

SAFETY DATA SHEET

pBK-CMV Phagemid Vector, Part Number 212209

Section 1. Identification

Product identifier	: pBK-CMV Phagemid Vector, Part Number 212209
Part no. (chemical kit)	: 212209
Part no.	: pBK-CMV Phagemid Vector 212209-51 XL1-Blue MRF' E.coli Strain 200301-81 R408 Interference-Resistant Helper Phage 200252-81
Material uses	: Analytical reagent. pBK-CMV Phagemid Vector 20 µl (20 µg 1 µg/µl) XL1-Blue MRF' E.coli Strain 500 µl R408 Interference-Resistant Helper Phage 1000 µl
Supplier/Manufacturer	: Agilent Technologies, Inc. 5301 Stevens Creek Blvd Santa Clara, CA 95051, USA 800-227-9770
Emergency telephone number (with hours of operation)	: CHEMTREC®: 1-800-424-9300

Section 2. Hazard identification

Classification of the substance or mixture

XL1-Blue MRF' E.coli Strain
H319 EYE IRRITATION - Category 2A

GHS label elements

Hazard pictograms : XL1-Blue MRF' E.coli Strain



Signal word : pBK-CMV Phagemid Vector No signal word.
XL1-Blue MRF' E.coli Strain Warning
R408 Interference-Resistant Helper Phage No signal word.

Hazard statements : pBK-CMV Phagemid Vector No known significant effects or critical hazards.
XL1-Blue MRF' E.coli Strain H319 - Causes serious eye irritation.
R408 Interference-Resistant Helper Phage No known significant effects or critical hazards.

Precautionary statements

Prevention : pBK-CMV Phagemid Vector Not applicable.
XL1-Blue MRF' E.coli Strain P280 - Wear eye or face protection.
R408 Interference-Resistant Helper Phage Not applicable.

Response : pBK-CMV Phagemid Vector Not applicable.
XL1-Blue MRF' E.coli Strain P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313 - If eye irritation persists: Get medical advice or attention.

R408 Interference-Resistant Helper Phage Not applicable.

Storage : pBK-CMV Phagemid Vector Not applicable.
XL1-Blue MRF' E.coli Strain Not applicable.
R408 Interference-Resistant Helper Phage Not applicable.

Section 2. Hazard identification

Disposal	: pBK-CMV Phagemid Vector	Not applicable.
	XL1-Blue MRF' E.coli Strain	Not applicable.
	R408 Interference-Resistant	Not applicable.
	Helper Phage	
Supplemental label elements	: pBK-CMV Phagemid Vector	None known.
	XL1-Blue MRF' E.coli Strain	None known.
	R408 Interference-Resistant	None known.
	Helper Phage	
Other hazards which do not result in classification	: pBK-CMV Phagemid Vector	None known.
	XL1-Blue MRF' E.coli Strain	None known.
	R408 Interference-Resistant	None known.
	Helper Phage	

Section 3. Composition/information on ingredients

Substance/mixture	: pBK-CMV Phagemid Vector	Mixture
	XL1-Blue MRF' E.coli Strain	Mixture
	R408 Interference-Resistant	Mixture
	Helper Phage	

Ingredient name	% (w/w)	CAS number
<input checked="" type="checkbox"/> XL1-Blue MRF' E.coli Strain		
Glycerol	10 - 30	56-81-5
Sodium chloride	0.1 - 1	7647-14-5

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

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

Section 4. First-aid measures

Description of necessary first aid measures

Eye contact	: pBK-CMV Phagemid 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.
	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.
	R408 Interference-Resistant	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.
	Helper Phage	
Inhalation	: pBK-CMV Phagemid Vector	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	XL1-Blue MRF' E.coli Strain	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
	R408 Interference-Resistant	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	Helper Phage	

Section 4. First-aid measures

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

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact	: pBK-CMV Phagemid Vector	No known significant effects or critical hazards.
	XL1-Blue MRF' E.coli Strain	Causes serious eye irritation.
	R408 Interference-Resistant Helper Phage	No known significant effects or critical hazards.
Inhalation	: pBK-CMV Phagemid Vector	No known significant effects or critical hazards.
	XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
	R408 Interference-Resistant Helper Phage	No known significant effects or critical hazards.
Skin contact	: pBK-CMV Phagemid Vector	No known significant effects or critical hazards.
	XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
	R408 Interference-Resistant Helper Phage	No known significant effects or critical hazards.
Ingestion	: pBK-CMV Phagemid Vector	No known significant effects or critical hazards.
	XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
	R408 Interference-Resistant Helper Phage	No known significant effects or critical hazards.

