

SAFETY DATA SHEET

pET-3 a-d Expression system, Part Number 211621

Section 1. Identification

1.1 Product identifier

Product name : pET-3 a-d Expression system, Part Number 211621

Part no. (chemical kit) : 211621

Part no. :

BL21-Gold(DE3) Competent Cells	230132-41
BL21-Gold(DE3) pLysS Competent Cells	230134-41
pUC 18 DNA Control Plasmid	200231-42
pET-3a Vector	211521-51
pET-3c Vector	211521-53
pET-3d Vector	211521-54
pET-3b Vector	211521-52

Validation date : 6/22/2018

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

Material uses : Analytical reagent.

BL21-Gold(DE3) Competent Cells	1 mL (10 x 0.1 mL)
BL21-Gold(DE3) pLysS Competent Cells	1 mL (10 x 0.1 mL)
pUC 18 DNA Control Plasmid	0.02 mL (2 x 0.01 mL (0.1 ng/μl))
pET-3a Vector	0.02 mL (20 μg 1 μg/μl)
pET-3c Vector	0.02 mL (20 μg 1 μg/μl)
pET-3d Vector	0.02 mL (20 μg 1 μg/μl)
pET-3b Vector	0.02 mL (20 μg 1 μg/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 :

<ul style="list-style-type: none"> <input checked="" type="checkbox"/> BL21-Gold(DE3) Competent Cells BL21-Gold(DE3) pLysS Competent Cells pUC 18 DNA Control Plasmid pET-3a Vector 	<p>This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).</p> <p>This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).</p> <p>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.</p> <p>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.</p>
---	---

Section 2. Hazards identification

pET-3c 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.
pET-3d 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.
pET-3b 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.

Classification of the substance or mixture

BL21-Gold(DE3) Competent Cells

H320 EYE IRRITATION - Category 2B

BL21-Gold(DE3) pLysS Competent Cells

H320 EYE IRRITATION - Category 2B

Ingredients of unknown toxicity	: BL21-Gold(DE3) Competent Cells	Percentage of the mixture consisting of ingredient (s) of unknown dermal toxicity: 1 - 10%
	BL21-Gold(DE3) pLysS Competent Cells	Percentage of the mixture consisting of ingredient (s) of unknown inhalation toxicity: 10 - 30%
	BL21-Gold(DE3) pLysS Competent Cells	Percentage of the mixture consisting of ingredient (s) of unknown dermal toxicity: 1 - 10%
	BL21-Gold(DE3) pLysS Competent Cells	Percentage of the mixture consisting of ingredient (s) of unknown inhalation toxicity: 10 - 30%

2.2 GHS label elements

Signal word

: BL21-Gold(DE3) Competent Cells	Warning
BL21-Gold(DE3) pLysS Competent Cells	Warning
pUC 18 DNA Control Plasmid	No signal word.
pET-3a Vector	No signal word.
pET-3c Vector	No signal word.
pET-3d Vector	No signal word.
pET-3b Vector	No signal word.

Hazard statements

: BL21-Gold(DE3) Competent Cells	H320 - Causes eye irritation.
BL21-Gold(DE3) pLysS Competent Cells	H320 - Causes eye irritation.
pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.
pET-3a Vector	No known significant effects or critical hazards.
pET-3c Vector	No known significant effects or critical hazards.
pET-3d Vector	No known significant effects or critical hazards.
pET-3b Vector	No known significant effects or critical hazards.

Precautionary statements

Section 2. Hazards identification

Prevention	:	BL21-Gold(DE3) Competent Cells	P264 - Wash hands thoroughly after handling.
		BL21-Gold(DE3) pLysS	P264 - Wash hands thoroughly after handling.
		Competent Cells	
		pUC 18 DNA Control Plasmid	Not applicable.
		pET-3a Vector	Not applicable.
		pET-3c Vector	Not applicable.
Response	:	BL21-Gold(DE3) Competent Cells	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.
		BL21-Gold(DE3) pLysS	P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
		Competent Cells	P337 + P313 - If eye irritation persists: Get medical attention.
		pUC 18 DNA Control Plasmid	Not applicable.
		pET-3a Vector	Not applicable.
		pET-3c Vector	Not applicable.
Storage	:	BL21-Gold(DE3) Competent Cells	Not applicable.
		BL21-Gold(DE3) pLysS	Not applicable.
		Competent Cells	
		pUC 18 DNA Control Plasmid	Not applicable.
		pET-3a Vector	Not applicable.
		pET-3c Vector	Not applicable.
Disposal	:	BL21-Gold(DE3) Competent Cells	Not applicable.
		BL21-Gold(DE3) pLysS	Not applicable.
		Competent Cells	
		pUC 18 DNA Control Plasmid	Not applicable.
		pET-3a Vector	Not applicable.
		pET-3c Vector	Not applicable.
Supplemental label elements	:	BL21-Gold(DE3) Competent Cells	None known.
		BL21-Gold(DE3) pLysS	None known.
		Competent Cells	
		pUC 18 DNA Control Plasmid	None known.
		pET-3a Vector	None known.
		pET-3c Vector	None known.
2.3 Other hazards	:	BL21-Gold(DE3) Competent Cells	None known.
		BL21-Gold(DE3) pLysS	None known.
		Competent Cells	
		pUC 18 DNA Control Plasmid	None known.
		pET-3a Vector	None known.
		pET-3c Vector	None known.
Hazards not otherwise classified	:	BL21-Gold(DE3) Competent Cells	None known.
		BL21-Gold(DE3) pLysS	None known.
		Competent Cells	
		pUC 18 DNA Control Plasmid	None known.
		pET-3a Vector	None known.
		pET-3c Vector	None known.

