

SAFETY DATA SHEET



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

Section 1. Identification

Product identifier	: ZAP Express Predigested Gigapack III Gold Cloning Kit, Part Number 239615		
Part No. (Chemical Kit)	: 239615		
Part No.	: Gigapack III packaging extract	200201-41	
	Wild-Type Lambda DNA c1857ind 1 Sam7	246203-51	
	VCS257 E. coli Strain	200256-51	
	ZAP Express Vector Digested With BamH I CIAP Treated	239212-51	
	pBub BamH I Test Insert	239212-52	
	R408 Interference-Resistant Helper Phage	200252-81	
	ExAssist Interference-Resistant Helper Phage	200253-81	
	XL1-Blue MRF' E. coli Strain	200301-81	
	XLOLR E. coli Strain	200304-81	

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

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 Digested With BamH I CIAP Treated	0.005 ml (1 µg/µl)
pBub BamH I Test Insert	0.01 ml (0.25 µg/µl)
R408 Interference-Resistant Helper Phage	1 ml
ExAssist Interference-Resistant Helper Phage	1 ml (>1 x E10 pfu/ml)
XL1-Blue MRF' E. coli Strain	0.5 ml
XLOLR E. coli Strain	0.5 ml

Supplier/Manufacturer : Agilent Technologies Australia Pty Ltd
679 Springvale Road
Mulgrave
Victoria 3170, Australia
1800 802 402

Emergency telephone number (with hours of operation) : CHEMTREC®: (61)-290372994

Section 2. Hazard(s) identification

Classification of the substance or mixture

Not classified.

GHS label elements

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

Section 2. Hazard(s) identification

	ExAssist Interference-Resistant Helper Phage	No signal word.
	XL1-Blue MRF' E. coli Strain	No signal word.
	XLOLR E. coli Strain	No signal word.
Hazard statements	: Gigapack III packaging extract	No known significant effects or critical hazards.
	Wild-Type Lambda DNA c1857ind 1 Sam7	No known significant effects or critical hazards.
	VCS257 E. coli Strain	No known significant effects or critical hazards.
	ZAP Express Vector Digested With BamH I CIAP Treated	No known significant effects or critical hazards.
	pBub BamH I Test Insert	No known significant effects or critical hazards.
	R408 Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	ExAssist Interference-Resistant Helper Phage	No known significant effects or critical hazards.
	XL1-Blue MRF' E. coli Strain	No known significant effects or critical hazards.
	XLOLR E. coli Strain	No known significant effects or critical hazards.
Precautionary statements		
Prevention	: Gigapack III packaging extract	Not applicable.
	Wild-Type Lambda DNA c1857ind 1 Sam7	Not applicable.
	VCS257 E. coli Strain	Not applicable.
	ZAP Express Vector Digested With BamH I CIAP Treated	Not applicable.
	pBub BamH I Test Insert	Not applicable.
	R408 Interference-Resistant Helper Phage	Not applicable.
	ExAssist Interference-Resistant Helper Phage	Not applicable.
	XL1-Blue MRF' E. coli Strain	Not applicable.
	XLOLR E. coli Strain	Not applicable.
Response	: Gigapack III packaging extract	Not applicable.
	Wild-Type Lambda DNA c1857ind 1 Sam7	Not applicable.
	VCS257 E. coli Strain	Not applicable.
	ZAP Express Vector Digested With BamH I CIAP Treated	Not applicable.
	pBub BamH I Test Insert	Not applicable.
	R408 Interference-Resistant Helper Phage	Not applicable.
	ExAssist Interference-Resistant Helper Phage	Not applicable.
	XL1-Blue MRF' E. coli Strain	Not applicable.
	XLOLR E. coli Strain	Not applicable.
Storage	: Gigapack III packaging extract	Not applicable.
	Wild-Type Lambda DNA c1857ind 1 Sam7	Not applicable.
	VCS257 E. coli Strain	Not applicable.
	ZAP Express Vector Digested With BamH I CIAP Treated	Not applicable.
	pBub BamH I Test Insert	Not applicable.
	R408 Interference-Resistant Helper Phage	Not applicable.
	ExAssist Interference-	Not applicable.

