

SAFETY DATA SHEET



AdEasy Adenoviral Vector System Kit, Part Number 240009

Section 1. Identification

1.1 Product identifier

Product name : AdEasy Adenoviral Vector System Kit, Part Number 240009
Part No. (Chemical Kit) : 240009
Part No. : pADEasy-1 Vector 240005-51
 pShuttle Vector 240006-51
 pShuttle-CMV Vector 240007-51
 pShuttle-CMV-lacZ Control Vector 240008-51
 BJ5183 electroporation competent cells 200154-41
 XL10-Gold Ultracompetent cells 200315-41
 XL10-Gold 2-Mercaptoethanol 200314-43
 pUC 18 DNA Control Plasmid 200231-42

Validation date : 3/28/2017

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

Material uses : Analytical reagent.

pADEasy-1 Vector	0.025 ml (2.5 µg 100 ng/µl)
pShuttle Vector	0.02 ml (20 µg 1 µg/µl)
pShuttle-CMV Vector	0.02 ml (20 µg 1 µg/µl)
pShuttle-CMV-lacZ Control Vector	0.01 ml (10 µg 1 µg/µl)
BJ5183 electroporation competent cells	0.5 ml
XL10-Gold Ultracompetent cells	0.5 ml
XL10-Gold 2-Mercaptoethanol	0.05 ml
pUC 18 DNA Control Plasmid	0.01 ml (0.1 ng/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 : pADEasy-1 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.
pShuttle 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.
pShuttle-CMV 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

Section 2. Hazards identification

pShuttle-CMV-lacZ Control Vector	the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
BJ5183 electroporation competent cells	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.
XL10-Gold Ultracompetent cells XL10-Gold 2-Mercaptoethanol pUC 18 DNA Control Plasmid	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. This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). 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

XL10-Gold Ultracompetent cells

H320 EYE IRRITATION - Category 2B

XL10-Gold 2-Mercaptoethanol

H318 SERIOUS EYE DAMAGE - Category 1
H317 SKIN SENSITIZATION - Category 1

2.2 GHS label elements

Hazard pictograms



Signal word

: pADEasy-1 Vector No signal word.
pShuttle Vector No signal word.
pShuttle-CMV Vector No signal word.
pShuttle-CMV-lacZ Control Vector No signal word.
BJ5183 electroporation competent cells No signal word.
XL10-Gold Ultracompetent cells Warning
XL10-Gold 2-Mercaptoethanol Danger
pUC 18 DNA Control Plasmid No signal word.

Hazard statements

: pADEasy-1 Vector No known significant effects or critical hazards.
pShuttle Vector No known significant effects or critical hazards.
pShuttle-CMV Vector No known significant effects or critical hazards.
pShuttle-CMV-lacZ Control Vector No known significant effects or critical hazards.
BJ5183 electroporation competent cells No known significant effects or critical hazards.
XL10-Gold Ultracompetent cells H320 - Causes eye irritation.
XL10-Gold 2-Mercaptoethanol GHS SYMBOL - **Corrosion - Exclamation mark** - H318 - Causes serious eye damage.

Section 2. Hazards identification

	pUC 18 DNA Control Plasmid	H317 - May cause an allergic skin reaction. No known significant effects or critical hazards.
Precautionary statements		
Prevention	: pADEasy-1 Vector pShuttle Vector pShuttle-CMV Vector pShuttle-CMV-lacZ Control Vector BJ5183 electroporation competent cells XL10-Gold Ultracompetent cells XL10-Gold 2-Mercaptoethanol	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. P264 - Wash hands thoroughly after handling. P280 - Wear protective gloves. Wear eye or face protection. P261 - Avoid breathing vapor. P272 (OSHA) - Contaminated work clothing must not be allowed out of the workplace.
Response	: pUC 18 DNA Control Plasmid pADEasy-1 Vector pShuttle Vector pShuttle-CMV Vector pShuttle-CMV-lacZ Control Vector BJ5183 electroporation competent cells XL10-Gold Ultracompetent cells XL10-Gold 2-Mercaptoethanol	Not applicable. Not applicable. 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 attention. P302 + P352 + P363 - IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse. P333 + P313 - If skin irritation or rash occurs: Get medical attention. P305 + P351 + P338 + P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.
Storage	: pUC 18 DNA Control Plasmid pADEasy-1 Vector pShuttle Vector pShuttle-CMV Vector pShuttle-CMV-lacZ Control Vector BJ5183 electroporation competent cells XL10-Gold Ultracompetent cells XL10-Gold 2-Mercaptoethanol	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.
Disposal	: pUC 18 DNA Control Plasmid pADEasy-1 Vector pShuttle Vector pShuttle-CMV Vector pShuttle-CMV-lacZ Control Vector BJ5183 electroporation competent cells XL10-Gold Ultracompetent cells XL10-Gold 2-Mercaptoethanol	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Section 2. Hazards identification

Supplemental label elements	pUC 18 DNA Control Plasmid	Not applicable.
	: pADEasy-1 Vector	None known.
	pShuttle Vector	None known.
	pShuttle-CMV Vector	None known.
	pShuttle-CMV-lacZ Control Vector	None known.
	BJ5183 electroporation competent cells	None known.
	XL10-Gold Ultracompetent cells	None known.
	XL10-Gold 2-Mercaptoethanol	None known.
pUC 18 DNA Control Plasmid	None known.	

2.3 Other hazards

Hazards not otherwise classified	: pADEasy-1 Vector	None known.
	pShuttle Vector	None known.
	pShuttle-CMV Vector	None known.
	pShuttle-CMV-lacZ Control Vector	None known.
	BJ5183 electroporation competent cells	None known.
	XL10-Gold Ultracompetent cells	None known.
	XL10-Gold 2-Mercaptoethanol	None known.
	pUC 18 DNA Control Plasmid	None known.

