

SAFETY DATA SHEET

CRISPR Library Cloning Kit Early Access, Part Number G7556P

Section 1. Identification

1.1 Product identifier

Product name : CRISPR Library Cloning Kit Early Access, Part Number G7556P

Part No. (Chemical Kit) : G7556P

Part No. :

SureSolution	5190-9381
SureGuide Agarose	5190-9382
Cloning Mix	5190-9379
10X Cloning Buffer	5190-9380
dNTP Mix	200518-56
ElectroTen-Blue Competent Cells	200159-41
pUC 18 DNA Control Plasmid	200231-42
StrataClean Resin	200480-52

Validation date : 1/22/2018

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

Material uses : Analytical reagent.

SureSolution	0.5 ml
SureGuide Agarose	12 g
Cloning Mix	0.03 ml
10X Cloning Buffer	0.2 ml
dNTP Mix	0.03 ml
ElectroTen-Blue Competent Cells	5 x 0.1 ml
pUC 18 DNA Control Plasmid	0.015 ml (0.1 ng/μl)
StrataClean Resin	0.1 ml

1.3 Details of the supplier of the safety data sheet

Supplier/Manufacturer : Agilent Technologies, Inc.
 5301 Stevens Creek Blvd
 Santa Clara, CA 95051, USA
 800-227-9770

1.4 Emergency telephone number

In case of emergency : CHEMTREC®: 1-800-424-9300

Section 2. Hazards identification

2.1 Classification of the substance or mixture

OSHA/HCS status	: SureSolution SureGuide Agarose Cloning Mix 10X Cloning Buffer dNTP Mix	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product. This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
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Section 2. Hazards identification

<p>ElectroTen-Blue Competent Cells pUC 18 DNA Control Plasmid</p>	<p>1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.</p> <p>This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.</p>
<p>StrataClean Resin</p>	<p>While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.</p>

Classification of the substance or mixture

SureSolution

H227 FLAMMABLE LIQUIDS - Category 4
H320 EYE IRRITATION - Category 2B

Cloning Mix

H320 EYE IRRITATION - Category 2B

10X Cloning Buffer

H319 EYE IRRITATION - Category 2A

ElectroTen-Blue Competent Cells

H320 EYE IRRITATION - Category 2B

Ingredients of unknown toxicity

<p>Cloning Mix</p>	<p>Percentage of the mixture consisting of ingredient (s) of unknown inhalation toxicity: 30 - 60%</p>
<p>10X Cloning Buffer</p>	<p>Percentage of the mixture consisting of ingredient (s) of unknown dermal toxicity: 1 - 10%</p> <p>Percentage of the mixture consisting of ingredient (s) of unknown inhalation toxicity: 1 - 10%</p> <p>Percentage of the mixture consisting of ingredient (s) of unknown oral toxicity: 1 - 10%</p>
<p>ElectroTen-Blue Competent Cells</p>	<p>Percentage of the mixture consisting of ingredient (s) of unknown inhalation toxicity: 1 - 10%</p>

2.2 GHS label elements

Hazard pictograms

10X Cloning Buffer



Signal word

<p>SureSolution</p>	<p>Warning</p>
<p>SureGuide Agarose</p>	<p>No signal word.</p>
<p>Cloning Mix</p>	<p>Warning</p>
<p>10X Cloning Buffer</p>	<p>Warning</p>
<p>dNTP Mix</p>	<p>No signal word.</p>
<p>ElectroTen-Blue Competent Cells</p>	<p>Warning</p>
<p>pUC 18 DNA Control Plasmid</p>	<p>No signal word.</p>

Section 2. Hazards identification

Hazard statements	StrataClean Resin	No signal word.
	: SureSolution	H227 - Combustible liquid. H320 - Causes eye irritation.
	SureGuide Agarose	No known significant effects or critical hazards.
	Cloning Mix	H320 - Causes eye irritation.
	10X Cloning Buffer	H319 - Causes serious eye irritation.
	dNTP Mix	No known significant effects or critical hazards.
	ElectroTen-Blue Competent Cells	H320 - Causes eye irritation.
	pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.
	StrataClean Resin	No known significant effects or critical hazards.
<u>Precautionary statements</u>		
Prevention	: SureSolution	P280 - Wear protective gloves. Wear eye or face protection. P210 - Keep away from flames and hot surfaces. - No smoking. P264 - Wash hands thoroughly after handling.
	SureGuide Agarose	Not applicable.
	Cloning Mix	P264 - Wash hands thoroughly after handling.
	10X Cloning Buffer	P280 - Wear eye or face protection. P264 - Wash hands thoroughly after handling.
	dNTP Mix	Not applicable.
	ElectroTen-Blue Competent Cells	P264 - Wash hands thoroughly after handling.
	pUC 18 DNA Control Plasmid	Not applicable.
	StrataClean Resin	Not applicable.
Response	: SureSolution	P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical attention.
	SureGuide Agarose	Not applicable.
	Cloning Mix	P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical attention.
	10X Cloning Buffer	P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical attention.
	dNTP Mix	Not applicable.
	ElectroTen-Blue Competent Cells	P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical attention.
	pUC 18 DNA Control Plasmid	Not applicable.
	StrataClean Resin	Not applicable.