Section 2. Hazard(s) identification

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

Section 3. Composition and ingredient information

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

Section 3. Composition and ingredient information

ExAssist Interference-Resistant Helper Phage	Mixture
XL1-Blue MRF' E. coli Strain	Mixture
XL0LR E. coli Strain	Mixture

CAS number/other identifiers

Ingredient name	% (w/w)	CAS number
Gigapack III packaging extract Sucrose	≤10	57-50-1
VCS257 E. coli Strain Glycerol	≥10 - ≤30	56-81-5
XL1-Blue MRF' E. coli Strain Glycerol	≥10 - ≤30	56-81-5
XL0LR E. coli Strain Glycerol	≥10 - ≤30	56-81-5

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

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


Section 4. First aid measures

Description of necessary first aid measures


Eye contact	: Gigapack III packaging extract	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
	Wild-Type Lambda DNA c1857ind 1 Sam7	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
	VCS257 E. coli Strain	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
	ZAP Express Vector Digested With BamH I CIAP Treated	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
	pBub BamH I Test Insert	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
	R408 Interference-Resistant Helper Phage	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
	ExAssist Interference-Resistant Helper Phage	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
	XL1-Blue MRF' E. coli Strain	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
	XL0LR E. coli Strain	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids.

Section 4. First aid measures

Inhalation

:  Gigapack III packaging extract	Check for and remove any contact lenses. Get medical attention if irritation occurs.
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. Get medical attention if symptoms occur.
ZAP Express Vector Digested With BamH I CIAP Treated	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
pBub BamH I Test Insert	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
R408 Interference-Resistant Helper Phage	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
ExAssist Interference-Resistant Helper Phage	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
XL1-Blue MRF' E. coli Strain	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
XLOLR E. coli Strain	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.
ZAP Express Vector Digested With BamH I CIAP Treated	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
pBub BamH I Test Insert	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
R408 Interference-Resistant Helper Phage	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
ExAssist Interference-Resistant Helper Phage	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
XL1-Blue MRF' E. coli Strain	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
XLOLR E. coli Strain	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

Section 4. First aid measures

Ingestion	: Gigapack III packaging extract	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
	Wild-Type Lambda DNA c1857ind 1 Sam7	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
	VCS257 E. coli Strain	Wash out mouth with water. Remove 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.
	ZAP Express Vector Digested With BamH I CIAP Treated	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
	pBub BamH I Test Insert	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
	R408 Interference-Resistant Helper Phage	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
	ExAssist Interference-Resistant Helper Phage	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
	XL1-Blue MRF' E. coli Strain	Wash out mouth with water. Remove 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.
	XL0LR E. coli Strain	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.

Section 4. First aid measures

Most important symptoms/effects, acute and delayed

Potential acute health effects

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

Section 4. First aid measures

XLOLR E. coli Strain No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact

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

Inhalation

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

Skin contact

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

Ingestion

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

Section 4. First aid measures

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

Notes to physician	: Gigapack III packaging extract	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	Wild-Type Lambda DNA c1857ind 1 Sam7	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	VCS257 E. coli Strain	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	ZAP Express Vector Digested With BamH I CIAP Treated	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	pBub BamH I Test Insert	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	R408 Interference-Resistant Helper Phage	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	ExAssist Interference-Resistant Helper Phage	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	XL1-Blue MRF' E. coli Strain	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	XLOLR E. coli Strain	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	: Gigapack III packaging extract	No specific treatment.
	Wild-Type Lambda DNA c1857ind 1 Sam7	No specific treatment.
	VCS257 E. coli Strain	No specific treatment.
	ZAP Express Vector Digested With BamH I CIAP Treated	No specific treatment.
	pBub BamH I Test Insert	No specific treatment.
	R408 Interference-Resistant Helper Phage	No specific treatment.
	ExAssist Interference-Resistant Helper Phage	No specific treatment.
	XL1-Blue MRF' E. coli Strain	No specific treatment.
	XLOLR E. coli Strain	No specific treatment.
Protection of first-aiders	: Gigapack III packaging extract	No action shall be taken involving any personal risk or without suitable training.
	Wild-Type Lambda DNA c1857ind 1 Sam7	No action shall be taken involving any personal risk or without suitable training.
	VCS257 E. coli Strain	No action shall be taken involving any personal risk or without suitable training.
	ZAP Express Vector Digested With BamH I CIAP Treated	No action shall be taken involving any personal risk or without suitable training.
	pBub BamH I Test Insert	No action shall be taken involving any personal risk or without suitable training.
	R408 Interference-Resistant Helper Phage	No action shall be taken involving any personal risk or without suitable training.
	ExAssist Interference-Resistant Helper Phage	No action shall be taken involving any personal risk or without suitable training.
	XL1-Blue MRF' E. coli Strain	No action shall be taken involving any personal risk or without suitable training.
	XLOLR E. coli Strain	No action shall be taken involving any personal risk

