



SAFETY DATA SHEET

LacSwitch II Inducible Mammalian Expression System, Part Number 217450

Section 1. Identification

Product identifier : LacSwitch II Inducible Mammalian Expression System, Part Number 217450
Part no. (chemical kit) : 217450
Part no. : IPTG 300127-61
 pCMVLacl repressor vector 217450-54
 pOPRSVI/MCS Vector 217450-55
 pOPI3CAT Operator Vector 217450-53
 XL1-Blue MR E. coli Strain 200300-81

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


Identified uses :  Analytical reagent.
 IPTG 1 g
 pCMVLacl repressor vector 0.1 ml (100 µg 1 µg/µl)
 pOPRSVI/MCS Vector 0.02 ml (20 µg 1 µg/µl)
 pOPI3CAT Operator Vector 0.02 ml (20 µg 1 µg/µl)
 XL1-Blue MR E. coli Strain 0.5 ml

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

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

Section 2. Hazard(s) identification

Classification of the substance or mixture


 IPTG
 H302 ACUTE TOXICITY (oral) - Category 4
 H312 ACUTE TOXICITY (dermal) - Category 4
 H332 ACUTE TOXICITY (inhalation) - Category 4

XL1-Blue MR E. coli Strain
 H320 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2B

GHS label elements

Hazard pictograms : IPTG



Signal word :  IPTG WARNING
 pCMVLacl repressor vector No signal word.
 pOPRSVI/MCS Vector No signal word.
 pOPI3CAT Operator Vector No signal word.
 XL1-Blue MR E. coli Strain WARNING

Section 2. Hazard(s) identification

Hazard statements	: IPTG pCMVLacl repressor vector pOPRSVI/MCS Vector pOPI3CAT Operator Vector XL1-Blue MR E. coli Strain	H302 + H312 + H332 - Harmful if swallowed, in contact with skin or if inhaled. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. H320 - Causes eye irritation.
Precautionary statements		
Prevention	: IPTG pCMVLacl repressor vector pOPRSVI/MCS Vector pOPI3CAT Operator Vector XL1-Blue MR E. coli Strain	P280 - Wear protective gloves and protective clothing. P261 - Avoid breathing dust or mist. P270 - Do not eat, drink or smoke when using this product. P264 - Wash thoroughly after handling. Not applicable. Not applicable. Not applicable. Not applicable.
Response	: IPTG pCMVLacl repressor vector pOPRSVI/MCS Vector pOPI3CAT Operator Vector XL1-Blue MR E. coli Strain	P304 + P312 - IF INHALED: Call a POISON CENTER or doctor if you feel unwell. Not applicable. 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 advice or attention.
Storage	: IPTG pCMVLacl repressor vector pOPRSVI/MCS Vector pOPI3CAT Operator Vector XL1-Blue MR E. coli Strain	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.
Disposal	: IPTG pCMVLacl repressor vector pOPRSVI/MCS Vector pOPI3CAT Operator Vector XL1-Blue MR E. coli Strain	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations. Not applicable. Not applicable. Not applicable. Not applicable.
Supplemental label elements		
Additional warning phrases	: IPTG pCMVLacl repressor vector pOPRSVI/MCS Vector pOPI3CAT Operator Vector XL1-Blue MR E. coli Strain	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.
Other hazards which do not result in classification	: IPTG pCMVLacl repressor vector pOPRSVI/MCS Vector pOPI3CAT Operator Vector XL1-Blue MR E. coli Strain	May form combustible dust concentrations in air. None known. None known. None known. None known.

Section 3. Composition and ingredient information

Substance/mixture	: IPTG pCMVLacl repressor vector pOPRSVI/MCS Vector pOPI3CAT Operator Vector XL1-Blue MR E. coli Strain	Substance Mixture Mixture Mixture Mixture
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CAS number/other identifiers

Section 3. Composition and ingredient information

Ingredient name	% (w/w)	CAS number
PTG Isopropyl-β-D-thiogalactopyranoside	100	367-93-1
XL1-Blue MR E. coli Strain Glycerol	≥10 - ≤30	56-81-5

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

The total concentration of ingredients in this product, reported or not in this section, is 100%.