Section 2. Hazards identification

pET-3b Vector

None known.

Section 3. Composition/information on ingredients

Substance/mixture	: BL21-Gold(DE3) Competent Cells	Mixture
	BL21-Gold(DE3) pLysS Competent Cells	Mixture
	pUC 18 DNA Control Plasmid	Mixture
	pET-3a Vector	Mixture
	pET-3c Vector	Mixture
	pET-3d Vector	Mixture
	pET-3b Vector	Mixture

Ingredient name	%	CAS number
BL21-Gold(DE3) Competent Cells		
Glycerol	≥10 - ≤25	56-81-5
Dimethyl sulfoxide	≤10	67-68-5
Potassium chloride	≤3	7447-40-7
BL21-Gold(DE3) pLysS Competent Cells		
Glycerol	≥10 - ≤25	56-81-5
Dimethyl sulfoxide	≤10	67-68-5
Potassium chloride	≤3	7447-40-7

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	: BL21-Gold(DE3) Competent Cells	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.
	BL21-Gold(DE3) pLysS Competent Cells	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.
	pUC 18 DNA Control Plasmid	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.
	pET-3a 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.
	pET-3c 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.
	pET-3d Vector	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get

Section 4. First aid measures

	pET-3b Vector	medical attention if irritation occurs. 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.
Inhalation	: BL21-Gold(DE3) Competent Cells	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.
	BL21-Gold(DE3) pLysS Competent Cells	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.
	pUC 18 DNA Control Plasmid	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	pET-3a Vector	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	pET-3c Vector	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	pET-3d Vector	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	pET-3b Vector	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
Skin contact	: BL21-Gold(DE3) Competent Cells	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.
	BL21-Gold(DE3) pLysS Competent Cells	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.
	pUC 18 DNA Control Plasmid	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	pET-3a Vector	Flush contaminated skin with plenty of water.

Section 4. First aid measures

		Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	pET-3c Vector	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	pET-3d Vector	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	pET-3b Vector	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Ingestion	: BL21-Gold(DE3) Competent Cells	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.
	BL21-Gold(DE3) pLysS Competent Cells	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.
	pUC 18 DNA Control Plasmid	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.
	pET-3a 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.
	pET-3c Vector	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable

Section 4. First aid measures

pET-3d Vector

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.

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.

pET-3b 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.

4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact

: BL21-Gold(DE3) Competent Cells Causes eye irritation.
 BL21-Gold(DE3) pLysS Causes eye irritation.
 Competent Cells
 pUC 18 DNA Control Plasmid No known significant effects or critical hazards.
 pET-3a Vector No known significant effects or critical hazards.
 pET-3c Vector No known significant effects or critical hazards.
 pET-3d Vector No known significant effects or critical hazards.
 pET-3b Vector No known significant effects or critical hazards.

Inhalation

: BL21-Gold(DE3) Competent Cells No known significant effects or critical hazards.
 BL21-Gold(DE3) pLysS No known significant effects or critical hazards.
 Competent Cells
 pUC 18 DNA Control Plasmid No known significant effects or critical hazards.
 pET-3a Vector No known significant effects or critical hazards.
 pET-3c Vector No known significant effects or critical hazards.
 pET-3d Vector No known significant effects or critical hazards.
 pET-3b Vector No known significant effects or critical hazards.

Skin contact

: BL21-Gold(DE3) Competent Cells No known significant effects or critical hazards.
 BL21-Gold(DE3) pLysS No known significant effects or critical hazards.
 Competent Cells
 pUC 18 DNA Control Plasmid No known significant effects or critical hazards.
 pET-3a Vector No known significant effects or critical hazards.
 pET-3c Vector No known significant effects or critical hazards.
 pET-3d Vector No known significant effects or critical hazards.
 pET-3b Vector No known significant effects or critical hazards.

Ingestion

: BL21-Gold(DE3) Competent Cells No known significant effects or critical hazards.
 BL21-Gold(DE3) pLysS No known significant effects or critical hazards.
 Competent Cells
 pUC 18 DNA Control Plasmid No known significant effects or critical hazards.
 pET-3a Vector No known significant effects or critical hazards.
 pET-3c Vector No known significant effects or critical hazards.
 pET-3d Vector No known significant effects or critical hazards.
 pET-3b Vector No known significant effects or critical hazards.

