

# SAFETY DATA SHEET



GeneMorph II EZClone Domain Mutagenesis Kit, Part Number 200552

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

### 1.1 Product identifier

<b>Product name</b>	: GeneMorph II EZClone Domain Mutagenesis Kit, Part Number 200552		
<b>Part No. (Kit)</b>	: 200552		
<b>Part No.</b>	:	EZClone Solution	200552-58
		Mutazyme II	200552-51
		10X Mutazyme II	200550-52
		Reaction Buffer	
		40 mM dNTP Mix (10 mM dNTP)	200552-52
		2X EZClone Enzyme Mix	200552-54
		Dpn I restriction enzyme	200552-57
		Positive Control Plasmid	200552-55
		Positive Control Primer Mix	200552-56
		1.1 kb Gel Standard	200552-53
		XL10-Gold	200315-41
		Ultracompetent cells	
		XL10-Gold	200314-43
		2-Mercaptoethanol	
		pUC 18 DNA Control Plasmid	200231-42

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

Identified uses	
Analytical reagent.	
EZClone Solution	0.03 ml
Mutazyme II	25 U (2.5 U/μl)
10X Mutazyme II Reaction Buffer	150 μl
40 mM dNTP Mix (10 mM dNTP)	0.01 ml
2X EZClone Enzyme Mix	0.25 ml
Dpn I restriction enzyme	100 U (10 U/μl)
Positive Control Plasmid	210 ng (10 ng/μl)
Positive Control Primer Mix	750 ng (250 ng/μl)
1.1 kb Gel Standard	50 μl (20 ng/μl)
XL10-Gold Ultracompetent cells	0.54 ml
XL10-Gold 2-Mercaptoethanol	0.05 ml
pUC 18 DNA Control Plasmid	0.01 mL (0.1 ng/μl)

### 1.3 Details of the supplier of the safety data sheet

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

**e-mail address of person responsible for this SDS** : pdl-msds\_author@agilent.com

### 1.4 Emergency telephone number

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

**SECTION 2: Hazards identification****2.1 Classification of the substance or mixture**

<b>Product definition</b>	:	EZClone Solution	Mono-constituent substance
		Mutazyme II	Mixture
		10X Mutazyme II	Mixture
		Reaction Buffer	
		40 mM dNTP Mix (10 mM dNTP)	Mixture
		2X EZClone Enzyme Mix	Mixture
		Dpn I restriction enzyme	Mixture
		Positive Control Plasmid	Mixture
		Positive Control Primer Mix	Mixture
		1.1 kb Gel Standard	Mixture
		XL10-Gold	Mixture
		Ultracompetent cells	
		XL10-Gold	Mixture
		2-Mercaptoethanol	
		pUC 18 DNA Control Plasmid	Mixture

**Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]****XL10-Gold 2-Mercaptoethanol**

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

<b>Ingredients of unknown toxicity</b>	:	10X Mutazyme II Reaction Buffer	Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 10%
		40 mM dNTP Mix (10 mM dNTP)	Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 4.2%
<b>Ingredients of unknown ecotoxicity</b>	:	10X Mutazyme II Reaction Buffer	Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 10%
		40 mM dNTP Mix (10 mM dNTP)	Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 4.2%

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

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

**2.2 Label elements****Hazard pictograms****Signal word**

:	EZClone Solution	No signal word.
	Mutazyme II	No signal word.
	10X Mutazyme II	No signal word.
	Reaction Buffer	
	40 mM dNTP Mix (10 mM dNTP)	No signal word.
	2X EZClone Enzyme Mix	No signal word.
	Dpn I restriction enzyme	No signal word.
	Positive Control Plasmid	No signal word.
	Positive Control Primer Mix	No signal word.
	1.1 kb Gel Standard	No signal word.
	XL10-Gold	No signal word.
	Ultracompetent cells	
	XL10-Gold	Danger
	2-Mercaptoethanol	
	pUC 18 DNA Control Plasmid	No signal word.





**SECTION 2: Hazards identification**

<b>Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles</b>	:	EZClone Solution	Not applicable.
		Mutazyme II	Not applicable.
		10X Mutazyme II	Not applicable.
		Reaction Buffer	
		40 mM dNTP Mix (10 mM dNTP)	Not applicable.
		2X EZClone Enzyme Mix	Not applicable.
		Dpn I restriction enzyme	Not applicable.
		Positive Control Plasmid	Not applicable.
		Positive Control Primer Mix	Not applicable.
		1.1 kb Gel Standard	Not applicable.
		XL10-Gold	Not applicable.
		Ultracompetent cells	
		XL10-Gold	Not applicable.
		2-Mercaptoethanol	
		pUC 18 DNA Control Plasmid	Not applicable.

**Special packaging requirements**

<b>Tactile warning of danger</b>	:	EZClone Solution	Not applicable.
		Mutazyme II	Not applicable.
		10X Mutazyme II	Not applicable.
		Reaction Buffer	
		40 mM dNTP Mix (10 mM dNTP)	Not applicable.
		2X EZClone Enzyme Mix	Not applicable.
		Dpn I restriction enzyme	Not applicable.
		Positive Control Plasmid	Not applicable.
		Positive Control Primer Mix	Not applicable.
		1.1 kb Gel Standard	Not applicable.
		XL10-Gold	Not applicable.
		Ultracompetent cells	
		XL10-Gold	Not applicable.
		2-Mercaptoethanol	
		pUC 18 DNA Control Plasmid	Not applicable.

**2.3 Other hazards**

<b>Other hazards which do not result in classification</b>	:	EZClone Solution	None known.
		Mutazyme II	None known.
		10X Mutazyme II	None known.
		Reaction Buffer	
		40 mM dNTP Mix (10 mM dNTP)	None known.
		2X EZClone Enzyme Mix	None known.
		Dpn I restriction enzyme	None known.
		Positive Control Plasmid	None known.
		Positive Control Primer Mix	None known.
		1.1 kb Gel Standard	None known.
		XL10-Gold	None known.
		Ultracompetent cells	
		XL10-Gold	None known.
		2-Mercaptoethanol	
		pUC 18 DNA Control Plasmid	None known.

### SECTION 3: Composition/information on ingredients

<b>3.2 Mixtures</b>	: EZClone Solution Mutazyme II 10X Mutazyme II Reaction Buffer 40 mM dNTP Mix (10 mM dNTP) 2X EZClone Enzyme Mix Dpn I restriction enzyme Positive Control Plasmid Positive Control Primer Mix 1.1 kb Gel Standard XL10-Gold Ultracompetent cells XL10-Gold 2-Mercaptoethanol pUC 18 DNA Control Plasmid	Mono-constituent substance Mixture Mixture Mixture Mixture Mixture Mixture Mixture Mixture Mixture Mixture Mixture
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Product/ingredient name	Identifiers	%	Regulation (EC) No. 1272/2008 [CLP]	Type
<b>EZClone Solution</b> Dimethyl sulfoxide	EC: 200-664-3 CAS: 67-68-5	100	Not classified.	[A]
<b>Mutazyme II</b> Glycerol	EC: 200-289-5 CAS: 56-81-5	≥50 - ≤75	Not classified.	[2]
Poly(oxy-1,2-ethanediyl), .alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy-	CAS: 9036-19-5	≤0.3	Skin Irrit. 2, H315 Eye Dam. 1, H318 Aquatic Chronic 2, H411	[1] [5]
<b>2X EZClone Enzyme Mix</b> Glycerol	EC: 200-289-5 CAS: 56-81-5	≤10	Not classified.	[2]
Polyoxyethylene octyl phenyl ether	CAS: 9002-93-1	≤0.3	Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Dam. 1, H318 Aquatic Chronic 2, H411	[1] [5]
<b>Dpn I restriction enzyme</b> Glycerol	EC: 200-289-5 CAS: 56-81-5	≥50 - ≤75	Not classified.	[2]
Sodium chloride	EC: 231-598-3 CAS: 7647-14-5	≤3	Eye Irrit. 2, H319	[1]
<b>XL10-Gold Ultracompetent cells</b> Glycerol	EC: 200-289-5 CAS: 56-81-5	≥10 - ≤25	Not classified.	[2]
Sucrose	EC: 200-334-9 CAS: 57-50-1	≤10	Not classified.	[2]
<b>XL10-Gold 2-Mercaptoethanol</b> Sodium chloride	EC: 231-598-3 CAS: 7647-14-5	≥10 - ≤25	Eye Irrit. 2, H319	[1]
2-Mercaptoethanol	EC: 200-464-6 CAS: 60-24-2	≤5	Acute Tox. 3, H301 Acute Tox. 2, H310 Acute Tox. 2, H330 Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1, H317 STOT SE 3, H335 Aquatic Chronic 2, H411  <b>See Section 16 for the full text of the H statements declared above.</b>	[1]

