

SAFETY DATA SHEET



AdEasy Adenoviral Vector System Kit, Part Number 240009

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name	: AdEasy Adenoviral Vector System Kit, Part Number 240009
Part No. (Kit)	: 240009
Part No.	: pADEasy-1 Vector 240005-51 pShuttle Vector 240006-51 pShuttle-CMV Vector 240007-51 pShuttle-CMV-lacZ 240008-51 Control Vector 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

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

Identified 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

Agilent Technologies Manufacturing GmbH & Co. KG
Hewlett-Packard-Str. 8
76337 Waldbronn
Germany
0800 603 1000

e-mail address of person responsible for this SDS : pdl-msds_author@agilent.com

1.4 Emergency telephone number

Emergency telephone number (with hours of operation) : CHEMTREC®: +(44)-870-8200418

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Date of issue/Date of revision : 28/03/2017

SECTION 2: Hazards identification

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

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

XL10-Gold 2-Mercaptoethanol

H318	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1
H317	SKIN SENSITISATION - Category 1
H412	LONG-TERM AQUATIC HAZARD - Category 3

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 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	No signal word.
	Control Vector	
	BJ5183 electroporation competent cells	No signal word.
	XL10-Gold	No signal word.
	Ultracompetent cells	
	XL10-Gold	Danger
	2-Mercaptoethanol	
	pUC 18 DNA Control	No signal word.
	Plasmid	

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	No known significant effects or critical hazards.
	Control Vector	
	BJ5183 electroporation competent cells	No known significant effects or critical hazards.
	XL10-Gold	No known significant effects or critical hazards.
	Ultracompetent cells	
	XL10-Gold	GHS05 -
	2-Mercaptoethanol	Causes serious eye damage.
		GHS07 -
		May cause an allergic skin reaction.
		Harmful to aquatic life with long lasting effects.
	pUC 18 DNA Control	No known significant effects or critical hazards.
	Plasmid	

Precautionary statements

SECTION 2: Hazards identification

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 pUC 18 DNA Control Plasmid	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. P280 - Wear protective gloves. Wear eye or face protection. P273 - Avoid release to the environment. Not applicable.
Response	: 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	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. P305 + P351 + P310 - IF IN EYES: Rinse cautiously with water for several minutes. Immediately call a POISON CENTER or physician. Not applicable.
Storage	: 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	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.
Disposal	: 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	Not applicable. 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. Not applicable.
Hazardous ingredients	: XL10-Gold 2-Mercaptoethanol	- 2-Mercaptoethanol

SECTION 2: Hazards identification

Supplemental label elements :

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

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles :

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

Special packaging requirements

Tactile warning of danger :

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

2.3 Other hazards

Other hazards which do not result in classification :

pADEasy-1 Vector	None known.
pShuttle Vector	None known.
pShuttle-CMV Vector	None known.
pShuttle-CMV-lacZ	None known.
Control Vector	
BJ5183 electroporation competent cells	None known.
XL10-Gold	None known.
Ultracompetent cells	
XL10-Gold	None known.
2-Mercaptoethanol	
pUC 18 DNA Control Plasmid	None known.

SECTION 3: Composition/information on ingredients

3.1 Substances	:	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

Product/ingredient name	Identifiers	%	Regulation (EC) No. 1272/2008 [CLP]	Type
BJ5183 electroporation competent cells Glycerol	EC: 200-289-5 CAS: 56-81-5	≤10	Not classified.	[2]
XL10-Gold Ultracompetent cells Glycerol	EC: 200-289-5 CAS: 56-81-5	≥10 - ≤25	Not classified.	[2]
Sucrose	EC: 200-334-9 CAS: 57-50-1	≤10	Not classified.	[2]
XL10-Gold 2-Mercaptoethanol Sodium chloride	EC: 231-598-3 CAS: 7647-14-5	≥10 - ≤25	Eye Irrit. 2, H319	[1]
2-Mercaptoethanol	EC: 200-464-6 CAS: 60-24-2	≤5	Acute Tox. 3, H301 Acute Tox. 2, H310 Acute Tox. 2, H330 Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1, H317 STOT SE 3, H335 Aquatic Chronic 2, H411 See Section 16 for the full text of the H statements declared above.	[1]

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.

