Conforms to US OSHA Hazard Communication 29CFR1910.1200

SAFETY DATA SHEET

Agilent Technologies

pBC KS (-) Phagemid, Part Number 212218

Section 1. Identification

1.1 Product identifier

Product name : pBC KS (-) Phagemid, Part Number 212218

Part No. (Chemical Kit) : 212218

Part No. : pBC KS (-) Phagemid 212218-51
XL1-Blue MRF' E.coli Strain 200301-81

Validation date : 6/23/2017

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

Material uses : Analytical reagent.

pBC KS (-) Phagemid 0.02 ml
XL1-Blue MRF' E.coli Strain 0.5 ml

1.3 Details of the supplier of the safety data sheet

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

1.4 Emergency telephone number

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

Section 2. Hazards identification

2.1 Classification of the substance or mixture

OSHA/HCS status : pBC KS (-) Phagemid — While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

XL1-Blue MRF' E.coli Strain — This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture

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

Ingredients of unknown toxicity : XL1-Blue MRF' E.coli Strain — Percentage of the mixture consisting of ingredient (s) of unknown inhalation toxicity: 10 - 30%

2.2 GHS label elements

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

Signal word : pBC KS (-) Phagemid — No signal word.
XL1-Blue MRF' E.coli Strain — Warning

Hazard statements : pBC KS (-) Phagemid — No known significant effects or critical hazards.
XL1-Blue MRF' E.coli Strain — H319 - Causes serious eye irritation.

Section 2. Hazards identification

Precautionary statements

Prevention	:	pBC KS (-) Phagemid	Not applicable.
		XL1-Blue MRF' E.coli Strain	P280 - Wear eye or face protection. P264 - Wash hands thoroughly after handling.
Response	:	pBC KS (-) Phagemid	Not applicable.
		XL1-Blue MRF' E.coli Strain	P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical attention.
Storage	:	pBC KS (-) Phagemid	Not applicable.
		XL1-Blue MRF' E.coli Strain	Not applicable.
Disposal	:	pBC KS (-) Phagemid	Not applicable.
		XL1-Blue MRF' E.coli Strain	Not applicable.
Supplemental label elements	:	pBC KS (-) Phagemid	None known.
		XL1-Blue MRF' E.coli Strain	None known.

2.3 Other hazards

Hazards not otherwise classified	:	pBC KS (-) Phagemid	None known.
		XL1-Blue MRF' E.coli Strain	None known.

Section 3. Composition/information on ingredients

Substance/mixture	:	pBC KS (-) Phagemid	Mixture
		XL1-Blue MRF' E.coli Strain	Mixture

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

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

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

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

Section 4. First aid measures

4.1 Description of necessary first aid measures

Eye contact	:	pBC KS (-) Phagemid	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.

Section 4. First aid measures

Inhalation	:	pBC KS (-) Phagemid	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.
Skin contact	:	pBC KS (-) Phagemid	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.
Ingestion	:	pBC KS (-) Phagemid	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.

4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact	:	pBC KS (-) Phagemid	No known significant effects or critical hazards.
		XL1-Blue MRF' E.coli Strain	Causes serious eye irritation.
Inhalation	:	pBC KS (-) Phagemid	No known significant effects or critical hazards.
		XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
Skin contact	:	pBC KS (-) Phagemid	No known significant effects or critical hazards.
		XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
Ingestion	:	pBC KS (-) Phagemid	No known significant effects or critical hazards.
		XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.

Section 4. First aid measures

Over-exposure signs/symptoms

Eye contact	:	pBC KS (-) Phagemid	No specific data.
		XL1-Blue MRF' E.coli Strain	Adverse symptoms may include the following: pain or irritation watering redness
Inhalation	:	pBC KS (-) Phagemid	No specific data.
		XL1-Blue MRF' E.coli Strain	No specific data.
Skin contact	:	pBC KS (-) Phagemid	No specific data.
		XL1-Blue MRF' E.coli Strain	No specific data.
Ingestion	:	pBC KS (-) Phagemid	No specific data.
		XL1-Blue MRF' E.coli Strain	No specific data.

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

Notes to physician	:	pBC KS (-) Phagemid	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.
Specific treatments	:	pBC KS (-) Phagemid	No specific treatment.
		XL1-Blue MRF' E.coli Strain	No specific treatment.
Protection of first-aiders	:	pBC KS (-) Phagemid	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.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media	:	pBC KS (-) Phagemid	Use an extinguishing agent suitable for the surrounding fire.
		XL1-Blue MRF' E.coli Strain	Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	:	pBC KS (-) Phagemid	None known.
		XL1-Blue MRF' E.coli Strain	None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards arising from the chemical	:	pBC KS (-) Phagemid	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.
Hazardous thermal decomposition products	:	pBC KS (-) Phagemid	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

Section 5. Fire-fighting measures

5.3 Advice for firefighters

Special protective actions for fire-fighters	: pBC KS (-) Phagemid	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.
Special protective equipment for fire-fighters	: pBC KS (-) Phagemid	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.