### SECTION 3: Composition/information on ingredients

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

Type

- [1] Substance classified with a health or environmental hazard
- [2] Substance with a workplace exposure limit
- [3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
- [4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
- [5] Substance of equivalent concern
- [A] Constituent
- [B] Impurity
- [C] Stabilising additive

### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

<b>Eye contact</b>	: EZClone Solution	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.
	Mutazyme II	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.
	10X Mutazyme II Reaction Buffer	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.
	40 mM dNTP Mix (10 mM dNTP)	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.
	2X EZClone Enzyme 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.
	Dpn I restriction enzyme	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.
	Positive 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.
	Positive Control Primer 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.
	1.1 kb Gel Standard	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
	XL10-Gold Ultracompetent cells	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
	XL10-Gold 2-Mercaptoethanol	Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.
	pUC 18 DNA Control Plasmid	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
<b>Inhalation</b>	: EZClone Solution	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	Mutazyme II	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	10X Mutazyme II Reaction Buffer	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur. In case of inhalation of decomposition

**SECTION 4: First aid measures**

	products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
40 mM dNTP Mix (10 mM dNTP)	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur. 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.
2X EZClone Enzyme Mix	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
Dpn I restriction enzyme	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
Positive Control Plasmid	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
Positive Control Primer Mix	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
1.1 kb Gel Standard	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
XL10-Gold Ultracompetent cells	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
XL10-Gold 2-Mercaptoethanol	Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
pUC 18 DNA Control Plasmid	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

**Skin contact**

: EZClone Solution	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Mutazyme II	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
10X Mutazyme II Reaction Buffer	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
40 mM dNTP Mix (10 mM dNTP)	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
2X EZClone Enzyme Mix	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Dpn I restriction enzyme	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Positive Control Plasmid	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Positive Control Primer	Flush contaminated skin with plenty of water. Remove



**SECTION 4: First aid measures**

Mix	contaminated clothing and shoes. Get medical attention if symptoms occur.
1.1 kb Gel Standard	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
XL10-Gold Ultracompetent cells	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
XL10-Gold 2-Mercaptoethanol	Get medical attention immediately. Call a poison center or physician. Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
pUC 18 DNA Control Plasmid	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
<b>Ingestion</b> : EZClone Solution	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.
Mutazyme II	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.
10X Mutazyme II Reaction Buffer	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.
40 mM dNTP Mix (10 mM dNTP)	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.
2X EZClone Enzyme 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.
Dpn I restriction enzyme	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.
Positive 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.
Positive Control Primer Mix	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If

**SECTION 4: First aid measures**

	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. 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. 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.
1.1 kb Gel Standard	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
XL10-Gold Ultracompetent cells	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
XL10-Gold 2-Mercaptoethanol	Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
pUC 18 DNA Control Plasmid	Wash out mouth with water. Remove victim to fresh 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.
<b>Protection of first-aiders</b> : EZClone Solution	No action shall be taken involving any personal risk or without suitable training.
Mutazyme II	No action shall be taken involving any personal risk or without suitable training.
10X Mutazyme II Reaction Buffer	No action shall be taken involving any personal risk or without suitable training.
40 mM dNTP Mix (10 mM dNTP)	No action shall be taken involving any personal risk or without suitable training.
2X EZClone Enzyme Mix	No action shall be taken involving any personal risk or without suitable training.
Dpn I restriction enzyme	No action shall be taken involving any personal risk or without suitable training.
Positive Control Plasmid	No action shall be taken involving any personal risk or without suitable training.
Positive Control Primer Mix	No action shall be taken involving any personal risk or without suitable training.
1.1 kb Gel Standard	No action shall be taken involving any personal risk or without suitable training.
XL10-Gold Ultracompetent cells	No action shall be taken involving any personal risk or without suitable training.
XL10-Gold 2-Mercaptoethanol	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

**SECTION 4: First aid measures**pUC 18 DNA Control  
PlasmidNo action shall be taken involving any personal risk or  
without suitable training.**4.2 Most important symptoms and effects, both acute and delayed****Potential acute health effects****Eye contact**

: EZClone Solution	No known significant effects or critical hazards.
Mutazyme II	No known significant effects or critical hazards.
10X Mutazyme II	No known significant effects or critical hazards.
Reaction Buffer	
40 mM dNTP Mix (10 mM dNTP)	No known significant effects or critical hazards.
2X EZClone Enzyme Mix	No known significant effects or critical hazards.
Dpn I restriction enzyme	No known significant effects or critical hazards.
Positive Control Plasmid	No known significant effects or critical hazards.
Positive Control Primer Mix	No known significant effects or critical hazards.
1.1 kb Gel Standard	No known significant effects or critical hazards.
XL10-Gold	No known significant effects or critical hazards.
Ultracompetent cells	
XL10-Gold	Causes serious eye damage.
2-Mercaptoethanol	
pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.

**Inhalation**

: EZClone Solution	No known significant effects or critical hazards.
Mutazyme II	No known significant effects or critical hazards.
10X Mutazyme II	No known significant effects or critical hazards.
Reaction Buffer	
40 mM dNTP Mix (10 mM dNTP)	No known significant effects or critical hazards.
2X EZClone Enzyme Mix	No known significant effects or critical hazards.
Dpn I restriction enzyme	No known significant effects or critical hazards.
Positive Control Plasmid	No known significant effects or critical hazards.
Positive Control Primer Mix	No known significant effects or critical hazards.
1.1 kb Gel Standard	No known significant effects or critical hazards.
XL10-Gold	No known significant effects or critical hazards.
Ultracompetent cells	
XL10-Gold	No known significant effects or critical hazards.
2-Mercaptoethanol	
pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.

**Skin contact**

: EZClone Solution	No known significant effects or critical hazards.
Mutazyme II	No known significant effects or critical hazards.
10X Mutazyme II	No known significant effects or critical hazards.
Reaction Buffer	
40 mM dNTP Mix (10 mM dNTP)	No known significant effects or critical hazards.
2X EZClone Enzyme Mix	No known significant effects or critical hazards.
Dpn I restriction enzyme	No known significant effects or critical hazards.
Positive Control Plasmid	No known significant effects or critical hazards.
Positive Control Primer Mix	No known significant effects or critical hazards.
1.1 kb Gel Standard	No known significant effects or critical hazards.
XL10-Gold	No known significant effects or critical hazards.
Ultracompetent cells	
XL10-Gold	May cause an allergic skin reaction.
2-Mercaptoethanol	
pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.

**SECTION 4: First aid measures**

<b>Ingestion</b>	:	EZClone Solution	No known significant effects or critical hazards.
		Mutazyme II	No known significant effects or critical hazards.
		10X Mutazyme II	No known significant effects or critical hazards.
		Reaction Buffer	
		40 mM dNTP Mix (10 mM dNTP)	No known significant effects or critical hazards.
		2X EZClone Enzyme Mix	No known significant effects or critical hazards.
		Dpn I restriction enzyme	No known significant effects or critical hazards.
		Positive Control Plasmid	No known significant effects or critical hazards.
		Positive Control Primer Mix	No known significant effects or critical hazards.
		1.1 kb Gel Standard	No known significant effects or critical hazards.
		XL10-Gold	No known significant effects or critical hazards.
		Ultracompetent cells	
		XL10-Gold	No known significant effects or critical hazards.
		2-Mercaptoethanol	
	pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.	

**Over-exposure signs/symptoms**

<b>Eye contact</b>	:	EZClone Solution	No specific data.
		Mutazyme II	No specific data.
		10X Mutazyme II	No specific data.
		Reaction Buffer	
		40 mM dNTP Mix (10 mM dNTP)	No specific data.
		2X EZClone Enzyme Mix	No specific data.
		Dpn I restriction enzyme	No specific data.
		Positive Control Plasmid	No specific data.
		Positive Control Primer Mix	No specific data.
		1.1 kb Gel Standard	No specific data.
		XL10-Gold	No specific data.
		Ultracompetent cells	
		XL10-Gold	Adverse symptoms may include the following:
		2-Mercaptoethanol	pain watering redness
	pUC 18 DNA Control Plasmid	No specific data.	
<b>Inhalation</b>	:	EZClone Solution	No specific data.
		Mutazyme II	No specific data.
		10X Mutazyme II	No specific data.
		Reaction Buffer	
		40 mM dNTP Mix (10 mM dNTP)	No specific data.
		2X EZClone Enzyme Mix	No specific data.
		Dpn I restriction enzyme	No specific data.
		Positive Control Plasmid	No specific data.
		Positive Control Primer Mix	No specific data.
		1.1 kb Gel Standard	No specific data.
		XL10-Gold	No specific data.
		Ultracompetent cells	
		XL10-Gold	No specific data.
		2-Mercaptoethanol	
	pUC 18 DNA Control Plasmid	No specific data.	