Section 3. Composition/information on ingredients

Substance/mixture	: pADEasy-1 Vector	Mixture
	pShuttle Vector	Mixture
	pShuttle-CMV Vector	Mixture
	pShuttle-CMV-lacZ Control Vector	Mixture
	BJ5183 electroporation competent cells	Mixture
	XL10-Gold Ultracompetent cells	Mixture
	XL10-Gold 2-Mercaptoethanol	Mixture
	pUC 18 DNA Control Plasmid	Mixture

Ingredient name	%	CAS number
BJ5183 electroporation competent cells		
Glycerol	<10	56-81-5
XL10-Gold Ultracompetent cells		
Glycerol	≥10 - ≤25	56-81-5
Dimethyl sulfoxide	≤10	67-68-5
Potassium chloride	≤3	7447-40-7
XL10-Gold 2-Mercaptoethanol		
Sodium chloride	≥10 - ≤25	7647-14-5
2-Mercaptoethanol	≤5	60-24-2

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	: pADEasy-1 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.
	pShuttle 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.
	pShuttle-CMV 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.
	pShuttle-CMV-lacZ Control Vector	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
	BJ5183 electroporation competent cells	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.
	XL10-Gold Ultracompetent 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.
	XL10-Gold 2-Mercaptoethanol	Get medical attention immediately. Call a poison center or physician. 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. Chemical burns must be treated promptly by a physician.
	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.
Inhalation	: pADEasy-1 Vector	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	pShuttle Vector	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	pShuttle-CMV Vector	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	pShuttle-CMV-lacZ Control Vector	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	BJ5183 electroporation competent cells	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	XL10-Gold Ultracompetent 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

Section 4. First aid measures

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.

Get medical attention immediately. Call a poison center or physician. 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. 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.

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

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Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

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.

Get medical attention immediately. Call a poison center or physician. 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. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

XL10-Gold 2-Mercaptoethanol

pUC 18 DNA Control Plasmid

Skin contact

: pADEasy-1 Vector

pShuttle Vector

pShuttle-CMV Vector

pShuttle-CMV-lacZ Control Vector

BJ5183 electroporation competent cells

XL10-Gold Ultracompetent cells

XL10-Gold 2-Mercaptoethanol

pUC 18 DNA Control Plasmid

Section 4. First aid measures

Ingestion	: pADEasy-1 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.
	pShuttle 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.
	pShuttle-CMV 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.
	pShuttle-CMV-lacZ Control Vector	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
	BJ5183 electroporation competent cells	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.
	XL10-Gold Ultracompetent 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.
	XL10-Gold 2-Mercaptoethanol	Get medical attention immediately. Call a poison center or physician. 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

Section 4. First aid measures

pUC 18 DNA Control Plasmid	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. Chemical burns must be treated promptly by a 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. 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.
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4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact	: pADEasy-1 Vector pShuttle Vector pShuttle-CMV Vector pShuttle-CMV-lacZ Control Vector BJ5183 electroporation competent cells XL10-Gold Ultracompetent cells XL10-Gold 2-Mercaptoethanol pUC 18 DNA Control Plasmid	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. Causes eye irritation. Causes serious eye damage. No known significant effects or critical hazards.
Inhalation	: pADEasy-1 Vector pShuttle Vector pShuttle-CMV Vector pShuttle-CMV-lacZ Control Vector BJ5183 electroporation competent cells XL10-Gold Ultracompetent cells XL10-Gold 2-Mercaptoethanol pUC 18 DNA Control Plasmid	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. No known significant effects or critical hazards.
Skin contact	: pADEasy-1 Vector pShuttle Vector pShuttle-CMV Vector pShuttle-CMV-lacZ Control Vector BJ5183 electroporation competent cells XL10-Gold Ultracompetent cells XL10-Gold 2-Mercaptoethanol pUC 18 DNA Control Plasmid	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. May cause an allergic skin reaction. No known significant effects or critical hazards.
Ingestion	: pADEasy-1 Vector pShuttle Vector pShuttle-CMV Vector pShuttle-CMV-lacZ Control Vector BJ5183 electroporation competent cells XL10-Gold Ultracompetent cells XL10-Gold 2-Mercaptoethanol pUC 18 DNA Control Plasmid	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. No known significant effects or critical hazards.

Over-exposure signs/symptoms

Section 4. First aid measures

Eye contact	:	pADEasy-1 Vector	No specific data.
		pShuttle Vector	No specific data.
		pShuttle-CMV Vector	No specific data.
		pShuttle-CMV-lacZ Control Vector	No specific data.
		BJ5183 electroporation competent cells	No specific data.
		XL10-Gold Ultracompetent cells	Adverse symptoms may include the following: irritation watering redness
		XL10-Gold 2-Mercaptoethanol	Adverse symptoms may include the following: pain watering redness
		pUC 18 DNA Control Plasmid	No specific data.
Inhalation	:	pADEasy-1 Vector	No specific data.
		pShuttle Vector	No specific data.
		pShuttle-CMV Vector	No specific data.
		pShuttle-CMV-lacZ Control Vector	No specific data.
		BJ5183 electroporation competent cells	No specific data.
		XL10-Gold Ultracompetent cells	No specific data.
		XL10-Gold 2-Mercaptoethanol	No specific data.
		pUC 18 DNA Control Plasmid	No specific data.
Skin contact	:	pADEasy-1 Vector	No specific data.
		pShuttle Vector	No specific data.
		pShuttle-CMV Vector	No specific data.
		pShuttle-CMV-lacZ Control Vector	No specific data.
		BJ5183 electroporation competent cells	No specific data.
		XL10-Gold Ultracompetent cells	No specific data.
		XL10-Gold 2-Mercaptoethanol	Adverse symptoms may include the following: pain or irritation redness blistering may occur
		pUC 18 DNA Control Plasmid	No specific data.
Ingestion	:	pADEasy-1 Vector	No specific data.
		pShuttle Vector	No specific data.
		pShuttle-CMV Vector	No specific data.
		pShuttle-CMV-lacZ Control Vector	No specific data.
		BJ5183 electroporation competent cells	No specific data.
		XL10-Gold Ultracompetent cells	No specific data.
		XL10-Gold 2-Mercaptoethanol	Adverse symptoms may include the following: stomach pains
		pUC 18 DNA Control Plasmid	No specific data.