Over-exposure signs/symptoms

Section 4. First-aid measures

Eye contact	: pBK-CMV Phagemid Vector	No specific data.
	XL1-Blue MRF' E.coli Strain	Adverse symptoms may include the following: pain or irritation watering redness
	R408 Interference-Resistant Helper Phage	No specific data.
Inhalation	: pBK-CMV Phagemid Vector	No specific data.
	XL1-Blue MRF' E.coli Strain	No specific data.
	R408 Interference-Resistant Helper Phage	No specific data.
Skin contact	: pBK-CMV Phagemid Vector	No specific data.
	XL1-Blue MRF' E.coli Strain	No specific data.
	R408 Interference-Resistant Helper Phage	No specific data.
Ingestion	: pBK-CMV Phagemid Vector	No specific data.
	XL1-Blue MRF' E.coli Strain	No specific data.
	R408 Interference-Resistant Helper Phage	No specific data.

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

Notes to physician	: pBK-CMV Phagemid Vector	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.
	R408 Interference-Resistant Helper Phage	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	: pBK-CMV Phagemid Vector	No specific treatment.
	XL1-Blue MRF' E.coli Strain	No specific treatment.
	R408 Interference-Resistant Helper Phage	No specific treatment.
Protection of first-aiders	: pBK-CMV Phagemid Vector	No action shall be taken involving any personal risk or without suitable training.
	XL1-Blue MRF' E.coli Strain	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
	R408 Interference-Resistant Helper Phage	No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media	: pBK-CMV Phagemid Vector	Use an extinguishing agent suitable for the surrounding fire.
	XL1-Blue MRF' E.coli Strain	Use an extinguishing agent suitable for the surrounding fire.
	R408 Interference-Resistant Helper Phage	Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	: pBK-CMV Phagemid Vector	None known.
	XL1-Blue MRF' E.coli Strain	None known.
	R408 Interference-Resistant Helper Phage	None known.

Section 5. Fire-fighting measures

Specific hazards arising from the chemical	: pBK-CMV Phagemid Vector	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.
	R408 Interference-Resistant Helper Phage	In a fire or if heated, a pressure increase will occur and the container may burst.
Hazardous thermal decomposition products	: pBK-CMV Phagemid Vector	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
	R408 Interference-Resistant Helper Phage	No specific data.
Special protective actions for fire-fighters	: pBK-CMV Phagemid 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.
	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.
	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.
Special protective equipment for fire-fighters	: pBK-CMV Phagemid Vector	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.
	R408 Interference-Resistant Helper Phage	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	: pBK-CMV Phagemid 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.
	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.
	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

For emergency responders	: pBK-CMV Phagemid 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".
	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".
	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".

Environmental precautions	: pBK-CMV Phagemid 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).
	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).
	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).

Methods and materials for containment and cleaning up

Methods for cleaning up	: pBK-CMV Phagemid 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.
	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.
	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.

Section 7. Handling and storage

Precautions for safe handling

Protective measures	: pBK-CMV Phagemid Vector	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.
	R408 Interference-Resistant Helper Phage	Put on appropriate personal protective equipment (see Section 8).

Section 7. Handling and storage

Advice on general occupational hygiene

: pBK-CMV Phagemid Vector	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.
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.