## SECTION 4: First aid measures

<b>Skin contact</b>	:	EZClone Solution	No specific data.
		Mutazyme II	No specific data.
		10X Mutazyme II	No specific data.
		Reaction Buffer	
		40 mM dNTP Mix (10 mM dNTP)	No specific data.
		2X EZClone Enzyme Mix	No specific data.
		Dpn I restriction enzyme	No specific data.
		Positive Control Plasmid	No specific data.
		Positive Control Primer Mix	No specific data.
		1.1 kb Gel Standard	No specific data.
		XL10-Gold	No specific data.
		Ultracompetent cells	
		XL10-Gold	Adverse symptoms may include the following:
		2-Mercaptoethanol	pain or irritation redness blistering may occur
<b>Ingestion</b>	:	pUC 18 DNA Control Plasmid	No specific data.
		EZClone Solution	No specific data.
		Mutazyme II	No specific data.
		10X Mutazyme II	No specific data.
		Reaction Buffer	
		40 mM dNTP Mix (10 mM dNTP)	No specific data.
		2X EZClone Enzyme Mix	No specific data.
		Dpn I restriction enzyme	No specific data.
		Positive Control Plasmid	No specific data.
		Positive Control Primer Mix	No specific data.
		1.1 kb Gel Standard	No specific data.
		XL10-Gold	No specific data.
		Ultracompetent cells	
		XL10-Gold	Adverse symptoms may include the following:
	2-Mercaptoethanol	stomach pains	
	pUC 18 DNA Control Plasmid	No specific data.	

### 4.3 Indication of any immediate medical attention and special treatment needed

<b>Notes to physician</b>	:	EZClone Solution	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		Mutazyme II	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		10X Mutazyme II	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.
		Reaction 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.
		40 mM dNTP Mix (10 mM dNTP)	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		2X EZClone Enzyme Mix	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		Dpn I restriction enzyme	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		Positive Control Plasmid	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		Positive Control Primer Mix	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		1.1 kb Gel Standard	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		XL10-Gold	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		Ultracompetent cells	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

## SECTION 4: First aid measures

	XL10-Gold	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	2-Mercaptoethanol	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	pUC 18 DNA Control Plasmid	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
<b>Specific treatments</b>	: EZClone Solution	No specific treatment.
	Mutazyme II	No specific treatment.
	10X Mutazyme II	No specific treatment.
	Reaction Buffer	
	40 mM dNTP Mix (10 mM dNTP)	No specific treatment.
	2X EZClone Enzyme Mix	No specific treatment.
	Dpn I restriction enzyme	No specific treatment.
	Positive Control Plasmid	No specific treatment.
	Positive Control Primer Mix	No specific treatment.
	1.1 kb Gel Standard	No specific treatment.
	XL10-Gold	No specific treatment.
	Ultracompetent cells	
	XL10-Gold	No specific treatment.
	2-Mercaptoethanol	
	pUC 18 DNA Control Plasmid	No specific treatment.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

<b>Suitable extinguishing media</b>	: EZClone Solution	Use an extinguishing agent suitable for the surrounding fire.
	Mutazyme II	Use an extinguishing agent suitable for the surrounding fire.
	10X Mutazyme II	Use an extinguishing agent suitable for the surrounding fire.
	Reaction Buffer	
	40 mM dNTP Mix (10 mM dNTP)	Use an extinguishing agent suitable for the surrounding fire.
	2X EZClone Enzyme Mix	Use an extinguishing agent suitable for the surrounding fire.
	Dpn I restriction enzyme	Use an extinguishing agent suitable for the surrounding fire.
	Positive Control Plasmid	Use an extinguishing agent suitable for the surrounding fire.
	Positive Control Primer Mix	Use an extinguishing agent suitable for the surrounding fire.
	1.1 kb Gel Standard	Use an extinguishing agent suitable for the surrounding fire.
	XL10-Gold	Use an extinguishing agent suitable for the surrounding fire.
	Ultracompetent cells	
	XL10-Gold	Use an extinguishing agent suitable for the surrounding fire.
	2-Mercaptoethanol	
	pUC 18 DNA Control Plasmid	Use an extinguishing agent suitable for the surrounding fire.
<b>Unsuitable extinguishing media</b>	: EZClone Solution	None known.
	Mutazyme II	None known.
	10X Mutazyme II	None known.
	Reaction Buffer	
	40 mM dNTP Mix (10 mM dNTP)	None known.
	2X EZClone Enzyme Mix	None known.
	Dpn I restriction enzyme	None known.
	Positive Control Plasmid	None known.
	Positive Control Primer Mix	None known.
	1.1 kb Gel Standard	None known.
	XL10-Gold	None known.
	Ultracompetent cells	
	XL10-Gold	None known.
	2-Mercaptoethanol	
	pUC 18 DNA Control Plasmid	None known.

## SECTION 5: Firefighting measures

### 5.2 Special hazards arising from the substance or mixture

#### Hazards from the substance or mixture

: EZClone Solution	In a fire or if heated, a pressure increase will occur and the container may burst.
Mutazyme II	In a fire or if heated, a pressure increase will occur and the container may burst.
10X Mutazyme II Reaction Buffer	In a fire or if heated, a pressure increase will occur and the container may burst.
40 mM dNTP Mix (10 mM dNTP)	In a fire or if heated, a pressure increase will occur and the container may burst.
2X EZClone Enzyme Mix	In a fire or if heated, a pressure increase will occur and the container may burst.
Dpn I restriction enzyme	In a fire or if heated, a pressure increase will occur and the container may burst.
Positive Control Plasmid	In a fire or if heated, a pressure increase will occur and the container may burst.
Positive Control Primer Mix	In a fire or if heated, a pressure increase will occur and the container may burst.
1.1 kb Gel Standard	In a fire or if heated, a pressure increase will occur and the container may burst.
XL10-Gold Ultracompetent cells	In a fire or if heated, a pressure increase will occur and the container may burst.
XL10-Gold 2-Mercaptoethanol	In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
pUC 18 DNA Control Plasmid	In a fire or if heated, a pressure increase will occur and the container may burst.

#### Hazardous combustion products

: EZClone Solution	Decomposition products may include the following materials: carbon dioxide carbon monoxide sulfur oxides
Mutazyme II	Decomposition products may include the following materials: carbon dioxide carbon monoxide
10X Mutazyme II Reaction Buffer	Decomposition products may include the following materials:  carbon dioxide carbon monoxide nitrogen oxides
40 mM dNTP Mix (10 mM dNTP)	Decomposition products may include the following materials:  carbon dioxide carbon monoxide nitrogen oxides phosphorus oxides
2X EZClone Enzyme Mix	Decomposition products may include the following materials: carbon dioxide carbon monoxide
Dpn I restriction enzyme	Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds metal oxide/oxides
Positive Control Plasmid Positive Control Primer Mix	No specific data. No specific data.
1.1 kb Gel Standard XL10-Gold Ultracompetent cells	No specific data. Decomposition products may include the following materials:  carbon dioxide carbon monoxide sulfur oxides halogenated compounds

**SECTION 5: Firefighting measures**

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

**5.3 Advice for firefighters**

**Special precautions for fire-fighters**

: EZClone Solution  Mutazyme II  10X Mutazyme II Reaction Buffer  40 mM dNTP Mix (10 mM dNTP)  2X EZClone Enzyme Mix  Dpn I restriction enzyme  Positive Control Plasmid  Positive Control Primer Mix  1.1 kb Gel Standard  XL10-Gold Ultracompetent cells  XL10-Gold 2-Mercaptoethanol  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. 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. 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. 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. 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. 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.
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**Special protective equipment for fire-fighters**

: EZClone Solution  Mutazyme II  10X Mutazyme II Reaction Buffer	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for
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**SECTION 5: Firefighting measures**

	fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
40 mM dNTP Mix (10 mM dNTP)	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
2X EZClone Enzyme Mix	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
Dpn I restriction enzyme	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
Positive Control Plasmid	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
Positive Control Primer Mix	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
1.1 kb Gel Standard	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
XL10-Gold Ultracompetent cells	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
XL10-Gold 2-Mercaptoethanol	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
pUC 18 DNA Control Plasmid	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**

<b>For non-emergency personnel</b>	: EZClone Solution	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.
	Mutazyme II	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.
	10X Mutazyme II Reaction Buffer	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.
	40 mM dNTP Mix (10 mM dNTP)	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.
	2X EZClone Enzyme Mix	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.
	Dpn I restriction enzyme	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.
	Positive 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 spilt material. Put on appropriate personal protective equipment.
	Positive Control Primer Mix	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.
	1.1 kb Gel Standard	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.
	XL10-Gold Ultracompetent cells	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.
	XL10-Gold 2-Mercaptoethanol	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Do not breathe vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
	pUC 18 DNA Control Plasmid	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.