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

Notes to physician	:	pADEasy-1 Vector	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		pShuttle Vector	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		pShuttle-CMV Vector	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Section 4. First aid measures

	pShuttle-CMV-lacZ Control Vector	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	BJ5183 electroporation competent cells	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	XL10-Gold Ultracompetent cells	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	XL10-Gold 2-Mercaptoethanol	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.
Specific treatments	: pADEasy-1 Vector	No specific treatment.
	pShuttle Vector	No specific treatment.
	pShuttle-CMV Vector	No specific treatment.
	pShuttle-CMV-lacZ Control Vector	No specific treatment.
	BJ5183 electroporation competent cells	No specific treatment.
	XL10-Gold Ultracompetent cells	No specific treatment.
	XL10-Gold 2-Mercaptoethanol	No specific treatment.
	pUC 18 DNA Control Plasmid	No specific treatment.
Protection of first-aiders	: pADEasy-1 Vector	No action shall be taken involving any personal risk or without suitable training.
	pShuttle Vector	No action shall be taken involving any personal risk or without suitable training.
	pShuttle-CMV Vector	No action shall be taken involving any personal risk or without suitable training.
	pShuttle-CMV-lacZ Control Vector	No action shall be taken involving any personal risk or without suitable training.
	BJ5183 electroporation competent cells	No action shall be taken involving any personal risk or without suitable training.
	XL10-Gold Ultracompetent cells	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.
	XL10-Gold 2-Mercaptoethanol	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.
	pUC 18 DNA Control Plasmid	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	:	pADEasy-1 Vector	Use an extinguishing agent suitable for the surrounding fire.
		pShuttle Vector	Use an extinguishing agent suitable for the surrounding fire.
		pShuttle-CMV Vector	Use an extinguishing agent suitable for the surrounding fire.
		pShuttle-CMV-lacZ Control Vector	Use an extinguishing agent suitable for the surrounding fire.
		BJ5183 electroporation competent cells	Use an extinguishing agent suitable for the surrounding fire.
		XL10-Gold Ultracompetent cells	Use an extinguishing agent suitable for the surrounding fire.
		XL10-Gold 2-Mercaptoethanol	Use an extinguishing agent suitable for the surrounding fire.
		pUC 18 DNA Control Plasmid	Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	:	pADEasy-1 Vector	None known.
		pShuttle Vector	None known.
		pShuttle-CMV Vector	None known.
		pShuttle-CMV-lacZ Control Vector	None known.
		BJ5183 electroporation competent cells	None known.
		XL10-Gold Ultracompetent cells	None known.
		XL10-Gold 2-Mercaptoethanol	None known.
		pUC 18 DNA Control Plasmid	None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards arising from the chemical	:	pADEasy-1 Vector	In a fire or if heated, a pressure increase will occur and the container may burst.
		pShuttle Vector	In a fire or if heated, a pressure increase will occur and the container may burst.
		pShuttle-CMV Vector	In a fire or if heated, a pressure increase will occur and the container may burst.
		pShuttle-CMV-lacZ Control Vector	In a fire or if heated, a pressure increase will occur and the container may burst.
		BJ5183 electroporation competent cells	In a fire or if heated, a pressure increase will occur and the container may burst.
		XL10-Gold Ultracompetent cells	In a fire or if heated, a pressure increase will occur and the container may burst.
		XL10-Gold 2-Mercaptoethanol	In a fire or if heated, a pressure increase will occur and the container may burst.
		pUC 18 DNA Control Plasmid	In a fire or if heated, a pressure increase will occur and the container may burst.
Hazardous thermal decomposition products	:	pADEasy-1 Vector	No specific data.
		pShuttle Vector	No specific data.
		pShuttle-CMV Vector	No specific data.
		pShuttle-CMV-lacZ Control Vector	No specific data.
		BJ5183 electroporation competent cells	Decomposition products may include the following materials: carbon dioxide carbon monoxide
		XL10-Gold Ultracompetent cells	Decomposition products may include the following materials: carbon dioxide carbon monoxide sulfur oxides

Section 5. Fire-fighting measures

	halogenated compounds metal oxide/oxides
XL10-Gold 2-Mercaptoethanol	Decomposition products may include the following materials: carbon dioxide carbon monoxide sulfur oxides halogenated compounds metal oxide/oxides
pUC 18 DNA Control Plasmid	No specific data.

5.3 Advice for firefighters

Special protective actions for fire-fighters

: pADEasy-1 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.
pShuttle 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.
pShuttle-CMV 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.
pShuttle-CMV-lacZ Control Vector	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
BJ5183 electroporation 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.
XL10-Gold Ultracompetent 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.
XL10-Gold 2-Mercaptoethanol	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.
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.

Special protective equipment for fire-fighters

: pADEasy-1 Vector	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
pShuttle Vector	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
pShuttle-CMV Vector	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
pShuttle-CMV-lacZ Control Vector	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus

Section 5. Fire-fighting measures

BJ5183 electroporation competent cells	(SCBA) with a full face-piece operated in positive pressure mode. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
XL10-Gold Ultracompetent cells	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
XL10-Gold 2-Mercaptoethanol	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.

Section 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	: pADEasy-1 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.
	pShuttle 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.
	pShuttle-CMV 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.
	pShuttle-CMV-lacZ Control Vector	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.
	BJ5183 electroporation 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. Put on appropriate personal protective equipment.
	XL10-Gold Ultracompetent 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

Section 6. Accidental release measures

	XL10-Gold 2-Mercaptoethanol	ventilation is inadequate. Put on appropriate personal protective equipment. 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. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
	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.
For emergency responders :	pADEasy-1 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".
	pShuttle 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".
	pShuttle-CMV 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".
	pShuttle-CMV-lacZ Control Vector	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	BJ5183 electroporation 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".
	XL10-Gold Ultracompetent 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".
	XL10-Gold 2-Mercaptoethanol	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".
6.2 Environmental precautions	: pADEasy-1 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).
	pShuttle Vector	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has

Section 6. Accidental release measures

pShuttle-CMV Vector	caused environmental pollution (sewers, waterways, soil or air). 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).
pShuttle-CMV-lacZ Control Vector	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
BJ5183 electroporation 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).
XL10-Gold Ultracompetent 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).
XL10-Gold 2-Mercaptoethanol	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).