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

Section 4. First aid measures

Description of necessary first aid measures

Eye contact	: PTG	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 if irritation occurs.
	pCMVLacI repressor 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.
	pOPRSVI/MCS 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.
	pOPI3CAT Operator 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 MR 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. If irritation persists, get medical attention.
Inhalation	: PTG	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. 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 necessary, call a poison center or physician. 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.
	pCMVLacI repressor vector	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	pOPRSVI/MCS Vector	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

Section 4. First aid measures

	pOPI3CAT Operator Vector	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	XL1-Blue MR 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	: P _{TG}	Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention if adverse health effects persist or are severe. If necessary, call a poison center or physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
	pCMVLacl repressor vector	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	pOPRSVI/MCS Vector	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	pOPI3CAT Operator Vector	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	XL1-Blue MR 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	: P _{TG}	Wash out mouth with water. Remove dentures if any. 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 necessary, call a poison center or physician. 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.
	pCMVLacl repressor vector	Wash out mouth with water. 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.
	pOPRSVI/MCS Vector	Wash out mouth with water. 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.
	pOPI3CAT Operator Vector	Wash out mouth with water. 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

Section 4. First aid measures

XL1-Blue MR E. coli Strain

personnel. Get medical attention if symptoms occur. Wash out mouth with water. Remove dentures if any. 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.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact

: IPTG

Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.

pCMVlacI repressor vector
pOPRSVI/MCS Vector
pOPI3CAT Operator Vector
XL1-Blue MR E. coli Strain

No known significant effects or critical hazards.
No known significant effects or critical hazards.
No known significant effects or critical hazards.
Causes eye irritation.

Inhalation

: IPTG

Harmful if inhaled. Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.

pCMVlacI repressor vector
pOPRSVI/MCS Vector
pOPI3CAT Operator Vector
XL1-Blue MR E. coli Strain

No known significant effects or critical hazards.
No known significant effects or critical hazards.
No known significant effects or critical hazards.
No known significant effects or critical hazards.

Skin contact

: IPTG

Harmful in contact with skin.

pCMVlacI repressor vector
pOPRSVI/MCS Vector
pOPI3CAT Operator Vector
XL1-Blue MR E. coli Strain

No known significant effects or critical hazards.
No known significant effects or critical hazards.
No known significant effects or critical hazards.
No known significant effects or critical hazards.

Ingestion

: IPTG

Harmful if swallowed.

pCMVlacI repressor vector
pOPRSVI/MCS Vector
pOPI3CAT Operator Vector
XL1-Blue MR E. coli Strain

No known significant effects or critical hazards.
No known significant effects or critical hazards.
No known significant effects or critical hazards.
No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact

: IPTG

Adverse symptoms may include the following:
irritation
redness

pCMVlacI repressor vector
pOPRSVI/MCS Vector
pOPI3CAT Operator Vector
XL1-Blue MR E. coli Strain

No specific data.
No specific data.
No specific data.
Adverse symptoms may include the following:
irritation
watering
redness

Section 4. First aid measures

Inhalation	: IPTG	Adverse symptoms may include the following: respiratory tract irritation coughing
	pCMVlacI repressor vector	No specific data.
	pOPRSVI/MCS Vector	No specific data.
	pOPI3CAT Operator Vector	No specific data.
	XL1-Blue MR E. coli Strain	No specific data.
Skin contact	: IPTG	No specific data.
	pCMVlacI repressor vector	No specific data.
	pOPRSVI/MCS Vector	No specific data.
	pOPI3CAT Operator Vector	No specific data.
	XL1-Blue MR E. coli Strain	No specific data.
Ingestion	: IPTG	No specific data.
	pCMVlacI repressor vector	No specific data.
	pOPRSVI/MCS Vector	No specific data.
	pOPI3CAT Operator Vector	No specific data.
	XL1-Blue MR E. coli Strain	No specific data.

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

Notes to physician	: IPTG	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	pCMVlacI repressor vector	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	pOPRSVI/MCS Vector	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	pOPI3CAT Operator Vector	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	XL1-Blue MR E. coli Strain	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	: IPTG	No specific treatment.
	pCMVlacI repressor vector	No specific treatment.
	pOPRSVI/MCS Vector	No specific treatment.
	pOPI3CAT Operator Vector	No specific treatment.
	XL1-Blue MR E. coli Strain	No specific treatment.
Protection of first-aiders	: IPTG	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
	pCMVlacI repressor vector	No action shall be taken involving any personal risk or without suitable training.
	pOPRSVI/MCS Vector	No action shall be taken involving any personal risk or without suitable training.
	pOPI3CAT Operator Vector	No action shall be taken involving any personal risk or without suitable training.
	XL1-Blue MR 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. Firefighting measures

