.
Helper Phage	
ExAssist Interference-Resistant	No signal word.
Helper Phage	
XL1-Blue MRF' E. coli Strain	Warning
XLOLR E. coli Strain	Warning
pRho/EcoR I Test Insert	No signal word.

Hazard statements

Gigapack III packaging extract	No known significant effects or critical hazards.
Wild-Type Lambda DNA c1857ind	No known significant effects or critical hazards.
1 Sam7	
VCS257 E. coli Strain	GHS SYMBOL - Exclamation mark - H319 - Causes serious eye irritation.
ZAP Express vector	No known significant effects or critical hazards.
R408 Interference-Resistant	No known significant effects or critical hazards.
Helper Phage	
ExAssist Interference-Resistant	No known significant effects or critical hazards.
Helper Phage	
XL1-Blue MRF' E. coli Strain	GHS SYMBOL - Exclamation mark - H319 - Causes serious eye irritation.
XLOLR E. coli Strain	GHS SYMBOL - Exclamation mark - H319 - Causes serious eye irritation.
pRho/EcoR I Test Insert	No known significant effects or critical hazards.

Precautionary statements

Prevention

Gigapack III packaging extract	Not applicable.
Wild-Type Lambda DNA c1857ind	Not applicable.
1 Sam7	
VCS257 E. coli Strain	P280 - Wear eye or face protection. P264 - Wash hands thoroughly after handling.
ZAP Express vector	Not applicable.
R408 Interference-Resistant	Not applicable.
Helper Phage	
ExAssist Interference-Resistant	Not applicable.
Helper Phage	
XL1-Blue MRF' E. coli Strain	P280 - Wear eye or face protection. P264 - Wash hands thoroughly after handling.
XLOLR E. coli Strain	P280 - Wear eye or face protection. P264 - Wash hands thoroughly after handling.
pRho/EcoR I Test Insert	Not applicable.

Response

Gigapack III packaging extract	Not applicable.
Wild-Type Lambda DNA c1857ind	Not applicable.
1 Sam7	
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 attention.
ZAP Express vector	Not applicable.

Section 2. Hazards identification

	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 attention.
	XLOLR E. coli Strain	P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical attention.
Storage	pRho/EcoR I Test Insert	Not applicable.
	: 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.
	R408 Interference-Resistant Helper Phage	Not applicable.
	ExAssist Interference-Resistant Helper Phage	Not applicable.
Disposal	XL1-Blue MRF' E. coli Strain	Not applicable.
	XLOLR E. coli Strain	Not applicable.
	pRho/EcoR I Test Insert	Not applicable.
	: 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.
Supplemental label elements	R408 Interference-Resistant Helper Phage	Not applicable.
	ExAssist Interference-Resistant Helper Phage	Not applicable.
	XL1-Blue MRF' E. coli Strain	Not applicable.
	XLOLR E. coli Strain	Not applicable.
	pRho/EcoR I Test Insert	Not applicable.
	: 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.	
R408 Interference-Resistant Helper Phage	None known.	
ExAssist Interference-Resistant Helper Phage	None known.	
XL1-Blue MRF' E. coli Strain	None known.	
XLOLR E. coli Strain	None known.	
pRho/EcoR I Test Insert	None known.	

2.3 Other hazards

Section 2. Hazards identification

Hazards not otherwise classified	:	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.
		R408 Interference-Resistant Helper Phage	None known.
		ExAssist Interference-Resistant Helper Phage	None known.
		XL1-Blue MRF' E. coli Strain	None known.
		XLOLR E. coli Strain	None known.
		pRho/EcoR I Test Insert	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
		R408 Interference-Resistant Helper Phage	Mixture
		ExAssist Interference-Resistant Helper Phage	Mixture
		XL1-Blue MRF' E. coli Strain	Mixture
		XLOLR E. coli Strain	Mixture
		pRho/EcoR I Test Insert	Mixture

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

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

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

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

Section 4. First aid measures

4.1 Description of necessary first aid measures

Eye contact	:	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.

Section 4. First aid measures

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	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.
XL0LR 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.
pRho/EcoR I Test Insert	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
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	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

Section 4. First aid measures

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.

pRho/EcoR I Test Insert

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

Skin contact

: Gigapack III packaging extract

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

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 medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

ZAP Express vector

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.

pRho/EcoR I Test Insert

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

Section 4. First aid measures

Ingestion

: 	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	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

Section 4. First aid measures

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

4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact	<ul style="list-style-type: none"> • Gigapack III packaging extract Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain ZAP Express vector R408 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E. coli Strain XLOLR E. coli Strain pRheo/EcoR I Test Insert 	<p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>Causes serious eye irritation.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>Causes serious eye irritation.</p> <p>Causes serious eye irritation.</p> <p>No known significant effects or critical hazards.</p>
Inhalation	<ul style="list-style-type: none"> • Gigapack III packaging extract Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain ZAP Express vector R408 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E. coli Strain XLOLR E. coli Strain pRheo/EcoR I Test Insert 	<p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p>