Section 4. First aid measures

or without suitable training.

See toxicological information (Section 11)

Section 5. Firefighting measures

Extinguishing media

Suitable extinguishing media

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

Unsuitable extinguishing media


: Gigapack III packaging extract	None known.
Wild-Type Lambda DNA	None known.
c1857ind 1 Sam7	None known.
VCS257 E. coli Strain	None known.
ZAP Express Vector	None known.
Digested With BamH I CIAP Treated	None known.
pBub BamH I Test Insert	None known.
R408 Interference-Resistant Helper Phage	None known.
ExAssist Interference-Resistant Helper Phage	None known.
XL1-Blue MRF' E. coli Strain	None known.
XLOLR E. coli Strain	None known.

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	In a fire or if heated, a pressure increase will occur and the container may burst.
c1857ind 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.
Digested With BamH I CIAP Treated	In a fire or if heated, a pressure increase will occur and the container may burst.
pBub BamH I Test Insert	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.

Section 5. Firefighting measures

Hazardous thermal decomposition products


:  Gigapack III packaging extract	Decomposition products may include the following materials: carbon dioxide carbon monoxide No specific data.
Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain	Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds metal oxide/oxides No specific data.
ZAP Express Vector Digested With BamH I CIAP Treated	No specific data.
pBub BamH I Test Insert	No specific data.
R408 Interference-Resistant Helper Phage	No specific data.
ExAssist Interference- Resistant Helper Phage	No specific data.
XL1-Blue MRF' E. coli Strain	Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds metal oxide/oxides
XL0LR E. coli Strain	Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds metal oxide/oxides

Special protective actions for fire-fighters

:  Gigapack III packaging extract	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Wild-Type Lambda DNA c1857ind 1 Sam7	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
VCS257 E. coli Strain	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
ZAP Express Vector Digested With BamH I CIAP Treated	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
pBub BamH I Test Insert	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
R408 Interference-Resistant Helper Phage	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
ExAssist Interference- Resistant Helper Phage	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
XL1-Blue MRF' E. coli Strain	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No

Section 5. Firefighting measures


Special protective equipment for fire-fighters

<p>XLOLR E. coli Strain</p>	<p>action shall be taken involving any personal risk or without suitable training.</p>
<p>:  Gigapack III packaging extract</p>	<p>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.</p>
<p>Wild-Type Lambda DNA c1857ind 1 Sam7</p>	<p>Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.</p>
<p>VCS257 E. coli Strain</p>	<p>Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.</p>
<p>ZAP Express Vector Digested With BamH I CIAP Treated</p>	<p>Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.</p>
<p>pBub BamH I Test Insert</p>	<p>Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.</p>
<p>R408 Interference-Resistant Helper Phage</p>	<p>Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.</p>
<p>ExAssist Interference-Resistant Helper Phage</p>	<p>Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.</p>
<p>XL1-Blue MRF' E. coli Strain</p>	<p>Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.</p>
<p>XLOLR E. coli Strain</p>	<p>Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.</p>

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

<p>:  Gigapack III packaging extract</p>	<p>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 spilt material. Put on appropriate personal protective equipment.</p>
<p>Wild-Type Lambda DNA c1857ind 1 Sam7</p>	<p>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 spilt material. Put on appropriate personal protective equipment.</p>
<p>VCS257 E. coli Strain</p>	<p>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 spilt material. Put on appropriate personal</p>