Section 2. Hazards identification

Storage	: <input checked="" type="checkbox"/> SureSolution	P403 - Store in a well-ventilated place. P235 - Keep cool.
	SureGuide Agarose	Not applicable.
	Cloning Mix	Not applicable.
	10X Cloning Buffer	Not applicable.
	dNTP Mix	Not applicable.
	ElectroTen-Blue Competent Cells	Not applicable.
	pUC 18 DNA Control Plasmid StrataClean Resin	Not applicable. Not applicable.
Disposal	: <input checked="" type="checkbox"/> SureSolution	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
	SureGuide Agarose	Not applicable.
	Cloning Mix	Not applicable.
	10X Cloning Buffer	Not applicable.
	dNTP Mix	Not applicable.
	ElectroTen-Blue Competent Cells	Not applicable.
	pUC 18 DNA Control Plasmid StrataClean Resin	Not applicable. Not applicable.
Supplemental label elements	: <input checked="" type="checkbox"/> SureSolution	None known.
	SureGuide Agarose	None known.
	Cloning Mix	None known.
	10X Cloning Buffer	None known.
	dNTP Mix	None known.
	ElectroTen-Blue Competent Cells	None known.
	pUC 18 DNA Control Plasmid StrataClean Resin	None known. None known.
2.3 Other hazards Hazards not otherwise classified	: <input checked="" type="checkbox"/> SureSolution	None known.
	SureGuide Agarose	None known.
	Cloning Mix	None known.
	10X Cloning Buffer	None known.
	dNTP Mix	None known.
	ElectroTen-Blue Competent Cells	None known.
	pUC 18 DNA Control Plasmid StrataClean Resin	None known. None known.

Section 3. Composition/information on ingredients

Substance/mixture	: <input checked="" type="checkbox"/> SureSolution	Substance
	SureGuide Agarose	Substance
	Cloning Mix	Mixture
	10X Cloning Buffer	Mixture
	dNTP Mix	Mixture
	ElectroTen-Blue Competent Cells	Mixture
	pUC 18 DNA Control Plasmid StrataClean Resin	Mixture Mixture

Section 3. Composition/information on ingredients

Ingredient name	%	CAS number
SureSolution Dimethyl sulfoxide	100	67-68-5
SureGuide Agarose Agarose	100	9012-36-6
Cloning Mix Glycerol	≥50 - ≤75	56-81-5
10X Cloning Buffer Potassium chloride	≤5	7447-40-7
2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride	≤5	1185-53-1
Ammonium sulphate	≤3	7783-20-2
Polyoxyethylene octyl phenyl ether	≤2.3	9002-93-1
ElectroTen-Blue Competent Cells Dimethyl sulfoxide	≥10 - ≤25	67-68-5
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	: SureSolution	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. If irritation persists, get medical attention.
	SureGuide Agarose	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.
	Cloning Mix	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. If irritation persists, get medical attention.
	10X Cloning Buffer	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. Get medical attention.
	dNTP Mix	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.
	ElectroTen-Blue Competent Cells	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. If irritation persists, get medical attention.
	pUC 18 DNA Control Plasmid	Immediately flush eyes with plenty of water,

Section 4. First aid measures

Inhalation

StrataClean Resin	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.
: SureSolution	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
SureGuide Agarose	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
Cloning Mix	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
10X Cloning Buffer	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
dNTP Mix	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
ElectroTen-Blue Competent Cells	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give

Section 4. First aid measures

mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

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.

StrataClean Resin

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

Skin contact

: SureSolution

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

SureGuide Agarose

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

Cloning Mix

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

10X Cloning Buffer

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

dNTP Mix

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

ElectroTen-Blue Competent Cells

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

pUC 18 DNA Control Plasmid

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

StrataClean Resin

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

Ingestion

: SureSolution

Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if

Section 4. First aid measures

	adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
SureGuide Agarose	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.
Cloning Mix	Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
10X Cloning Buffer	Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
dNTP Mix	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.
ElectroTen-Blue Competent Cells	Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless

Section 4. First aid measures

		directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
	pUC 18 DNA Control Plasmid	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
	StrataClean Resin	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	: SureSolution SureGuide Agarose Cloning Mix 10X Cloning Buffer dNTP Mix ElectroTen-Blue Competent Cells pUC 18 DNA Control Plasmid StrataClean Resin	Causes eye irritation. No known significant effects or critical hazards. Causes eye irritation. Causes serious eye irritation. No known significant effects or critical hazards. Causes eye irritation. No known significant effects or critical hazards. No known significant effects or critical hazards.
Inhalation	: SureSolution SureGuide Agarose Cloning Mix 10X Cloning Buffer dNTP Mix ElectroTen-Blue Competent Cells pUC 18 DNA Control Plasmid StrataClean Resin	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Skin contact	: SureSolution SureGuide Agarose Cloning Mix 10X Cloning Buffer dNTP Mix ElectroTen-Blue Competent Cells pUC 18 DNA Control Plasmid StrataClean Resin	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Ingestion	: SureSolution SureGuide Agarose Cloning Mix 10X Cloning Buffer dNTP Mix ElectroTen-Blue Competent Cells pUC 18 DNA Control Plasmid	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.