Type

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

[3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII

[4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII

[5] Substance of equivalent concern

SECTION 4: First aid measures

4.1 Description of 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.

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	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. Get medical attention if irritation occurs.
	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. Get medical attention if symptoms occur.
	XL10-Gold 2-Mercaptoethanol	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.
	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.
Skin contact	: pADEasy-1 Vector	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	pShuttle Vector	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	pShuttle-CMV Vector	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	pShuttle-CMV-lacZ Control Vector	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	BJ5183 electroporation competent cells	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	XL10-Gold	Flush contaminated skin with plenty of water. Remove

SECTION 4: First aid measures

	Ultracompetent cells	contaminated clothing and shoes. Get medical attention if symptoms occur.
	XL10-Gold 2-Mercaptoethanol	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.
	pUC 18 DNA Control Plasmid	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
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 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 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 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

SECTION 4: First aid measures

	pUC 18 DNA Control Plasmid	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.
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.
	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.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

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	No known significant effects or critical hazards.
	XL10-Gold 2-Mercaptoethanol	Causes serious eye damage.
	pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.
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.
	pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.

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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	No known significant effects or critical hazards.
		Control Vector	
		BJ5183 electroporation competent cells	No known significant effects or critical hazards.
		XL10-Gold	No known significant effects or critical hazards.
		Ultracompetent cells	
		XL10-Gold	May cause an allergic skin reaction.
		2-Mercaptoethanol	
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	No known significant effects or critical hazards.
		Control Vector	
		BJ5183 electroporation competent cells	No known significant effects or critical hazards.
		XL10-Gold	No known significant effects or critical hazards.
		Ultracompetent cells	
		XL10-Gold	No known significant effects or critical hazards.
		2-Mercaptoethanol	
	pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.	

Over-exposure signs/symptoms

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

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

4.3 Indication of any immediate medical attention and special treatment needed

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.
		pShuttle-CMV-lacZ	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		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	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		Ultracompetent cells	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		XL10-Gold	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		2-Mercaptoethanol	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	No specific treatment.
		Control Vector	
		BJ5183 electroporation competent cells	No specific treatment.
		XL10-Gold	No specific treatment.
		Ultracompetent cells	
		XL10-Gold	No specific treatment.
		2-Mercaptoethanol	No specific treatment.
		pUC 18 DNA Control Plasmid	No specific treatment.

SECTION 5: Firefighting 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	Use an extinguishing agent suitable for the surrounding fire.
		Control Vector	
		BJ5183 electroporation competent cells	Use an extinguishing agent suitable for the surrounding fire.
		XL10-Gold	Use an extinguishing agent suitable for the surrounding fire.
		Ultracompetent cells	
		XL10-Gold	Use an extinguishing agent suitable for the surrounding fire.
		2-Mercaptoethanol	
	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	None known.
		Control Vector	
		BJ5183 electroporation competent cells	None known.
		XL10-Gold	None known.
		Ultracompetent cells	
		XL10-Gold	None known.
		2-Mercaptoethanol	
	pUC 18 DNA Control Plasmid	None known.	

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture	:	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	In a fire or if heated, a pressure increase will occur and the container may burst.
		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	In a fire or if heated, a pressure increase will occur and the container may burst.
		Ultracompetent cells	In a fire or if heated, a pressure increase will occur and the container may burst.
		XL10-Gold	In a fire or if heated, a pressure increase will occur and the container may burst.
		2-Mercaptoethanol	In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
Hazardous combustion products		pUC 18 DNA Control Plasmid	In a fire or if heated, a pressure increase will occur and the container may burst.
	:	pADEasy-1 Vector	No specific data.
		pShuttle Vector	No specific data.
		pShuttle-CMV Vector	No specific data.
		pShuttle-CMV-lacZ	No specific data.
		Control Vector	
		BJ5183 electroporation competent cells	Decomposition products may include the following materials: carbon dioxide carbon monoxide
		XL10-Gold	Decomposition products may include the following materials:
		Ultracompetent cells	carbon dioxide carbon monoxide sulfur oxides

SECTION 5: Firefighting measures

XL10-Gold 2-Mercaptoethanol	halogenated compounds metal oxide/oxides 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 precautions 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. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
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. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
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. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
pShuttle-CMV-lacZ Control Vector	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
BJ5183 electroporation competent cells	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full

SECTION 5: Firefighting measures

XL10-Gold Ultracompetent cells	face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
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. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
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. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