## SECTION 6: Accidental release measures

<b>For emergency responders</b>	:	EZClone Solution	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
		Mutazyme II	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
		10X Mutazyme II Reaction Buffer	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
		40 mM dNTP Mix (10 mM dNTP)	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
		2X EZClone Enzyme Mix	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
		Dpn I restriction enzyme	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
		Positive Control Plasmid	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
		Positive Control Primer Mix	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
		1.1 kb Gel Standard	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
		XL10-Gold Ultracompetent cells	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
		XL10-Gold 2-Mercaptoethanol	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
		pUC 18 DNA Control Plasmid	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
<b>6.2 Environmental precautions</b>	:	EZClone Solution	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
		Mutazyme II	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
		10X Mutazyme II Reaction Buffer	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
		40 mM dNTP Mix (10 mM dNTP)	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution

**SECTION 6: Accidental release measures**

	(sewers, waterways, soil or air).
2X EZClone Enzyme Mix	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
Dpn I restriction enzyme	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
Positive Control Plasmid	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
Positive Control Primer Mix	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
1.1 kb Gel Standard	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
XL10-Gold Ultracompetent cells	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
XL10-Gold 2-Mercaptoethanol	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.
pUC 18 DNA Control Plasmid	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

**6.3 Methods and material for containment and cleaning up**

**Methods for cleaning up** : EZClone Solution

	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.
Mutazyme II	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 Mutazyme II Reaction 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.
40 mM dNTP Mix (10 mM dNTP)	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.
2X EZClone Enzyme 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.
Dpn I restriction enzyme	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively,

## SECTION 6: Accidental release measures

	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.
Positive 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.
Positive Control Primer 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.
1.1 kb Gel Standard	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
XL10-Gold Ultracompetent cells	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
XL10-Gold 2-Mercaptoethanol	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
pUC 18 DNA Control Plasmid	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

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

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

<b>Protective measures</b>	:	EZClone Solution	Put on appropriate personal protective equipment (see Section 8).
		Mutazyme II	Put on appropriate personal protective equipment (see Section 8).
		10X Mutazyme II Reaction Buffer	Put on appropriate personal protective equipment (see Section 8).
		40 mM dNTP Mix (10 mM dNTP)	Put on appropriate personal protective equipment (see Section 8).
		2X EZClone Enzyme Mix	Put on appropriate personal protective equipment (see Section 8).
		Dpn I restriction enzyme	Put on appropriate personal protective equipment (see Section 8).
		Positive Control Plasmid	Put on appropriate personal protective equipment (see Section 8).
		Positive Control Primer Mix	Put on appropriate personal protective equipment (see Section 8).
		1.1 kb Gel Standard	Put on appropriate personal protective equipment (see Section 8).
		XL10-Gold Ultracompetent cells	Put on appropriate personal protective equipment (see Section 8).
		XL10-Gold 2-Mercaptoethanol	Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which

**SECTION 7: Handling and storage****Advice on general occupational hygiene**

		<p>this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Avoid release to the environment. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.</p> <p>Put on appropriate personal protective equipment (see Section 8).</p>
	pUC 18 DNA Control Plasmid	
	: EZClone Solution	<p>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.</p>
	Mutazyme II	<p>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.</p>
	10X Mutazyme II Reaction Buffer	<p>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.</p>
	40 mM dNTP Mix (10 mM dNTP)	<p>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.</p>
	2X EZClone Enzyme Mix	<p>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.</p>
	Dpn I restriction enzyme	<p>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.</p>
	Positive Control Plasmid	<p>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.</p>
	Positive Control Primer Mix	<p>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.</p>
	1.1 kb Gel Standard	<p>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</p>

## SECTION 7: Handling and storage

<p>XL10-Gold Ultracompetent cells</p>	<p>Section 8 for additional information on hygiene measures. 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.</p>
<p>XL10-Gold 2-Mercaptoethanol</p>	<p>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.</p>
<p>pUC 18 DNA Control Plasmid</p>	<p>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.</p>

### 7.2 Conditions for safe storage, including any incompatibilities

<p><b>Storage</b></p>	<p>: EZClone Solution</p>	<p>Storage temperature: -20°C (-4°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.</p>
	<p>Mutazyme II</p>	<p>Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.</p>
	<p>10X Mutazyme II Reaction Buffer</p>	<p>Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.</p>
	<p>40 mM dNTP Mix (10 mM dNTP)</p>	<p>Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.</p>
	<p>2X EZClone Enzyme Mix</p>	<p>Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to</p>

**SECTION 7: Handling and storage**

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



## SECTION 7: Handling and storage

appropriate containment to avoid environmental contamination.

### 7.3 Specific end use(s)

<b>Recommendations</b>	: EZClone Solution Mutazyme II 10X Mutazyme II Reaction Buffer 40 mM dNTP Mix (10 mM dNTP) 2X EZClone Enzyme Mix Dpn I restriction enzyme Positive Control Plasmid Positive Control Primer Mix 1.1 kb Gel Standard XL10-Gold Ultracompetent cells XL10-Gold 2-Mercaptoethanol pUC 18 DNA Control Plasmid	Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications.
<b>Industrial sector specific solutions</b>	: EZClone Solution Mutazyme II 10X Mutazyme II Reaction Buffer 40 mM dNTP Mix (10 mM dNTP) 2X EZClone Enzyme Mix Dpn I restriction enzyme Positive Control Plasmid Positive Control Primer Mix 1.1 kb Gel Standard XL10-Gold Ultracompetent cells XL10-Gold 2-Mercaptoethanol pUC 18 DNA Control Plasmid	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. 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

Product/ingredient name	Exposure limit values
<b>Mutazyme II</b> Glycerol	<b>EH40/2005 WELs (United Kingdom (UK), 12/2011).</b> TWA: 10 mg/m <sup>3</sup> 8 hours. Form: Mist
<b>2X EZClone Enzyme Mix</b> Glycerol	<b>EH40/2005 WELs (United Kingdom (UK), 12/2011).</b> TWA: 10 mg/m <sup>3</sup> 8 hours. Form: Mist
<b>Dpn I restriction enzyme</b> Glycerol	<b>EH40/2005 WELs (United Kingdom (UK), 12/2011).</b> TWA: 10 mg/m <sup>3</sup> 8 hours. Form: Mist
<b>XL10-Gold Ultracompetent cells</b> Glycerol	<b>EH40/2005 WELs (United Kingdom (UK), 12/2011).</b> TWA: 10 mg/m <sup>3</sup> 8 hours. Form: Mist
Sucrose	<b>EH40/2005 WELs (United Kingdom (UK), 12/2011).</b>

**SECTION 8: Exposure controls/personal protection**

STEL: 20 mg/m<sup>3</sup> 15 minutes.  
TWA: 10 mg/m<sup>3</sup> 8 hours.

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

**DNELs/DMELs**

No DNELs/DMELs available.

**PNECs**

No PNECs available

**8.2 Exposure controls**

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

**Individual protection measures**

**Hygiene measures** : Handle as biohazard material (Biosafety level 1). Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

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

**Skin protection**

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

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

**Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

**Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

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

**SECTION 9: Physical and chemical properties****9.1 Information on basic physical and chemical properties****Appearance**

<b>Physical state</b>	:	EZClone Solution	Liquid. [Clear.]	
		Mutazyme II	Liquid.	
		10X Mutazyme II	Liquid.	
		Reaction Buffer		
		40 mM dNTP Mix (10 mM dNTP)	Liquid.	
		2X EZClone Enzyme Mix	Liquid.	
		Dpn I restriction enzyme	Liquid.	
		Positive Control Plasmid	Liquid.	
		Positive Control Primer Mix	Liquid.	
		1.1 kb Gel Standard	Liquid.	
		XL10-Gold	Liquid.	
		Ultracompetent cells		
		XL10-Gold	Liquid.	
		2-Mercaptoethanol		
		pUC 18 DNA Control Plasmid	Liquid.	
	<b>Colour</b>	:	EZClone Solution	Colourless.
			Mutazyme II	Not available.
		10X Mutazyme II	Not available.	
		Reaction Buffer		
		40 mM dNTP Mix (10 mM dNTP)	Not available.	
		2X EZClone Enzyme Mix	Not available.	
		Dpn I restriction enzyme	Not available.	
		Positive Control Plasmid	Not available.	
		Positive Control Primer Mix	Not available.	
		1.1 kb Gel Standard	Not available.	
		XL10-Gold	Not available.	
		Ultracompetent cells		
		XL10-Gold	Not available.	
		2-Mercaptoethanol		
		pUC 18 DNA Control Plasmid	Not available.	
<b>Odour</b>		:	EZClone Solution	Odourless. [Slight]
			Mutazyme II	Not available.
		10X Mutazyme II	Not available.	
		Reaction Buffer		
		40 mM dNTP Mix (10 mM dNTP)	Not available.	
		2X EZClone Enzyme Mix	Not available.	
		Dpn I restriction enzyme	Not available.	
		Positive Control Plasmid	Not available.	
		Positive Control Primer Mix	Not available.	
		1.1 kb Gel Standard	Not available.	
		XL10-Gold	Not available.	
		Ultracompetent cells		
		XL10-Gold	Not available.	
		2-Mercaptoethanol		
		pUC 18 DNA Control Plasmid	Not available.	