Over-exposure signs/symptoms

Section 4. First aid measures

Eye contact	: BL21-Gold(DE3) Competent Cells	Adverse symptoms may include the following: irritation watering redness
	BL21-Gold(DE3) pLysS Competent Cells	Adverse symptoms may include the following: irritation watering redness
	pUC 18 DNA Control Plasmid	No specific data.
	pET-3a Vector	No specific data.
	pET-3c Vector	No specific data.
	pET-3d Vector	No specific data.
Inhalation	: BL21-Gold(DE3) Competent Cells	No specific data.
	BL21-Gold(DE3) pLysS Competent Cells	No specific data.
	pUC 18 DNA Control Plasmid	No specific data.
	pET-3a Vector	No specific data.
	pET-3c Vector	No specific data.
	pET-3d Vector	No specific data.
Skin contact	: BL21-Gold(DE3) Competent Cells	No specific data.
	BL21-Gold(DE3) pLysS Competent Cells	No specific data.
	pUC 18 DNA Control Plasmid	No specific data.
	pET-3a Vector	No specific data.
	pET-3c Vector	No specific data.
	pET-3d Vector	No specific data.
Ingestion	: BL21-Gold(DE3) Competent Cells	No specific data.
	BL21-Gold(DE3) pLysS Competent Cells	No specific data.
	pUC 18 DNA Control Plasmid	No specific data.
	pET-3a Vector	No specific data.
	pET-3c Vector	No specific data.
	pET-3d Vector	No specific data.

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

Notes to physician	: BL21-Gold(DE3) Competent Cells	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	BL21-Gold(DE3) pLysS Competent Cells	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	pUC 18 DNA Control Plasmid	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	pET-3a Vector	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	pET-3c Vector	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	pET-3d Vector	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been

Section 4. First aid measures

	pET-3b Vector	ingested or inhaled. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	: BL21-Gold(DE3) Competent Cells BL21-Gold(DE3) pLysS Competent Cells pUC 18 DNA Control Plasmid pET-3a Vector pET-3c Vector pET-3d Vector pET-3b Vector	No specific treatment. No specific treatment. No specific treatment. No specific treatment. No specific treatment. No specific treatment. No specific treatment.
Protection of first-aiders	: BL21-Gold(DE3) Competent Cells BL21-Gold(DE3) pLysS Competent Cells pUC 18 DNA Control Plasmid pET-3a Vector pET-3c Vector pET-3d Vector pET-3b Vector	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. 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. 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. 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.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media	: BL21-Gold(DE3) Competent Cells BL21-Gold(DE3) pLysS Competent Cells pUC 18 DNA Control Plasmid pET-3a Vector pET-3c Vector pET-3d Vector pET-3b Vector	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. 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. Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	: BL21-Gold(DE3) Competent Cells BL21-Gold(DE3) pLysS Competent Cells pUC 18 DNA Control Plasmid pET-3a Vector pET-3c Vector pET-3d Vector	None known. None known. None known. None known. None known. None known.

Section 5. Fire-fighting measures

pET-3b Vector

None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards arising from the chemical

: BL21-Gold(DE3) Competent Cells

In a fire or if heated, a pressure increase will occur and the container may burst.

BL21-Gold(DE3) pLysS

In a fire or if heated, a pressure increase will occur and the container may burst.

Competent Cells

pUC 18 DNA Control Plasmid

In a fire or if heated, a pressure increase will occur and the container may burst.

pET-3a Vector

In a fire or if heated, a pressure increase will occur and the container may burst.

pET-3c Vector

In a fire or if heated, a pressure increase will occur and the container may burst.

pET-3d Vector

In a fire or if heated, a pressure increase will occur and the container may burst.

pET-3b Vector

In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products

: BL21-Gold(DE3) Competent Cells

Decomposition products may include the following materials:

carbon dioxide

carbon monoxide

sulfur oxides

halogenated compounds

metal oxide/oxides

BL21-Gold(DE3) pLysS

Decomposition products may include the following materials:

Competent Cells

carbon dioxide

carbon monoxide

sulfur oxides

halogenated compounds

metal oxide/oxides

pUC 18 DNA Control Plasmid

No specific data.

pET-3a Vector

No specific data.

pET-3c Vector

No specific data.

pET-3d Vector

No specific data.

pET-3b Vector

No specific data.

5.3 Advice for firefighters

Special protective actions for fire-fighters

: BL21-Gold(DE3) Competent Cells

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.

BL21-Gold(DE3) pLysS

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.

Competent Cells

pUC 18 DNA Control Plasmid

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.

pET-3a 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.

pET-3c 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

Section 5. Fire-fighting measures

	pET-3d Vector	without suitable training. 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.
	pET-3b 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 equipment for fire-fighters	: BL21-Gold(DE3) Competent Cells	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	BL21-Gold(DE3) pLysS Competent Cells	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	pUC 18 DNA Control Plasmid	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	pET-3a Vector	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	pET-3c Vector	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	pET-3d Vector	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	pET-3b Vector	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	: BL21-Gold(DE3) Competent Cells	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.
	BL21-Gold(DE3) pLysS Competent Cells	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.

Section 6. Accidental release measures

pUC 18 DNA Control Plasmid	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.
pET-3a 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.
pET-3c 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.
pET-3d 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.
pET-3b 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.
For emergency responders : BL21-Gold(DE3) Competent Cells	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".
BL21-Gold(DE3) pLysS Competent Cells	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".
pUC 18 DNA Control Plasmid	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".
pET-3a 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".
pET-3c 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".
pET-3d 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".
pET-3b 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".