Extinguishing media

Suitable extinguishing media	: IPTG	Use dry chemical powder.
	pCMVLacl repressor vector	Use an extinguishing agent suitable for the surrounding fire.
	pOPRSVI/MCS Vector	Use an extinguishing agent suitable for the surrounding fire.
	pOPI3CAT Operator Vector	Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	XL1-Blue MR E. coli Strain	Use an extinguishing agent suitable for the surrounding fire.
	: IPTG	Avoid high pressure media which could cause the formation of a potentially explosible dust-air mixture.
	pCMVLacl repressor vector	None known.
	pOPRSVI/MCS Vector	None known.
Specific hazards arising from the chemical	pOPI3CAT Operator Vector	None known.
	XL1-Blue MR E. coli Strain	None known.
	: IPTG	May form explosible dust-air mixture if dispersed.
	pCMVLacl repressor vector	In a fire or if heated, a pressure increase will occur and the container may burst.
Hazardous thermal decomposition products	pOPRSVI/MCS Vector	In a fire or if heated, a pressure increase will occur and the container may burst.
	pOPI3CAT Operator Vector	In a fire or if heated, a pressure increase will occur and the container may burst.
	XL1-Blue MR E. coli Strain	In a fire or if heated, a pressure increase will occur and the container may burst.
	: IPTG	Decomposition products may include the following materials: carbon dioxide carbon monoxide sulfur oxides
Special protective actions for fire-fighters	pCMVLacl repressor vector	No specific data.
	pOPRSVI/MCS Vector	No specific data.
	pOPI3CAT Operator Vector	No specific data.
	XL1-Blue MR E. coli Strain	Decomposition products may include the following materials: carbon dioxide carbon monoxide
Special protective actions for fire-fighters	: IPTG	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. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
	pCMVLacl repressor 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.
	pOPRSVI/MCS 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.
	pOPI3CAT Operator 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.
Special protective actions for fire-fighters	XL1-Blue MR 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.

Section 5. Firefighting measures

Special protective equipment for fire-fighters	: IPTG	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
pCMVLacl repressor vector		Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
pOPRSVI/MCS Vector		Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
pOPI3CAT Operator 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 MR 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

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	: IPTG	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing dust. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
pCMVLacl repressor 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 spilt material. Put on appropriate personal protective equipment.
pOPRSVI/MCS 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 spilt material. Put on appropriate personal protective equipment.
pOPI3CAT Operator 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 spilt material. Put on appropriate personal protective equipment.
XL1-Blue MR E. coli Strain		No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

Section 6. Accidental release measures

For emergency responders : IPTG

pCMVLacI repressor vector	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
pOPRSVI/MCS Vector	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
pOPI3CAT Operator Vector	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
XL1-Blue MR E. coli Strain	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : IPTG

pCMVLacI repressor vector	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
pOPRSVI/MCS Vector	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
pOPI3CAT Operator Vector	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
XL1-Blue MR E. coli Strain	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and material for containment and cleaning up

Methods for cleaning up : IPTG

pCMVLacI repressor vector	Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Avoid dust generation. Using a vacuum with HEPA filter will reduce dust dispersal. Place spilled material in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
pOPRSVI/MCS 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.

Section 6. Accidental release measures

pOPI3CAT Operator Vector	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. 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 MR E. coli Strain	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : IPTG

Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing dust. Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Prevent dust accumulation. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Electrical equipment and lighting should be protected to appropriate standards to prevent dust coming into contact with hot surfaces, sparks or other ignition sources. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by earthing and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.

pCMVLacl repressor vector	Put on appropriate personal protective equipment (see Section 8).
pOPRSVI/MCS Vector	Put on appropriate personal protective equipment (see Section 8).
pOPI3CAT Operator Vector	Put on appropriate personal protective equipment (see Section 8).
XL1-Blue MR E. coli Strain	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour 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 : IPTG

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.

pCMVLacl repressor vector	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and
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Section 7. Handling and storage

pOPRSVI/MCS Vector

processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

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

pOPI3CAT Operator 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 MR E. coli Strain

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

Conditions for safe storage, including any incompatibilities : IPTG

Store between the following temperatures: 2 to 8°C (35.6 to 46.4°F). Store in accordance with local regulations. Store in a segregated and approved area. 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. Eliminate all ignition sources. Separate from oxidising materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

pCMVLacl repressor 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 unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

pOPRSVI/MCS 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 unlabelled containers. Use appropriate containment to avoid

Section 7. Handling and storage

pOPI3CAT Operator Vector

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

XL1-Blue MR E. coli Strain

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

Section 8. Exposure controls and personal protection

[Control parameters](#)

[Occupational exposure limits](#)

Ingredient name	Exposure limits
XL1-Blue MR E. coli Strain Glycerol	Safe Work Australia (Australia, 10/2022). TWA: 10 mg/m ³ 8 hours.