Conditions for safe storage, including any incompatibilities

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

Section 8. Exposure controls/personal protection

[Control parameters](#)

[Occupational exposure limits](#)

Ingredient name	Exposure limits
<input checked="" type="checkbox"/> L1-Blue MRF' E.coli Strain Glycerol	<p>CA Alberta Provincial (Canada, 6/2018). 8 hrs OEL: 10 mg/m³ 8 hours. Form: Mist</p> <p>CA Quebec Provincial (Canada, 7/2019). TWAEV: 10 mg/m³ 8 hours. Form: mist</p> <p>CA Saskatchewan Provincial (Canada, 7/2013). STEL: 20 mg/m³ 15 minutes. Form: mist TWA: 10 mg/m³ 8 hours. Form: mist</p> <p>CA British Columbia Provincial (Canada, 1/2020). TWA: 3 mg/m³ 8 hours. Form: respirable mist TWA: 10 mg/m³ 8 hours. Form: total mist</p>

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](#)

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

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

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance

Physical state	:	pBK-CMV Phagemid Vector	Liquid.
		XL1-Blue MRF' E.coli Strain	Liquid.
		R408 Interference-Resistant	Liquid.
		Helper Phage	
Color	:	pBK-CMV Phagemid Vector	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
		R408 Interference-Resistant	Not available.
		Helper Phage	
Odor	:	pBK-CMV Phagemid Vector	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
		R408 Interference-Resistant	Not available.
		Helper Phage	
Odor threshold	:	pBK-CMV Phagemid Vector	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
		R408 Interference-Resistant	Not available.
		Helper Phage	
pH	:	pBK-CMV Phagemid Vector	7.5
		XL1-Blue MRF' E.coli Strain	7
		R408 Interference-Resistant	7.5
		Helper Phage	
Melting point	:	pBK-CMV Phagemid Vector	0°C (32°F)
		XL1-Blue MRF' E.coli Strain	Not available.
		R408 Interference-Resistant	0°C (32°F)
		Helper Phage	
Boiling point	:	pBK-CMV Phagemid Vector	100°C (212°F)
		XL1-Blue MRF' E.coli Strain	Not available.
		R408 Interference-Resistant	100°C (212°F)
		Helper Phage	
Flash point	:	pBK-CMV Phagemid Vector	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
		R408 Interference-Resistant	Not available.
		Helper Phage	
Evaporation rate	:	pBK-CMV Phagemid Vector	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
		R408 Interference-Resistant	Not available.
		Helper Phage	
Flammability (solid, gas)	:	pBK-CMV Phagemid Vector	Not applicable.
		XL1-Blue MRF' E.coli Strain	Not applicable.
		R408 Interference-Resistant	Not applicable.
		Helper Phage	
Lower and upper explosive (flammable) limits	:	pBK-CMV Phagemid Vector	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
		R408 Interference-Resistant	Not available.
		Helper Phage	
Vapor pressure	:	pBK-CMV Phagemid Vector	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
		R408 Interference-Resistant	Not available.
		Helper Phage	
Vapor density	:	pBK-CMV Phagemid Vector	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
		R408 Interference-Resistant	Not available.
		Helper Phage	
Relative density	:	pBK-CMV Phagemid Vector	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
		R408 Interference-Resistant	Not available.
		Helper Phage	

Section 9. Physical and chemical properties

Solubility	: pBK-CMV Phagemid Vector	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.
	R408 Interference-Resistant Helper Phage	Easily soluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water	: pBK-CMV Phagemid Vector	Not available.
	XL1-Blue MRF' E.coli Strain	Not available.
	R408 Interference-Resistant Helper Phage	Not available.
Auto-ignition temperature	: pBK-CMV Phagemid Vector	Not available.
	XL1-Blue MRF' E.coli Strain	Not available.
	R408 Interference-Resistant Helper Phage	Not available.
Decomposition temperature	: pBK-CMV Phagemid Vector	Not available.
	XL1-Blue MRF' E.coli Strain	Not available.
	R408 Interference-Resistant Helper Phage	Not available.
Viscosity	: pBK-CMV Phagemid Vector	Not available.
	XL1-Blue MRF' E.coli Strain	Not available.
	R408 Interference-Resistant Helper Phage	Not available.