Section 4. First aid measures

Skin contact	:	Gigapack III packaging extract Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain ZAP Express vector R408 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E. coli Strain XLOLR E. coli Strain pRho/EcoR I Test Insert	No known significant effects or critical hazards.
			No known significant effects or critical hazards.
			No known significant effects or critical hazards.
			No known significant effects or critical hazards.
			No known significant effects or critical hazards.
			No known significant effects or critical hazards.
			No known significant effects or critical hazards.
			No known significant effects or critical hazards.
			No known significant effects or critical hazards.
			No known significant effects or critical hazards.
Ingestion	:	Gigapack III packaging extract Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain ZAP Express vector R408 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E. coli Strain XLOLR E. coli Strain pRho/EcoR I Test Insert	No known significant effects or critical hazards.
			No known significant effects or critical hazards.
			No known significant effects or critical hazards.
			No known significant effects or critical hazards.
			No known significant effects or critical hazards.
			No known significant effects or critical hazards.
			No known significant effects or critical hazards.
			No known significant effects or critical hazards.
			No known significant effects or critical hazards.
			No known significant effects or critical hazards.
Over-exposure signs/symptoms			
Eye contact	:	Gigapack III packaging extract Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain ZAP Express vector R408 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E. coli Strain XLOLR E. coli Strain pRho/EcoR I Test Insert	No specific data.
			No specific data.
			Adverse symptoms may include the following: pain or irritation watering redness
			No specific data.
			No specific data.
			No specific data.
			Adverse symptoms may include the following: pain or irritation watering redness
			Adverse symptoms may include the following: pain or irritation watering redness
			No specific data.
			No specific data.
Inhalation	:	Gigapack III packaging extract Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain ZAP Express vector R408 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E. coli Strain XLOLR E. coli Strain pRho/EcoR I Test Insert	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.

Section 4. First aid measures

Skin contact	:	☒ Gigapack III packaging extract	No specific data.
		Wild-Type Lambda DNA c1857ind	No specific data.
		1 Sam7	
		VCS257 E. coli Strain	No specific data.
		ZAP Express vector	No specific data.
		R408 Interference-Resistant	No specific data.
		Helper Phage	
		ExAssist Interference-Resistant	No specific data.
		Helper Phage	
		XL1-Blue MRF' E. coli Strain	No specific data.
		XL0LR E. coli Strain	No specific data.
		pRheo/EcoR I Test Insert	No specific data.
		Ingestion	:
Wild-Type Lambda DNA c1857ind	No specific data.		
1 Sam7			
VCS257 E. coli Strain	No specific data.		
ZAP Express vector	No specific data.		
R408 Interference-Resistant	No specific data.		
Helper Phage			
ExAssist Interference-Resistant	No specific data.		
Helper Phage			
XL1-Blue MRF' E. coli Strain	No specific data.		
XL0LR E. coli Strain	No specific data.		
pRheo/EcoR I Test Insert	No specific data.		

4.3 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	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		1 Sam7	
		VCS257 E. coli Strain	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		ZAP Express vector	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		R408 Interference-Resistant	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		Helper Phage	
		ExAssist Interference-Resistant	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		Helper Phage	
		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.
		pRheo/EcoR I Test Insert	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Section 4. First aid measures

Specific treatments	<ul style="list-style-type: none"> : Gigapack III packaging extract Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain ZAP Express vector R408 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E. coli Strain XL0LR E. coli Strain pRho/EcoR I Test Insert 	<ul style="list-style-type: none"> No specific treatment. No specific treatment. No specific treatment. No specific treatment. No specific treatment. No specific treatment. No specific treatment. No specific treatment. No specific treatment. No specific treatment.
Protection of first-aiders	<ul style="list-style-type: none"> : Gigapack III packaging extract Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain ZAP Express vector R408 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E. coli Strain XL0LR E. coli Strain pRho/EcoR I Test Insert 	<ul style="list-style-type: none"> No action shall be taken involving any personal risk or without suitable training. No action shall be taken involving any personal risk or without suitable training. No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. No action shall be taken involving any personal risk or without suitable training. No action shall be taken involving any personal risk or without suitable training. No action shall be taken involving any personal risk or without suitable training. No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media	<ul style="list-style-type: none"> : Gigapack III packaging extract Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain ZAP Express vector R408 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E. coli Strain XL0LR E. coli Strain 	<ul style="list-style-type: none"> Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire.
-------------------------------------	--	---