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up : pADEasy-1 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.

pShuttle 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.

pShuttle-CMV 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.

pShuttle-CMV-lacZ Control Vector

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

Section 6. Accidental release measures

BJ5183 electroporation 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.
XL10-Gold Ultracompetent 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.
XL10-Gold 2-Mercaptoethanol	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.

Section 7. Handling and storage

7.1 Precautions for safe handling

Protective measures

: pADEasy-1 Vector	Put on appropriate personal protective equipment (see Section 8).
pShuttle Vector	Put on appropriate personal protective equipment (see Section 8).
pShuttle-CMV Vector	Put on appropriate personal protective equipment (see Section 8).
pShuttle-CMV-lacZ Control Vector	Put on appropriate personal protective equipment (see Section 8).
BJ5183 electroporation competent cells	Put on appropriate personal protective equipment (see Section 8).
XL10-Gold Ultracompetent 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.
XL10-Gold 2-Mercaptoethanol	Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Section 7. Handling and storage

Advice on general occupational hygiene

pUC 18 DNA Control Plasmid	Put on appropriate personal protective equipment (see Section 8).
: pADEasy-1 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.
pShuttle 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.
pShuttle-CMV 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.
pShuttle-CMV-lacZ Control Vector	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
BJ5183 electroporation 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.
XL10-Gold Ultracompetent 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.
XL10-Gold 2-Mercaptoethanol	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

Section 7. Handling and storage

7.2 Conditions for safe storage, including any incompatibilities

: pADEasy-1 Vector

for additional information on hygiene measures.

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.

pShuttle 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.

pShuttle-CMV 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.

pShuttle-CMV-lacZ Control Vector

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

BJ5183 electroporation 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.

XL10-Gold Ultracompetent 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

Section 7. Handling and storage

XL10-Gold 2-Mercaptoethanol

to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

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. Store locked up. 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.

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.

pUC 18 DNA Control Plasmid

7.3 Specific end use(s)

Recommendations

pADEasy-1 Vector	Industrial applications, Professional applications.
pShuttle Vector	Industrial applications, Professional applications.
pShuttle-CMV Vector	Industrial applications, Professional applications.
pShuttle-CMV-lacZ Control Vector	Industrial applications, Professional applications.
BJ5183 electroporation competent cells	Industrial applications, Professional applications.
XL10-Gold Ultracompetent cells	Industrial applications, Professional applications.
XL10-Gold 2-Mercaptoethanol	Industrial applications, Professional applications.
pUC 18 DNA Control Plasmid	Industrial applications, Professional applications.

Industrial sector specific solutions

pADEasy-1 Vector	Not applicable.
pShuttle Vector	Not applicable.
pShuttle-CMV Vector	Not applicable.
pShuttle-CMV-lacZ Control Vector	Not applicable.
BJ5183 electroporation competent cells	Not applicable.
XL10-Gold Ultracompetent cells	Not applicable.
XL10-Gold 2-Mercaptoethanol	Not applicable.
pUC 18 DNA Control Plasmid	Not applicable.

Section 8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
BJ5183 electroporation competent cells Glycerol	OSHA PEL 1989 (United States, 3/1989). TWA: 5 mg/m ³ 8 hours. Form: Respirable fraction TWA: 10 mg/m ³ 8 hours. Form: Total dust OSHA PEL (United States, 6/2016). TWA: 5 mg/m ³ 8 hours. Form: Respirable fraction

Section 8. Exposure controls/personal protection

XL10-Gold Ultracompetent cells Glycerol	TWA: 15 mg/m ³ 8 hours. Form: Total dust
Dimethyl sulfoxide	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
Potassium chloride	OSHA PEL (United States, 6/2016). TWA: 5 mg/m ³ 8 hours. Form: Respirable fraction TWA: 15 mg/m ³ 8 hours. Form: Total dust
XL10-Gold 2-Mercaptoethanol Sodium chloride 2-Mercaptoethanol	AIHA WEEL (United States, 10/2011). TWA: 250 ppm 8 hours. None.
	None. AIHA WEEL (United States, 10/2011). Absorbed through skin. TWA: 0.2 ppm 8 hours.

8.2 Exposure controls

Appropriate engineering controls

- : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

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. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection

- : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Skin protection

Hand protection

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

Body protection

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

Section 8. Exposure controls/personal protection

- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	:	pADEasy-1 Vector	Liquid.
		pShuttle Vector	Liquid.
		pShuttle-CMV Vector	Liquid.
		pShuttle-CMV-lacZ Control Vector	Liquid.
		BJ5183 electroporation competent cells	Liquid.
		XL10-Gold Ultracompetent cells	Liquid.
		XL10-Gold 2-Mercaptoethanol	Liquid.
		pUC 18 DNA Control Plasmid	Liquid.
Color	:	pADEasy-1 Vector	Not available.
		pShuttle Vector	Not available.
		pShuttle-CMV Vector	Not available.
		pShuttle-CMV-lacZ Control Vector	Not available.
		BJ5183 electroporation competent cells	Not available.
		XL10-Gold Ultracompetent cells	Not available.
		XL10-Gold 2-Mercaptoethanol	Not available.
		pUC 18 DNA Control Plasmid	Not available.
Odor	:	pADEasy-1 Vector	Not available.
		pShuttle Vector	Not available.
		pShuttle-CMV Vector	Not available.
		pShuttle-CMV-lacZ Control Vector	Not available.
		BJ5183 electroporation competent cells	Not available.
		XL10-Gold Ultracompetent cells	Not available.
		XL10-Gold 2-Mercaptoethanol	Not available.
		pUC 18 DNA Control Plasmid	Not available.
Odor threshold	:	pADEasy-1 Vector	Not available.
		pShuttle Vector	Not available.
		pShuttle-CMV Vector	Not available.
		pShuttle-CMV-lacZ Control Vector	Not available.
		BJ5183 electroporation competent cells	Not available.
		XL10-Gold Ultracompetent cells	Not available.
		XL10-Gold 2-Mercaptoethanol	Not available.
		pUC 18 DNA Control Plasmid	Not available.
pH	:	pADEasy-1 Vector	7.5
		pShuttle Vector	7.5
		pShuttle-CMV Vector	7.5
		pShuttle-CMV-lacZ Control Vector	7.5
		BJ5183 electroporation competent cells	Not available.
		XL10-Gold Ultracompetent cells	6.4
		XL10-Gold 2-Mercaptoethanol	Not available.
		pUC 18 DNA Control Plasmid	7.5