Section 6. Accidental release measures

6.2 Environmental precautions

: BL21-Gold(DE3) Competent Cells	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).
BL21-Gold(DE3) pLysS Competent Cells	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).
pUC 18 DNA Control Plasmid	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).
pET-3a 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).
pET-3c 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).
pET-3d 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).
pET-3b 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).

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up : BL21-Gold(DE3) Competent Cells	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.
BL21-Gold(DE3) pLysS Competent Cells	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.
pUC 18 DNA Control Plasmid	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.
pET-3a Vector	Stop leak if without risk. Move containers from spill

Section 6. Accidental release measures

	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.
pET-3c 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.
pET-3d 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.
pET-3b 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 7. Handling and storage

7.1 Precautions for safe handling

Protective measures	: BL21-Gold(DE3) Competent Cells	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.
	BL21-Gold(DE3) pLysS Competent Cells	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.
	pUC 18 DNA Control Plasmid	Put on appropriate personal protective equipment (see Section 8).
	pET-3a Vector	Put on appropriate personal protective equipment (see Section 8).
	pET-3c Vector	Put on appropriate personal protective equipment (see Section 8).
	pET-3d Vector	Put on appropriate personal protective equipment (see Section 8).
	pET-3b Vector	Put on appropriate personal protective equipment (see Section 8).

Section 7. Handling and storage

Advice on general occupational hygiene	: BL21-Gold(DE3) Competent Cells	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.
	BL21-Gold(DE3) pLysS Competent Cells	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.
	pUC 18 DNA Control Plasmid	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.
	pET-3a 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.
	pET-3c 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.
	pET-3d 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.
	pET-3b 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.

7.2 Conditions for safe storage, including any incompatibilities :

Section 7. Handling and storage

BL21-Gold(DE3) Competent Cells	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.
BL21-Gold(DE3) pLysS Competent Cells	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.
pUC 18 DNA Control Plasmid	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.
pET-3a 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.
pET-3c 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.
pET-3d 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

Section 7. Handling and storage

pET-3b Vector

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. 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)

Recommendations

BL21-Gold(DE3) Competent Cells	Industrial applications, Professional applications.
BL21-Gold(DE3) pLysS Competent Cells	Industrial applications, Professional applications.
pUC 18 DNA Control Plasmid	Industrial applications, Professional applications.
pET-3a Vector	Industrial applications, Professional applications.
pET-3c Vector	Industrial applications, Professional applications.
pET-3d Vector	Industrial applications, Professional applications.
pET-3b Vector	Industrial applications, Professional applications.

Industrial sector specific solutions

BL21-Gold(DE3) Competent Cells	Not applicable.
BL21-Gold(DE3) pLysS Competent Cells	Not applicable.
pUC 18 DNA Control Plasmid	Not applicable.
pET-3a Vector	Not applicable.
pET-3c Vector	Not applicable.
pET-3d Vector	Not applicable.
pET-3b Vector	Not applicable.

Section 8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
BL21-Gold(DE3) Competent Cells	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 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 AIHA WEEL (United States, 10/2011). TWA: 250 ppm 8 hours. None.
Glycerol	
Dimethyl sulfoxide	
Potassium chloride	
BL21-Gold(DE3) pLysS Competent Cells	OSHA PEL 1989 (United States, 3/1989).
Glycerol	

Section 8. Exposure controls/personal protection

<p>Dimethyl sulfoxide</p> <p>Potassium chloride</p>	<p>TWA: 5 mg/m³ 8 hours. Form: Respirable fraction</p> <p>TWA: 10 mg/m³ 8 hours. Form: Total dust OSHA PEL (United States, 6/2016).</p> <p>TWA: 5 mg/m³ 8 hours. Form: Respirable fraction</p> <p>TWA: 15 mg/m³ 8 hours. Form: Total dust AIHA WEEL (United States, 10/2011).</p> <p>TWA: 250 ppm 8 hours.</p> <p>None.</p>
---	---

8.2 Exposure controls

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

Individual protection measures

- Hygiene measures** : Handle as biohazard material (Biosafety level 1). Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Section 9. Physical and chemical properties