Section 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	: pBC KS (-) Phagemid	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.
For emergency responders	: pBC KS (-) Phagemid	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".
6.2 Environmental precautions	: pBC KS (-) Phagemid	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).

6.3 Methods and materials for containment and cleaning up

Section 6. Accidental release measures

Methods for cleaning up	:	pBC KS (-) Phagemid	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.

Section 7. Handling and storage

7.1 Precautions for safe handling

Protective measures	:	pBC KS (-) Phagemid	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.
Advice on general occupational hygiene	:	pBC KS (-) Phagemid	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.

7.2 Conditions for safe storage, including any incompatibilities	:	pBC KS (-) Phagemid	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

Section 7. Handling and storage

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.

7.3 Specific end use(s)

Recommendations	:	pBC KS (-) Phagemid	Industrial applications, Professional applications.
		XL1-Blue MRF' E.coli Strain	Industrial applications, Professional applications.
Industrial sector specific solutions	:	pBC KS (-) Phagemid	Not applicable.
		XL1-Blue MRF' E.coli Strain	Not applicable.

Section 8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
XL1-Blue MRF' E.coli Strain	
Glycerol	**OSHA PEL 1989 (United States, 3/1989).** TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 10 mg/m³ 8 hours. Form: Total dust **OSHA PEL (United States, 6/2016).** TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 15 mg/m³ 8 hours. Form: Total dust
Sodium chloride	None.

8.2 Exposure controls

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

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

Individual protection measures

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

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

Section 8. Exposure controls/personal protection

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

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

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

Section 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	:	pBC KS (-) Phagemid	Liquid.
		XL1-Blue MRF' E.coli Strain	Liquid.
Color	:	pBC KS (-) Phagemid	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
Odor	:	pBC KS (-) Phagemid	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
Odor threshold	:	pBC KS (-) Phagemid	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
pH	:	pBC KS (-) Phagemid	7.5
		XL1-Blue MRF' E.coli Strain	7
Melting point	:	pBC KS (-) Phagemid	0°C (32°F)
		XL1-Blue MRF' E.coli Strain	Not available.
Boiling point	:	pBC KS (-) Phagemid	100°C (212°F)
		XL1-Blue MRF' E.coli Strain	Not available.
Flash point	:	pBC KS (-) Phagemid	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
Evaporation rate	:	pBC KS (-) Phagemid	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
Flammability (solid, gas)	:	pBC KS (-) Phagemid	Not applicable.
		XL1-Blue MRF' E.coli Strain	Not applicable.
Lower and upper explosive (flammable) limits	:	pBC KS (-) Phagemid	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
Vapor pressure	:	pBC KS (-) Phagemid	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
Vapor density	:	pBC KS (-) Phagemid	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
Relative density	:	pBC KS (-) Phagemid	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
Solubility	:	pBC KS (-) Phagemid	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.
Partition coefficient: n-octanol/water	:	pBC KS (-) Phagemid	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
Auto-ignition temperature	:	pBC KS (-) Phagemid	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.
Decomposition temperature	:	pBC KS (-) Phagemid	Not available.
		XL1-Blue MRF' E.coli Strain	Not available.

Section 9. Physical and chemical properties

Viscosity : pBC KS (-) Phagemid — Not available.
XL1-Blue MRF' E.coli Strain — Not available.

Section 10. Stability and reactivity

10.1 Reactivity : pBC KS (-) Phagemid — 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.

10.2 Chemical stability : pBC KS (-) Phagemid — The product is stable.
XL1-Blue MRF' E.coli Strain — The product is stable.

10.3 Possibility of hazardous reactions : pBC KS (-) Phagemid — 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.

10.4 Conditions to avoid : pBC KS (-) Phagemid — No specific data.
XL1-Blue MRF' E.coli Strain — No specific data.

10.5 Incompatible materials : pBC KS (-) Phagemid — May react or be incompatible with oxidizing materials.
XL1-Blue MRF' E.coli Strain — May react or be incompatible with oxidizing materials.

