

Section 2. Hazards identification

Precautionary statements

Prevention	: <input checked="" type="checkbox"/> ABLE K electroporation competent cells pUC 18 DNA Control Plasmid	Not applicable. Not applicable.
Response	: <input checked="" type="checkbox"/> ABLE K electroporation competent cells pUC 18 DNA Control Plasmid	Not applicable. Not applicable.
Storage	: <input checked="" type="checkbox"/> ABLE K electroporation competent cells pUC 18 DNA Control Plasmid	Not applicable. Not applicable.
Disposal	: <input checked="" type="checkbox"/> ABLE K electroporation competent cells pUC 18 DNA Control Plasmid	Not applicable. Not applicable.
Supplemental label elements	: <input checked="" type="checkbox"/> ABLE K electroporation competent cells pUC 18 DNA Control Plasmid	None known. None known.

2.3 Other hazards

Hazards not otherwise classified	: <input checked="" type="checkbox"/> ABLE K electroporation competent cells pUC 18 DNA Control Plasmid	None known. None known.
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Section 3. Composition/information on ingredients

Substance/mixture	: <input checked="" type="checkbox"/> ABLE K electroporation competent cells pUC 18 DNA Control Plasmid	Mixture Mixture
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Ingredient name	%	CAS number
<input checked="" type="checkbox"/> ABLE K electroporation competent cells Glycerol	<10	56-81-5

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

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

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

Section 4. First aid measures

4.1 Description of necessary first aid measures

Eye contact	: <input checked="" type="checkbox"/> ABLE K electroporation competent cells 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. 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	: <input checked="" type="checkbox"/> ABLE K electroporation competent cells 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. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

Section 4. First aid measures

Skin contact	: ABLE K electroporation competent cells	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	pUC 18 DNA Control Plasmid	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Ingestion	: ABLE K 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.
	pUC 18 DNA Control Plasmid	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact	: ABLE K electroporation competent cells	No known significant effects or critical hazards.
	pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.
Inhalation	: ABLE K electroporation competent cells	No known significant effects or critical hazards.
	pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.
Skin contact	: ABLE K electroporation competent cells	No known significant effects or critical hazards.
	pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.
Ingestion	: ABLE K electroporation competent cells	No known significant effects or critical hazards.
	pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact	: ABLE K electroporation competent cells	No specific data.
	pUC 18 DNA Control Plasmid	No specific data.
Inhalation	: ABLE K electroporation competent cells	No specific data.
	pUC 18 DNA Control Plasmid	No specific data.
Skin contact	: ABLE K electroporation competent cells	No specific data.
	pUC 18 DNA Control Plasmid	No specific data.
Ingestion	: ABLE K electroporation competent cells	No specific data.
	pUC 18 DNA Control Plasmid	No specific data.

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

Section 4. First aid measures

Notes to physician	: ABLE K electroporation competent cells pUC 18 DNA Control Plasmid	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	: ABLE K electroporation competent cells pUC 18 DNA Control Plasmid	No specific treatment. No specific treatment.
Protection of first-aiders	: ABLE K electroporation competent cells pUC 18 DNA Control Plasmid	No action shall be taken involving any personal risk or without suitable training. No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media	: ABLE K electroporation competent cells pUC 18 DNA Control Plasmid	Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	: ABLE K electroporation competent cells pUC 18 DNA Control Plasmid	None known. None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards arising from the chemical	: ABLE K electroporation competent cells pUC 18 DNA Control Plasmid	In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst.
Hazardous thermal decomposition products	: ABLE K electroporation competent cells pUC 18 DNA Control Plasmid	Decomposition products may include the following materials: carbon dioxide carbon monoxide No specific data.

5.3 Advice for firefighters

Special protective actions for fire-fighters	: ABLE K electroporation competent cells pUC 18 DNA Control Plasmid	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. 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	: ABLE K electroporation competent cells 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. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	: ABLE K electroporation competent cells	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.
	pUC 18 DNA Control Plasmid	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.
For emergency responders	: ABLE K electroporation competent cells	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	pUC 18 DNA Control Plasmid	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions	: ABLE K 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).
	pUC 18 DNA Control Plasmid	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up	: ABLE K 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.
	pUC 18 DNA Control Plasmid	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Section 7. Handling and storage

7.1 Precautions for safe handling

Protective measures	: ABLE K electroporation competent cells	Put on appropriate personal protective equipment (see Section 8).
	pUC 18 DNA Control Plasmid	Put on appropriate personal protective equipment (see Section 8).

Section 7. Handling and storage

Advice on general occupational hygiene	: ABLE K 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.
	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	: ABLE K electroporation competent cells	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
	pUC 18 DNA Control Plasmid	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
7.3 Specific end use(s)		
Recommendations	: ABLE K electroporation competent cells	Industrial applications, Professional applications.
	pUC 18 DNA Control Plasmid	Industrial applications, Professional applications.
Industrial sector specific solutions	: ABLE K electroporation competent cells	Not applicable.
	pUC 18 DNA Control Plasmid	Not applicable.