[Biological exposure indices](#)

No exposure indices known.

[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](#)

Section 8. Exposure controls and personal protection

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

Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

Physical state	:	IPTG	Solid.
		pCMVLacl repressor vector	Liquid.
		pOPRSVI/MCS Vector	Liquid.
		pOPI3CAT Operator Vector	Liquid.
		XL1-Blue MR E. coli Strain	Liquid.
Colour	:	IPTG	Off-white.
		pCMVLacl repressor vector	Not available.
		pOPRSVI/MCS Vector	Not available.
		pOPI3CAT Operator Vector	Not available.
		XL1-Blue MR E. coli Strain	Not available.
Odour	:	IPTG	Not available.
		pCMVLacl repressor vector	Not available.
		pOPRSVI/MCS Vector	Not available.
		pOPI3CAT Operator Vector	Not available.
		XL1-Blue MR E. coli Strain	Not available.
Odour threshold	:	IPTG	Not available.
		pCMVLacl repressor vector	Not available.
		pOPRSVI/MCS Vector	Not available.
		pOPI3CAT Operator Vector	Not available.
		XL1-Blue MR E. coli Strain	Not available.
pH	:	IPTG	Not available.
		pCMVLacl repressor vector	7.5
		pOPRSVI/MCS Vector	7.5
		pOPI3CAT Operator Vector	7.5
		XL1-Blue MR E. coli Strain	7
Melting point/freezing point	:	IPTG	>109°C (>228.2°F)
		pCMVLacl repressor vector	0°C (32°F)
		pOPRSVI/MCS Vector	0°C (32°F)
		pOPI3CAT Operator Vector	0°C (32°F)
		XL1-Blue MR E. coli Strain	Not available.
Boiling point, initial boiling point, and boiling range	:	IPTG	Not available.
		pCMVLacl repressor vector	100°C (212°F)
		pOPRSVI/MCS Vector	100°C (212°F)
		pOPI3CAT Operator Vector	100°C (212°F)
		XL1-Blue MR E. coli Strain	Not available.
Flash point	:		

Section 9. Physical and chemical properties and safety characteristics

	Ingredient name	Closed cup			Open cup		
		°C	°F	Method	°C	°F	Method
	XL1-Blue MR E. coli Strain						
	Glycerol	-	-	-	177	350.6	-
Evaporation rate	: IPTG pCMVLacI repressor vector pOPRSVI/MCS Vector pOPI3CAT Operator Vector XL1-Blue MR E. coli Strain			Not available. Not available. Not available. Not available. Not available.			
Flammability	: IPTG pCMVLacI repressor vector pOPRSVI/MCS Vector pOPI3CAT Operator Vector XL1-Blue MR E. coli Strain			Not available. Not applicable. Not applicable. Not applicable. Not applicable.			
Lower and upper explosion limit/flammability limit	: IPTG pCMVLacI repressor vector pOPRSVI/MCS Vector pOPI3CAT Operator Vector XL1-Blue MR E. coli Strain			Not applicable. Not available. Not available. Not available. Not available.			
Vapour pressure		Vapour Pressure at 20 °C			Vapour pressure at 50 °C		
	Ingredient name	mm Hg	kPa	Method	mm Hg	kPa	Method
	pCMVLacI repressor vector						
	water	17.5	2.3	-	92.258	12.3	-
	pOPRSVI/MCS Vector						
	water	17.5	2.3	-	92.258	12.3	-
	pOPI3CAT Operator Vector						
	water	17.5	2.3	-	92.258	12.3	-
	XL1-Blue MR E. coli Strain						
	water	17.5	2.3	-	92.258	12.3	-
	Glycerol	0.000075	0.00001	-	0.0025	0.00033	-
Relative vapour density	: IPTG pCMVLacI repressor vector pOPRSVI/MCS Vector pOPI3CAT Operator Vector XL1-Blue MR E. coli Strain			Not applicable. Not available. Not available. Not available. Not available.			
Relative density	: IPTG pCMVLacI repressor vector pOPRSVI/MCS Vector pOPI3CAT Operator Vector XL1-Blue MR E. coli Strain			Not available. Not available. Not available. Not available. Not available.			