**SECTION 9: Physical and chemical properties**

<b>Odour threshold</b>	:	EZClone Solution	Not available.	
		Mutazyme II	Not available.	
		10X Mutazyme II	Not available.	
		Reaction Buffer		
		40 mM dNTP Mix (10 mM dNTP)	Not available.	
		2X EZClone Enzyme Mix	Not available.	
		Dpn I restriction enzyme	Not available.	
		Positive Control Plasmid	Not available.	
		Positive Control Primer Mix	Not available.	
		1.1 kb Gel Standard	Not available.	
		XL10-Gold	Not available.	
		Ultracompetent cells		
		XL10-Gold	Not available.	
		2-Mercaptoethanol		
		pUC 18 DNA Control Plasmid	Not available.	
	<b>pH</b>	:	EZClone Solution	Not available.
			Mutazyme II	8
		10X Mutazyme II	8.5	
		Reaction Buffer		
		40 mM dNTP Mix (10 mM dNTP)	7.5	
		2X EZClone Enzyme Mix	8.8	
		Dpn I restriction enzyme	7.5	
		Positive Control Plasmid	7.5	
		Positive Control Primer Mix	7.5	
		1.1 kb Gel Standard	7.5	
		XL10-Gold	6.4	
		Ultracompetent cells		
		XL10-Gold	Not available.	
		2-Mercaptoethanol		
		pUC 18 DNA Control Plasmid	7.5	
<b>Melting point/freezing point</b>		:	EZClone Solution	18.5°C
			Mutazyme II	Not available.
		10X Mutazyme II	Not available.	
		Reaction Buffer		
		40 mM dNTP Mix (10 mM dNTP)	0°C	
		2X EZClone Enzyme Mix	Not available.	
		Dpn I restriction enzyme	Not available.	
		Positive Control Plasmid	0°C	
		Positive Control Primer Mix	0°C	
		1.1 kb Gel Standard	0°C	
		XL10-Gold	Not available.	
		Ultracompetent cells		
		XL10-Gold	Not available.	
		2-Mercaptoethanol		
		pUC 18 DNA Control Plasmid	0°C	

**SECTION 9: Physical and chemical properties**

<b>Initial boiling point and boiling range</b>	:	EZClone Solution	189°C	
		Mutazyme II	Not available.	
		10X Mutazyme II	Not available.	
		Reaction Buffer		
		40 mM dNTP Mix (10 mM dNTP)	100°C	
		2X EZClone Enzyme Mix	Not available.	
		Dpn I restriction enzyme	Not available.	
		Positive Control Plasmid	100°C	
		Positive Control Primer Mix	100°C	
		1.1 kb Gel Standard	100°C	
		XL10-Gold	Not available.	
		Ultracompetent cells		
		XL10-Gold	Not available.	
		2-Mercaptoethanol		
		pUC 18 DNA Control Plasmid	100°C	
	<b>Flash point</b>	:	EZClone Solution	Closed cup: 61 to 93.3°C Open cup: 87°C
			Mutazyme II	Not available.
		10X Mutazyme II	Not available.	
		Reaction Buffer		
		40 mM dNTP Mix (10 mM dNTP)	Not available.	
		2X EZClone Enzyme Mix	Not available.	
		Dpn I restriction enzyme	Not available.	
		Positive Control Plasmid	Not available.	
		Positive Control Primer Mix	Not available.	
		1.1 kb Gel Standard	Not available.	
		XL10-Gold	Not available.	
		Ultracompetent cells		
		XL10-Gold	Not available.	
		2-Mercaptoethanol		
		pUC 18 DNA Control Plasmid	Not available.	
<b>Evaporation rate</b>		:	EZClone Solution	0.026 (butyl acetate = 1)
			Mutazyme II	Not available.
		10X Mutazyme II	Not available.	
		Reaction Buffer		
		40 mM dNTP Mix (10 mM dNTP)	Not available.	
		2X EZClone Enzyme Mix	Not available.	
		Dpn I restriction enzyme	Not available.	
		Positive Control Plasmid	Not available.	
		Positive Control Primer Mix	Not available.	
		1.1 kb Gel Standard	Not available.	
		XL10-Gold	Not available.	
		Ultracompetent cells		
		XL10-Gold	Not available.	
		2-Mercaptoethanol		
		pUC 18 DNA Control Plasmid	Not available.	

**SECTION 9: Physical and chemical properties**

<b>Flammability (solid, gas)</b>	:	EZClone Solution Mutazyme II 10X Mutazyme II Reaction Buffer 40 mM dNTP Mix (10 mM dNTP) 2X EZClone Enzyme Mix Dpn I restriction enzyme Positive Control Plasmid Positive Control Primer Mix 1.1 kb Gel Standard XL10-Gold Ultracompetent cells XL10-Gold 2-Mercaptoethanol pUC 18 DNA Control Plasmid	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.
<b>Upper/lower flammability or explosive limits</b>	:	EZClone Solution Mutazyme II 10X Mutazyme II Reaction Buffer 40 mM dNTP Mix (10 mM dNTP) 2X EZClone Enzyme Mix Dpn I restriction enzyme Positive Control Plasmid Positive Control Primer Mix 1.1 kb Gel Standard XL10-Gold Ultracompetent cells XL10-Gold 2-Mercaptoethanol pUC 18 DNA Control Plasmid	Lower: 2.6% Upper: 28.5% Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available.
<b>Vapour pressure</b>	:	EZClone Solution Mutazyme II 10X Mutazyme II Reaction Buffer 40 mM dNTP Mix (10 mM dNTP) 2X EZClone Enzyme Mix Dpn I restriction enzyme Positive Control Plasmid Positive Control Primer Mix 1.1 kb Gel Standard XL10-Gold Ultracompetent cells XL10-Gold 2-Mercaptoethanol pUC 18 DNA Control Plasmid	0.056 kPa [room temperature] Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available.

**SECTION 9: Physical and chemical properties**

<b>Vapour density</b>	:	EZClone Solution	2.7 [Air = 1]
		Mutazyme II	Not available.
		10X Mutazyme II	Not available.
		Reaction Buffer	
		40 mM dNTP Mix (10 mM dNTP)	Not available.
		2X EZClone Enzyme Mix	Not available.
		Dpn I restriction enzyme	Not available.
		Positive Control Plasmid	Not available.
		Positive Control Primer Mix	Not available.
		1.1 kb Gel Standard	Not available.
		XL10-Gold	Not available.
		Ultracompetent cells	
		XL10-Gold	Not available.
		2-Mercaptoethanol	
		pUC 18 DNA Control Plasmid	Not available.
<b>Relative density</b>	:	EZClone Solution	1.1
		Mutazyme II	Not available.
		10X Mutazyme II	Not available.
		Reaction Buffer	
		40 mM dNTP Mix (10 mM dNTP)	Not available.
		2X EZClone Enzyme Mix	Not available.
		Dpn I restriction enzyme	Not available.
		Positive Control Plasmid	Not available.
		Positive Control Primer Mix	Not available.
		1.1 kb Gel Standard	Not available.
		XL10-Gold	Not available.
		Ultracompetent cells	
		XL10-Gold	Not available.
		2-Mercaptoethanol	
		pUC 18 DNA Control Plasmid	Not available.
<b>Solubility(ies)</b>	:	EZClone Solution	Easily soluble in the following materials: cold water and hot water.
		Mutazyme II	Easily soluble in the following materials: cold water and hot water.
		10X Mutazyme II	Easily soluble in the following materials: cold water and hot water.
		Reaction Buffer	Easily soluble in the following materials: cold water and hot water.
		40 mM dNTP Mix (10 mM dNTP)	Easily soluble in the following materials: cold water and hot water.
		2X EZClone Enzyme Mix	Easily soluble in the following materials: cold water and hot water.
		Dpn I restriction enzyme	Soluble in the following materials: cold water and hot water.
		Positive Control Plasmid	Easily soluble in the following materials: cold water and hot water.
		Positive Control Primer Mix	Easily soluble in the following materials: cold water and hot water.
		1.1 kb Gel Standard	Easily soluble in the following materials: cold water and hot water.
		XL10-Gold	Soluble in the following materials: cold water and hot water.
		Ultracompetent cells	Easily soluble in the following materials: cold water and hot water.
		XL10-Gold	Easily soluble in the following materials: cold water and hot water.
		2-Mercaptoethanol	Easily soluble in the following materials: cold water and hot water.
		pUC 18 DNA Control Plasmid	Easily soluble in the following materials: cold water and hot water.