Section 9. Physical and chemical properties

Melting point	:	pADEasy-1 Vector	0°C (32°F)
		pShuttle Vector	0°C (32°F)
		pShuttle-CMV Vector	0°C (32°F)
		pShuttle-CMV-lacZ Control Vector	0°C (32°F)
		BJ5183 electroporation competent cells	Not available.
		XL10-Gold Ultracompetent cells	Not available.
		XL10-Gold 2-Mercaptoethanol	Not available.
		pUC 18 DNA Control Plasmid	0°C (32°F)
Boiling point	:	pADEasy-1 Vector	100°C (212°F)
		pShuttle Vector	100°C (212°F)
		pShuttle-CMV Vector	100°C (212°F)
		pShuttle-CMV-lacZ Control Vector	100°C (212°F)
		BJ5183 electroporation competent cells	Not available.
		XL10-Gold Ultracompetent cells	Not available.
		XL10-Gold 2-Mercaptoethanol	Not available.
		pUC 18 DNA Control Plasmid	100°C (212°F)
Flash point	:	pADEasy-1 Vector	Not available.
		pShuttle Vector	Not available.
		pShuttle-CMV Vector	Not available.
		pShuttle-CMV-lacZ Control Vector	Not available.
		BJ5183 electroporation competent cells	Not available.
		XL10-Gold Ultracompetent cells	Not available.
		XL10-Gold 2-Mercaptoethanol	Not available.
		pUC 18 DNA Control Plasmid	Not available.
Evaporation rate	:	pADEasy-1 Vector	Not available.
		pShuttle Vector	Not available.
		pShuttle-CMV Vector	Not available.
		pShuttle-CMV-lacZ Control Vector	Not available.
		BJ5183 electroporation competent cells	Not available.
		XL10-Gold Ultracompetent cells	Not available.
		XL10-Gold 2-Mercaptoethanol	Not available.
		pUC 18 DNA Control Plasmid	Not available.
Flammability (solid, gas)	:	pADEasy-1 Vector	Not applicable.
		pShuttle Vector	Not applicable.
		pShuttle-CMV Vector	Not applicable.
		pShuttle-CMV-lacZ Control Vector	Not applicable.
		BJ5183 electroporation competent cells	Not applicable.
		XL10-Gold Ultracompetent cells	Not applicable.
		XL10-Gold 2-Mercaptoethanol	Not applicable.
		pUC 18 DNA Control Plasmid	Not applicable.
Lower and upper explosive (flammable) limits	:	pADEasy-1 Vector	Not available.
		pShuttle Vector	Not available.
		pShuttle-CMV Vector	Not available.
		pShuttle-CMV-lacZ Control Vector	Not available.
		BJ5183 electroporation competent cells	Not available.
		XL10-Gold Ultracompetent cells	Not available.
		XL10-Gold 2-Mercaptoethanol	Not available.
		pUC 18 DNA Control Plasmid	Not available.

Section 9. Physical and chemical properties

Vapor pressure	:	pADEasy-1 Vector	Not available.
		pShuttle Vector	Not available.
		pShuttle-CMV Vector	Not available.
		pShuttle-CMV-lacZ Control Vector	Not available.
		BJ5183 electroporation competent cells	Not available.
		XL10-Gold Ultracompetent cells	Not available.
		XL10-Gold 2-Mercaptoethanol	Not available.
		pUC 18 DNA Control Plasmid	Not available.
Vapor density	:	pADEasy-1 Vector	Not available.
		pShuttle Vector	Not available.
		pShuttle-CMV Vector	Not available.
		pShuttle-CMV-lacZ Control Vector	Not available.
		BJ5183 electroporation competent cells	Not available.
		XL10-Gold Ultracompetent cells	Not available.
		XL10-Gold 2-Mercaptoethanol	Not available.
		pUC 18 DNA Control Plasmid	Not available.
Relative density	:	pADEasy-1 Vector	Not available.
		pShuttle Vector	Not available.
		pShuttle-CMV Vector	Not available.
		pShuttle-CMV-lacZ Control Vector	Not available.
		BJ5183 electroporation competent cells	Not available.
		XL10-Gold Ultracompetent cells	Not available.
		XL10-Gold 2-Mercaptoethanol	Not available.
		pUC 18 DNA Control Plasmid	Not available.
Solubility	:	pADEasy-1 Vector	Easily soluble in the following materials: cold water and hot water.
		pShuttle Vector	Easily soluble in the following materials: cold water and hot water.
		pShuttle-CMV Vector	Easily soluble in the following materials: cold water and hot water.
		pShuttle-CMV-lacZ Control Vector	Easily soluble in the following materials: cold water and hot water.
		BJ5183 electroporation competent cells	Easily soluble in the following materials: cold water and hot water.
		XL10-Gold Ultracompetent cells	Soluble in the following materials: cold water and hot water.
		XL10-Gold 2-Mercaptoethanol	Easily soluble in the following materials: cold water and hot water.
		pUC 18 DNA Control Plasmid	Easily soluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water	:	pADEasy-1 Vector	Not available.
		pShuttle Vector	Not available.
		pShuttle-CMV Vector	Not available.
		pShuttle-CMV-lacZ Control Vector	Not available.
		BJ5183 electroporation competent cells	Not available.
		XL10-Gold Ultracompetent cells	Not available.
		XL10-Gold 2-Mercaptoethanol	Not available.
		pUC 18 DNA Control Plasmid	Not available.