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	StrataClean Resin	No known significant effects or critical hazards.
<u>Over-exposure signs/symptoms</u>		
Eye contact	: SureSolution	Adverse symptoms may include the following: irritation watering redness
	SureGuide Agarose Cloning Mix	No specific data. Adverse symptoms may include the following: irritation watering redness
	10X Cloning Buffer	Adverse symptoms may include the following: pain or irritation watering redness
	dNTP Mix ElectroTen-Blue Competent Cells	No specific data. Adverse symptoms may include the following: irritation watering redness
Inhalation	pUC 18 DNA Control Plasmid StrataClean Resin	No specific data. No specific data.
	: SureSolution	No specific data.
	SureGuide Agarose Cloning Mix	No specific data. No specific data.
	10X Cloning Buffer dNTP Mix ElectroTen-Blue Competent Cells	No specific data. No specific data. No specific data.
Skin contact	pUC 18 DNA Control Plasmid StrataClean Resin	No specific data. No specific data.
	: SureSolution	No specific data.
	SureGuide Agarose Cloning Mix	No specific data. No specific data.
	10X Cloning Buffer dNTP Mix ElectroTen-Blue Competent Cells	No specific data. No specific data. No specific data.
Ingestion	pUC 18 DNA Control Plasmid StrataClean Resin	No specific data. No specific data.
	: SureSolution	No specific data.
	SureGuide Agarose Cloning Mix	No specific data. No specific data.
	10X Cloning Buffer dNTP Mix ElectroTen-Blue Competent Cells	No specific data. No specific data. No specific data.

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

Notes to physician	: SureSolution	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	SureGuide Agarose	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	Cloning Mix	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

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	10X Cloning Buffer	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
	dNTP Mix	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	ElectroTen-Blue Competent Cells	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
	pUC 18 DNA Control Plasmid	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	StrataClean Resin	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	: SureSolution	No specific treatment.
	SureGuide Agarose	No specific treatment.
	Cloning Mix	No specific treatment.
	10X Cloning Buffer	No specific treatment.
	dNTP Mix	No specific treatment.
	ElectroTen-Blue Competent Cells	No specific treatment.
	pUC 18 DNA Control Plasmid	No specific treatment.
	StrataClean Resin	No specific treatment.
Protection of first-aiders	: SureSolution	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
	SureGuide Agarose	No action shall be taken involving any personal risk or without suitable training.
	Cloning Mix	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
	10X Cloning Buffer	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
	dNTP Mix	No action shall be taken involving any personal risk or without suitable training.
	ElectroTen-Blue Competent Cells	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
	pUC 18 DNA Control Plasmid	No action shall be taken involving any personal risk or without suitable training.
	StrataClean Resin	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	: SureSolution	Use dry chemical, CO ₂ , water spray (fog) or foam.
	SureGuide Agarose	Use an extinguishing agent suitable for the surrounding fire.
	Cloning Mix	Use an extinguishing agent suitable for the surrounding fire.
	10X Cloning Buffer	Use an extinguishing agent suitable for the surrounding fire.
	dNTP Mix	Use an extinguishing agent suitable for the surrounding fire.
	ElectroTen-Blue Competent Cells	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	StrataClean Resin	Use an extinguishing agent suitable for the surrounding fire.
	: SureSolution	Do not use water jet.
	SureGuide Agarose	None known.
	Cloning Mix	None known.
	10X Cloning Buffer	None known.
	dNTP Mix	None known.
	ElectroTen-Blue Competent Cells	None known.
pUC 18 DNA Control Plasmid	None known.	
StrataClean Resin	None known.	

5.2 Special hazards arising from the substance or mixture

Specific hazards arising from the chemical	: SureSolution	Combustible liquid. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back.
	SureGuide Agarose	In a fire or if heated, a pressure increase will occur and the container may burst.
	Cloning Mix	In a fire or if heated, a pressure increase will occur and the container may burst.
	10X Cloning Buffer	In a fire or if heated, a pressure increase will occur and the container may burst.
	dNTP Mix	In a fire or if heated, a pressure increase will occur and the container may burst.
	ElectroTen-Blue Competent Cells	In a fire or if heated, a pressure increase will occur and the container may burst.
	pUC 18 DNA Control Plasmid	In a fire or if heated, a pressure increase will occur and the container may burst.
Hazardous thermal decomposition products	StrataClean Resin	In a fire or if heated, a pressure increase will occur and the container may burst.
	: SureSolution	Decomposition products may include the following materials: carbon dioxide carbon monoxide sulfur oxides
	SureGuide Agarose	Decomposition products may include the following materials: carbon dioxide carbon monoxide

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Cloning Mix	Decomposition products may include the following materials: carbon dioxide carbon monoxide
10X Cloning Buffer	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides sulfur oxides halogenated compounds metal oxide/oxides
dNTP Mix	No specific data.
ElectroTen-Blue Competent Cells	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides sulfur oxides phosphorus oxides
pUC 18 DNA Control Plasmid	No specific data.
StrataClean Resin	Decomposition products may include the following materials: carbon dioxide carbon monoxide metal oxide/oxides

5.3 Advice for firefighters

Special protective actions for fire-fighters

: SureSolution	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. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
SureGuide Agarose	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.
Cloning Mix	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.
10X Cloning Buffer	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.
dNTP Mix	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.
ElectroTen-Blue 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.
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.