**SECTION 9: Physical and chemical properties**

<b>Partition coefficient: n-octanol/water</b>	:	EZClone Solution	-1.35	
		Mutazyme II	Not available.	
		10X Mutazyme II	Not available.	
		Reaction Buffer		
		40 mM dNTP Mix (10 mM dNTP)	Not available.	
		2X EZClone Enzyme Mix	Not available.	
		Dpn I restriction enzyme	Not available.	
		Positive Control Plasmid	Not available.	
		Positive Control Primer Mix	Not available.	
		1.1 kb Gel Standard	Not available.	
		XL10-Gold	Not available.	
		Ultracompetent cells		
		XL10-Gold	Not available.	
		2-Mercaptoethanol		
		pUC 18 DNA Control Plasmid	Not available.	
	<b>Auto-ignition temperature</b>	:	EZClone Solution	300 to 302°C
			Mutazyme II	Not available.
			10X Mutazyme II	Not available.
			Reaction Buffer	
		40 mM dNTP Mix (10 mM dNTP)	Not available.	
		2X EZClone Enzyme Mix	Not available.	
		Dpn I restriction enzyme	Not available.	
		Positive Control Plasmid	Not available.	
		Positive Control Primer Mix	Not available.	
		1.1 kb Gel Standard	Not available.	
		XL10-Gold	Not available.	
		Ultracompetent cells		
		XL10-Gold	Not available.	
		2-Mercaptoethanol		
		pUC 18 DNA Control Plasmid	Not available.	
<b>Decomposition temperature</b>		:	EZClone Solution	140 to 189°C
			Mutazyme II	Not available.
			10X Mutazyme II	Not available.
			Reaction Buffer	
		40 mM dNTP Mix (10 mM dNTP)	Not available.	
		2X EZClone Enzyme Mix	Not available.	
		Dpn I restriction enzyme	Not available.	
		Positive Control Plasmid	Not available.	
		Positive Control Primer Mix	Not available.	
		1.1 kb Gel Standard	Not available.	
		XL10-Gold	Not available.	
		Ultracompetent cells		
		XL10-Gold	Not available.	
		2-Mercaptoethanol		
		pUC 18 DNA Control Plasmid	Not available.	



**SECTION 9: Physical and chemical properties**

<b>Viscosity</b>	:	EZClone Solution	Dynamic (room temperature): 2.14 mPa·s
		Mutazyme II	Not available.
		10X Mutazyme II	Not available.
		Reaction Buffer	
		40 mM dNTP Mix (10 mM dNTP)	Not available.
		2X EZClone Enzyme Mix	Not available.
		Dpn I restriction enzyme	Not available.
		Positive Control Plasmid	Not available.
		Positive Control Primer Mix	Not available.
		1.1 kb Gel Standard	Not available.
		XL10-Gold	Not available.
		Ultracompetent cells	
		XL10-Gold	Not available.
		2-Mercaptoethanol	
		pUC 18 DNA Control Plasmid	Not available.
<b>Explosive properties</b>	:	EZClone Solution	Not available.
		Mutazyme II	Not available.
		10X Mutazyme II	Not available.
		Reaction Buffer	
		40 mM dNTP Mix (10 mM dNTP)	Not available.
		2X EZClone Enzyme Mix	Not available.
		Dpn I restriction enzyme	Not available.
		Positive Control Plasmid	Not available.
		Positive Control Primer Mix	Not available.
		1.1 kb Gel Standard	Not available.
		XL10-Gold	Not available.
		Ultracompetent cells	
		XL10-Gold	Not available.
		2-Mercaptoethanol	
		pUC 18 DNA Control Plasmid	Not available.
<b>Oxidising properties</b>	:	EZClone Solution	Not available.
		Mutazyme II	Not available.
		10X Mutazyme II	Not available.
		Reaction Buffer	
		40 mM dNTP Mix (10 mM dNTP)	Not available.
		2X EZClone Enzyme Mix	Not available.
		Dpn I restriction enzyme	Not available.
		Positive Control Plasmid	Not available.
		Positive Control Primer Mix	Not available.
		1.1 kb Gel Standard	Not available.
		XL10-Gold	Not available.
		Ultracompetent cells	
		XL10-Gold	Not available.
		2-Mercaptoethanol	
		pUC 18 DNA Control Plasmid	Not available.

**9.2 Other information**

No additional information.

## SECTION 10: Stability and reactivity

<b>10.1 Reactivity</b>	:	EZClone Solution	No specific test data related to reactivity available for this product or its ingredients.
		Mutazyme II	No specific test data related to reactivity available for this product or its ingredients.
		10X Mutazyme II	No specific test data related to reactivity available for this product or its ingredients.
		Reaction Buffer	No specific test data related to reactivity available for this product or its ingredients.
		40 mM dNTP Mix (10 mM dNTP)	No specific test data related to reactivity available for this product or its ingredients.
		2X EZClone Enzyme Mix	No specific test data related to reactivity available for this product or its ingredients.
		Dpn I restriction enzyme	No specific test data related to reactivity available for this product or its ingredients.
		Positive Control Plasmid	No specific test data related to reactivity available for this product or its ingredients.
		Positive Control Primer Mix	No specific test data related to reactivity available for this product or its ingredients.
		1.1 kb Gel Standard	No specific test data related to reactivity available for this product or its ingredients.
		XL10-Gold	No specific test data related to reactivity available for this product or its ingredients.
		Ultracompetent cells	No specific test data related to reactivity available for this product or its ingredients.
		XL10-Gold	No specific test data related to reactivity available for this product or its ingredients.
		2-Mercaptoethanol	No specific test data related to reactivity available for this product or its ingredients.
		pUC 18 DNA Control Plasmid	No specific test data related to reactivity available for this product or its ingredients.
<b>10.2 Chemical stability</b>	:	EZClone Solution	The product is stable.
		Mutazyme II	The product is stable.
		10X Mutazyme II	The product is stable.
		Reaction Buffer	
		40 mM dNTP Mix (10 mM dNTP)	The product is stable.
		2X EZClone Enzyme Mix	The product is stable.
		Dpn I restriction enzyme	The product is stable.
		Positive Control Plasmid	The product is stable.
		Positive Control Primer Mix	The product is stable.
		1.1 kb Gel Standard	The product is stable.
		XL10-Gold	The product is stable.
		Ultracompetent cells	
		XL10-Gold	The product is stable.
		2-Mercaptoethanol	
		pUC 18 DNA Control Plasmid	The product is stable.
<b>10.3 Possibility of hazardous reactions</b>	:	EZClone Solution	Under normal conditions of storage and use, hazardous reactions will not occur.
		Mutazyme II	Under normal conditions of storage and use, hazardous reactions will not occur.
		10X Mutazyme II	Under normal conditions of storage and use, hazardous reactions will not occur.
		Reaction Buffer	Under normal conditions of storage and use, hazardous reactions will not occur.
		40 mM dNTP Mix (10 mM dNTP)	Under normal conditions of storage and use, hazardous reactions will not occur.
		2X EZClone Enzyme Mix	Under normal conditions of storage and use, hazardous reactions will not occur.
		Dpn I restriction enzyme	Under normal conditions of storage and use, hazardous reactions will not occur.
		Positive Control Plasmid	Under normal conditions of storage and use, hazardous reactions will not occur.
		Positive Control Primer Mix	Under normal conditions of storage and use, hazardous reactions will not occur.
		1.1 kb Gel Standard	Under normal conditions of storage and use, hazardous reactions will not occur.
		XL10-Gold	Under normal conditions of storage and use, hazardous

**SECTION 10: Stability and reactivity**

Ultracompetent cells	reactions will not occur.
XL10-Gold	Under normal conditions of storage and use, hazardous reactions will not occur.
2-Mercaptoethanol	reactions will not occur.
pUC 18 DNA Control Plasmid	Under normal conditions of storage and use, hazardous reactions will not occur.

**10.4 Conditions to avoid** :

EZClone Solution	No specific data.
Mutazyme II	No specific data.
10X Mutazyme II	No specific data.
Reaction Buffer	
40 mM dNTP Mix (10 mM dNTP)	No specific data.
2X EZClone Enzyme Mix	No specific data.
Dpn I restriction enzyme	No specific data.
Positive Control Plasmid	No specific data.
Positive Control Primer Mix	No specific data.
1.1 kb Gel Standard	No specific data.
XL10-Gold	No specific data.
Ultracompetent cells	
XL10-Gold	No specific data.
2-Mercaptoethanol	
pUC 18 DNA Control Plasmid	No specific data.

**10.5 Incompatible materials** :

EZClone Solution	May react or be incompatible with oxidising materials.
Mutazyme II	May react or be incompatible with oxidising materials.
10X Mutazyme II	May react or be incompatible with oxidising materials.
Reaction Buffer	
40 mM dNTP Mix (10 mM dNTP)	May react or be incompatible with oxidising materials.
2X EZClone Enzyme Mix	May react or be incompatible with oxidising materials.
Dpn I restriction enzyme	May react or be incompatible with oxidising materials.
Positive Control Plasmid	May react or be incompatible with oxidising materials.
Positive Control Primer Mix	May react or be incompatible with oxidising materials.
1.1 kb Gel Standard	May react or be incompatible with oxidising materials.
XL10-Gold	May react or be incompatible with oxidising materials.
Ultracompetent cells	
XL10-Gold	May react or be incompatible with oxidising materials.
2-Mercaptoethanol	
pUC 18 DNA Control Plasmid	May react or be incompatible with oxidising materials.