Section 9. Physical and chemical properties

Auto-ignition temperature	: pADEasy-1 Vector	Not available.
	pShuttle Vector	Not available.
	pShuttle-CMV Vector	Not available.
	pShuttle-CMV-lacZ Control Vector	Not available.
	BJ5183 electroporation competent cells	Not available.
	XL10-Gold Ultracompetent cells	Not available.
	XL10-Gold 2-Mercaptoethanol	Not available.
Decomposition temperature	: pADEasy-1 Vector	Not available.
	pShuttle Vector	Not available.
	pShuttle-CMV Vector	Not available.
	pShuttle-CMV-lacZ Control Vector	Not available.
	BJ5183 electroporation competent cells	Not available.
	XL10-Gold Ultracompetent cells	Not available.
	XL10-Gold 2-Mercaptoethanol	Not available.
Viscosity	: pADEasy-1 Vector	Not available.
	pShuttle Vector	Not available.
	pShuttle-CMV Vector	Not available.
	pShuttle-CMV-lacZ Control Vector	Not available.
	BJ5183 electroporation competent cells	Not available.
	XL10-Gold Ultracompetent cells	Not available.
	XL10-Gold 2-Mercaptoethanol	Not available.
pUC 18 DNA Control Plasmid	Not available.	

Section 10. Stability and reactivity

10.1 Reactivity	: pADEasy-1 Vector	No specific test data related to reactivity available for this product or its ingredients.
	pShuttle Vector	No specific test data related to reactivity available for this product or its ingredients.
	pShuttle-CMV Vector	No specific test data related to reactivity available for this product or its ingredients.
	pShuttle-CMV-lacZ Control Vector	No specific test data related to reactivity available for this product or its ingredients.
	BJ5183 electroporation competent cells	No specific test data related to reactivity available for this product or its ingredients.
	XL10-Gold Ultracompetent cells	No specific test data related to reactivity available for this product or its ingredients.
	XL10-Gold 2-Mercaptoethanol	No specific test data related to reactivity available for this product or its ingredients.
	pUC 18 DNA Control Plasmid	No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	: pADEasy-1 Vector	The product is stable.
	pShuttle Vector	The product is stable.
	pShuttle-CMV Vector	The product is stable.
	pShuttle-CMV-lacZ Control Vector	The product is stable.
	BJ5183 electroporation competent cells	The product is stable.
	XL10-Gold Ultracompetent cells	The product is stable.
	XL10-Gold 2-Mercaptoethanol	The product is stable.
pUC 18 DNA Control Plasmid	The product is stable.	

Section 10. Stability and reactivity

10.3 Possibility of hazardous reactions	: pADEasy-1 Vector	Under normal conditions of storage and use, hazardous reactions will not occur.
	pShuttle Vector	Under normal conditions of storage and use, hazardous reactions will not occur.
	pShuttle-CMV Vector	Under normal conditions of storage and use, hazardous reactions will not occur.
	pShuttle-CMV-lacZ Control Vector	Under normal conditions of storage and use, hazardous reactions will not occur.
	BJ5183 electroporation competent cells	Under normal conditions of storage and use, hazardous reactions will not occur.
	XL10-Gold Ultracompetent cells	Under normal conditions of storage and use, hazardous reactions will not occur.
	XL10-Gold 2-Mercaptoethanol	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.
10.4 Conditions to avoid	: pADEasy-1 Vector	No specific data.
	pShuttle Vector	No specific data.
	pShuttle-CMV Vector	No specific data.
	pShuttle-CMV-lacZ Control Vector	No specific data.
	BJ5183 electroporation competent cells	No specific data.
	XL10-Gold Ultracompetent cells	No specific data.
	XL10-Gold 2-Mercaptoethanol	No specific data.
	pUC 18 DNA Control Plasmid	No specific data.
10.5 Incompatible materials	: pADEasy-1 Vector	May react or be incompatible with oxidizing materials.
	pShuttle Vector	May react or be incompatible with oxidizing materials.
	pShuttle-CMV Vector	May react or be incompatible with oxidizing materials.
	pShuttle-CMV-lacZ Control Vector	May react or be incompatible with oxidizing materials.
	BJ5183 electroporation competent cells	May react or be incompatible with oxidizing materials.
	XL10-Gold Ultracompetent cells	May react or be incompatible with oxidizing materials.
	XL10-Gold 2-Mercaptoethanol	May react or be incompatible with oxidizing materials.
	pUC 18 DNA Control Plasmid	May react or be incompatible with oxidizing materials.
10.6 Hazardous decomposition products	: pADEasy-1 Vector	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	pShuttle Vector	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	pShuttle-CMV Vector	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	pShuttle-CMV-lacZ Control Vector	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	BJ5183 electroporation competent cells	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 10. Stability and reactivity

XL10-Gold Ultracompetent cells	produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced.
XL10-Gold 2-Mercaptoethanol	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.

Section 11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
BJ5183 electroporation competent cells Glycerol	LD50 Oral	Rat	12600 mg/kg	-
XL10-Gold Ultracompetent 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	-
XL10-Gold 2-Mercaptoethanol Sodium chloride	LD50 Oral	Rat	3000 mg/kg	-
2-Mercaptoethanol	LD50 Dermal	Rabbit	200 mg/kg	-
	LD50 Oral	Rat	244 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
BJ5183 electroporation competent cells Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
XL10-Gold Ultracompetent 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	-

Section 11. Toxicological information

				milligrams	
XL10-Gold 2-Mercaptoethanol Sodium chloride	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	10 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
2-Mercaptoethanol	Eyes - Severe irritant	Rabbit	-	2 milligrams	-

Sensitization

Not available.

Conclusion/Summary

Skin : May cause skin sensitization.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
XL10-Gold 2-Mercaptoethanol 2-Mercaptoethanol	Category 3	Not applicable.	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure

pADEasy-1 Vector	Not available.
pShuttle Vector	Not available.
pShuttle-CMV Vector	Not available.
pShuttle-CMV-lacZ Control Vector	Not available.
BJ5183 electroporation competent cells	Not available.
XL10-Gold Ultracompetent cells	Routes of entry anticipated: Oral, Dermal, Inhalation.
XL10-Gold 2-Mercaptoethanol	Routes of entry anticipated: Oral, Dermal, Inhalation.
pUC 18 DNA Control Plasmid	Not available.

