

SAFETY DATA SHEET

pCAL-n Vector, Part Number 214302

Section 1. Identification

1.1 Product identifier

Product name : pCAL-n Vector, Part Number 214302

Part no. (chemical kit) : 214302

Part no. : pCAL-N Vector 204302-51
 pTC 12 Control Vector 214407-56
 XL1-Blue E. coli Strain 200268-81

Validation date : 9/24/2018

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

Material uses : Analytical reagent.

pCAL-N Vector	20 µl (20 µg 1 µg/µl)
pTC 12 Control Vector	10 µl (10 µg 1 µg/µl)
XL1-Blue E. coli Strain	500 µl

1.3 Details of the supplier of the safety data sheet

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

1.4 Emergency telephone number

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

Section 2. Hazards identification

2.1 Classification of the substance or mixture

OSHA/HCS status : <input checked="" type="checkbox"/> pCAL-N Vector	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
pTC 12 Control Vector	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
XL1-Blue 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 E. coli Strain
 H319 EYE IRRITATION - Category 2A

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

2.2 GHS label elements

Section 2. Hazards identification

Hazard pictograms :  XL1-Blue E. coli Strain

Signal word : pCAL-N Vector
pTC 12 Control Vector
XL1-Blue E. coli Strain

No signal word.
No signal word.
Warning

Hazard statements : pCAL-N Vector
pTC 12 Control Vector
XL1-Blue E. coli Strain

No known significant effects or critical hazards.
No known significant effects or critical hazards.
H319 - Causes serious eye irritation.

Precautionary statements

Prevention : pCAL-N Vector
pTC 12 Control Vector
XL1-Blue E. coli Strain

Not applicable.
Not applicable.
P280 - Wear eye or face protection.
P264 - Wash hands thoroughly after handling.

Response : pCAL-N Vector
pTC 12 Control Vector
XL1-Blue E. coli Strain

Not applicable.
Not applicable.
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 : pCAL-N Vector
pTC 12 Control Vector
XL1-Blue E. coli Strain

Not applicable.
Not applicable.
Not applicable.

Disposal : pCAL-N Vector
pTC 12 Control Vector
XL1-Blue E. coli Strain

Not applicable.
Not applicable.
Not applicable.

Supplemental label elements : pCAL-N Vector
pTC 12 Control Vector
XL1-Blue E. coli Strain

None known.
None known.
None known.

2.3 Other hazards

Hazards not otherwise classified : pCAL-N Vector
pTC 12 Control Vector
XL1-Blue E. coli Strain

None known.
None known.
None known.

Section 3. Composition/information on ingredients

Substance/mixture : pCAL-N Vector Mixture
pTC 12 Control Vector Mixture
XL1-Blue E. coli Strain Mixture

Ingredient name	%	CAS number
XL1-Blue 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	: pCAL-N 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.
	pTC 12 Control 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 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.
Inhalation	: pCAL-N Vector	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	pTC 12 Control Vector	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	XL1-Blue 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	: pCAL-N Vector	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	pTC 12 Control Vector	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	XL1-Blue 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	: pCAL-N 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.
	pTC 12 Control 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.

Section 4. First aid measures

XL1-Blue 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	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	No known significant effects or critical hazards. No known significant effects or critical hazards. Causes serious eye irritation.
Inhalation	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Skin contact	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Ingestion	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	No specific data. No specific data. Adverse symptoms may include the following: pain or irritation watering redness
Inhalation	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	No specific data. No specific data. No specific data.
Skin contact	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	No specific data. No specific data. No specific data.
Ingestion	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	No specific data. No specific data. No specific data.