**10.6 Hazardous decomposition products** :

EZClone Solution	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Mutazyme II	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
10X Mutazyme II	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Reaction Buffer	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
40 mM dNTP Mix (10 mM dNTP)	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
2X EZClone Enzyme Mix	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Dpn I restriction enzyme	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Positive Control Plasmid	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Positive Control Primer Mix	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
1.1 kb Gel Standard	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
XL10-Gold	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## SECTION 10: Stability and reactivity

Ultracompetent cells	decomposition products should not be produced.
XL10-Gold	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
2-Mercaptoethanol	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
pUC 18 DNA Control	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Plasmid	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
<b>EZClone Solution</b> Dimethyl sulfoxide	LD50 Dermal LD50 Oral	Rat Rat	40000 mg/kg 14500 mg/kg	- -
<b>Mutazyme II</b> Poly(oxy-1,2-ethanediyl), . alpha.-[(1,1,3, 3-tetramethylbutyl)phenyl]-. omega.-hydroxy-	LD50 Oral	Rat	2800 mg/kg	-
<b>Dpn I restriction enzyme</b> Sodium chloride	LD50 Oral	Rat	3000 mg/kg	-
<b>XL10-Gold</b> <b>2-Mercaptoethanol</b> Sodium chloride 2-Mercaptoethanol	LD50 Oral LD50 Dermal LD50 Oral	Rat Rabbit Rat	3000 mg/kg 200 mg/kg 244 mg/kg	- - -

#### Acute toxicity estimates

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

#### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
<b>EZClone Solution</b> 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	-
<b>Mutazyme II</b> Poly(oxy-1,2-ethanediyl), . alpha.-[(1,1,3, 3-tetramethylbutyl)phenyl]-. omega.-hydroxy-	Eyes - Severe irritant	Rabbit	-	1 Percent	-
<b>2X EZClone Enzyme Mix</b> Polyoxyethylene octyl phenyl ether	Eyes - Moderate irritant	Rabbit	-	24 hours 10 microliters	-
	Skin - Mild irritant	Rabbit	-	24 hours 500	-

## SECTION 11: Toxicological information

<b>Dpn I restriction enzyme</b> Sodium chloride	Eyes - Moderate irritant	Rabbit	-	microliters	
	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Skin - Mild irritant	Rabbit	-	10 milligrams	-
<b>XL10-Gold 2-Mercaptoethanol</b> Sodium chloride	Eyes - Moderate irritant	Rabbit	-	24 hours 500 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	10 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
2-Mercaptoethanol	Eyes - Severe irritant	Rabbit	-	2 milligrams	-

### Sensitiser

**Conclusion/Summary** : Not available.

### Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
<b>XL10-Gold 2-Mercaptoethanol</b> 2-Mercaptoethanol	Category 3	Not applicable.	Respiratory tract irritation

### Specific target organ toxicity (repeated exposure)

Not available.

### Aspiration hazard

Not available.

### Information on likely routes of exposure

EZClone Solution	Routes of entry anticipated: Oral, Dermal, Inhalation.
Mutazyme II	Routes of entry anticipated: Oral, Dermal, Inhalation.
10X Mutazyme II	Not available.
Reaction Buffer	Not available.
40 mM dNTP Mix (10 mM dNTP)	Not available.
2X EZClone Enzyme Mix	Not available.
Dpn I restriction enzyme	Not available.
Positive Control Plasmid	Not available.
Positive Control Primer Mix	Not available.
1.1 kb Gel Standard	Not available.
XL10-Gold	Routes of entry anticipated: Oral, Dermal, Inhalation.
Ultracompetent cells	Routes of entry anticipated: Oral, Dermal, Inhalation.
XL10-Gold 2-Mercaptoethanol	Routes of entry anticipated: Oral, Dermal, Inhalation.
pUC 18 DNA Control Plasmid	Not available.

### Potential acute health effects

#### Inhalation

EZClone Solution	No known significant effects or critical hazards.
Mutazyme II	No known significant effects or critical hazards.
10X Mutazyme II	No known significant effects or critical hazards.
Reaction Buffer	No known significant effects or critical hazards.
40 mM dNTP Mix (10 mM dNTP)	No known significant effects or critical hazards.
2X EZClone Enzyme Mix	No known significant effects or critical hazards.
Dpn I restriction enzyme	No known significant effects or critical hazards.
Positive Control Plasmid	No known significant effects or critical hazards.
Positive Control Primer	No known significant effects or critical hazards.

**SECTION 11: Toxicological information**

	Mix	
	1.1 kb Gel Standard	No known significant effects or critical hazards.
	XL10-Gold	No known significant effects or critical hazards.
	Ultracompetent cells	
	XL10-Gold	No known significant effects or critical hazards.
	2-Mercaptoethanol	
	pUC 18 DNA Control	No known significant effects or critical hazards.
	Plasmid	
<b>Ingestion</b>	: EZClone Solution	No known significant effects or critical hazards.
	Mutazyme II	No known significant effects or critical hazards.
	10X Mutazyme II	No known significant effects or critical hazards.
	Reaction Buffer	
	40 mM dNTP Mix (10 mM dNTP)	No known significant effects or critical hazards.
	2X EZClone Enzyme Mix	No known significant effects or critical hazards.
	Dpn I restriction enzyme	No known significant effects or critical hazards.
	Positive Control Plasmid	No known significant effects or critical hazards.
	Positive Control Primer	No known significant effects or critical hazards.
	Mix	
	1.1 kb Gel Standard	No known significant effects or critical hazards.
	XL10-Gold	No known significant effects or critical hazards.
	Ultracompetent cells	
	XL10-Gold	No known significant effects or critical hazards.
	2-Mercaptoethanol	
	pUC 18 DNA Control	No known significant effects or critical hazards.
	Plasmid	
<b>Skin contact</b>	: EZClone Solution	No known significant effects or critical hazards.
	Mutazyme II	No known significant effects or critical hazards.
	10X Mutazyme II	No known significant effects or critical hazards.
	Reaction Buffer	
	40 mM dNTP Mix (10 mM dNTP)	No known significant effects or critical hazards.
	2X EZClone Enzyme Mix	No known significant effects or critical hazards.
	Dpn I restriction enzyme	No known significant effects or critical hazards.
	Positive Control Plasmid	No known significant effects or critical hazards.
	Positive Control Primer	No known significant effects or critical hazards.
	Mix	
	1.1 kb Gel Standard	No known significant effects or critical hazards.
	XL10-Gold	No known significant effects or critical hazards.
	Ultracompetent cells	
	XL10-Gold	May cause an allergic skin reaction.
	2-Mercaptoethanol	
	pUC 18 DNA Control	No known significant effects or critical hazards.
	Plasmid	
<b>Eye contact</b>	: EZClone Solution	No known significant effects or critical hazards.
	Mutazyme II	No known significant effects or critical hazards.
	10X Mutazyme II	No known significant effects or critical hazards.
	Reaction Buffer	
	40 mM dNTP Mix (10 mM dNTP)	No known significant effects or critical hazards.
	2X EZClone Enzyme Mix	No known significant effects or critical hazards.
	Dpn I restriction enzyme	No known significant effects or critical hazards.
	Positive Control Plasmid	No known significant effects or critical hazards.
	Positive Control Primer	No known significant effects or critical hazards.
	Mix	
	1.1 kb Gel Standard	No known significant effects or critical hazards.
	XL10-Gold	No known significant effects or critical hazards.
	Ultracompetent cells	
	XL10-Gold	Causes serious eye damage.
	2-Mercaptoethanol	
	pUC 18 DNA Control	No known significant effects or critical hazards.
	Plasmid	

[Symptoms related to the physical, chemical and toxicological characteristics](#)

**SECTION 11: Toxicological information**

<b>Inhalation</b>	:	EZClone Solution	No specific data.
		Mutazyme II	No specific data.
		10X Mutazyme II	No specific data.
		Reaction Buffer	
		40 mM dNTP Mix (10 mM dNTP)	No specific data.
		2X EZClone Enzyme Mix	No specific data.
		Dpn I restriction enzyme	No specific data.
		Positive Control Plasmid	No specific data.
		Positive Control Primer Mix	No specific data.
		1.1 kb Gel Standard	No specific data.
		XL10-Gold	No specific data.
		Ultracompetent cells	
		XL10-Gold	No specific data.
		2-Mercaptoethanol	
		pUC 18 DNA Control Plasmid	No specific data.
	<b>Ingestion</b>	:	EZClone Solution
		Mutazyme II	No specific data.
		10X Mutazyme II	No specific data.
		Reaction Buffer	
		40 mM dNTP Mix (10 mM dNTP)	No specific data.
		2X EZClone Enzyme Mix	No specific data.
		Dpn I restriction enzyme	No specific data.
		Positive Control Plasmid	No specific data.
		Positive Control Primer Mix	No specific data.
		1.1 kb Gel Standard	No specific data.
		XL10-Gold	No specific data.
		Ultracompetent cells	
		XL10-Gold	Adverse symptoms may include the following:
		2-Mercaptoethanol	stomach pains
		pUC 18 DNA Control Plasmid	No specific data.
<b>Skin contact</b>		:	EZClone Solution
		Mutazyme II	No specific data.
		10X Mutazyme II	No specific data.
		Reaction Buffer	
		40 mM dNTP Mix (10 mM dNTP)	No specific data.
		2X EZClone Enzyme Mix	No specific data.
		Dpn I restriction enzyme	No specific data.
		Positive Control Plasmid	No specific data.
		Positive Control Primer Mix	No specific data.
		1.1 kb Gel Standard	No specific data.
		XL10-Gold	No specific data.
		Ultracompetent cells	
		XL10-Gold	Adverse symptoms may include the following:
		2-Mercaptoethanol	pain or irritation redness blistering may occur
		pUC 18 DNA Control Plasmid	No specific data.