Potential acute health effects

Section 11. Toxicological information

Eye contact	: pADEasy-1 Vector	No known significant effects or critical hazards.
	pShuttle Vector	No known significant effects or critical hazards.
	pShuttle-CMV Vector	No known significant effects or critical hazards.
	pShuttle-CMV-lacZ Control Vector	No known significant effects or critical hazards.
	BJ5183 electroporation competent cells	No known significant effects or critical hazards.
	XL10-Gold Ultracompetent cells	Causes eye irritation.
	XL10-Gold 2-Mercaptoethanol	Causes serious eye damage.
Inhalation	: pADEasy-1 Vector	No known significant effects or critical hazards.
	pShuttle Vector	No known significant effects or critical hazards.
	pShuttle-CMV Vector	No known significant effects or critical hazards.
	pShuttle-CMV-lacZ Control Vector	No known significant effects or critical hazards.
	BJ5183 electroporation competent cells	No known significant effects or critical hazards.
	XL10-Gold Ultracompetent cells	No known significant effects or critical hazards.
	XL10-Gold 2-Mercaptoethanol	No known significant effects or critical hazards.
Skin contact	: pADEasy-1 Vector	No known significant effects or critical hazards.
	pShuttle Vector	No known significant effects or critical hazards.
	pShuttle-CMV Vector	No known significant effects or critical hazards.
	pShuttle-CMV-lacZ Control Vector	No known significant effects or critical hazards.
	BJ5183 electroporation competent cells	No known significant effects or critical hazards.
	XL10-Gold Ultracompetent cells	No known significant effects or critical hazards.
	XL10-Gold 2-Mercaptoethanol	May cause an allergic skin reaction.
Ingestion	: pADEasy-1 Vector	No known significant effects or critical hazards.
	pShuttle Vector	No known significant effects or critical hazards.
	pShuttle-CMV Vector	No known significant effects or critical hazards.
	pShuttle-CMV-lacZ Control Vector	No known significant effects or critical hazards.
	BJ5183 electroporation competent cells	No known significant effects or critical hazards.
	XL10-Gold Ultracompetent cells	No known significant effects or critical hazards.
	XL10-Gold 2-Mercaptoethanol	No known significant effects or critical hazards.
pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.	

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	: pADEasy-1 Vector	No specific data.
	pShuttle Vector	No specific data.
	pShuttle-CMV Vector	No specific data.
	pShuttle-CMV-lacZ Control Vector	No specific data.
	BJ5183 electroporation competent cells	No specific data.
	XL10-Gold Ultracompetent cells	Adverse symptoms may include the following: irritation watering redness
	XL10-Gold 2-Mercaptoethanol	Adverse symptoms may include the following: pain watering redness
pUC 18 DNA Control Plasmid	No specific data.	

Section 11. Toxicological information

Inhalation	:	pADEasy-1 Vector	No specific data.
		pShuttle Vector	No specific data.
		pShuttle-CMV Vector	No specific data.
		pShuttle-CMV-lacZ Control Vector	No specific data.
		BJ5183 electroporation competent cells	No specific data.
		XL10-Gold Ultracompetent cells	No specific data.
		XL10-Gold 2-Mercaptoethanol	No specific data.
Skin contact	:	pADEasy-1 Vector	No specific data.
		pShuttle Vector	No specific data.
		pShuttle-CMV Vector	No specific data.
		pShuttle-CMV-lacZ Control Vector	No specific data.
		BJ5183 electroporation competent cells	No specific data.
		XL10-Gold Ultracompetent cells	No specific data.
		XL10-Gold 2-Mercaptoethanol	Adverse symptoms may include the following: pain or irritation redness blistering may occur
Ingestion		pUC 18 DNA Control Plasmid	No specific data.
	:	pADEasy-1 Vector	No specific data.
		pShuttle Vector	No specific data.
		pShuttle-CMV Vector	No specific data.
		pShuttle-CMV-lacZ Control Vector	No specific data.
		BJ5183 electroporation competent cells	No specific data.
		XL10-Gold Ultracompetent cells	No specific data.
	XL10-Gold 2-Mercaptoethanol	Adverse symptoms may include the following: stomach pains	
	pUC 18 DNA Control Plasmid	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	:	pADEasy-1 Vector	No known significant effects or critical hazards.
		pShuttle Vector	No known significant effects or critical hazards.
		pShuttle-CMV Vector	No known significant effects or critical hazards.
		pShuttle-CMV-lacZ Control Vector	No known significant effects or critical hazards.
		BJ5183 electroporation competent cells	No known significant effects or critical hazards.
		XL10-Gold Ultracompetent cells	No known significant effects or critical hazards.
		XL10-Gold 2-Mercaptoethanol	Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
	pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.	

Section 11. Toxicological information

Carcinogenicity	: pADEasy-1 Vector	No known significant effects or critical hazards.
	pShuttle Vector	No known significant effects or critical hazards.
	pShuttle-CMV Vector	No known significant effects or critical hazards.
	pShuttle-CMV-lacZ Control Vector	No known significant effects or critical hazards.
	BJ5183 electroporation competent cells	No known significant effects or critical hazards.
	XL10-Gold Ultracompetent cells	No known significant effects or critical hazards.
	XL10-Gold 2-Mercaptoethanol	No known significant effects or critical hazards.
Mutagenicity	: pADEasy-1 Vector	No known significant effects or critical hazards.
	pShuttle Vector	No known significant effects or critical hazards.
	pShuttle-CMV Vector	No known significant effects or critical hazards.
	pShuttle-CMV-lacZ Control Vector	No known significant effects or critical hazards.
	BJ5183 electroporation competent cells	No known significant effects or critical hazards.
	XL10-Gold Ultracompetent cells	No known significant effects or critical hazards.
	XL10-Gold 2-Mercaptoethanol	No known significant effects or critical hazards.
Teratogenicity	: pADEasy-1 Vector	No known significant effects or critical hazards.
	pShuttle Vector	No known significant effects or critical hazards.
	pShuttle-CMV Vector	No known significant effects or critical hazards.
	pShuttle-CMV-lacZ Control Vector	No known significant effects or critical hazards.
	BJ5183 electroporation competent cells	No known significant effects or critical hazards.
	XL10-Gold Ultracompetent cells	No known significant effects or critical hazards.
	XL10-Gold 2-Mercaptoethanol	No known significant effects or critical hazards.
Developmental effects	: pADEasy-1 Vector	No known significant effects or critical hazards.
	pShuttle Vector	No known significant effects or critical hazards.
	pShuttle-CMV Vector	No known significant effects or critical hazards.
	pShuttle-CMV-lacZ Control Vector	No known significant effects or critical hazards.
	BJ5183 electroporation competent cells	No known significant effects or critical hazards.
	XL10-Gold Ultracompetent cells	No known significant effects or critical hazards.
	XL10-Gold 2-Mercaptoethanol	No known significant effects or critical hazards.
Fertility effects	: pADEasy-1 Vector	No known significant effects or critical hazards.
	pShuttle Vector	No known significant effects or critical hazards.
	pShuttle-CMV Vector	No known significant effects or critical hazards.
	pShuttle-CMV-lacZ Control Vector	No known significant effects or critical hazards.
	BJ5183 electroporation competent cells	No known significant effects or critical hazards.
	XL10-Gold Ultracompetent cells	No known significant effects or critical hazards.
	XL10-Gold 2-Mercaptoethanol	No known significant effects or critical hazards.
pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.	