Section 5. Fire-fighting measures

	pRheo/EcoR I Test Insert	Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	: Gigapack III packaging extract	None known.
	Wild-Type Lambda DNA c1857ind	None known.
	1 Sam7	
	VCS257 E. coli Strain	None known.
	ZAP Express vector	None known.
	R408 Interference-Resistant Helper Phage	None known.
	ExAssist Interference-Resistant Helper Phage	None known.
	XL1-Blue MRF' E. coli Strain	None known.
	XLOLR E. coli Strain	None known.
	pRheo/EcoR I Test Insert	None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards arising from the chemical	: Gigapack III packaging extract	In a fire or if heated, a pressure increase will occur and the container may burst.
	Wild-Type Lambda DNA c1857ind	In a fire or if heated, a pressure increase will occur and the container may burst.
	1 Sam7	In a fire or if heated, a pressure increase will occur and the container may burst.
	VCS257 E. coli Strain	In a fire or if heated, a pressure increase will occur and the container may burst.
	ZAP Express vector	In a fire or if heated, a pressure increase will occur and the container may burst.
	R408 Interference-Resistant Helper Phage	In a fire or if heated, a pressure increase will occur and the container may burst.
	ExAssist Interference-Resistant Helper Phage	In a fire or if heated, a pressure increase will occur and the container may burst.
	XL1-Blue MRF' E. coli Strain	In a fire or if heated, a pressure increase will occur and the container may burst.
	XLOLR E. coli Strain	In a fire or if heated, a pressure increase will occur and the container may burst.
	pRheo/EcoR I Test Insert	In a fire or if heated, a pressure increase will occur and the container may burst.
Hazardous thermal decomposition products	: Gigapack III packaging extract	Decomposition products may include the following materials: carbon dioxide carbon monoxide
	Wild-Type Lambda DNA c1857ind	No specific data.
	1 Sam7	
	VCS257 E. coli Strain	Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds metal oxide/oxides
	ZAP Express vector	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	Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds metal oxide/oxides
	XLOLR E. coli Strain	Decomposition products may include the following


Section 5. Fire-fighting measures

materials:
carbon dioxide
carbon monoxide
halogenated compounds
metal oxide/oxides
No specific data.


pRheo/EcoR I Test Insert

5.3 Advice for firefighters

Special protective actions for fire-fighters

:  Gigapack III packaging extract	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
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	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.
pRheo/EcoR I Test Insert	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters

:  Gigapack III packaging extract	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
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.
ZAP Express vector	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus


Section 5. Fire-fighting measures

R408 Interference-Resistant Helper Phage	(SCBA) with a full face-piece operated in positive pressure mode. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
ExAssist Interference-Resistant Helper Phage	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
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.
XLOLR 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.
pRho/EcoR I Test Insert	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

6.1 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

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.


R408 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.

Section 6. Accidental release measures

ExAssist Interference-Resistant Helper Phage	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.
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.
pRho/EcoR I Test Insert	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.
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	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 suitable and unsuitable materials. See also the information in "For non-emergency personnel".
XL0LR 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".

Section 6. Accidental release measures

		spillage, take note of any information in Section 8 on 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".
	pRheo/EcoR I Test Insert	
6.2 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	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).
	pRheo/EcoR I Test Insert	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).



6.3 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	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.
	pRho/EcoR I Test Insert	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Section 7. Handling and storage


7.1 Precautions for safe handling

Protective measures	:  Gigapack III packaging extract	Put on appropriate personal protective equipment (see Section 8).
	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	Put on appropriate personal protective equipment (see Section 8).
	R408 Interference-Resistant Helper Phage	Put on appropriate personal protective equipment (see Section 8).
	ExAssist Interference-Resistant Helper Phage	Put on appropriate personal protective equipment (see Section 8).
	XL1-Blue MRF' E. coli Strain	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept 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.
	pRheo/EcoR I Test Insert	Put on appropriate personal protective equipment (see Section 8).
Advice on general occupational hygiene	:  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. See also Section 8 for additional

Section 7. Handling and storage

ZAP Express vector	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.
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.
pRho/EcoR I Test Insert	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 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.

Wild-Type Lambda DNA c1857ind
1 Sam7

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from

Section 7. Handling and storage

VCS257 E. coli Strain	<p>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.</p> <p>Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.</p>
ZAP Express vector	<p>Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.</p>
R408 Interference-Resistant Helper Phage	<p>Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.</p>
ExAssist Interference-Resistant Helper Phage	<p>Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.</p>
XL1-Blue MRF' E. coli Strain	<p>Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.</p>
XL0LR E. coli Strain	<p>Store in accordance with local regulations. Store in original container protected from direct sunlight in a</p>

Section 7. Handling and storage

pRho/EcoR I Test Insert

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.