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 spilt 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 spilt 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 spilt 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 spilt 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 spilt 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 spilt material. Put on appropriate personal protective equipment.
	XL10-Gold 2-Mercaptoethanol	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Do not breathe vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
	pUC 18 DNA Control	No action shall be taken involving any personal risk or

SECTION 6: Accidental release measures

	Plasmid	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 specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	pShuttle Vector	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	pShuttle-CMV Vector	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	pShuttle-CMV-lacZ Control Vector	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	BJ5183 electroporation competent cells	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	XL10-Gold Ultracompetent cells	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	XL10-Gold 2-Mercaptoethanol	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	pUC 18 DNA Control Plasmid	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
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 caused environmental pollution (sewers, waterways, soil or air).
	pShuttle-CMV 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-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).

SECTION 6: Accidental release measures

	(sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.
pUC 18 DNA Control Plasmid	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and material 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.
		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.

6.4 Reference to other sections : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

SECTION 7: Handling and storage

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).
	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 vapour or mist. Do not ingest. Avoid release to the environment. 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.
	pUC 18 DNA Control Plasmid	Put on appropriate personal protective equipment (see Section 8).
Advice on general occupational hygiene	: 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.

SECTION 7: Handling and storage

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 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Storage

: pADEasy-1 Vector	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.
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 unlabelled 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 unlabelled 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 unlabelled 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 unlabelled 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

SECTION 7: Handling and storage

<p>XL10-Gold 2-Mercaptoethanol</p>	<p>been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.</p> <p>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 unlabelled containers. Use appropriate containment to avoid environmental contamination.</p>
<p>pUC 18 DNA Control Plasmid</p>	<p>Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.</p>

7.3 Specific end use(s)

Recommendations

<p>: 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</p>	<p>Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications.</p>
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Industrial sector specific solutions

<p>: 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</p>	<p>Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.</p>
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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

SECTION 8: Exposure controls/personal protection

Product/ingredient name	Exposure limit values
BJ5183 electroporation competent cells Glycerol	EH40/2005 WELs (United Kingdom (UK), 12/2011). TWA: 10 mg/m ³ 8 hours. Form: Mist
XL10-Gold Ultracompetent cells Glycerol	EH40/2005 WELs (United Kingdom (UK), 12/2011). TWA: 10 mg/m ³ 8 hours. Form: Mist
Sucrose	EH40/2005 WELs (United Kingdom (UK), 12/2011). STEL: 20 mg/m ³ 15 minutes. TWA: 10 mg/m ³ 8 hours.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

No DNELs/DMELs available.

PNECs

No PNECs available

8.2 Exposure controls

Appropriate engineering controls : If user operations generate dust, fumes, gas, vapour 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.

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.

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.

SECTION 8: Exposure controls/personal protection

- 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.
- 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.

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	Liquid.
		Control Vector	
		BJ5183 electroporation competent cells	Liquid.
		XL10-Gold	Liquid.
		Ultracompetent cells	
		XL10-Gold	Liquid.
		2-Mercaptoethanol	
		pUC 18 DNA Control Plasmid	Liquid.
Colour	:	pADEasy-1 Vector	Not available.
		pShuttle Vector	Not available.
		pShuttle-CMV Vector	Not available.
		pShuttle-CMV-lacZ	Not available.
		Control Vector	
		BJ5183 electroporation competent cells	Not available.
		XL10-Gold	Not available.
		Ultracompetent cells	
		XL10-Gold	Not available.
		2-Mercaptoethanol	
		pUC 18 DNA Control Plasmid	Not available.
Odour	:	pADEasy-1 Vector	Not available.
		pShuttle Vector	Not available.
		pShuttle-CMV Vector	Not available.
		pShuttle-CMV-lacZ	Not available.
		Control Vector	
		BJ5183 electroporation competent cells	Not available.
		XL10-Gold	Not available.
		Ultracompetent cells	
		XL10-Gold	Not available.
		2-Mercaptoethanol	
		pUC 18 DNA Control Plasmid	Not available.
Odour threshold	:	pADEasy-1 Vector	Not available.
		pShuttle Vector	Not available.
		pShuttle-CMV Vector	Not available.
		pShuttle-CMV-lacZ	Not available.
		Control Vector	
		BJ5183 electroporation competent cells	Not available.
		XL10-Gold	Not available.
		Ultracompetent cells	
		XL10-Gold	Not available.
		2-Mercaptoethanol	