Section 6. Accidental release measures

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

Section 6. Accidental release measures

		suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	XL1-Blue MRF' E. coli Strain	If specialised 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".
	XLOLR E. coli Strain	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
Environmental precautions	:  Gigapack III packaging extract	Avoid dispersal of spilt 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 spilt 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 spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	ZAP Express Vector Digested With BamH I CIAP Treated	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	pBub BamH I Test Insert	Avoid dispersal of spilt 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 spilt 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 spilt 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 spilt 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).
	XLOLR E. coli Strain	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and material for containment and cleaning up

Section 6. Accidental release measures

Methods for cleaning up	: Gigapack III packaging extract	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
	Wild-Type Lambda DNA c1857ind 1 Sam7	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
	VCS257 E. coli Strain	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
	ZAP Express Vector Digested With BamH I CIAP Treated	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
	pBub BamH I Test Insert	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
	R408 Interference-Resistant Helper Phage	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
	ExAssist Interference-Resistant Helper Phage	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
	XL1-Blue MRF' E. coli Strain	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
	XL0LR E. coli Strain	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Section 7. Handling and storage

Precautions for safe handling

Protective measures

<ul style="list-style-type: none"> ☒ Gigapack III packaging extract Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain ZAP Express Vector Digested With BamH I CIAP Treated pBub BamH I Test Insert R408 Interference-Resistant Helper Phage ExAssist Interference-Resistant Helper Phage XL1-Blue MRF' E. coli Strain XL0LR E. coli Strain 	<ul style="list-style-type: none"> Put on appropriate personal protective equipment (see Section 8). Put on appropriate personal protective equipment (see Section 8). Put on appropriate personal protective equipment (see Section 8). Put on appropriate personal protective equipment (see Section 8). Put on appropriate personal protective equipment (see Section 8). Put on appropriate personal protective equipment (see Section 8). Put on appropriate personal protective equipment (see Section 8). Put on appropriate personal protective equipment (see Section 8). Put on appropriate personal protective equipment (see Section 8).
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Advice on general occupational hygiene

<ul style="list-style-type: none"> ☒ Gigapack III packaging extract Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain ZAP Express Vector Digested With BamH I CIAP Treated pBub BamH I Test Insert R408 Interference-Resistant Helper Phage 	<ul style="list-style-type: none"> 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. 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. 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. 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. 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. 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.
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Section 7. Handling and storage

ExAssist Interference-Resistant Helper Phage

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

XL1-Blue MRF' E. coli Strain

Potentially biohazardous material. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

XL0LR E. coli Strain

Potentially biohazardous material. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

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

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

Wild-Type Lambda DNA c1857ind 1 Sam7

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

VCS257 E. coli Strain

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

ZAP Express Vector Digested With BamH I CIAP Treated

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

Section 7. Handling and storage

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

Section 8. Exposure controls and personal protection

[Control parameters](#)

[Occupational exposure limits](#)

Section 8. Exposure controls and personal protection

Ingredient name	Exposure limits
Gigapack III packaging extract Sucrose	Safe Work Australia (Australia, 1/2014). TWA: 10 mg/m ³ 8 hours.
VCS257 E. coli Strain Glycerol	Safe Work Australia (Australia, 1/2014). TWA: 10 mg/m ³ 8 hours.
XL1-Blue MRF' E. coli Strain Glycerol	Safe Work Australia (Australia, 1/2014). TWA: 10 mg/m ³ 8 hours.
XLOLR E. coli Strain Glycerol	Safe Work Australia (Australia, 1/2014). TWA: 10 mg/m ³ 8 hours.

- 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: safety glasses with side-shields.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance