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

7.3 Specific end use(s)

Recommendations

<ul style="list-style-type: none"> • Gigapack III packaging extract Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain ZAP Express vector R408 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E. coli Strain XL0LR E. coli Strain pRho/EcoR I Test Insert 	<ul style="list-style-type: none"> Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications.
---	--

Industrial sector specific solutions

<ul style="list-style-type: none"> • Gigapack III packaging extract Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain ZAP Express vector R408 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E. coli Strain XL0LR E. coli Strain pRho/EcoR I Test Insert 	<ul style="list-style-type: none"> Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.
---	--

Section 8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Section 8. Exposure controls/personal protection

Ingredient name	Exposure limits
CS257 E. coli Strain Glycerol Sodium chloride	OSHA PEL 1989 (United States, 3/1989). TWA: 5 mg/m ³ 8 hours. Form: Respirable fraction TWA: 10 mg/m ³ 8 hours. Form: Total dust OSHA PEL (United States, 2/2013). TWA: 5 mg/m ³ 8 hours. Form: Respirable fraction TWA: 15 mg/m ³ 8 hours. Form: Total dust None.
XL1-Blue MRF' E. coli Strain Glycerol Sodium chloride	OSHA PEL 1989 (United States, 3/1989). TWA: 5 mg/m ³ 8 hours. Form: Respirable fraction TWA: 10 mg/m ³ 8 hours. Form: Total dust OSHA PEL (United States, 2/2013). TWA: 5 mg/m ³ 8 hours. Form: Respirable fraction TWA: 15 mg/m ³ 8 hours. Form: Total dust None.
XLOLR E. coli Strain Glycerol Sodium chloride	OSHA PEL 1989 (United States, 3/1989). TWA: 5 mg/m ³ 8 hours. Form: Respirable fraction TWA: 10 mg/m ³ 8 hours. Form: Total dust OSHA PEL (United States, 2/2013). TWA: 5 mg/m ³ 8 hours. Form: Respirable fraction TWA: 15 mg/m ³ 8 hours. Form: Total dust None.

8.2 Exposure controls

Appropriate engineering controls

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

Environmental exposure controls

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

Individual protection measures

Hygiene measures

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

Eye/face protection

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

Skin protection

Section 9. Physical and chemical properties

	pRho/EcoR I Test Insert	Not available.
Odor threshold	: Gigapack III packaging extract	Not available.
	Wild-Type Lambda DNA c1857ind	Not available.
	1 Sam7	
	VCS257 E. coli Strain	Not available.
	ZAP Express vector	Not available.
	R408 Interference-Resistant	Not available.
	Helper Phage	
	ExAssist Interference-Resistant	Not available.
	Helper Phage	
	XL1-Blue MRF' E. coli Strain	Not available.
	XL0LR E. coli Strain	Not available.
	pRho/EcoR I Test Insert	Not available.
pH	: Gigapack III packaging extract	8
	Wild-Type Lambda DNA c1857ind	7
	1 Sam7	
	VCS257 E. coli Strain	7
	ZAP Express vector	7.5
	R408 Interference-Resistant	7.5
	Helper Phage	
	ExAssist Interference-Resistant	7.5
	Helper Phage	
	XL1-Blue MRF' E. coli Strain	7
	XL0LR E. coli Strain	7
	pRho/EcoR I Test Insert	7.5
Melting point	: Gigapack III packaging extract	Not available.
	Wild-Type Lambda DNA c1857ind	0°C (32°F)
	1 Sam7	
	VCS257 E. coli Strain	Not available.
	ZAP Express vector	0°C (32°F)
	R408 Interference-Resistant	0°C (32°F)
	Helper Phage	
	ExAssist Interference-Resistant	0°C (32°F)
	Helper Phage	
	XL1-Blue MRF' E. coli Strain	Not available.
	XL0LR E. coli Strain	Not available.
	pRho/EcoR I Test Insert	0°C (32°F)
Boiling point	: Gigapack III packaging extract	Not available.
	Wild-Type Lambda DNA c1857ind	100°C (212°F)
	1 Sam7	
	VCS257 E. coli Strain	Not available.
	ZAP Express vector	100°C (212°F)
	R408 Interference-Resistant	100°C (212°F)
	Helper Phage	
	ExAssist Interference-Resistant	100°C (212°F)
	Helper Phage	
	XL1-Blue MRF' E. coli Strain	Not available.
	XL0LR E. coli Strain	Not available.
	pRho/EcoR I Test Insert	100°C (212°F)
Flash point	: Gigapack III packaging extract	Not available.
	Wild-Type Lambda DNA c1857ind	Not available.
	1 Sam7	
	VCS257 E. coli Strain	Not available.
	ZAP Express vector	Not available.
	R408 Interference-Resistant	Not available.
	Helper Phage	
	ExAssist Interference-Resistant	Not available.
	Helper Phage	