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

Section 4. First aid measures

Notes to physician	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	No specific treatment. No specific treatment. No specific treatment.
Protection of first-aiders	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	No action shall be taken involving any personal risk or without suitable training. No action shall be taken involving any personal risk or without suitable training. No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	None known. None known. None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards arising from the chemical	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst.
Hazardous thermal decomposition products	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	No specific data. No specific data. Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds metal oxide/oxides

5.3 Advice for firefighters

Section 5. Fire-fighting measures

Special protective actions for fire-fighters	: pCAL-N 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.
	pTC 12 Control 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 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	: pCAL-N Vector	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	pTC 12 Control 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 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	: pCAL-N 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.
	pTC 12 Control 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 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	: pCAL-N 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".
	pTC 12 Control 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 E. coli Strain	If specialized clothing is required to deal with the

Section 6. Accidental release measures

spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

: pCAL-N 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).

pTC 12 Control 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 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

Methods for cleaning up

: pCAL-N 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.

pTC 12 Control 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 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

: pCAL-N Vector

Put on appropriate personal protective equipment (see Section 8).

pTC 12 Control Vector

Put on appropriate personal protective equipment (see Section 8).

XL1-Blue 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.

Section 7. Handling and storage

Advice on general occupational hygiene

: pCAL-N 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.

pTC 12 Control 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 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

: pCAL-N 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.

pTC 12 Control 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 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.

7.3 Specific end use(s)

Section 7. Handling and storage

Recommendations	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications.
Industrial sector specific solutions	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	Not applicable. Not applicable. Not applicable.

Section 8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

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

8.2 Exposure controls

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

Individual protection measures

- Hygiene measures** : Handle as biohazard material (Biosafety level 1). Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.
- Skin protection**
- 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.

Section 8. Exposure controls/personal protection

- 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	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	Liquid. Liquid. Liquid.
Color	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	Not available. Not available. Not available.
Odor	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	Not available. Not available. Not available.
Odor threshold	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	Not available. Not available. Not available.
pH	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	7.5 7.5 7.5
Melting point	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	0°C (32°F) 0°C (32°F) Not available.
Boiling point	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	100°C (212°F) 100°C (212°F) Not available.
Flash point	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	Not available. Not available. Not available.
Evaporation rate	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	Not available. Not available. Not available.
Flammability (solid, gas)	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	Not applicable. Not applicable. Not applicable.
Lower and upper explosive (flammable) limits	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	Not available. Not available. Not available.
Vapor pressure	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	Not available. Not available. Not available.
Vapor density	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	Not available. Not available. Not available.
Relative density	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	Not available. Not available. Not available.

Section 9. Physical and chemical properties

Solubility	: pCAL-N Vector	Easily soluble in the following materials: cold water and hot water.
	pTC 12 Control Vector	Easily soluble in the following materials: cold water and hot water.
	XL1-Blue E. coli Strain	Soluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water	: pCAL-N Vector	Not available.
	pTC 12 Control Vector	Not available.
	XL1-Blue E. coli Strain	Not available.
Auto-ignition temperature	: pCAL-N Vector	Not available.
	pTC 12 Control Vector	Not available.
	XL1-Blue E. coli Strain	Not available.
Decomposition temperature	: pCAL-N Vector	Not available.
	pTC 12 Control Vector	Not available.
	XL1-Blue E. coli Strain	Not available.
Viscosity	: pCAL-N Vector	Not available.
	pTC 12 Control Vector	Not available.
	XL1-Blue E. coli Strain	Not available.

Section 10. Stability and reactivity

10.1 Reactivity	: pCAL-N Vector	No specific test data related to reactivity available for this product or its ingredients.
	pTC 12 Control Vector	No specific test data related to reactivity available for this product or its ingredients.
	XL1-Blue E. coli Strain	No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	: pCAL-N Vector	The product is stable.
	pTC 12 Control Vector	The product is stable.
	XL1-Blue E. coli Strain	The product is stable.
10.3 Possibility of hazardous reactions	: pCAL-N Vector	Under normal conditions of storage and use, hazardous reactions will not occur.
	pTC 12 Control Vector	Under normal conditions of storage and use, hazardous reactions will not occur.
	XL1-Blue E. coli Strain	Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	: pCAL-N Vector	No specific data.
	pTC 12 Control Vector	No specific data.
	XL1-Blue E. coli Strain	No specific data.
10.5 Incompatible materials	: pCAL-N Vector	May react or be incompatible with oxidizing materials.
	pTC 12 Control Vector	May react or be incompatible with oxidizing materials.
	XL1-Blue E. coli Strain	May react or be incompatible with oxidizing materials.