Section 10. Stability and reactivity

Reactivity	: pBK-CMV Phagemid Vector	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.
	R408 Interference-Resistant Helper Phage	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: pBK-CMV Phagemid Vector	The product is stable.
	XL1-Blue MRF' E.coli Strain	The product is stable.
	R408 Interference-Resistant Helper Phage	The product is stable.
Possibility of hazardous reactions	: pBK-CMV Phagemid Vector	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.
	R408 Interference-Resistant Helper Phage	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: pBK-CMV Phagemid Vector	No specific data.
	XL1-Blue MRF' E.coli Strain	No specific data.
	R408 Interference-Resistant Helper Phage	No specific data.
Incompatible materials	: pBK-CMV Phagemid Vector	May react or be incompatible with oxidizing materials.
	XL1-Blue MRF' E.coli Strain	May react or be incompatible with oxidizing materials.
	R408 Interference-Resistant Helper Phage	May react or be incompatible with oxidizing materials.
Hazardous decomposition products	: pBK-CMV Phagemid Vector	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.
	R408 Interference-Resistant Helper Phage	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 10. Stability and reactivity

produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

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

Irritation/Corrosion

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

Sensitization

Not available.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : pBK-CMV Phagemid Vector Not available.
 XL1-Blue MRF' E.coli Strain Routes of entry anticipated: Oral, Dermal, Inhalation.
 R408 Interference-Resistant Helper Phage Not available.

Potential acute health effects

Eye contact : pBK-CMV Phagemid Vector No known significant effects or critical hazards.
 XL1-Blue MRF' E.coli Strain Causes serious eye irritation.
 R408 Interference-Resistant No known significant effects or critical hazards.
 Helper Phage

Inhalation : pBK-CMV Phagemid Vector No known significant effects or critical hazards.
 XL1-Blue MRF' E.coli Strain No known significant effects or critical hazards.
 R408 Interference-Resistant No known significant effects or critical hazards.
 Helper Phage

Section 11. Toxicological information

Skin contact	: pBK-CMV Phagemid Vector XL1-Blue MRF' E.coli Strain R408 Interference-Resistant Helper Phage	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Ingestion	: pBK-CMV Phagemid Vector XL1-Blue MRF' E.coli Strain R408 Interference-Resistant Helper Phage	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	: pBK-CMV Phagemid Vector XL1-Blue MRF' E.coli Strain R408 Interference-Resistant Helper Phage	No specific data. Adverse symptoms may include the following: pain or irritation watering redness No specific data.
Inhalation	: pBK-CMV Phagemid Vector XL1-Blue MRF' E.coli Strain R408 Interference-Resistant Helper Phage	No specific data. No specific data. No specific data.
Skin contact	: pBK-CMV Phagemid Vector XL1-Blue MRF' E.coli Strain R408 Interference-Resistant Helper Phage	No specific data. No specific data. No specific data.
Ingestion	: pBK-CMV Phagemid Vector XL1-Blue MRF' E.coli Strain R408 Interference-Resistant Helper Phage	No specific data. No specific data. No specific data.

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

Short term exposure

Potential immediate effects	: Not available.
Potential delayed effects	: Not available.

Long term exposure

Potential immediate effects	: Not available.
Potential delayed effects	: Not available.

Potential chronic health effects

General	: pBK-CMV Phagemid Vector XL1-Blue MRF' E.coli Strain R408 Interference-Resistant Helper Phage	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Carcinogenicity	: pBK-CMV Phagemid Vector XL1-Blue MRF' E.coli Strain R408 Interference-Resistant Helper Phage	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Mutagenicity	: pBK-CMV Phagemid Vector XL1-Blue MRF' E.coli Strain R408 Interference-Resistant Helper Phage	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Reproductive toxicity	: pBK-CMV Phagemid Vector XL1-Blue MRF' E.coli Strain R408 Interference-Resistant Helper Phage	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

Section 11. Toxicological information

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

Section 12. Ecological information

Toxicity

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

Persistence and degradability

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

Bioaccumulative potential

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

Mobility in soil

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

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

Section 13. Disposal considerations

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

Section 14. Transport information

TDG / IMDG / IATA : Not regulated.

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

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

Canadian lists

Canadian NPRI : None of the components are listed.

CEPA Toxic substances : None of the components are listed.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

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

Section 15. Regulatory information

Viet Nam : All components are listed or exempted.

Section 16. Other information

History

Date of issue/Date of revision : 03/19/2021

Date of previous issue : 09/24/2018

Version : 6

Key to abbreviations

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

Procedure used to derive the classification

Classification	Justification
<input checked="" type="checkbox"/> L1-Blue MRF' E.coli Strain EYE IRRITATION - Category 2A	Calculation method

References : Not available.

Indicates information that has changed from previously issued version.

Notice to reader

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