Section 9. Physical and chemical properties

	XL1-Blue MRF' E. coli Strain	Not available.
	XL0LR E. coli Strain	Not available.
	pRho/EcoR I Test Insert	Not available.
Evaporation rate	: Gigapack III packaging extract	Not available.
	Wild-Type Lambda DNA c1857ind	Not available.
	1 Sam7	
	VCS257 E. coli Strain	Not available.
	ZAP Express vector	Not available.
	R408 Interference-Resistant	Not available.
	Helper Phage	
	ExAssist Interference-Resistant	Not available.
	Helper Phage	
	XL1-Blue MRF' E. coli Strain	Not available.
	XL0LR E. coli Strain	Not available.
	pRho/EcoR I Test Insert	Not available.
Flammability (solid, gas)	: Gigapack III packaging extract	Not applicable.
	Wild-Type Lambda DNA c1857ind	Not applicable.
	1 Sam7	
	VCS257 E. coli Strain	Not applicable.
	ZAP Express vector	Not applicable.
	R408 Interference-Resistant	Not applicable.
	Helper Phage	
	ExAssist Interference-Resistant	Not applicable.
	Helper Phage	
	XL1-Blue MRF' E. coli Strain	Not applicable.
	XL0LR E. coli Strain	Not applicable.
	pRho/EcoR I Test Insert	Not applicable.
Lower and upper explosive (flammable) limits	: Gigapack III packaging extract	Not available.
	Wild-Type Lambda DNA c1857ind	Not available.
	1 Sam7	
	VCS257 E. coli Strain	Not available.
	ZAP Express vector	Not available.
	R408 Interference-Resistant	Not available.
	Helper Phage	
	ExAssist Interference-Resistant	Not available.
	Helper Phage	
	XL1-Blue MRF' E. coli Strain	Not available.
	XL0LR E. coli Strain	Not available.
	pRho/EcoR I Test Insert	Not available.
Vapor pressure	: Gigapack III packaging extract	Not available.
	Wild-Type Lambda DNA c1857ind	Not available.
	1 Sam7	
	VCS257 E. coli Strain	Not available.
	ZAP Express vector	Not available.
	R408 Interference-Resistant	Not available.
	Helper Phage	
	ExAssist Interference-Resistant	Not available.
	Helper Phage	
	XL1-Blue MRF' E. coli Strain	Not available.
	XL0LR E. coli Strain	Not available.
	pRho/EcoR I Test Insert	Not available.
Vapor density	:	

Section 9. Physical and chemical properties

		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.
		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.
		pRho/EcoR I Test Insert	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.
		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.
		pRho/EcoR I Test Insert	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	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.
		pRho/EcoR I Test Insert	Easily 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	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.
		pRho/EcoR I Test Insert	Not available.

Section 9. Physical and chemical properties

Auto-ignition temperature	:	Gigapack III packaging extract	Not available.
		Wild-Type Lambda DNA c1857ind	Not available.
		1 Sam7	
		VCS257 E. coli Strain	Not available.
		ZAP Express vector	Not available.
		R408 Interference-Resistant	Not available.
		Helper Phage	
		ExAssist Interference-Resistant	Not available.
		Helper Phage	
		XL1-Blue MRF' E. coli Strain	Not available.
		XL0LR E. coli Strain	Not available.
		pRho/EcoR I Test Insert	Not available.
		Decomposition temperature	:
Wild-Type Lambda DNA c1857ind	Not available.		
1 Sam7			
VCS257 E. coli Strain	Not available.		
ZAP Express vector	Not available.		
R408 Interference-Resistant	Not available.		
Helper Phage			
ExAssist Interference-Resistant	Not available.		
Helper Phage			
XL1-Blue MRF' E. coli Strain	Not available.		
XL0LR E. coli Strain	Not available.		
pRho/EcoR I Test Insert	Not available.		
Viscosity	:		
		Wild-Type Lambda DNA c1857ind	Not available.
		1 Sam7	
		VCS257 E. coli Strain	Not available.
		ZAP Express vector	Not available.
		R408 Interference-Resistant	Not available.
		Helper Phage	
		ExAssist Interference-Resistant	Not available.
		Helper Phage	
		XL1-Blue MRF' E. coli Strain	Not available.
		XL0LR E. coli Strain	Not available.
		pRho/EcoR I Test Insert	Not available.