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
XL10-Gold Ultracompetent cells Oral	136842.1 mg/kg
XL10-Gold 2-Mercaptoethanol Oral	4615.5 mg/kg
Dermal	4545.5 mg/kg
Inhalation (vapors)	45.45 mg/l

Section 11. Toxicological information

Section 12. Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
BJ5183 electroporation competent cells Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
XL10-Gold Ultracompetent cells Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
Dimethyl sulfoxide	Acute LC50 25000 ppm Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
Potassium chloride	Acute LC50 34000000 µg/l Fresh water Chronic NOEC 100 µl/L Marine water Acute EC50 1337000 µg/l Fresh water Acute EC50 9.24 g/L Fresh water	Fish - Pimephales promelas Algae - Ulva lactuca Algae - Navicula seminulum Algae - Desmodesmus subspicatus	96 hours 72 hours 96 hours 72 hours
XL10-Gold 2-Mercaptoethanol Sodium chloride	Acute EC50 141460 µg/l Fresh water Acute LC50 12.92 mg/l Fresh water Acute LC50 880000 µg/l Fresh water Acute EC50 2430000 µg/l Fresh water Acute EC50 28.85 mg/dm3 Fresh water Acute EC50 519.6 mg/l Fresh water Acute IC50 6.87 g/L Fresh water Acute LC50 1.56 g/L Fresh water Acute LC50 1000000 µg/l Fresh water Chronic LC10 781 mg/l Fresh water Chronic NOEC 6 g/L Fresh water Chronic NOEC 0.314 g/L Fresh water Chronic NOEC 100 mg/l Fresh water	Daphnia - Daphnia magna Crustaceans - Pseudosida ramosa - Neonate Fish - Pimephales promelas Algae - Navicula seminulum Algae - Pseudokirchneriella subcapitata Crustaceans - Cypris subglobosa Aquatic plants - Lemna minor Daphnia - Daphnia magna Fish - Morone saxatilis - Larvae Crustaceans - Hyalella azteca - Juvenile (Fledgling, Hatchling, Weanling) Aquatic plants - Lemna minor Daphnia - Daphnia pulex Fish - Gambusia holbrooki - Adult	48 hours 48 hours 96 hours 96 hours 72 hours 48 hours 96 hours 48 hours 96 hours 3 weeks 96 hours 21 days 8 weeks

12.2 Persistence and degradability

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
XL10-Gold Ultracompetent cells Potassium chloride	-	-	Readily

12.3 Bioaccumulative potential

Section 12. Ecological information

Product/ingredient name	LogP _{ow}	BCF	Potential
BJ5183 electroporation competent cells Glycerol	-1.76	-	low
XL10-Gold Ultracompetent cells Glycerol	-1.76	-	low
Dimethyl sulfoxide	-1.35	3.16	low
Potassium chloride	-0.46	-	low
XL10-Gold 2-Mercaptoethanol 2-Mercaptoethanol	-0.056	-	low

12.4 Mobility in soil

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

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

Section 13. Disposal considerations

13.1 Waste treatment methods

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

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

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

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

Section 14. Transport information

Regulatory information

DOT / IMDG / IATA : Not regulated.

Section 15. Regulatory information

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

U.S. Federal regulations : **United States inventory (TSCA 8b)**: All components are listed or exempted.
Clean Water Act (CWA) 311: Edetic acid

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

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Immediate (acute) health hazard

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
BJ5183 electroporation competent cells Glycerol	<10	No.	No.	No.	Yes.	No.
XL10-Gold Ultracompetent cells Glycerol	≥10 - ≤25	No.	No.	No.	Yes.	No.
Dimethyl sulfoxide	≤10	Yes.	No.	No.	Yes.	No.
Potassium chloride	≤3	No.	No.	No.	Yes.	No.
XL10-Gold 2-Mercaptoethanol Sodium chloride	≥10 - ≤25	No.	No.	No.	Yes.	No.
2-Mercaptoethanol	≤5	Yes.	No.	No.	Yes.	No.

State regulations

Massachusetts : The following components are listed: GLYCERINE MIST

New York : None of the components are listed.

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

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

California Prop. 65

No products were found.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Section 15. Regulatory information

Not listed.

[Montreal Protocol \(Annexes A, B, C, E\)](#)

Not listed.

[Stockholm Convention on Persistent Organic Pollutants](#)

Not listed.

[Rotterdam Convention on Prior Informed Consent \(PIC\)](#)

Not listed.

[UNECE Aarhus Protocol on POPs and Heavy Metals](#)

Not listed.

[Inventory list](#)

Australia	: All components are listed or exempted.
Canada inventory	: 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) : Not determined.
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.
Turkey	: Not determined.

Section 16. Other information

[History](#)

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✔ Indicates information that has changed from previously issued version.

[Notice to reader](#)

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