SECTION 9: Physical and chemical properties

	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	7.5
	Control Vector	
	BJ5183 electroporation competent cells	Not available.
	XL10-Gold	6.4
	Ultracompetent cells	
	XL10-Gold	Not available.
	2-Mercaptoethanol	
	pUC 18 DNA Control Plasmid	7.5
Melting point/freezing point	: pADEasy-1 Vector	0°C
	pShuttle Vector	0°C
	pShuttle-CMV Vector	0°C
	pShuttle-CMV-lacZ	0°C
	Control Vector	
	BJ5183 electroporation competent cells	Not available.
	XL10-Gold	Not available.
	Ultracompetent cells	
	XL10-Gold	Not available.
	2-Mercaptoethanol	
	pUC 18 DNA Control Plasmid	0°C
Initial boiling point and boiling range	: pADEasy-1 Vector	100°C
	pShuttle Vector	100°C
	pShuttle-CMV Vector	100°C
	pShuttle-CMV-lacZ	100°C
	Control Vector	
	BJ5183 electroporation competent cells	Not available.
	XL10-Gold	Not available.
	Ultracompetent cells	
	XL10-Gold	Not available.
	2-Mercaptoethanol	
	pUC 18 DNA Control Plasmid	100°C
Flash point	: pADEasy-1 Vector	Not available.
	pShuttle Vector	Not available.
	pShuttle-CMV Vector	Not available.
	pShuttle-CMV-lacZ	Not available.
	Control Vector	
	BJ5183 electroporation competent cells	Not available.
	XL10-Gold	Not available.
	Ultracompetent cells	
	XL10-Gold	Not available.
	2-Mercaptoethanol	
	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	Not available.
	Control Vector	
	BJ5183 electroporation competent cells	Not available.
	XL10-Gold	Not available.
	Ultracompetent cells	

SECTION 9: Physical and chemical properties

	XL10-Gold	Not available.
	2-Mercaptoethanol	
	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.
Upper/lower flammability or explosive 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.
Vapour 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.
Vapour 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.

SECTION 9: Physical and chemical properties

Relative density	:	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	Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available.
Solubility(ies)	:	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	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. Easily 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.
Partition coefficient: n-octanol/water	:	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	Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available.
Auto-ignition temperature	:	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	Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available.
Decomposition temperature	:	pADEasy-1 Vector pShuttle Vector pShuttle-CMV Vector pShuttle-CMV-lacZ Control Vector BJ5183 electroporation competent cells XL10-Gold Ultracompetent cells	Not available. Not available. Not available. Not available. Not available. Not available. Not available.

SECTION 9: Physical and chemical properties

	XL10-Gold	Not available.
	2-Mercaptoethanol	
	pUC 18 DNA Control Plasmid	Not available.
Viscosity	: pADEasy-1 Vector	Not available.
	pShuttle Vector	Not available.
	pShuttle-CMV Vector	Not available.
	pShuttle-CMV-lacZ	Not available.
	Control Vector	
	BJ5183 electroporation competent cells	Not available.
	XL10-Gold	Not available.
	Ultracompetent cells	
	XL10-Gold	Not available.
	2-Mercaptoethanol	
	pUC 18 DNA Control Plasmid	Not available.
Explosive properties	: pADEasy-1 Vector	Not available.
	pShuttle Vector	Not available.
	pShuttle-CMV Vector	Not available.
	pShuttle-CMV-lacZ	Not available.
	Control Vector	
	BJ5183 electroporation competent cells	Not available.
	XL10-Gold	Not available.
	Ultracompetent cells	
	XL10-Gold	Not available.
	2-Mercaptoethanol	
	pUC 18 DNA Control Plasmid	Not available.
Oxidising properties	: pADEasy-1 Vector	Not available.
	pShuttle Vector	Not available.
	pShuttle-CMV Vector	Not available.
	pShuttle-CMV-lacZ	Not available.
	Control Vector	
	BJ5183 electroporation competent cells	Not available.
	XL10-Gold	Not available.
	Ultracompetent cells	
	XL10-Gold	Not available.
	2-Mercaptoethanol	
	pUC 18 DNA Control Plasmid	Not available.

9.2 Other information

No additional information.

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	No specific test data related to reactivity available for this product or its ingredients.
	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	No specific test data related to reactivity available for this product or its ingredients.
	Ultracompetent cells	No specific test data related to reactivity available for this product or its ingredients.
	XL10-Gold	No specific test data related to reactivity available for this product or its ingredients.
	2-Mercaptoethanol	No specific test data related to reactivity available for this product or its ingredients.