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

Section 9. Physical and chemical properties

		Gigapack III packaging extract	8
		Wild-Type Lambda DNA c1857ind 1 Sam7	7
		VCS257 E. coli Strain	7
		ZAP Express Vector	7.5
		Digested With BamH I CIAP Treated	
		pBub BamH I Test Insert	7.5
		R408 Interference-Resistant Helper Phage	7.5
		ExAssist Interference-Resistant Helper Phage	7.5
		XL1-Blue MRF' E. coli Strain	7
		XLOLR E. coli Strain	7
Melting point	:	Gigapack III packaging extract	Not available.
		Wild-Type Lambda DNA c1857ind 1 Sam7	0°C (32°F)
		VCS257 E. coli Strain	Not available.
		ZAP Express Vector	0°C (32°F)
		Digested With BamH I CIAP Treated	
		pBub BamH I Test Insert	0°C (32°F)
		R408 Interference-Resistant Helper Phage	0°C (32°F)
		ExAssist Interference-Resistant Helper Phage	0°C (32°F)
		XL1-Blue MRF' E. coli Strain	Not available.
		XLOLR E. coli Strain	Not available.
Boiling point	:	Gigapack III packaging extract	Not available.
		Wild-Type Lambda DNA c1857ind 1 Sam7	100°C (212°F)
		VCS257 E. coli Strain	Not available.
		ZAP Express Vector	100°C (212°F)
		Digested With BamH I CIAP Treated	
		pBub BamH I Test Insert	100°C (212°F)
		R408 Interference-Resistant Helper Phage	100°C (212°F)
		ExAssist Interference-Resistant Helper Phage	100°C (212°F)
		XL1-Blue MRF' E. coli Strain	Not available.
		XLOLR E. coli Strain	Not available.
Flash point	:	Gigapack III packaging extract	Not available.
		Wild-Type Lambda DNA c1857ind 1 Sam7	Not available.
		VCS257 E. coli Strain	Not available.
		ZAP Express Vector	Not available.
		Digested With BamH I CIAP Treated	
		pBub BamH I Test Insert	Not available.
		R408 Interference-Resistant Helper Phage	Not available.
		ExAssist Interference-Resistant Helper Phage	Not available.
		XL1-Blue MRF' E. coli Strain	Not available.
		XLOLR E. coli Strain	Not available.

Section 9. Physical and chemical properties

Evaporation rate	:	<input checked="" type="checkbox"/> Gigapack III packaging extract Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain ZAP Express Vector Digested With BamH I CIAP Treated pBub BamH I Test Insert R408 Interference-Resistant Helper Phage ExAssist Interference- Resistant Helper Phage XL1-Blue MRF' E. coli Strain XLOLR E. coli Strain	Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available.
Flammability (solid, gas)	:	<input checked="" type="checkbox"/> Gigapack III packaging extract Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain ZAP Express Vector Digested With BamH I CIAP Treated pBub BamH I Test Insert R408 Interference-Resistant Helper Phage ExAssist Interference- Resistant Helper Phage XL1-Blue MRF' E. coli Strain XLOLR E. coli Strain	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.
Lower and upper explosive (flammable) limits	:	<input checked="" type="checkbox"/> Gigapack III packaging extract Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain ZAP Express Vector Digested With BamH I CIAP Treated pBub BamH I Test Insert R408 Interference-Resistant Helper Phage ExAssist Interference- Resistant Helper Phage XL1-Blue MRF' E. coli Strain XLOLR E. coli Strain	Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available.
Vapour pressure	:	<input checked="" type="checkbox"/> Gigapack III packaging extract Wild-Type Lambda DNA c1857ind 1 Sam7 VCS257 E. coli Strain ZAP Express Vector Digested With BamH I CIAP Treated pBub BamH I Test Insert R408 Interference-Resistant Helper Phage ExAssist Interference- Resistant Helper Phage XL1-Blue MRF' E. coli Strain XLOLR E. coli Strain	Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available.

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

Section 9. Physical and chemical properties

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


Section 10. Stability and reactivity

Reactivity	: Gigapack III packaging extract	No specific test data related to reactivity available for this product or its ingredients.
	Wild-Type Lambda DNA c1857ind 1 Sam7	No specific test data related to reactivity available for this product or its ingredients.
	VCS257 E. coli Strain	No specific test data related to reactivity available for this product or its ingredients.
	ZAP Express Vector Digested With BamH I CIAP Treated	No specific test data related to reactivity available for this product or its ingredients.
	pBub BamH I Test Insert	No specific test data related to reactivity available for this product or its ingredients.
	R408 Interference-Resistant Helper Phage	No specific test data related to reactivity available for this product or its ingredients.
	ExAssist Interference-	No specific test data related to reactivity available for


Section 10. Stability and reactivity

Resistant Helper Phage	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.
XLOLR E. coli Strain	No specific test data related to reactivity available for this product or its ingredients.