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	StrataClean Resin	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	: SureSolution	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	SureGuide Agarose	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	Cloning Mix	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	10X Cloning Buffer	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	dNTP Mix	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	ElectroTen-Blue Competent Cells	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	pUC 18 DNA Control Plasmid	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	StrataClean Resin	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	: SureSolution	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. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
	SureGuide Agarose	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.
	Cloning Mix	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and

Section 6. Accidental release measures

10X Cloning Buffer	<p>unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.</p> <p>No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.</p>
dNTP Mix	<p>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.</p> <p>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.</p>
ElectroTen-Blue Competent Cells	<p>No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.</p> <p>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.</p>
pUC 18 DNA Control Plasmid	<p>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.</p> <p>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.</p>
StrataClean Resin	<p>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.</p> <p>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.</p>
For emergency responders : SureSolution	<p>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".</p>
SureGuide Agarose	<p>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".</p>
Cloning Mix	<p>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".</p>
10X Cloning Buffer	<p>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".</p>
dNTP Mix	<p>If specialized clothing is required to deal with the</p>

Section 6. Accidental release measures

		spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	ElectroTen-Blue 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".
	StrataClean Resin	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	: SureSolution	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).
	SureGuide Agarose	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).
	Cloning Mix	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).
	10X Cloning Buffer	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).
	dNTP Mix	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).
	ElectroTen-Blue 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).
	StrataClean Resin	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

Section 6. Accidental release measures

Methods for cleaning up	: SureSolution	Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. 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.
	SureGuide Agarose	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.
	Cloning Mix	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.
	10X Cloning Buffer	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.
	dNTP Mix	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.
	ElectroTen-Blue 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.
	StrataClean Resin	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

Section 7. Handling and storage

Protective measures

: SureSolution

Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous. Do not reuse container.

SureGuide Agarose

Put on appropriate personal protective equipment (see Section 8).

Cloning Mix

Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

10X Cloning Buffer

Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

dNTP Mix

Put on appropriate personal protective equipment (see Section 8).

ElectroTen-Blue Competent Cells

Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

pUC 18 DNA Control Plasmid

Put on appropriate personal protective equipment (see Section 8).

StrataClean Resin

Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene

: SureSolution

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. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face

SureGuide Agarose

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face

Section 7. Handling and storage

Cloning Mix	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. 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.
10X Cloning Buffer	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.
dNTP Mix	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.
ElectroTen-Blue 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.
StrataClean Resin	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

:  SureSolution

Storage temperature: -20°C (-4°F). Store in accordance with local regulations. Store in a segregated and approved area. 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. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed

Section 7. Handling and storage

SureGuide Agarose	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.
Cloning Mix	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.
10X Cloning Buffer	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.
dNTP Mix	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.
ElectroTen-Blue 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

Section 7. Handling and storage

pUC 18 DNA Control Plasmid	incompatible materials before handling or use. Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
StrataClean Resin	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	: SureSolution SureGuide Agarose Cloning Mix 10X Cloning Buffer dNTP Mix ElectroTen-Blue Competent Cells pUC 18 DNA Control Plasmid StrataClean Resin	Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications.
Industrial sector specific solutions	: SureSolution SureGuide Agarose Cloning Mix 10X Cloning Buffer dNTP Mix ElectroTen-Blue Competent Cells pUC 18 DNA Control Plasmid StrataClean Resin	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.

Section 8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
SureSolution Dimethyl sulfoxide	AIHA WEEL (United States, 10/2011). TWA: 250 ppm 8 hours.
SureGuide Agarose Agarose	None.
Cloning Mix Glycerol	OSHA PEL 1989 (United States, 3/1989). TWA: 5 mg/m ³ 8 hours. Form: Respirable

Section 8. Exposure controls/personal protection

<p>10X Cloning Buffer Potassium chloride 2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride Ammonium sulphate Polyoxyethylene octyl phenyl ether</p> <p>ElectroTen-Blue Competent Cells Dimethyl sulfoxide</p> <p>Glycerol</p>	<p>fraction TWA: 10 mg/m³ 8 hours. Form: Total dust OSHA PEL (United States, 6/2016). TWA: 5 mg/m³ 8 hours. Form: Respirable fraction fraction TWA: 15 mg/m³ 8 hours. Form: Total dust</p> <p>None. None. None. None.</p> <p>AIHA WEEL (United States, 10/2011). TWA: 250 ppm 8 hours. OSHA PEL 1989 (United States, 3/1989). TWA: 5 mg/m³ 8 hours. Form: Respirable fraction fraction TWA: 10 mg/m³ 8 hours. Form: Total dust OSHA PEL (United States, 6/2016). TWA: 5 mg/m³ 8 hours. Form: Respirable fraction fraction TWA: 15 mg/m³ 8 hours. Form: Total dust</p>
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8.2 Exposure controls

Appropriate engineering controls

- : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls

- : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures

- : Handle as biohazard material (Biosafety level 1). Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection

- : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

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.