Section 10. Stability and reactivity

10.1 Reactivity	:	Gigapack III packaging extract	No specific test data related to reactivity available for this product or its ingredients.
		Wild-Type Lambda DNA c1857ind	No specific test data related to reactivity available for this product or its ingredients.
		1 Sam7	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.
		R408 Interference-Resistant	No specific test data related to reactivity available for this product or its ingredients.
		Helper Phage	No specific test data related to reactivity available for this product or its ingredients.
		ExAssist Interference-Resistant	No specific test data related to reactivity available for this product or its ingredients.
		Helper Phage	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.
		pRho/EcoR I Test Insert	No specific test data related to reactivity available for this product or its ingredients.

Section 10. Stability and reactivity

10.2 Chemical stability	<ul style="list-style-type: none"> • Gigapack III packaging extract Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain ZAP Express vector R408 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E. coli Strain XL0LR E. coli Strain pRho/EcoR I Test Insert 	<ul style="list-style-type: none"> The product is stable. The product is stable. The product is stable. The product is stable. The product is stable. The product is stable. The product is stable. The product is stable. The product is stable. The product is stable.
10.3 Possibility of hazardous reactions	<ul style="list-style-type: none"> • Gigapack III packaging extract Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain ZAP Express vector R408 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E. coli Strain XL0LR E. coli Strain pRho/EcoR I Test Insert 	<ul style="list-style-type: none"> Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	<ul style="list-style-type: none"> • Gigapack III packaging extract Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain ZAP Express vector R408 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E. coli Strain XL0LR E. coli Strain pRho/EcoR I Test Insert 	<ul style="list-style-type: none"> 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.
10.5 Incompatible materials	<ul style="list-style-type: none"> • Gigapack III packaging extract Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain ZAP Express vector R408 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E. coli Strain 	<ul style="list-style-type: none"> May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials.

Section 10. Stability and reactivity

	XLOLR E. coli Strain	materials. May react or be incompatible with oxidizing materials.
	pRho/EcoR I Test Insert	May react or be incompatible with oxidizing materials.
10.6 Hazardous decomposition products	: Gigapack III packaging extract	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	Wild-Type Lambda DNA c1857ind 1 Sam7	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	VCS257 E. coli Strain	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	ZAP Express vector	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	R408 Interference-Resistant Helper Phage	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	ExAssist Interference-Resistant Helper Phage	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	XL1-Blue MRF' E. coli Strain	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	XLOLR E. coli Strain	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	pRho/EcoR I Test Insert	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
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	-
XLOLR E. coli Strain				
Glycerol	LD50 Oral	Rat	12600 mg/kg	-
Sodium chloride	LD50 Oral	Rat	3000 mg/kg	-

Irritation/Corrosion

Section 11. Toxicological information

Product/ingredient name	Result	Species	Score	Exposure	Observation	
<input checked="" type="checkbox"/> CS257 E. coli Strain Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-	
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-	
	Sodium chloride	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
		Eyes - Moderate irritant Skin - Mild irritant	Rabbit Rabbit	- -	10 milligrams 24 hours 500 milligrams	- -
XL1-Blue MRF' E. coli Strain Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-	
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-	
	Sodium chloride	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
		Eyes - Moderate irritant Skin - Mild irritant	Rabbit Rabbit	- -	10 milligrams 24 hours 500 milligrams	- -
XL0LR E. coli Strain Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-	
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-	
	Sodium chloride	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
		Eyes - Moderate irritant Skin - Mild irritant	Rabbit Rabbit	- -	10 milligrams 24 hours 500 milligrams	- -

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Section 11. Toxicological information

Information on the likely routes of exposure	<ul style="list-style-type: none"> • Gigapack III packaging extract Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain ZAP Express vector R408 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E. coli Strain XL0LR E. coli Strain pRho/EcoR I Test Insert 	<p>Not available. Not available.</p> <p>Routes of entry anticipated: Oral, Dermal, Inhalation.</p> <p>Not available. Not available.</p> <p>Not available.</p> <p>Routes of entry anticipated: Oral, Dermal, Inhalation.</p> <p>Routes of entry anticipated: Oral, Dermal, Inhalation.</p> <p>Not available.</p>
Potential acute health effects		
Eye contact	<ul style="list-style-type: none"> • Gigapack III packaging extract Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain ZAP Express vector R408 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E. coli Strain XL0LR E. coli Strain pRho/EcoR I Test Insert 	<p>No known significant effects or critical hazards. No known significant effects or critical hazards.</p> <p>Causes serious eye irritation.</p> <p>No known significant effects or critical hazards. No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>Causes serious eye irritation. Causes serious eye irritation.</p> <p>No known significant effects or critical hazards.</p>
Inhalation	<ul style="list-style-type: none"> • Gigapack III packaging extract Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain ZAP Express vector R408 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E. coli Strain XL0LR E. coli Strain pRho/EcoR I Test Insert 	<p>No known significant effects or critical hazards. No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.</p>
Skin contact	<ul style="list-style-type: none"> • Gigapack III packaging extract Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain ZAP Express vector R408 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E. coli Strain XL0LR E. coli Strain pRho/EcoR I Test Insert 	<p>No known significant effects or critical hazards. No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.</p>