Section 9. Physical and chemical properties and safety characteristics

Solubility(ies)	Media	Result		
	IPTG			
	water	Soluble		
	pCMVLacl repressor vector			
	water	Soluble		
	pOPRSVI/MCS Vector			
water	Soluble			
pOPI3CAT Operator Vector				
water	Soluble			
XL1-Blue MR E. coli Strain				
water	Soluble			
Partition coefficient: n-octanol/water	IPTG	-1.26		
	pCMVLacl repressor vector	Not applicable.		
	pOPRSVI/MCS Vector	Not applicable.		
	pOPI3CAT Operator Vector	Not applicable.		
	XL1-Blue MR E. coli Strain	Not applicable.		
Auto-ignition temperature	Ingredient name	°C	°F	Method
	XL1-Blue MR E. coli Strain			
	Glycerol	370	698	-
Decomposition temperature	IPTG	Not available.		
	pCMVLacl repressor vector	Not available.		
	pOPRSVI/MCS Vector	Not available.		
	pOPI3CAT Operator Vector	Not available.		
	XL1-Blue MR E. coli Strain	Not available.		
Viscosity	IPTG	Not applicable.		
	pCMVLacl repressor vector	Not available.		
	pOPRSVI/MCS Vector	Not available.		
	pOPI3CAT Operator Vector	Not available.		
	XL1-Blue MR E. coli Strain	Not available.		
Particle characteristics				
Median particle size	IPTG	Not available.		
	pCMVLacl repressor vector	Not applicable.		
	pOPRSVI/MCS Vector	Not applicable.		
	pOPI3CAT Operator Vector	Not applicable.		
	XL1-Blue MR E. coli Strain	Not applicable.		

Section 10. Stability and reactivity

Reactivity	IPTG	No specific test data related to reactivity available for this product or its ingredients.
	pCMVLacl repressor vector	No specific test data related to reactivity available for this product or its ingredients.
	pOPRSVI/MCS Vector	No specific test data related to reactivity available for this product or its ingredients.
	pOPI3CAT Operator Vector	No specific test data related to reactivity available for this product or its ingredients.
	XL1-Blue MR E. coli Strain	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	IPTG	The product is stable.
	pCMVLacl repressor vector	The product is stable.
	pOPRSVI/MCS Vector	The product is stable.
	pOPI3CAT Operator Vector	The product is stable.
	XL1-Blue MR E. coli Strain	The product is stable.

Section 10. Stability and reactivity

Possibility of hazardous reactions	: IPTG	Under normal conditions of storage and use, hazardous reactions will not occur.
	pCMVLacl repressor vector	Under normal conditions of storage and use, hazardous reactions will not occur.
	pOPRSVI/MCS Vector	Under normal conditions of storage and use, hazardous reactions will not occur.
	pOPI3CAT Operator Vector	Under normal conditions of storage and use, hazardous reactions will not occur.
	XL1-Blue MR E. coli Strain	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: IPTG	Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by earthing and bonding containers and equipment before transferring material. Prevent dust accumulation.
	pCMVLacl repressor vector	No specific data.
	pOPRSVI/MCS Vector	No specific data.
	pOPI3CAT Operator Vector	No specific data.
	XL1-Blue MR E. coli Strain	No specific data.
Incompatible materials	: IPTG	Reactive or incompatible with the following materials: oxidising materials
	pCMVLacl repressor vector	May react or be incompatible with oxidising materials.
	pOPRSVI/MCS Vector	May react or be incompatible with oxidising materials.
	pOPI3CAT Operator Vector	May react or be incompatible with oxidising materials.
	XL1-Blue MR E. coli Strain	May react or be incompatible with oxidising materials.
Hazardous decomposition products	: IPTG	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	pCMVLacl repressor vector	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	pOPRSVI/MCS Vector	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	pOPI3CAT Operator Vector	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	XL1-Blue MR E. coli Strain	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
XL1-Blue MR E. coli Strain Glycerol	LD50 Oral	Rat	12600 mg/kg	-

Irritation/Corrosion

Section 11. Toxicological information

Product/ingredient name	Result	Species	Score	Exposure	Observation
XL1-Blue MR E. coli Strain Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-

Sensitisation

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 likely routes of exposure : IPTG

Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

pCMVLacl repressor vector Not available.
 pOPRSVI/MCS Vector Not available.
 pOPI3CAT Operator Vector Not available.
 XL1-Blue MR E. coli Strain Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

Potential acute health effects

Eye contact : IPTG

Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.

pCMVLacl repressor vector No known significant effects or critical hazards.
 pOPRSVI/MCS Vector No known significant effects or critical hazards.
 pOPI3CAT Operator Vector No known significant effects or critical hazards.
 XL1-Blue MR E. coli Strain Causes eye irritation.