Section 8. Exposure controls/personal protection

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

Section 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	: SureSolution	Liquid. [Clear.]
	SureGuide Agarose	Liquid.
	Cloning Mix	Liquid.
	10X Cloning Buffer	Liquid.
	dNTP Mix	Liquid.
	ElectroTen-Blue Competent Cells	Liquid.
	pUC 18 DNA Control Plasmid	Liquid.
	StrataClean Resin	Liquid.
Color	: SureSolution	Blue.
	SureGuide Agarose	Not available.
	Cloning Mix	Not available.
	10X Cloning Buffer	Not available.
	dNTP Mix	Not available.
	ElectroTen-Blue Competent Cells	Not available.
	pUC 18 DNA Control Plasmid	Not available.
	StrataClean Resin	Not available.
Odor	: SureSolution	Odorless. [Slight]
	SureGuide Agarose	Not available.
	Cloning Mix	Not available.
	10X Cloning Buffer	Not available.
	dNTP Mix	Not available.
	ElectroTen-Blue Competent Cells	Not available.
	pUC 18 DNA Control Plasmid	Not available.
	StrataClean Resin	Not available.
Odor threshold	: SureSolution	Not available.
	SureGuide Agarose	Not available.
	Cloning Mix	Not available.
	10X Cloning Buffer	Not available.
	dNTP Mix	Not available.
	ElectroTen-Blue Competent Cells	Not available.
	pUC 18 DNA Control Plasmid	Not available.
	StrataClean Resin	Not available.
pH	: SureSolution	Not available.
	SureGuide Agarose	Not available.
	Cloning Mix	8.2
	10X Cloning Buffer	8.8
	dNTP Mix	7.5
	ElectroTen-Blue Competent Cells	7.5
	pUC 18 DNA Control Plasmid	7.5
	StrataClean Resin	7.5

Section 9. Physical and chemical properties

Melting point	: SureSolution	18.5°C (65.3°F)
	SureGuide Agarose	Not available.
	Cloning Mix	Not available.
	10X Cloning Buffer	Not available.
	dNTP Mix	0°C (32°F)
	ElectroTen-Blue Competent Cells	Not available.
	pUC 18 DNA Control Plasmid	0°C (32°F)
Boiling point	: SureSolution	189°C (372.2°F)
	SureGuide Agarose	Not available.
	Cloning Mix	Not available.
	10X Cloning Buffer	Not available.
	dNTP Mix	100°C (212°F)
	ElectroTen-Blue Competent Cells	Not available.
	pUC 18 DNA Control Plasmid	100°C (212°F)
Flash point	: SureSolution	Closed cup: 87°C (188.6°F)
	SureGuide Agarose	Not available.
	Cloning Mix	Not available.
	10X Cloning Buffer	Not available.
	dNTP Mix	Not available.
	ElectroTen-Blue Competent Cells	Not available.
	pUC 18 DNA Control Plasmid	Not available.
Evaporation rate	: SureSolution	0.026 (butyl acetate = 1)
	SureGuide Agarose	Not available.
	Cloning Mix	Not available.
	10X Cloning Buffer	Not available.
	dNTP Mix	Not available.
	ElectroTen-Blue Competent Cells	Not available.
	pUC 18 DNA Control Plasmid	Not available.
Flammability (solid, gas)	: SureSolution	Not applicable.
	SureGuide Agarose	Not applicable.
	Cloning Mix	Not applicable.
	10X Cloning Buffer	Not applicable.
	dNTP Mix	Not applicable.
	ElectroTen-Blue Competent Cells	Not applicable.
	pUC 18 DNA Control Plasmid	Not applicable.
Lower and upper explosive (flammable) limits	: SureSolution	Lower: 2.6% Upper: 28.5%
	SureGuide Agarose	Not available.
	Cloning Mix	Not available.
	10X Cloning Buffer	Not available.
	dNTP Mix	Not available.
	ElectroTen-Blue Competent Cells	Not available.
	pUC 18 DNA Control Plasmid	Not available.
Vapor pressure	: SureSolution	0.056 kPa (0.42 mm Hg) [room temperature]
	SureGuide Agarose	Not available.
	Cloning Mix	Not available.
	10X Cloning Buffer	Not available.
	dNTP Mix	Not available.
	ElectroTen-Blue Competent Cells	Not available.
	pUC 18 DNA Control Plasmid	Not available.
StrataClean Resin	Not available.	

Section 9. Physical and chemical properties

Vapor density	: SureSolution	2.7 [Air = 1]
	SureGuide Agarose	Not available.
	Cloning Mix	Not available.
	10X Cloning Buffer	Not available.
	dNTP Mix	Not available.
	ElectroTen-Blue Competent Cells	Not available.
	pUC 18 DNA Control Plasmid	Not available.
Relative density	: SureSolution	1.1
	SureGuide Agarose	Not available.
	Cloning Mix	Not available.
	10X Cloning Buffer	Not available.
	dNTP Mix	Not available.
	ElectroTen-Blue Competent Cells	Not available.
	pUC 18 DNA Control Plasmid	Not available.
Solubility	: SureSolution	Easily soluble in the following materials: cold water and hot water.
	SureGuide Agarose	Not available.
	Cloning Mix	Soluble in the following materials: cold water and hot water.
	10X Cloning Buffer	Soluble in the following materials: cold water and hot water.
	dNTP Mix	Easily soluble in the following materials: cold water and hot water.
	ElectroTen-Blue 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	: SureSolution	-1.35
	SureGuide Agarose	Not available.
	Cloning Mix	Not available.
	10X Cloning Buffer	Not available.
	dNTP Mix	Not available.
	ElectroTen-Blue Competent Cells	Not available.
	pUC 18 DNA Control Plasmid	Not available.
Auto-ignition temperature	: SureSolution	300 to 302°C (572 to 575.6°F)
	SureGuide Agarose	Not available.
	Cloning Mix	Not available.
	10X Cloning Buffer	Not available.
	dNTP Mix	Not available.
	ElectroTen-Blue Competent Cells	Not available.
	pUC 18 DNA Control Plasmid	Not available.
Decomposition temperature	: SureSolution	140 to 189°C (284 to 372.2°F)
	SureGuide Agarose	Not available.
	Cloning Mix	Not available.
	10X Cloning Buffer	Not available.
	dNTP Mix	Not available.
	ElectroTen-Blue Competent Cells	Not available.
	pUC 18 DNA Control Plasmid	Not available.
StrataClean Resin	Not available.	