Physical state	: BL21-Gold(DE3) Competent Cells	Liquid.
	BL21-Gold(DE3) pLysS	Liquid.
	Competent Cells	
	pUC 18 DNA Control Plasmid	Liquid.
	pET-3a Vector	Liquid.
	pET-3c Vector	Liquid.
	pET-3d Vector	Liquid.
Color	pET-3b Vector	Liquid.
	: BL21-Gold(DE3) Competent Cells	Not available.
	BL21-Gold(DE3) pLysS	Not available.
	Competent Cells	
	pUC 18 DNA Control Plasmid	Not available.
	pET-3a Vector	Not available.
	pET-3c Vector	Not available.
Odor	pET-3d Vector	Not available.
	pET-3b Vector	Not available.
	: BL21-Gold(DE3) Competent Cells	Not available.
	BL21-Gold(DE3) pLysS	Not available.
	Competent Cells	
	pUC 18 DNA Control Plasmid	Not available.
	pET-3a Vector	Not available.
Odor threshold	pET-3c Vector	Not available.
	pET-3d Vector	Not available.
	pET-3b Vector	Not available.
	: BL21-Gold(DE3) Competent Cells	Not available.
	BL21-Gold(DE3) pLysS	Not available.
	Competent Cells	
	pUC 18 DNA Control Plasmid	Not available.
pH	pET-3a Vector	Not available.
	pET-3c Vector	Not available.
	pET-3d Vector	Not available.
	pET-3b Vector	Not available.
	: BL21-Gold(DE3) Competent Cells	6.4
	BL21-Gold(DE3) pLysS	6.4
	Competent Cells	
Melting point	pUC 18 DNA Control Plasmid	7.5
	pET-3a Vector	7.5
	pET-3c Vector	7.5
	pET-3d Vector	7.5
	pET-3b Vector	7.5
	: BL21-Gold(DE3) Competent Cells	Not available.
	BL21-Gold(DE3) pLysS	Not available.
Boiling point	Competent Cells	
	pUC 18 DNA Control Plasmid	0°C (32°F)
	pET-3a Vector	0°C (32°F)
	pET-3c Vector	0°C (32°F)
	pET-3d Vector	0°C (32°F)
	pET-3b Vector	0°C (32°F)
	: BL21-Gold(DE3) Competent Cells	Not available.
BL21-Gold(DE3) pLysS	Not available.	
Competent Cells		
pUC 18 DNA Control Plasmid	100°C (212°F)	
pET-3a Vector	100°C (212°F)	
pET-3c Vector	100°C (212°F)	
pET-3d Vector	100°C (212°F)	
pET-3b Vector	100°C (212°F)	

Section 9. Physical and chemical properties

Flash point	: BL21-Gold(DE3) Competent Cells BL21-Gold(DE3) pLysS Competent Cells pUC 18 DNA Control Plasmid pET-3a Vector pET-3c Vector pET-3d Vector pET-3b Vector	Not available. Not available. Not available. Not available. Not available. Not available. Not available.
Evaporation rate	: BL21-Gold(DE3) Competent Cells BL21-Gold(DE3) pLysS Competent Cells pUC 18 DNA Control Plasmid pET-3a Vector pET-3c Vector pET-3d Vector pET-3b Vector	Not available. Not available. Not available. Not available. Not available. Not available. Not available.
Flammability (solid, gas)	: BL21-Gold(DE3) Competent Cells BL21-Gold(DE3) pLysS Competent Cells pUC 18 DNA Control Plasmid pET-3a Vector pET-3c Vector pET-3d Vector pET-3b Vector	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.
Lower and upper explosive (flammable) limits	: BL21-Gold(DE3) Competent Cells BL21-Gold(DE3) pLysS Competent Cells pUC 18 DNA Control Plasmid pET-3a Vector pET-3c Vector pET-3d Vector pET-3b Vector	Not available. Not available. Not available. Not available. Not available. Not available. Not available.
Vapor pressure	: BL21-Gold(DE3) Competent Cells BL21-Gold(DE3) pLysS Competent Cells pUC 18 DNA Control Plasmid pET-3a Vector pET-3c Vector pET-3d Vector pET-3b Vector	Not available. Not available. Not available. Not available. Not available. Not available. Not available.
Vapor density	: BL21-Gold(DE3) Competent Cells BL21-Gold(DE3) pLysS Competent Cells pUC 18 DNA Control Plasmid pET-3a Vector pET-3c Vector pET-3d Vector pET-3b Vector	Not available. Not available. Not available. Not available. Not available. Not available. Not available.
Relative density	: BL21-Gold(DE3) Competent Cells BL21-Gold(DE3) pLysS Competent Cells pUC 18 DNA Control Plasmid pET-3a Vector pET-3c Vector pET-3d Vector pET-3b Vector	Not available. Not available. Not available. Not available. Not available. Not available. Not available.

Section 9. Physical and chemical properties

Solubility	<ul style="list-style-type: none"> : BL21-Gold(DE3) Competent Cells BL21-Gold(DE3) pLysS Competent Cells pUC 18 DNA Control Plasmid pET-3a Vector pET-3c Vector pET-3d Vector pET-3b Vector 	<ul style="list-style-type: none"> Soluble in the following materials: cold water and hot water. Soluble in the following materials: cold water and hot water. Easily soluble in the following materials: cold water and hot water. Easily soluble in the following materials: cold water and hot water. Easily soluble in the following materials: cold water and hot water. Easily soluble in the following materials: cold water and hot water. Easily soluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water	<ul style="list-style-type: none"> : BL21-Gold(DE3) Competent Cells BL21-Gold(DE3) pLysS Competent Cells pUC 18 DNA Control Plasmid pET-3a Vector pET-3c Vector pET-3d Vector pET-3b Vector 	<ul style="list-style-type: none"> Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available.
Auto-ignition temperature	<ul style="list-style-type: none"> : BL21-Gold(DE3) Competent Cells BL21-Gold(DE3) pLysS Competent Cells pUC 18 DNA Control Plasmid pET-3a Vector pET-3c Vector pET-3d Vector pET-3b Vector 	<ul style="list-style-type: none"> Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available.
Decomposition temperature	<ul style="list-style-type: none"> : BL21-Gold(DE3) Competent Cells BL21-Gold(DE3) pLysS Competent Cells pUC 18 DNA Control Plasmid pET-3a Vector pET-3c Vector pET-3d Vector pET-3b Vector 	<ul style="list-style-type: none"> Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available.
Viscosity	<ul style="list-style-type: none"> : BL21-Gold(DE3) Competent Cells BL21-Gold(DE3) pLysS Competent Cells pUC 18 DNA Control Plasmid pET-3a Vector pET-3c Vector pET-3d Vector pET-3b Vector 	<ul style="list-style-type: none"> Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available.