Section 11. Toxicological information

Ingestion	: Gigapack III packaging extract	No known significant effects or critical hazards.
	Wild-Type Lambda DNA c1857ind	No known significant effects or critical hazards.
	1 Sam7	
	VCS257 E. coli Strain	No known significant effects or critical hazards.
	ZAP Express vector	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.
pRho/EcoR I Test Insert	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	No specific data.
	1 Sam7	
	VCS257 E. coli Strain	Adverse symptoms may include the following: pain or irritation watering redness
	ZAP Express vector	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
Inhalation	: Gigapack III packaging extract	No specific data.
	Wild-Type Lambda DNA c1857ind	No specific data.
	1 Sam7	
	VCS257 E. coli Strain	No specific data.
	ZAP Express vector	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.
pRho/EcoR I Test Insert	No specific data.	
Skin contact	: Gigapack III packaging extract	No specific data.
	Wild-Type Lambda DNA c1857ind	No specific data.
	1 Sam7	
	VCS257 E. coli Strain	No specific data.
	ZAP Express vector	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 11. Toxicological information

Ingestion	pRho/EcoR I Test Insert	No specific data.
	Gigapack III packaging extract	No specific data.
	Wild-Type Lambda DNA c1857ind	No specific data.
	1 Sam7	
	VCS257 E. coli Strain	No specific data.
	ZAP Express vector	No specific data.
	R408 Interference-Resistant	No specific data.
	Helper Phage	
	ExAssist Interference-Resistant	No specific data.
	Helper Phage	
XL1-Blue MRF' E. coli Strain	No specific data.	
XL0LR E. coli Strain	No specific data.	
pRho/EcoR I Test Insert	No specific data.	

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

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

General :

Gigapack III packaging extract	No known significant effects or critical hazards.
Wild-Type Lambda DNA c1857ind	No known significant effects or critical hazards.
1 Sam7	
VCS257 E. coli Strain	No known significant effects or critical hazards.
ZAP Express vector	No known significant effects or critical hazards.
R408 Interference-Resistant	No known significant effects or critical hazards.
Helper Phage	
ExAssist Interference-Resistant	No known significant effects or critical hazards.
Helper Phage	
XL1-Blue MRF' E. coli Strain	No known significant effects or critical hazards.
XL0LR E. coli Strain	No known significant effects or critical hazards.
pRho/EcoR I Test Insert	No known significant effects or critical hazards.

Carcinogenicity :

Gigapack III packaging extract	No known significant effects or critical hazards.
Wild-Type Lambda DNA c1857ind	No known significant effects or critical hazards.
1 Sam7	
VCS257 E. coli Strain	No known significant effects or critical hazards.
ZAP Express vector	No known significant effects or critical hazards.
R408 Interference-Resistant	No known significant effects or critical hazards.
Helper Phage	
ExAssist Interference-Resistant	No known significant effects or critical hazards.
Helper Phage	
XL1-Blue MRF' E. coli Strain	No known significant effects or critical hazards.
XL0LR E. coli Strain	No known significant effects or critical hazards.
pRho/EcoR I Test Insert	No known significant effects or critical hazards.

Mutagenicity :

Gigapack III packaging extract	No known significant effects or critical hazards.
Wild-Type Lambda DNA c1857ind	No known significant effects or critical hazards.
1 Sam7	
VCS257 E. coli Strain	No known significant effects or critical hazards.
ZAP Express vector	No known significant effects or critical hazards.
R408 Interference-Resistant	No known significant effects or critical hazards.
Helper Phage	
ExAssist Interference-Resistant	No known significant effects or critical hazards.

Section 11. Toxicological information

	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.
	pRho/EcoR I Test Insert	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.
	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.
	pRho/EcoR I Test Insert	No known significant effects or critical hazards.
Developmental effects	: 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.
	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.
	pRho/EcoR I Test Insert	No known significant effects or critical hazards.
Fertility effects	: 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.
	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.
	pRho/EcoR I Test Insert	No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
VCS257 E. coli Strain Oral	300000 mg/kg
XL1-Blue MRF' E. coli Strain Oral	300000 mg/kg
XLOLR E. coli Strain Oral	300000 mg/kg