Section 9. Physical and chemical properties

Viscosity	: SureSolution	Dynamic (room temperature): 2.14 mPa·s (2.14 cP)
	SureGuide Agarose	Not available.
	Cloning Mix	Not available.
	10X Cloning Buffer	Not available.
	dNTP Mix	Not available.
	ElectroTen-Blue Competent Cells	Not available.
	pUC 18 DNA Control Plasmid	Not available.
	StrataClean Resin	Not available.

Section 10. Stability and reactivity

10.1 Reactivity	: SureSolution	No specific test data related to reactivity available for this product or its ingredients.
	SureGuide Agarose	No specific test data related to reactivity available for this product or its ingredients.
	Cloning Mix	No specific test data related to reactivity available for this product or its ingredients.
	10X Cloning Buffer	No specific test data related to reactivity available for this product or its ingredients.
	dNTP Mix	No specific test data related to reactivity available for this product or its ingredients.
	ElectroTen-Blue Competent Cells	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.
	StrataClean Resin	No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	: SureSolution	The product is stable.
	SureGuide Agarose	The product is stable.
	Cloning Mix	The product is stable.
	10X Cloning Buffer	The product is stable.
	dNTP Mix	The product is stable.
	ElectroTen-Blue Competent Cells	The product is stable.
	pUC 18 DNA Control Plasmid	The product is stable.
	StrataClean Resin	The product is stable.
10.3 Possibility of hazardous reactions	: SureSolution	Under normal conditions of storage and use, hazardous reactions will not occur.
	SureGuide Agarose	Under normal conditions of storage and use, hazardous reactions will not occur.
	Cloning Mix	Under normal conditions of storage and use, hazardous reactions will not occur.
	10X Cloning Buffer	Under normal conditions of storage and use, hazardous reactions will not occur.
	dNTP Mix	Under normal conditions of storage and use, hazardous reactions will not occur.
	ElectroTen-Blue Competent Cells	Under normal conditions of storage and use, hazardous reactions will not occur.
	pUC 18 DNA Control Plasmid	Under normal conditions of storage and use, hazardous reactions will not occur.
	StrataClean Resin	Under normal conditions of storage and use, hazardous reactions will not occur.

Section 10. Stability and reactivity

10.4 Conditions to avoid	: SureSolution	Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.
	SureGuide Agarose	No specific data.
	Cloning Mix	No specific data.
	10X Cloning Buffer	No specific data.
	dNTP Mix	No specific data.
	ElectroTen-Blue Competent Cells	No specific data.
	pUC 18 DNA Control Plasmid	No specific data.
	StrataClean Resin	No specific data.
10.5 Incompatible materials	: SureSolution	Reactive or incompatible with the following materials:
	SureGuide Agarose	oxidizing materials May react or be incompatible with oxidizing materials.
	Cloning Mix	May react or be incompatible with oxidizing materials.
	10X Cloning Buffer	May react or be incompatible with oxidizing materials.
	dNTP Mix	May react or be incompatible with oxidizing materials.
	ElectroTen-Blue Competent Cells	May react or be incompatible with oxidizing materials.
	pUC 18 DNA Control Plasmid	May react or be incompatible with oxidizing materials.
	StrataClean Resin	May react or be incompatible with oxidizing materials.
10.6 Hazardous decomposition products	: SureSolution	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	SureGuide Agarose	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	Cloning Mix	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	10X Cloning Buffer	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	dNTP Mix	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	ElectroTen-Blue Competent Cells	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	pUC 18 DNA Control Plasmid	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	StrataClean Resin	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
SureSolution Dimethyl sulfoxide	LD50 Dermal LD50 Oral	Rat Rat	40000 mg/kg 14500 mg/kg	- -
Cloning Mix Glycerol	LD50 Oral	Rat	12600 mg/kg	-
10X Cloning Buffer Potassium chloride	LD50 Oral	Rat	2600 mg/kg	-
Ammonium sulphate	LD50 Oral	Rat	2840 mg/kg	-
Polyoxyethylene octyl phenyl ether	LD50 Oral	Rat	1800 mg/kg	-
ElectroTen-Blue Competent Cells Dimethyl sulfoxide	LD50 Dermal LD50 Oral	Rat Rat	40000 mg/kg 14500 mg/kg	- -
Glycerol	LD50 Oral	Rat	12600 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
SureSolution Dimethyl sulfoxide	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Eyes - Mild irritant	Rabbit	-	100 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	100 milligrams	-
Cloning Mix Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
10X Cloning Buffer Potassium chloride	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
Polyoxyethylene octyl phenyl ether	Eyes - Moderate irritant	Rabbit	-	24 hours 10 microliters	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 microliters	-
ElectroTen-Blue Competent Cells Dimethyl sulfoxide	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Eyes - Mild irritant	Rabbit	-	100 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-

Section 11. Toxicological information

Glycerol	Skin - Mild irritant	Rabbit	-	100 milligrams	-
	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-

Sensitization

Not available.

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
10X Cloning Buffer 2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride	Category 3	Not applicable.	Respiratory tract irritation


Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard


Not available.