SECTION 10: Stability and reactivity

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 Ultracompetent cells The product is stable.
 2-Mercaptoethanol pUC 18 DNA Control Plasmid The product is stable.

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 Ultracompetent cells Under normal conditions of storage and use, hazardous reactions will not occur.
 2-Mercaptoethanol 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 Ultracompetent cells No specific data.
 2-Mercaptoethanol pUC 18 DNA Control Plasmid No specific data.

10.5 Incompatible materials

: pADEasy-1 Vector May react or be incompatible with oxidising materials.
 pShuttle Vector May react or be incompatible with oxidising materials.
 pShuttle-CMV Vector May react or be incompatible with oxidising materials.
 pShuttle-CMV-lacZ Control Vector May react or be incompatible with oxidising materials.
 BJ5183 electroporation competent cells May react or be incompatible with oxidising materials.
 XL10-Gold Ultracompetent cells May react or be incompatible with oxidising materials.
 XL10-Gold Ultracompetent cells May react or be incompatible with oxidising materials.
 2-Mercaptoethanol pUC 18 DNA Control Plasmid May react or be incompatible with oxidising materials.

SECTION 10: Stability and reactivity

10.6 Hazardous decomposition products	: 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 mix pUC18 Control Plasmid DNA	Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced.
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SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
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	-

Acute toxicity estimates

Route	ATE value
XL10-Gold Ultracompetent cells Oral	31250 mg/kg
XL10-Gold 2-Mercaptoethanol Oral	5545.5 mg/kg
Dermal	4545.5 mg/kg
Inhalation (vapours)	45.45 mg/l

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
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	-

Sensitiser

Conclusion/Summary : Not available.

Skin : May cause skin sensitisation.

Specific target organ toxicity (single exposure)

Product/ingredient 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)

SECTION 11: Toxicological information

Not available.

Aspiration hazard

Not available.

Information on likely routes of exposure

: pADEasy-1 Vector	Not available.
pShuttle Vector	Not available.
pShuttle-CMV Vector	Not available.
pShuttle-CMV-lacZ	Not available.
Control Vector	
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**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	No known significant effects or critical hazards.
Control Vector	
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.

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	No known significant effects or critical hazards.
Control Vector	
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.

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	No known significant effects or critical hazards.
Control Vector	
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.
pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.

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	No known significant effects or critical hazards.
		Control Vector	
		BJ5183 electroporation competent cells	No known significant effects or critical hazards.
		XL10-Gold	No known significant effects or critical hazards.
		Ultracompetent cells	
		XL10-Gold	Causes serious eye damage.
		2-Mercaptoethanol	
		pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

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

SECTION 11: Toxicological information

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

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

General	:	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	No known significant effects or critical hazards.
		Control Vector	
		BJ5183 electroporation competent cells	No known significant effects or critical hazards.
		XL10-Gold	No known significant effects or critical hazards.
		Ultracompetent cells	
		XL10-Gold	Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
		2-Mercaptoethanol	
		pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.

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	No known significant effects or critical hazards.
		Control Vector	
		BJ5183 electroporation competent cells	No known significant effects or critical hazards.
		XL10-Gold	No known significant effects or critical hazards.
		Ultracompetent cells	
		XL10-Gold	No known significant effects or critical hazards.
		2-Mercaptoethanol	
		pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.

SECTION 11: Toxicological information

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	No known significant effects or critical hazards.
		Control Vector	
		BJ5183 electroporation competent cells	No known significant effects or critical hazards.
		XL10-Gold	No known significant effects or critical hazards.
		Ultracompetent cells	
		XL10-Gold	No known significant effects or critical hazards.
		2-Mercaptoethanol	
	pUC 18 DNA Control Plasmid	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	No known significant effects or critical hazards.
		Control Vector	
		BJ5183 electroporation competent cells	No known significant effects or critical hazards.
		XL10-Gold	No known significant effects or critical hazards.
		Ultracompetent cells	
		XL10-Gold	No known significant effects or critical hazards.
		2-Mercaptoethanol	
	pUC 18 DNA Control Plasmid	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	No known significant effects or critical hazards.
		Control Vector	
		BJ5183 electroporation competent cells	No known significant effects or critical hazards.
		XL10-Gold	No known significant effects or critical hazards.
		Ultracompetent cells	
		XL10-Gold	No known significant effects or critical hazards.
		2-Mercaptoethanol	
	pUC 18 DNA Control Plasmid	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	No known significant effects or critical hazards.
		Control Vector	
		BJ5183 electroporation competent cells	No known significant effects or critical hazards.
		XL10-Gold	No known significant effects or critical hazards.
		Ultracompetent cells	
		XL10-Gold	No known significant effects or critical hazards.
		2-Mercaptoethanol	
	pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.	