Section 10. Stability and reactivity

10.1 Reactivity	<ul style="list-style-type: none"> : BL21-Gold(DE3) Competent Cells BL21-Gold(DE3) pLysS Competent Cells pUC 18 DNA Control Plasmid pET-3a Vector pET-3c Vector 	<ul style="list-style-type: none"> No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients.
------------------------	---	--

Section 10. Stability and reactivity

	pET-3d Vector	for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients.
	pET-3b Vector	No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	: BL21-Gold(DE3) Competent Cells	The product is stable.
	BL21-Gold(DE3) pLysS Competent Cells	The product is stable.
	pUC 18 DNA Control Plasmid	The product is stable.
	pET-3a Vector	The product is stable.
	pET-3c Vector	The product is stable.
	pET-3d Vector	The product is stable.
	pET-3b Vector	The product is stable.
10.3 Possibility of hazardous reactions	: BL21-Gold(DE3) Competent Cells	Under normal conditions of storage and use, hazardous reactions will not occur.
	BL21-Gold(DE3) pLysS Competent Cells	Under normal conditions of storage and use, hazardous reactions will not occur.
	pUC 18 DNA Control Plasmid	Under normal conditions of storage and use, hazardous reactions will not occur.
	pET-3a Vector	Under normal conditions of storage and use, hazardous reactions will not occur.
	pET-3c Vector	Under normal conditions of storage and use, hazardous reactions will not occur.
	pET-3d Vector	Under normal conditions of storage and use, hazardous reactions will not occur.
	pET-3b Vector	Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	: BL21-Gold(DE3) Competent Cells	No specific data.
	BL21-Gold(DE3) pLysS Competent Cells	No specific data.
	pUC 18 DNA Control Plasmid	No specific data.
	pET-3a Vector	No specific data.
	pET-3c Vector	No specific data.
	pET-3d Vector	No specific data.
	pET-3b Vector	No specific data.
10.5 Incompatible materials	: BL21-Gold(DE3) Competent Cells	May react or be incompatible with oxidizing materials.
	BL21-Gold(DE3) pLysS Competent Cells	May react or be incompatible with oxidizing materials.
	pUC 18 DNA Control Plasmid	May react or be incompatible with oxidizing materials.
	pET-3a Vector	May react or be incompatible with oxidizing materials.
	pET-3c Vector	May react or be incompatible with oxidizing materials.
	pET-3d Vector	May react or be incompatible with oxidizing materials.
	pET-3b Vector	May react or be incompatible with oxidizing materials.

Section 10. Stability and reactivity

10.6 Hazardous decomposition products	: BL21-Gold(DE3) Competent Cells	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	BL21-Gold(DE3) pLysS Competent Cells	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	pUC 18 DNA Control Plasmid	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	pET-3a Vector	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	pET-3c Vector	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	pET-3d Vector	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	pET-3b Vector	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
BL21-Gold(DE3) Competent Cells				
Glycerol	LD50 Oral	Rat	12600 mg/kg	-
Dimethyl sulfoxide	LD50 Dermal	Rat	40000 mg/kg	-
	LD50 Oral	Rat	14500 mg/kg	-
Potassium chloride	LD50 Oral	Rat	2600 mg/kg	-
BL21-Gold(DE3) pLysS Competent Cells				
Glycerol	LD50 Oral	Rat	12600 mg/kg	-
Dimethyl sulfoxide	LD50 Dermal	Rat	40000 mg/kg	-
	LD50 Oral	Rat	14500 mg/kg	-
Potassium chloride	LD50 Oral	Rat	2600 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
BL21-Gold(DE3) Competent Cells					
Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
Dimethyl sulfoxide	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Eyes - Mild irritant	Rabbit	-	100 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	100 milligrams	-

Section 11. Toxicological information

Potassium chloride	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
BL21-Gold(DE3) pLysS Competent Cells					
Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
Dimethyl sulfoxide	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Eyes - Mild irritant	Rabbit	-	100 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	100 milligrams	-
Potassium chloride	Eyes - 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.

Information on the likely routes of exposure	: BL21-Gold(DE3) Competent Cells	Routes of entry anticipated: Oral, Dermal, Inhalation.
	BL21-Gold(DE3) pLysS Competent Cells	Routes of entry anticipated: Oral, Dermal, Inhalation.
	pUC 18 DNA Control Plasmid	Not available.
	pET-3a Vector	Not available.
	pET-3c Vector	Not available.
	pET-3d Vector	Not available.
	pET-3b Vector	Not available.