Information on the likely routes of exposure

<ul style="list-style-type: none">  SureSolution SureGuide Agarose Cloning Mix 10X Cloning Buffer dNTP Mix ElectroTen-Blue Competent Cells pUC 18 DNA Control Plasmid StrataClean Resin 	<ul style="list-style-type: none"> Routes of entry anticipated: Oral, Dermal, Inhalation. Not available. Routes of entry anticipated: Oral, Dermal, Inhalation. Routes of entry anticipated: Oral, Dermal, Inhalation. Not available. Routes of entry anticipated: Oral, Dermal, Inhalation. Not available. Not available.
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Potential acute health effects

Eye contact

<ul style="list-style-type: none">  SureSolution SureGuide Agarose Cloning Mix 10X Cloning Buffer dNTP Mix ElectroTen-Blue Competent Cells pUC 18 DNA Control Plasmid StrataClean Resin 	<ul style="list-style-type: none"> Causes eye irritation. No known significant effects or critical hazards. Causes eye irritation. Causes serious eye irritation. No known significant effects or critical hazards. Causes eye irritation. No known significant effects or critical hazards. No known significant effects or critical hazards.
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Section 11. Toxicological information

Inhalation	: SureSolution SureGuide Agarose Cloning Mix 10X Cloning Buffer dNTP Mix ElectroTen-Blue Competent Cells pUC 18 DNA Control Plasmid StrataClean Resin	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Skin contact	: SureSolution SureGuide Agarose Cloning Mix 10X Cloning Buffer dNTP Mix ElectroTen-Blue Competent Cells pUC 18 DNA Control Plasmid StrataClean Resin	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Ingestion	: SureSolution SureGuide Agarose Cloning Mix 10X Cloning Buffer dNTP Mix ElectroTen-Blue Competent Cells pUC 18 DNA Control Plasmid StrataClean Resin	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	: SureSolution SureGuide Agarose Cloning Mix 10X Cloning Buffer dNTP Mix ElectroTen-Blue Competent Cells pUC 18 DNA Control Plasmid StrataClean Resin	Adverse symptoms may include the following: irritation watering redness No specific data. Adverse symptoms may include the following: irritation watering redness Adverse symptoms may include the following: pain or irritation watering redness No specific data. Adverse symptoms may include the following: irritation watering redness No specific data. No specific data.
Inhalation	: SureSolution SureGuide Agarose Cloning Mix 10X Cloning Buffer dNTP Mix ElectroTen-Blue Competent Cells pUC 18 DNA Control Plasmid StrataClean Resin	No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data.

Section 11. Toxicological information

Skin contact	: SureSolution	No specific data.
	SureGuide Agarose	No specific data.
	Cloning Mix	No specific data.
	10X Cloning Buffer	No specific data.
	dNTP Mix	No specific data.
	ElectroTen-Blue Competent Cells	No specific data.
	pUC 18 DNA Control Plasmid	No specific data.
Ingestion	: SureSolution	No specific data.
	SureGuide Agarose	No specific data.
	Cloning Mix	No specific data.
	10X Cloning Buffer	No specific data.
	dNTP Mix	No specific data.
	ElectroTen-Blue Competent Cells	No specific data.
	pUC 18 DNA Control Plasmid	No specific data.
StrataClean Resin	No specific data.	

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

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

General	: SureSolution	No known significant effects or critical hazards.
	SureGuide Agarose	No known significant effects or critical hazards.
	Cloning Mix	No known significant effects or critical hazards.
	10X Cloning Buffer	No known significant effects or critical hazards.
	dNTP Mix	No known significant effects or critical hazards.
	ElectroTen-Blue Competent Cells	No known significant effects or critical hazards.
	pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.
Carcinogenicity	: SureSolution	No known significant effects or critical hazards.
	SureGuide Agarose	No known significant effects or critical hazards.
	Cloning Mix	No known significant effects or critical hazards.
	10X Cloning Buffer	No known significant effects or critical hazards.
	dNTP Mix	No known significant effects or critical hazards.
	ElectroTen-Blue Competent Cells	No known significant effects or critical hazards.
	pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.
Mutagenicity	: SureSolution	No known significant effects or critical hazards.
	SureGuide Agarose	No known significant effects or critical hazards.
	Cloning Mix	No known significant effects or critical hazards.
	10X Cloning Buffer	No known significant effects or critical hazards.
	dNTP Mix	No known significant effects or critical hazards.
	ElectroTen-Blue Competent Cells	No known significant effects or critical hazards.
	pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.
StrataClean Resin	No known significant effects or critical hazards.	

Section 11. Toxicological information

Teratogenicity	: SureSolution SureGuide Agarose Cloning Mix 10X Cloning Buffer dNTP Mix ElectroTen-Blue Competent Cells pUC 18 DNA Control Plasmid StrataClean Resin	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Developmental effects	: SureSolution SureGuide Agarose Cloning Mix 10X Cloning Buffer dNTP Mix ElectroTen-Blue Competent Cells pUC 18 DNA Control Plasmid StrataClean Resin	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Fertility effects	: SureSolution SureGuide Agarose Cloning Mix 10X Cloning Buffer dNTP Mix ElectroTen-Blue Competent Cells pUC 18 DNA Control Plasmid StrataClean Resin	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
10X Cloning Buffer Oral	41044.5 mg/kg