Chemical stability

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

Possibility of hazardous reactions

:  Gigapack III packaging extract	Under normal conditions of storage and use, hazardous reactions will not occur.
Wild-Type Lambda DNA	Under normal conditions of storage and use, hazardous reactions will not occur.
c1857ind 1 Sam7	
VCS257 E. coli Strain	Under normal conditions of storage and use, hazardous reactions will not occur.
ZAP Express Vector	Under normal conditions of storage and use, hazardous reactions will not occur.
Digested With BamH I CIAP Treated	
pBub BamH I Test Insert	Under normal conditions of storage and use, hazardous reactions will not occur.
R408 Interference-Resistant Helper Phage	Under normal conditions of storage and use, hazardous reactions will not occur.
ExAssist Interference-Resistant Helper Phage	Under normal conditions of storage and use, hazardous reactions will not occur.
XL1-Blue MRF' E. coli Strain	Under normal conditions of storage and use, hazardous reactions will not occur.
XLOLR E. coli Strain	Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid

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

Section 10. Stability and reactivity

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

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Gigapack III packaging extract Sucrose	LD50 Oral	Rat	29700 mg/kg	-
VCS257 E. coli Strain Glycerol	LD50 Oral	Rat	12600 mg/kg	-
XL1-Blue MRF' E. coli Strain Glycerol	LD50 Oral	Rat	12600 mg/kg	-
XL0LR E. coli Strain Glycerol	LD50 Oral	Rat	12600 mg/kg	-

Section 11. Toxicological information

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
VCS257 E. coli Strain Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	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	-
XL0LR E. coli Strain Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-

Sensitisation

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.

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

Potential acute health effects

Section 11. Toxicological information

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

Symptoms related to the physical, chemical and toxicological characteristics

Section 11. Toxicological information

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

[Delayed and immediate effects as well as chronic effects from short and long-term exposure](#)

Section 11. Toxicological information

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

Not available.

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

Section 11. Toxicological information

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

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Section 12. Ecological information

Product/ingredient name	Result	Species	Exposure
VCS257 E. coli Strain Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
XL1-Blue MRF' E. coli Strain Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
XLOLR E. coli Strain Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Gigapack III packaging extract Sucrose	-3.7	-	low
VCS257 E. coli Strain Glycerol	-1.76	-	low
XL1-Blue MRF' E. coli Strain Glycerol	-1.76	-	low
XLOLR E. coli Strain Glycerol	-1.76	-	low

Mobility in soil

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

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

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimised 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. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

Regulatory information

ADG / IMDG / IATA : Not regulated as Dangerous Goods according to the ADG Code .

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

Transport in bulk according to Annex II of Marpol and the IBC Code : Not available.

Section 15. Regulatory information

Standard Uniform Schedule of Medicine and Poisons

5, 5

Model Work Health and Safety Regulations - Scheduled Substances

No listed substance

Australia inventory (AICS) : Not determined.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Inform Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

International lists

National inventory

- Canada** : Not determined.
China : Not determined.
Europe : All components are listed or exempted.
Japan : **Japan inventory (ENCS):** Not determined.
Japan inventory (ISHL): Not determined.
Malaysia : Not determined.
New Zealand : All components are listed or exempted.
Philippines : Not determined.
Republic of Korea : Not determined.
Taiwan : All components are listed or exempted.
Turkey : Not determined.
United States : All components are listed or exempted.

Section 16. Any other relevant information

History

Date of issue/Date of revision : 27/04/2016

Date of previous issue : 24/04/2014.

Version : 4

Key to abbreviations

: ADG = Australian Dangerous Goods
 ATE = Acute Toxicity Estimate
 BCF = Bioconcentration Factor
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals
 IATA = International Air Transport Association
 IBC = Intermediate Bulk Container
 IMDG = International Maritime Dangerous Goods
 LogPow = logarithm of the octanol/water partition coefficient
 MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
 NOHSC = National Occupational Health and Safety Commission
 SUSMP = Standard Uniform Schedule of Medicine and Poisons
 UN = United Nations

Procedure used to derive the classification

Classification	Justification
Not classified.	

References : Not available.

Indicates information that has changed from previously issued version.

Notice to reader

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