10.6 Hazardous decomposition products : pBC KS (-) Phagemid — 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.

Section 11. Toxicological information

11.1 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
XL1-Blue MRF' E.coli Strain					
Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
Sodium chloride	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	10 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-

Sensitization

Section 11. Toxicological information

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 the likely routes of exposure	:	pBC KS (-) Phagemid XL1-Blue MRF' E.coli Strain	Not available. Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

Eye contact	:	pBC KS (-) Phagemid XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards. Causes serious eye irritation.
Inhalation	:	pBC KS (-) Phagemid XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards. No known significant effects or critical hazards.
Skin contact	:	pBC KS (-) Phagemid XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards. No known significant effects or critical hazards.
Ingestion	:	pBC KS (-) Phagemid XL1-Blue MRF' E.coli Strain	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	:	pBC KS (-) Phagemid XL1-Blue MRF' E.coli Strain	No specific data. Adverse symptoms may include the following: pain or irritation watering redness
Inhalation	:	pBC KS (-) Phagemid XL1-Blue MRF' E.coli Strain	No specific data. No specific data.
Skin contact	:	pBC KS (-) Phagemid XL1-Blue MRF' E.coli Strain	No specific data. No specific data.
Ingestion	:	pBC KS (-) Phagemid XL1-Blue MRF' E.coli Strain	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.

Section 11. Toxicological information

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

General	:	pBC KS (-) Phagemid	No known significant effects or critical hazards.
		XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
Carcinogenicity	:	pBC KS (-) Phagemid	No known significant effects or critical hazards.
		XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
Mutagenicity	:	pBC KS (-) Phagemid	No known significant effects or critical hazards.
		XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
Teratogenicity	:	pBC KS (-) Phagemid	No known significant effects or critical hazards.
		XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
Developmental effects	:	pBC KS (-) Phagemid	No known significant effects or critical hazards.
		XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.
Fertility effects	:	pBC KS (-) Phagemid	No known significant effects or critical hazards.
		XL1-Blue MRF' E.coli Strain	No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

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

Section 12. Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
XL1-Blue MRF' E.coli Strain			
Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
Sodium chloride	Acute EC50 4.74 g/L Fresh water	Algae - Chlamydomonas reinhardtii	96 hours
	Acute EC50 519.6 mg/l Fresh water	Crustaceans - Cypris subglobosa	48 hours
	Acute IC50 6.87 g/L Fresh water	Aquatic plants - Lemna minor	96 hours
	Acute LC50 1.56 g/L Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 1000000 µg/l Fresh water	Fish - Morone saxatilis - Larvae	96 hours
	Chronic LC10 781 mg/l Fresh water	Crustaceans - Hyalella azteca - Juvenile (Fledgling, Hatchling, Weanling)	3 weeks
	Chronic NOEC 6 g/L Fresh water	Aquatic plants - Lemna minor	96 hours
	Chronic NOEC 0.314 g/L Fresh water	Daphnia - Daphnia pulex	21 days
	Chronic NOEC 100 mg/l Fresh water	Fish - Gambusia holbrooki - Adult	8 weeks

12.2 Persistence and degradability

Not available.

12.3 Bioaccumulative potential

Section 12. Ecological information

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

12.4 Mobility in soil

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

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

Section 13. Disposal considerations

13.1 Waste treatment methods

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

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

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

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

Section 14. Transport information

DOT / TDG / Mexico / 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 Annex II of MARPOL and the IBC Code : Not available.

Section 15. Regulatory information

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

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

Clean Water Act (CWA) 311: Edetic acid

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

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : pBC KS (-) Phagemid — Not applicable.
XL1-Blue MRF' E.coli Strain — Immediate (acute) health hazard

Composition/information on ingredients

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

State regulations

Massachusetts : The following components are listed: GLYCERINE MIST

New York : None of the components are listed.

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

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

California Prop. 65

WARNING: This product contains less than 1% of a chemical known to the State of California to cause birth defects or other reproductive harm.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
XL1-Blue MRF' E.coli Strain				
Tetracycline	No.	Yes.	-	-

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Section 15. Regulatory information

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

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia	:	All components are listed or exempted.
Canada	:	Not determined.
China	:	All components are listed or exempted.
Europe	:	All components are listed or exempted.
Japan	:	**Japan inventory (ENCS)**: Not determined. **Japan inventory (ISHL)**: All components are listed or exempted.
Malaysia	:	Not determined.
New Zealand	:	All components are listed or exempted.
Philippines	:	Not determined.
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 listed or exempted.
Viet Nam	:	Not determined.

Section 16. Other information

History

Date of issue	:	06/23/2017
Date of previous issue	:	06/30/2015.
Version	:	4

Indicates information that has changed from previously issued version.

Notice to reader

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