Conforms to Code of Practice for the Preparation of Safety Data Sheets for Hazardous Chemicals

SAFETY DATA SHEET

Agilent Technologies

AdEasy Adenoviral Vector System Kit, Part Number 240009

Section 1. Identification

Product identifier : 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

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

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)

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

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

Section 2. Hazard(s) identification

Classification of the substance or mixture

XL10-Gold
2-Mercaptoethanol

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

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.

Section 2. Hazard(s) identification

		XL10-Gold Ultracompetent cells	No signal word.
		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	No known significant effects or critical hazards.
		XL10-Gold 2-Mercaptoethanol	H318 - Causes serious eye damage. H317 - May cause an allergic skin reaction. H412 - Harmful to aquatic life with long lasting effects.
		pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.
Precautionary statements			
Prevention	:	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	P280 - Wear protective gloves. Wear eye or face protection. P273 - Avoid release to the environment. P261 - Avoid breathing vapour. P272 - Contaminated work clothing should not be allowed out of the workplace.
		pUC 18 DNA Control Plasmid	Not applicable.
Response	:	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	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.
		pUC 18 DNA Control Plasmid	Not applicable.

Section 2. Hazard(s) identification

Storage	:	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.
Disposal	:	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	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
		pUC 18 DNA Control Plasmid	Not applicable.
Supplemental label elements	:	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.
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 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 and ingredient information

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	Mixture

Section 3. Composition and ingredient information

2-Mercaptoethanol
pUC 18 DNA Control Plasmid Mixture

CAS number/other identifiers

Ingredient name	% (w/w)	CAS number
BJ5183 electroporation competent cells		
Glycerol	≤10	56-81-5
XL10-Gold Ultracompetent cells		
Glycerol	≥10 - ≤30	56-81-5
Sucrose	≤10	57-50-1
XL10-Gold 2-Mercaptoethanol		
2-Mercaptoethanol	≤5	60-24-2

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

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. 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.

Section 4. First aid measures

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 Ultracompetent cells	Flush contaminated skin with plenty of water. Remove 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.

Section 4. First aid measures

		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 or waistband.
		pUC 18 DNA Control Plasmid	Wash out mouth with water. Remove victim to fresh

Section 4. First aid measures

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.

Most important symptoms/effects, 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.
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.
		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 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.

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	No specific data.
		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.

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

Section 4. First aid measures

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 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.
		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. Firefighting measures

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.
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. 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.
	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

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		carbon monoxide sulfur oxides 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.

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

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	(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

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 Plasmid	No action shall be taken involving any personal risk

Section 6. Accidental release measures

		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.
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".
Environmental precautions :	pADEasy-1 Vector	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	pShuttle Vector	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	pShuttle-CMV Vector	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	pShuttle-CMV-lacZ Control Vector	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	BJ5183 electroporation competent cells	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).

Section 6. Accidental release measures

XL10-Gold Ultracompetent cells	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).
XL10-Gold 2-Mercaptoethanol	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). 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).

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

Section 6. Accidental release measures

inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Section 7. Handling and storage

Precautions for safe handling

Protective measures	:	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	Potentially biohazardous material. Eating, drinking

Section 7. Handling and storage

	competent cells	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 for additional information on hygiene measures.
Conditions for safe storage, including any incompatibilities :	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

Section 7. Handling and storage

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

Section 8. Exposure controls and personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
BJ5183 electroporation competent cells	
Glycerol	**Safe Work Australia (Australia, 1/2014).** TWA: 10 mg/m³ 8 hours.
XL10-Gold Ultracompetent cells	
Glycerol	**Safe Work Australia (Australia, 1/2014).** TWA: 10 mg/m³ 8 hours.
Sucrose	**Safe Work Australia (Australia, 1/2014).** TWA: 10 mg/m³ 8 hours.

Section 8. Exposure controls and personal protection

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.

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.

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

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.

Section 9. Physical and chemical properties

Colour	:	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.
Odour	:	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.
Odour 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
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)

Section 9. Physical and chemical properties

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

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.
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	Not available.

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		2-Mercaptoethanol	
		pUC 18 DNA Control Plasmid	Not available.
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.
		pUC 18 DNA Control Plasmid	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.
		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 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

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.

Section 10. Stability and reactivity

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.

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.

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.

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 2-Mercaptoethanol	May react or be incompatible with oxidising materials.
pUC 18 DNA Control Plasmid	May react or be incompatible with oxidising materials.

Section 10. Stability and reactivity

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.
		XL10-Gold Ultracompetent cells	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

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	-
Sucrose	LD50 Oral	Rat	29700 mg/kg	-
XL10-Gold 2-Mercaptoethanol				
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	-
XL10-Gold					

Section 11. Toxicological information

2-Mercaptoethanol 2-Mercaptoethanol	Eyes - Severe irritant	Rabbit	-	2 milligrams	-

Sensitisation

Not available.

Conclusion/Summary

Skin : May cause skin sensitisation.

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 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

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.

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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.
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.
		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 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	No specific data.
		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.

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		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.

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

Not available.

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.
		pUC 18 DNA Control Plasmid	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.
		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 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.
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.
		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 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

Section 11. Toxicological information

Acute toxicity estimates

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

Section 12. Ecological information

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

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
BJ5183 electroporation competent cells			
Glycerol	-1.76	-	low
XL10-Gold Ultracompetent cells			
Glycerol	-1.76	-	low
Sucrose	-3.7	-	low
XL10-Gold 2-Mercaptoethanol			
2-Mercaptoethanol	-0.056	-	low

Mobility in soil

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

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

Section 13. Disposal considerations

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

Section 13. Disposal considerations

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

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

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

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

Section 15. Regulatory information

Standard Uniform Schedule of Medicine and Poisons

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Model Work Health and Safety Regulations - Scheduled Substances

No listed substance

Australia inventory (AICS) : All components are listed or exempted.

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.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

International lists

National inventory

Canada : All components are listed or exempted.

China : Not determined.

Europe : All components are listed or exempted.

Japan : **Japan inventory (ENCS)**: Not determined.
Japan inventory (ISHL): 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.

Section 16. Any other relevant information

History

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

Date of previous issue : 14/10/2016.

Version : 5

Key to abbreviations : ADG = Australian Dangerous Goods
ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
NOHSC = National Occupational Health and Safety Commission
SUSMP = Standard Uniform Schedule of Medicine and Poisons
UN = United Nations

Procedure used to derive the classification

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

References : Not available.

Indicates information that has changed from previously issued version.

Notice to reader

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