Section 12. Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
SureSolution Dimethyl sulfoxide	Acute LC50 25000 ppm Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 34000000 µg/l Fresh water	Fish - Pimephales promelas	96 hours
	Chronic NOEC 100 µl/L Marine water	Algae - Ulva lactuca	72 hours
Cloning Mix Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
10X Cloning Buffer Potassium chloride	Acute EC50 1337000 µg/l Fresh water	Algae - Navicula seminulum	96 hours
	Acute EC50 9.24 g/L Fresh water	Algae - Desmodesmus subspicatus	72 hours
	Acute EC50 141460 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 12.92 mg/l Fresh water	Crustaceans - Pseudosida ramosa - Neonate	48 hours
Ammonium sulphate	Acute LC50 880 mg/l Fresh water	Fish - Pimephales promelas	96 hours
	Acute LC50 2.6 mg/l Fresh water	Crustaceans - Ceriodaphnia	48 hours

Section 12. Ecological information

Polyoxyethylene octyl phenyl ether	Acute LC50 14000 µg/l Fresh water	dubia - Young	48 hours
	Acute LC50 68 µg/l Fresh water	Daphnia - Daphnia magna - Young	96 hours
	Chronic NOEC 7.5 mg/l Marine water	Fish - Oncorhynchus gorbuscha - Alevin	96 hours
	Chronic NOEC 143 µg/l Marine water	Algae - Phaeodactylum tricornutum - Exponential growth phase	5 weeks
	Acute LC50 5.85 mg/l Fresh water	Fish - Salmo salar - Post-smolt	48 hours
	Acute LC50 11.2 mg/l Fresh water	Crustaceans - Ceriodaphnia rigaudi - Neonate	48 hours
	Acute LC50 4500 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	96 hours
ElectroTen-Blue Competent Cells			
Dimethyl sulfoxide	Acute LC50 25000 ppm Fresh water	Fish - Pimephales promelas	48 hours
Glycerol	Acute LC50 34000000 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	96 hours
	Chronic NOEC 100 µl/L Marine water	Algae - Ulva lactuca	72 hours
	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
Cloning Mix Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-
ElectroTen-Blue Competent Cells Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
10X Cloning Buffer Potassium chloride	-	-	Readily
Ammonium sulphate	-	-	Readily
Polyoxyethylene octyl phenyl ether	-	-	Readily

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
SureSolution Dimethyl sulfoxide	-1.35	3.16	low
Cloning Mix Glycerol	-1.76	-	low
10X Cloning Buffer Potassium chloride	-0.46	-	low

Section 12. Ecological information

Ammonium sulphate	-5.1	-	low
Polyoxyethylene octyl phenyl ether	4.86	-	high
ElectroTen-Blue Competent Cells			
Dimethyl sulfoxide	-1.35	3.16	low
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. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

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

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

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

Section 14. Transport information

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

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

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

Section 15. Regulatory information

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

U.S. Federal regulations : **TSCA 8(a) PAIR**: Poly(oxy-1,2-ethanediyl), .alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy-; Polyoxyethylene octyl phenyl ether
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	<p>SureSolution</p> <p>SureGuide Agarose Cloning Mix</p> <p>10X Cloning Buffer</p> <p>dNTP Mix</p> <p>ElectroTen-Blue Competent Cells</p> <p>pUC 18 DNA Control Plasmid</p> <p>StrataClean Resin</p>	<p>FLAMMABLE LIQUIDS - Category 4</p> <p>EYE IRRITATION - Category 2B</p> <p>Not applicable.</p> <p>EYE IRRITATION - Category 2B</p> <p>EYE IRRITATION - Category 2A</p> <p>Not applicable.</p> <p>EYE IRRITATION - Category 2B</p> <p>Not applicable.</p> <p>Not applicable.</p>
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Composition/information on ingredients

Name	%	Classification
SureSolution Dimethyl sulfoxide	100	FLAMMABLE LIQUIDS - Category 4 EYE IRRITATION - Category 2B
Cloning Mix Glycerol	≥50 - ≤75	EYE IRRITATION - Category 2A
10X Cloning Buffer Potassium chloride	≤5	EYE IRRITATION - Category 2A
2-Amino-2-(hydroxymethyl) propane-1,3-diol hydrochloride	≤5	SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
Ammonium sulphate	≤3	EYE IRRITATION - Category 2A
Polyoxyethylene octyl phenyl ether	≤2.3	ACUTE TOXICITY (oral) - Category 4 SKIN IRRITATION - Category 2 SERIOUS EYE DAMAGE - Category 1
ElectroTen-Blue Competent Cells		

Section 15. Regulatory information

Dimethyl sulfoxide	≥10 - ≤25	FLAMMABLE LIQUIDS - Category 4 EYE IRRITATION - Category 2A
Glycerol	≤10	EYE IRRITATION - Category 2A

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	<input checked="" type="checkbox"/> 10X Cloning Buffer Ammonium sulphate	7783-20-2	≤3
Supplier notification	<input checked="" type="checkbox"/> 10X Cloning Buffer Ammonium sulphate	7783-20-2	≤3

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

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: DIMETHYL SULFOXIDE; METHANE, SULFINYLBI-; 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.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

- Australia** : Not determined.
- Canada** : Not determined.
- 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** : Not determined.
- Taiwan** : All components are listed or exempted.
- Thailand** : Not determined.
- Turkey** : Not determined.
- United States** : All components are listed or exempted.
- Viet Nam** : Not determined.

Section 16. Other information

History

Date of issue : 01/22/2018

Date of previous issue : 09/30/2015.

Version : 2

✔ Indicates information that has changed from previously issued version.

Notice to reader

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