Section 8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Section 9. Physical and chemical properties

Color	: ABE K electroporation competent cells	Not available.
	pUC 18 DNA Control Plasmid	Not available.
Odor	: ABE K electroporation competent cells	Not available.
	pUC 18 DNA Control Plasmid	Not available.
Odor threshold	: ABE K electroporation competent cells	Not available.
	pUC 18 DNA Control Plasmid	Not available.
pH	: ABE K electroporation competent cells	Not available.
	pUC 18 DNA Control Plasmid	7.5
Melting point	: ABE K electroporation competent cells	Not available.
	pUC 18 DNA Control Plasmid	0°C (32°F)
Boiling point	: ABE K electroporation competent cells	Not available.
	pUC 18 DNA Control Plasmid	100°C (212°F)
Flash point	: ABE K electroporation competent cells	Not available.
	pUC 18 DNA Control Plasmid	Not available.
Evaporation rate	: ABE K electroporation competent cells	Not available.
	pUC 18 DNA Control Plasmid	Not available.
Flammability (solid, gas)	: ABE K electroporation competent cells	Not applicable.
	pUC 18 DNA Control Plasmid	Not applicable.
Lower and upper explosive (flammable) limits	: ABE K electroporation competent cells	Not available.
	pUC 18 DNA Control Plasmid	Not available.
Vapor pressure	: ABE K electroporation competent cells	Not available.
	pUC 18 DNA Control Plasmid	Not available.
Vapor density	: ABE K electroporation competent cells	Not available.
	pUC 18 DNA Control Plasmid	Not available.
Relative density	: ABE K electroporation competent cells	Not available.
	pUC 18 DNA Control Plasmid	Not available.
Solubility	: ABE K electroporation competent cells	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	: ABE K electroporation competent cells	Not available.
	pUC 18 DNA Control Plasmid	Not available.
Auto-ignition temperature	: ABE K electroporation competent cells	Not available.
	pUC 18 DNA Control Plasmid	Not available.
Decomposition temperature	: ABE K electroporation competent cells	Not available.
	pUC 18 DNA Control Plasmid	Not available.

Section 11. Toxicological information

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : ABLE K electroporation competent cells
pUC 18 DNA Control Plasmid Routes of entry anticipated: Oral, Dermal, Inhalation.
Not available.

Potential acute health effects

Eye contact : ABLE K electroporation competent cells
pUC 18 DNA Control Plasmid No known significant effects or critical hazards.

Inhalation : ABLE K electroporation competent cells
pUC 18 DNA Control Plasmid No known significant effects or critical hazards.

Skin contact : ABLE K electroporation competent cells
pUC 18 DNA Control Plasmid No known significant effects or critical hazards.

Ingestion : ABLE K electroporation competent cells
pUC 18 DNA Control Plasmid No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : ABLE K electroporation competent cells
pUC 18 DNA Control Plasmid No specific data.

Inhalation : ABLE K electroporation competent cells
pUC 18 DNA Control Plasmid No specific data.

Skin contact : ABLE K electroporation competent cells
pUC 18 DNA Control Plasmid No specific data.

Ingestion : ABLE K electroporation competent cells
pUC 18 DNA Control Plasmid No specific data.

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

Section 11. Toxicological information

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	: <input checked="" type="checkbox"/> ABLE K electroporation competent cells	No known significant effects or critical hazards.
	pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.
Carcinogenicity	: <input checked="" type="checkbox"/> ABLE K electroporation competent cells	No known significant effects or critical hazards.
	pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.
Mutagenicity	: <input checked="" type="checkbox"/> ABLE K electroporation competent cells	No known significant effects or critical hazards.
	pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.
Teratogenicity	: <input checked="" type="checkbox"/> ABLE K electroporation competent cells	No known significant effects or critical hazards.
	pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.
Developmental effects	: <input checked="" type="checkbox"/> ABLE K electroporation competent cells	No known significant effects or critical hazards.
	pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.
Fertility effects	: <input checked="" type="checkbox"/> ABLE K electroporation competent cells	No known significant effects or critical hazards.
	pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Other information : ABLE K electroporation competent cells Not available.
pUC 18 DNA Control Plasmid Not available.

Section 12. Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
<input checked="" type="checkbox"/> ABLE K electroporation competent cells Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours

12.2 Persistence and degradability

Section 12. Ecological information

Product/ingredient name	Test	Result	Dose	Inoculum
ABLE K electroporation competent cells Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
ABLE K electroporation competent cells Glycerol	-1.76	-	low

12.4 Mobility in soil

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

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

Section 13. Disposal considerations

13.1 Waste treatment methods

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

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

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

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

Section 14. Transport information

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

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

Section 14. Transport information

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

Section 15. Regulatory information

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

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

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : ABLE K electroporation competent cells Not applicable.
pUC 18 DNA Control Plasmid Not applicable.

Composition/information on ingredients

Name	%	Classification
ABLE K electroporation competent cells Glycerol	<10	EYE IRRITATION - Category 2A

State regulations

Massachusetts : The following components are listed: GLYCERINE MIST

New York : None of the components are listed.

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

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

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.

Inventory list

Australia	: All components are listed or exempted.
Canada	: All components are listed or exempted.
China	: All components are listed or exempted.
Europe	: All components are listed or exempted.
Japan	: <input checked="" type="checkbox"/> Japan inventory (ENCS) : All components are listed or exempted. <input checked="" type="checkbox"/> Japan inventory (ISHL) : All components are listed or exempted.
Malaysia	: Not determined.
New Zealand	: All components are listed or exempted.
Philippines	: All components are listed or exempted.
Republic of Korea	: All components are listed or exempted.
Taiwan	: All components are listed or exempted.
Thailand	: <input checked="" type="checkbox"/> Not determined.
Turkey	: <input checked="" type="checkbox"/> Not determined.
United States	: All components are listed or exempted.
Viet Nam	: <input checked="" type="checkbox"/> Not determined.

Section 16. Other information

History

Date of issue : 11/27/2017

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Version : 5

Indicates information that has changed from previously issued version.

Notice to reader

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