Potential acute health effects

Section 11. Toxicological information

Eye contact	: BL21-Gold(DE3) Competent Cells	Causes eye irritation.
	BL21-Gold(DE3) pLysS	Causes eye irritation.
	Competent Cells	
	pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.
	pET-3a Vector	No known significant effects or critical hazards.
	pET-3c Vector	No known significant effects or critical hazards.
Inhalation	: BL21-Gold(DE3) Competent Cells	No known significant effects or critical hazards.
	BL21-Gold(DE3) pLysS	No known significant effects or critical hazards.
	Competent Cells	
	pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.
	pET-3a Vector	No known significant effects or critical hazards.
	pET-3c Vector	No known significant effects or critical hazards.
Skin contact	: BL21-Gold(DE3) Competent Cells	No known significant effects or critical hazards.
	BL21-Gold(DE3) pLysS	No known significant effects or critical hazards.
	Competent Cells	
	pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.
	pET-3a Vector	No known significant effects or critical hazards.
	pET-3c Vector	No known significant effects or critical hazards.
Ingestion	: BL21-Gold(DE3) Competent Cells	No known significant effects or critical hazards.
	BL21-Gold(DE3) pLysS	No known significant effects or critical hazards.
	Competent Cells	
	pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.
	pET-3a Vector	No known significant effects or critical hazards.
	pET-3c Vector	No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	: BL21-Gold(DE3) Competent Cells	Adverse symptoms may include the following: irritation watering redness
	BL21-Gold(DE3) pLysS	Adverse symptoms may include the following:
	Competent Cells	irritation watering redness
	pUC 18 DNA Control Plasmid	No specific data.
	pET-3a Vector	No specific data.
	pET-3c Vector	No specific data.
Inhalation	: BL21-Gold(DE3) Competent Cells	No specific data.
	BL21-Gold(DE3) pLysS	No specific data.
	Competent Cells	
	pUC 18 DNA Control Plasmid	No specific data.
	pET-3a Vector	No specific data.
	pET-3c Vector	No specific data.

Section 11. Toxicological information

Skin contact	: BL21-Gold(DE3) Competent Cells	No specific data.
	BL21-Gold(DE3) pLysS	No specific data.
	Competent Cells	
	pUC 18 DNA Control Plasmid	No specific data.
	pET-3a Vector	No specific data.
	pET-3c Vector	No specific data.
Ingestion	: BL21-Gold(DE3) Competent Cells	No specific data.
	BL21-Gold(DE3) pLysS	No specific data.
	Competent Cells	
	pUC 18 DNA Control Plasmid	No specific data.
	pET-3a Vector	No specific data.
	pET-3c Vector	No specific data.
	pET-3d Vector	No specific data.
	pET-3b Vector	No specific data.

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

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

General : BL21-Gold(DE3) Competent Cells No known significant effects or critical hazards.
 BL21-Gold(DE3) pLysS No known significant effects or critical hazards.
 Competent Cells
 pUC 18 DNA Control Plasmid No known significant effects or critical hazards.
 pET-3a Vector No known significant effects or critical hazards.
 pET-3c Vector No known significant effects or critical hazards.
 pET-3d Vector No known significant effects or critical hazards.
 pET-3b Vector No known significant effects or critical hazards.

Carcinogenicity : BL21-Gold(DE3) Competent Cells No known significant effects or critical hazards.
 BL21-Gold(DE3) pLysS No known significant effects or critical hazards.
 Competent Cells
 pUC 18 DNA Control Plasmid No known significant effects or critical hazards.
 pET-3a Vector No known significant effects or critical hazards.
 pET-3c Vector No known significant effects or critical hazards.
 pET-3d Vector No known significant effects or critical hazards.
 pET-3b Vector No known significant effects or critical hazards.

Mutagenicity : BL21-Gold(DE3) Competent Cells No known significant effects or critical hazards.
 BL21-Gold(DE3) pLysS No known significant effects or critical hazards.
 Competent Cells
 pUC 18 DNA Control Plasmid No known significant effects or critical hazards.
 pET-3a Vector No known significant effects or critical hazards.
 pET-3c Vector No known significant effects or critical hazards.
 pET-3d Vector No known significant effects or critical hazards.
 pET-3b Vector No known significant effects or critical hazards.

Section 11. Toxicological information

Teratogenicity	: BL21-Gold(DE3) Competent Cells BL21-Gold(DE3) pLysS Competent Cells pUC 18 DNA Control Plasmid pET-3a Vector pET-3c Vector pET-3d Vector pET-3b Vector	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Developmental effects	: BL21-Gold(DE3) Competent Cells BL21-Gold(DE3) pLysS Competent Cells pUC 18 DNA Control Plasmid pET-3a Vector pET-3c Vector pET-3d Vector pET-3b Vector	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Fertility effects	: BL21-Gold(DE3) Competent Cells BL21-Gold(DE3) pLysS Competent Cells pUC 18 DNA Control Plasmid pET-3a Vector pET-3c Vector pET-3d Vector pET-3b Vector	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
BL21-Gold(DE3) Competent Cells Oral	136842.1 mg/kg
BL21-Gold(DE3) pLysS Competent Cells Oral	136842.1 mg/kg