Inhalation : IPTG

Harmful if inhaled. Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.

pCMVLacl repressor vector No known significant effects or critical hazards.
 pOPRSVI/MCS Vector No known significant effects or critical hazards.
 pOPI3CAT Operator Vector No known significant effects or critical hazards.
 XL1-Blue MR E. coli Strain No known significant effects or critical hazards.

Skin contact : IPTG

Harmful in contact with skin.

pCMVLacl repressor vector No known significant effects or critical hazards.
 pOPRSVI/MCS Vector No known significant effects or critical hazards.
 pOPI3CAT Operator Vector No known significant effects or critical hazards.
 XL1-Blue MR E. coli Strain No known significant effects or critical hazards.

Section 11. Toxicological information

Ingestion	: IPTG pCMVLacl repressor vector pOPRSVI/MCS Vector pOPI3CAT Operator Vector XL1-Blue MR E. coli Strain	Harmful if swallowed. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
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Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	: IPTG pCMVLacl repressor vector pOPRSVI/MCS Vector pOPI3CAT Operator Vector XL1-Blue MR E. coli Strain	Adverse symptoms may include the following: irritation redness No specific data. No specific data. No specific data. Adverse symptoms may include the following: irritation watering redness
Inhalation	: IPTG pCMVLacl repressor vector pOPRSVI/MCS Vector pOPI3CAT Operator Vector XL1-Blue MR E. coli Strain	Adverse symptoms may include the following: respiratory tract irritation coughing No specific data. No specific data. No specific data. No specific data.
Skin contact	: IPTG pCMVLacl repressor vector pOPRSVI/MCS Vector pOPI3CAT Operator Vector XL1-Blue MR E. coli Strain	No specific data. No specific data. No specific data. No specific data.
Ingestion	: IPTG pCMVLacl repressor vector pOPRSVI/MCS Vector pOPI3CAT Operator Vector XL1-Blue MR E. coli Strain	No specific data. No specific data. No specific data. No specific data.

Delayed and immediate effects as well as 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	: IPTG pCMVLacl repressor vector pOPRSVI/MCS Vector pOPI3CAT Operator Vector XL1-Blue MR E. coli Strain	Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Carcinogenicity	: IPTG pCMVLacl repressor vector pOPRSVI/MCS Vector pOPI3CAT Operator Vector XL1-Blue MR E. coli Strain	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.

Section 11. Toxicological information

Mutagenicity	: IPTG pCMVlacI repressor vector pOPRSVI/MCS Vector pOPI3CAT Operator Vector XL1-Blue MR E. coli Strain	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Reproductive toxicity	: IPTG pCMVlacI repressor vector pOPRSVI/MCS Vector pOPI3CAT Operator Vector XL1-Blue MR E. coli Strain	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
IPTG Isopropyl-β-D-thiogalactopyranoside	500	1100	N/A	11	N/A
XL1-Blue MR E. coli Strain Glycerol	12600	N/A	N/A	N/A	N/A

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
XL1-Blue MR E. coli Strain Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - <i>Oncorhynchus mykiss</i>	96 hours

Persistence and degradability

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

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
IPTG Isopropyl-β-D-thiogalactopyranoside	-1.26	-	Low
XL1-Blue MR E. coli Strain Glycerol	-1.76	-	Low

Mobility in soil

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

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

Section 13. Disposal considerations

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

Section 14. Transport information

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

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

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

Standard for the Uniform Scheduling of Medicines and Poisons

Not regulated.

Model Work Health and Safety Regulations - Scheduled Substances

No listed substance

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 : Not determined.

New Zealand : All components are listed or exempted.

United States : All components are active or exempted.

Section 16. Any other relevant information

History

Date of issue/Date of revision : 02/11/2023

Date of previous issue : 06/05/2020

Version : 7

Section 16. Any other relevant information

Key to abbreviations	: ADG = Australian Dangerous Goods ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) N/A = Not available SUSMP = Standard Uniform Schedule of Medicine and Poisons UN = United Nations
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Procedure used to derive the classification

Classification	Justification
IP PTG ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (dermal) - Category 4 ACUTE TOXICITY (inhalation) - Category 4	Expert judgment Expert judgment On basis of test data
XL1-Blue MR E. coli Strain SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2B	Calculation method

✔ Indicates information that has changed from previously issued version.

Notice to reader

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