Section 10. Stability and reactivity

10.6 Hazardous decomposition products	: pCAL-N Vector	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	pTC 12 Control Vector	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	XL1-Blue 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 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 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

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.

Section 11. Toxicological information

Information on the likely routes of exposure	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	Not available. Not available. Routes of entry anticipated: Oral, Dermal, Inhalation.
<u>Potential acute health effects</u>		
Eye contact	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	No known significant effects or critical hazards. No known significant effects or critical hazards. Causes serious eye irritation.
Inhalation	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Skin contact	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Ingestion	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	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	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	No specific data. No specific data. Adverse symptoms may include the following: pain or irritation watering redness
Inhalation	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	No specific data. No specific data. No specific data.
Skin contact	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	No specific data. No specific data. No specific data.
Ingestion	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	No specific data. No specific data. No specific data.

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

<u>Short term exposure</u>	
Potential immediate effects	: Not available.
Potential delayed effects	: Not available.

<u>Long term exposure</u>	
Potential immediate effects	: Not available.
Potential delayed effects	: Not available.

<u>Potential chronic health effects</u>		
General	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Carcinogenicity	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.

Section 11. Toxicological information

Mutagenicity	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Teratogenicity	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Developmental effects	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Fertility effects	: pCAL-N Vector pTC 12 Control Vector XL1-Blue E. coli Strain	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

Route	ATE value
<input checked="" type="checkbox"/> XL1-Blue E. coli Strain Oral	300000 mg/kg

Section 12. Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
<input checked="" type="checkbox"/> XL1-Blue E. coli Strain Glycerol Sodium chloride	Acute LC50 54000 mg/l Fresh water Acute EC50 4.74 g/L Fresh water Acute EC50 519.6 mg/l Fresh water Acute EC50 402600 µg/l Fresh water Acute IC50 6.87 g/L Fresh water Acute LC50 1000000 µg/l Fresh water Chronic LC10 781 mg/l Fresh water Chronic NOEC 6 g/L Fresh water Chronic NOEC 0.314 g/L Fresh water Chronic NOEC 100 mg/l Fresh water	Fish - Oncorhynchus mykiss Algae - Chlamydomonas reinhardtii Crustaceans - Cypris subglobosa Daphnia - Daphnia magna Aquatic plants - Lemna minor Fish - Morone saxatilis - Larvae Crustaceans - Hyalella azteca - Juvenile (Fledgling, Hatchling, Weanling) Aquatic plants - Lemna minor Daphnia - Daphnia pulex Fish - Gambusia holbrooki - Adult	96 hours 96 hours 48 hours 48 hours 96 hours 96 hours 3 weeks 96 hours 21 days 8 weeks

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
<input checked="" type="checkbox"/> XL1-Blue E. coli Strain Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-

12.3 Bioaccumulative potential

Section 12. Ecological information

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

12.4 Mobility in soil

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

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

Section 13. Disposal considerations

13.1 Waste treatment methods

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

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

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

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

Section 14. Transport information

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 : pCAL-N Vector Not applicable.
pTC 12 Control Vector Not applicable.
XL1-Blue E. coli Strain EYE IRRITATION - Category 2A

Composition/information on ingredients

Name	%	Classification
XL1-Blue E. coli Strain		
Glycerol	≥10 - ≤25	EYE IRRITATION - Category 2A
Sodium chloride	≤3	EYE IRRITATION - Category 2A

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 can expose you to Tetracycline, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

Ingredient name	No significant risk level	Maximum acceptable dosage level
XL1-Blue E. coli Strain Tetracycline	-	-

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	: <input checked="" type="checkbox"/> Japan inventory (ENCS) : All components are listed or exempted. 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	: <input checked="" type="checkbox"/> Not determined.
Turkey	: Not determined.
United States	: All components are listed or exempted.
Viet Nam	: <input checked="" type="checkbox"/> Not determined.

Section 16. Other information

History

Date of issue	: 09/24/2018
Date of previous issue	: 03/29/2017
Version	: 5

Procedure used to derive the classification

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

Indicates information that has changed from previously issued version.

Notice to reader

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