Section 12. Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
VCS257 E. coli Strain Glycerol Sodium chloride	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Acute EC50 2430000 µg/l Fresh water	Algae - Navicula seminulum	96 hours
	Acute EC50 28.85 mg/dm ³ Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 519.6 mg/l Fresh water	Crustaceans - Cypris subglobosa	48 hours
	Acute IC50 6.87 g/L Fresh water	Aquatic plants - Lemna minor	96 hours
	Acute LC50 1661 mg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 1000000 µg/l Fresh water	Fish - Morone saxatilis - Larvae	96 hours
	Chronic LC10 781 mg/l Fresh water	Crustaceans - Hyalella azteca - Juvenile (Fledgling, Hatchling, Weanling)	3 weeks
	Chronic NOEC 6 g/L Fresh water	Aquatic plants - Lemna minor	96 hours
	Chronic NOEC 0.314 g/L Fresh water	Daphnia - Daphnia pulex	21 days
Chronic NOEC 100 mg/l Fresh water	Fish - Gambusia holbrooki - Adult	8 weeks	
XL1-Blue MRF' E. coli Strain Glycerol Sodium chloride	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Acute EC50 2430000 µg/l Fresh water	Algae - Navicula seminulum	96 hours
	Acute EC50 28.85 mg/dm ³ Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 519.6 mg/l Fresh water	Crustaceans - Cypris subglobosa	48 hours
	Acute IC50 6.87 g/L Fresh water	Aquatic plants - Lemna minor	96 hours
	Acute LC50 1661 mg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 1000000 µg/l Fresh water	Fish - Morone saxatilis - Larvae	96 hours
	Chronic LC10 781 mg/l Fresh water	Crustaceans - Hyalella azteca - Juvenile (Fledgling, Hatchling, Weanling)	3 weeks
	Chronic NOEC 6 g/L Fresh water	Aquatic plants - Lemna minor	96 hours
	Chronic NOEC 0.314 g/L Fresh water	Daphnia - Daphnia pulex	21 days
Chronic NOEC 100 mg/l Fresh water	Fish - Gambusia holbrooki - Adult	8 weeks	
XL0LR E. coli Strain Glycerol Sodium chloride	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Acute EC50 2430000 µg/l Fresh water	Algae - Navicula seminulum	96 hours
	Acute EC50 28.85 mg/dm ³ Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 519.6 mg/l Fresh water	Crustaceans - Cypris subglobosa	48 hours
	Acute IC50 6.87 g/L Fresh water	Aquatic plants - Lemna minor	96 hours
	Acute LC50 1661 mg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 1000000 µg/l Fresh water	Fish - Morone saxatilis - Larvae	96 hours
	Chronic LC10 781 mg/l Fresh water	Crustaceans - Hyalella azteca - Juvenile (Fledgling, Hatchling, Weanling)	3 weeks
	Chronic NOEC 6 g/L Fresh water	Aquatic plants - Lemna minor	96 hours
	Chronic NOEC 0.314 g/L Fresh water	Daphnia - Daphnia pulex	21 days
Chronic NOEC 100 mg/l Fresh water	Fish - Gambusia holbrooki - Adult	8 weeks	

12.2 Persistence and degradability

Not available.

12.3 Bioaccumulative potential

Section 12. Ecological information

Product/ingredient name	LogP _{ow}	BCF	Potential
<input checked="" type="checkbox"/> CS257 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

12.4 Mobility in soil

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

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

Section 13. Disposal considerations

13.1 Waste treatment methods

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

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

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

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

Section 14. Transport information

Regulatory information

DOT / IMDG / IATA : Not regulated.

Section 15. Regulatory information

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

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

Section 15. Regulatory information

Clean Air Act Section 112 : Not listed

(b) Hazardous Air Pollutants (HAPs)

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Immediate (acute) health hazard

Composition/information on ingredients

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

State regulations

Massachusetts : The following components are listed: GLYCERINE MIST

New York : None of the components are listed.

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

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

California Prop. 65

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

Section 15. Regulatory information

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

Canada inventory : Not determined.

International regulations

International lists

Australia inventory (AICS): Not determined.
China inventory (IECSC): Not determined.
Japan inventory (ENCS): Not determined.
Japan inventory (ISHL): Not determined.
Korea inventory: Not determined.
Malaysia Inventory (EHS Register): Not determined.
New Zealand Inventory of Chemicals (NZIoC): All components are listed or exempted.
Philippines inventory (PICCS): Not determined.
Taiwan Chemical Substances Inventory (TCSI): All components are listed or exempted.
Turkey inventory: Not determined.

Chemical Weapons : Not listed

Convention List Schedule I Chemicals

Chemical Weapons : Not listed

Convention List Schedule II Chemicals

Chemical Weapons : Not listed

Convention List Schedule III Chemicals

Section 16. Other information

History

Date of issue : 04/27/2016

Date of previous issue : 04/24/2014.

Version : 4

Indicates information that has changed from previously issued version.

Notice to reader

Disclaimer: The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.