Section 12. Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
BL21-Gold(DE3) Competent Cells Glycerol Dimethyl sulfoxide	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Acute LC50 25000 ppm Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
Potassium chloride	Acute LC50 34000000 µg/l Fresh water	Fish - Pimephales promelas	96 hours
	Chronic NOEC 100 µl/L Marine water	Algae - Ulva lactuca	72 hours
	Acute EC50 1337000 µg/l Fresh water	Algae - Navicula seminulum	96 hours
	Acute EC50 9.24 g/L Fresh water	Algae - Desmodesmus subspicatus	72 hours
	Acute EC50 141460 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 12.92 mg/l Fresh water	Crustaceans - Pseudosida ramosa - Neonate	48 hours
	Acute LC50 880 mg/l Fresh water	Fish - Pimephales promelas	96 hours

Section 12. Ecological information

BL21-Gold(DE3) pLysS Competent Cells Glycerol Dimethyl sulfoxide	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Acute LC50 25000 ppm Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
Potassium chloride	Acute LC50 34000000 µg/l Fresh water	Fish - Pimephales promelas	96 hours
	Chronic NOEC 100 µl/L Marine water	Algae - Ulva lactuca	72 hours
	Acute EC50 1337000 µg/l Fresh water	Algae - Navicula seminulum	96 hours
	Acute EC50 9.24 g/L Fresh water	Algae - Desmodesmus subspicatus	72 hours
	Acute EC50 141460 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 12.92 mg/l Fresh water	Crustaceans - Pseudosida ramosa - Neonate	48 hours
	Acute LC50 880 mg/l Fresh water	Fish - Pimephales promelas	96 hours

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
BL21-Gold(DE3) Competent Cells Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-
BL21-Gold(DE3) pLysS Competent Cells Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
BL21-Gold(DE3) Competent Cells Potassium chloride	-	-	Readily
BL21-Gold(DE3) pLysS Competent Cells Potassium chloride	-	-	Readily

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
BL21-Gold(DE3) Competent Cells Glycerol	-1.76	-	low
Dimethyl sulfoxide	-1.35	3.16	low
Potassium chloride	-0.46	-	low
BL21-Gold(DE3) pLysS Competent Cells Glycerol	-1.76	-	low
Dimethyl sulfoxide	-1.35	3.16	low
Potassium chloride	-0.46	-	low

Section 12. Ecological information

12.4 Mobility in soil

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

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

Section 13. Disposal considerations

13.1 Waste treatment methods

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

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

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

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

Section 14. Transport information

DOT / TDG / Mexico / IMDG / IATA : Not regulated.

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

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

Section 15. Regulatory information

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

U.S. Federal regulations : TSCA 8(a) CDR Exempt/Partial exemption: Not determined
Clean Water Act (CWA) 311: Edetic acid

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Listed

Section 15. Regulatory information

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	:	BL21-Gold(DE3) Competent Cells	EYE IRRITATION - Category 2B
		BL21-Gold(DE3) pLysS Competent Cells	EYE IRRITATION - Category 2B
		pUC 18 DNA Control Plasmid	Not applicable.
		pET-3a Vector	Not applicable.
		pET-3c Vector	Not applicable.
		pET-3d Vector	Not applicable.
		pET-3b Vector	Not applicable.

Composition/information on ingredients

Name	%	Classification
BL21-Gold(DE3) Competent Cells		
Glycerol	≥10 - ≤25	EYE IRRITATION - Category 2A
Dimethyl sulfoxide	≤10	FLAMMABLE LIQUIDS - Category 4 EYE IRRITATION - Category 2A
Sucrose	≤10	COMBUSTIBLE DUSTS
Potassium chloride	≤3	EYE IRRITATION - Category 2A
BL21-Gold(DE3) pLysS Competent Cells		
Glycerol	≥10 - ≤25	EYE IRRITATION - Category 2A
Dimethyl sulfoxide	≤10	FLAMMABLE LIQUIDS - Category 4 EYE IRRITATION - Category 2A
Sucrose	≤10	COMBUSTIBLE DUSTS
Potassium chloride	≤3	EYE IRRITATION - Category 2A

State regulations

Massachusetts : The following components are listed: SUCROSE DUST; GLYCERINE MIST

New York : None of the components are listed.

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

Pennsylvania : The following components are listed: .ALPHA.-D-GLUCOPYRANOSIDE, .BETA.-D-FRUCTOFURANOSYL; 1,2,3-PROPANETRIOL

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

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

Not listed.

Section 15. Regulatory information

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia	: All components are listed or exempted.
Canada	: All components are listed or exempted.
China	: Not determined.
Europe	: All components are listed or exempted.
Japan	: Japan inventory (ENCS): Not determined. Japan inventory (ISHL): All components are listed or exempted.
Malaysia	: Not determined.
New Zealand	: Not determined.
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	: 06/22/2018
Date of previous issue	: 08/31/2016
Version	: 5

Procedure used to derive the classification

Classification	Justification
BL21-Gold(DE3) Competent Cells EYE IRRITATION - Category 2B	Calculation method
BL21-Gold(DE3) pLysS Competent Cells EYE IRRITATION - Category 2B	Calculation method

Indicates information that has changed from previously issued version.

Notice to reader

Disclaimer: The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.