SECTION 12: Ecological information**12.1 Toxicity**

SECTION 12: Ecological information

Product/ingredient name	Result	Species	Exposure
XL10-Gold 2-Mercaptoethanol Sodium chloride	Acute EC50 2430000 µg/l Fresh water	Algae - Navicula seminulum	96 hours
	Acute EC50 28.85 mg/dm ³ Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 519.6 mg/l Fresh water	Crustaceans - Cypris subglobosa	48 hours
	Acute IC50 6.87 g/L Fresh water	Aquatic plants - Lemna minor	96 hours
	Acute LC50 1.56 g/L Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 1000000 µg/l Fresh water	Fish - Morone saxatilis - Larvae	96 hours
	Chronic LC10 781 mg/l Fresh water	Crustaceans - Hyalella azteca - Juvenile (Fledgling, Hatchling, Weanling)	3 weeks
	Chronic NOEC 6 g/L Fresh water	Aquatic plants - Lemna minor	96 hours
	Chronic NOEC 0.314 g/L Fresh water	Daphnia - Daphnia pulex	21 days
	Chronic NOEC 100 mg/l Fresh water	Fish - Gambusia holbrooki - Adult	8 weeks

12.2 Persistence and degradability

Not available.

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
XL10-Gold 2-Mercaptoethanol 2-Mercaptoethanol	-0.056	-	low

12.4 Mobility in soil

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

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

PBT : Not applicable.

vPvB : Not applicable.

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

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste : Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 2008/98/EC.

Packaging

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

SECTION 13: Disposal considerations

Special precautions : 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 spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

Regulatory information

ADR/RID / IMDG / IATA : Not regulated.

14.6 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.

14.7 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

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles	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	Not applicable.
	2-Mercaptoethanol	
	pUC 18 DNA Control Plasmid	Not applicable.

Other EU regulations

Europe inventory : All components are listed or exempted.

Ozone depleting substances (1005/2009/EU)

Not listed.

Prior Informed Consent (PIC) (649/2012/EU)

Not listed.

Seveso Directive

This product is not controlled under the Seveso Directive.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

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

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

SECTION 15: Regulatory information

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

International lists

National inventory

Australia	: All components are listed or exempted.
Canada	: All components are listed or exempted.
China	: Not determined.
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.
United States	: All components are listed or exempted.

15.2 Chemical safety assessment : This product contains substances for which Chemical Safety Assessments might still be required.

SECTION 16: Other information

✓ Indicates information that has changed from previously issued version.

Abbreviations and acronyms : ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
XL10-Gold 2-Mercaptoethanol Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Chronic 3, H412	Calculation method Calculation method Calculation method

Full text of abbreviated H statements

XL10-Gold 2-Mercaptoethanol H301 H310 H315 H317 H318 H319 H330 H335 H411 H412	Toxic if swallowed. Fatal in contact with skin. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage. Causes serious eye irritation. Fatal if inhaled. May cause respiratory irritation. Toxic to aquatic life with long lasting effects. Harmful to aquatic life with long lasting effects.
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Full text of classifications [CLP/GHS]

SECTION 16: Other information

XL10-Gold 2-Mercaptoethanol

Acute Tox. 2, H310 Acute Tox. 2, H330 Acute Tox. 3, H301 Aquatic Chronic 2, H411 Aquatic Chronic 3, H412 Eye Dam. 1, H318 Eye Irrit. 2, H319 Skin Irrit. 2, H315 Skin Sens. 1, H317 STOT SE 3, H335	ACUTE TOXICITY (dermal) - Category 2 ACUTE TOXICITY (inhalation) - Category 2 ACUTE TOXICITY (oral) - Category 3 LONG-TERM AQUATIC HAZARD - Category 2 LONG-TERM AQUATIC HAZARD - Category 3 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2 SKIN CORROSION/IRRITATION - Category 2 SKIN SENSITISATION - Category 1 SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Respiratory tract irritation) - Category 3
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