## SECTION 11: Toxicological information

<b>Eye contact</b>	:	EZClone Solution	No specific data.
		Mutazyme II	No specific data.
		10X Mutazyme II	No specific data.
		Reaction Buffer	
		40 mM dNTP Mix (10 mM dNTP)	No specific data.
		2X EZClone Enzyme Mix	No specific data.
		Dpn I restriction enzyme	No specific data.
		Positive Control Plasmid	No specific data.
		Positive Control Primer Mix	No specific data.
		1.1 kb Gel Standard	No specific data.
		XL10-Gold	No specific data.
		Ultracompetent cells	
		XL10-Gold	Adverse symptoms may include the following:
		2-Mercaptoethanol	pain watering redness
		pUC 18 DNA Control Plasmid	No specific data.

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

#### Short term exposure

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

#### Long term exposure

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

### Potential chronic health effects

<b>General</b>	:	EZClone Solution	No known significant effects or critical hazards.
		Mutazyme II	No known significant effects or critical hazards.
		10X Mutazyme II	No known significant effects or critical hazards.
		Reaction Buffer	
		40 mM dNTP Mix (10 mM dNTP)	No known significant effects or critical hazards.
		2X EZClone Enzyme Mix	No known significant effects or critical hazards.
		Dpn I restriction enzyme	No known significant effects or critical hazards.
		Positive Control Plasmid	No known significant effects or critical hazards.
		Positive Control Primer Mix	No known significant effects or critical hazards.
		1.1 kb Gel Standard	No known significant effects or critical hazards.
		XL10-Gold	No known significant effects or critical hazards.
		Ultracompetent cells	
		XL10-Gold	Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
		2-Mercaptoethanol	
		pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.
<b>Carcinogenicity</b>	:	EZClone Solution	No known significant effects or critical hazards.
		Mutazyme II	No known significant effects or critical hazards.
		10X Mutazyme II	No known significant effects or critical hazards.
		Reaction Buffer	
		40 mM dNTP Mix (10 mM dNTP)	No known significant effects or critical hazards.
		2X EZClone Enzyme Mix	No known significant effects or critical hazards.
		Dpn I restriction enzyme	No known significant effects or critical hazards.
	Positive Control Plasmid	No known significant effects or critical hazards.	



**SECTION 11: Toxicological information**

	Positive Control Primer Mix	No known significant effects or critical hazards.
	1.1 kb Gel Standard XL10-Gold	No known significant effects or critical hazards.
	Ultracompetent cells XL10-Gold	No known significant effects or critical hazards.
	2-Mercaptoethanol	No known significant effects or critical hazards.
	pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.
<b>Mutagenicity</b>	: EZClone Solution	No known significant effects or critical hazards.
	Mutazyme II	No known significant effects or critical hazards.
	10X Mutazyme II	No known significant effects or critical hazards.
	Reaction Buffer	No known significant effects or critical hazards.
	40 mM dNTP Mix (10 mM dNTP)	No known significant effects or critical hazards.
	2X EZClone Enzyme Mix	No known significant effects or critical hazards.
	Dpn I restriction enzyme	No known significant effects or critical hazards.
	Positive Control Plasmid	No known significant effects or critical hazards.
	Positive Control Primer Mix	No known significant effects or critical hazards.
	1.1 kb Gel Standard XL10-Gold	No known significant effects or critical hazards.
	Ultracompetent cells XL10-Gold	No known significant effects or critical hazards.
	2-Mercaptoethanol	No known significant effects or critical hazards.
	pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.
<b>Teratogenicity</b>	: EZClone Solution	No known significant effects or critical hazards.
	Mutazyme II	No known significant effects or critical hazards.
	10X Mutazyme II	No known significant effects or critical hazards.
	Reaction Buffer	No known significant effects or critical hazards.
	40 mM dNTP Mix (10 mM dNTP)	No known significant effects or critical hazards.
	2X EZClone Enzyme Mix	No known significant effects or critical hazards.
	Dpn I restriction enzyme	No known significant effects or critical hazards.
	Positive Control Plasmid	No known significant effects or critical hazards.
	Positive Control Primer Mix	No known significant effects or critical hazards.
	1.1 kb Gel Standard XL10-Gold	No known significant effects or critical hazards.
	Ultracompetent cells XL10-Gold	No known significant effects or critical hazards.
	2-Mercaptoethanol	No known significant effects or critical hazards.
	pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.
<b>Developmental effects</b>	: EZClone Solution	No known significant effects or critical hazards.
	Mutazyme II	No known significant effects or critical hazards.
	10X Mutazyme II	No known significant effects or critical hazards.
	Reaction Buffer	No known significant effects or critical hazards.
	40 mM dNTP Mix (10 mM dNTP)	No known significant effects or critical hazards.
	2X EZClone Enzyme Mix	No known significant effects or critical hazards.
	Dpn I restriction enzyme	No known significant effects or critical hazards.
	Positive Control Plasmid	No known significant effects or critical hazards.
	Positive Control Primer Mix	No known significant effects or critical hazards.
	1.1 kb Gel Standard XL10-Gold	No known significant effects or critical hazards.
	Ultracompetent cells XL10-Gold	No known significant effects or critical hazards.
	2-Mercaptoethanol	No known significant effects or critical hazards.
	pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.

## SECTION 11: Toxicological information

<b>Fertility effects</b>	:	EZClone Solution	No known significant effects or critical hazards.
		Mutazyme II	No known significant effects or critical hazards.
		10X Mutazyme II	No known significant effects or critical hazards.
		Reaction Buffer	
		40 mM dNTP Mix (10 mM dNTP)	No known significant effects or critical hazards.
		2X EZClone Enzyme Mix	No known significant effects or critical hazards.
		Dpn I restriction enzyme	No known significant effects or critical hazards.
		Positive Control Plasmid	No known significant effects or critical hazards.
		Positive Control Primer Mix	No known significant effects or critical hazards.
		1.1 kb Gel Standard	No known significant effects or critical hazards.
		XL10-Gold	No known significant effects or critical hazards.
		Ultracompetent cells	
		XL10-Gold	No known significant effects or critical hazards.
		2-Mercaptoethanol	
		pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.

## SECTION 12: Ecological information

### 12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
<b>EZClone Solution</b> 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
<b>Mutazyme II</b> Poly(oxy-1,2-ethanediyl), . alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-. omega.-hydroxy-	Acute EC50 210 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
	Acute LC50 10800 µg/l Marine water	Crustaceans - Pandalus montagui - Adult	48 hours
	Acute LC50 8600 to 9800 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 7200 µg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
<b>2X EZClone Enzyme Mix</b> Polyoxyethylene octyl phenyl ether	Acute LC50 5.85 mg/l Fresh water	Crustaceans - Ceriodaphnia rigaudi - Neonate	48 hours
	Acute LC50 11.2 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 4500 µg/l Fresh water	Fish - Pimephales promelas	96 hours
<b>Dpn I restriction enzyme</b> Sodium chloride	Acute EC50 2430000 µg/l Fresh water	Algae - Navicula seminulum	96 hours
	Acute EC50 519.6 mg/l Fresh water	Crustaceans - Cypris subglobosa	48 hours
	Acute IC50 6.87 g/L Fresh water	Aquatic plants - Lemna minor	96 hours
	Acute LC50 1661 mg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 1000000 µg/l Fresh water	Fish - Morone saxatilis - Larvae	96 hours
	Chronic LC10 781 mg/l Fresh water	Crustaceans - Hyalella azteca - Juvenile (Fledgling, Hatchling, Weanling)	3 weeks
	Chronic NOEC 6 g/L Fresh water	Aquatic plants - Lemna minor	96 hours
<b>XL10-Gold</b> <b>2-Mercaptoethanol</b>	Chronic NOEC 0.314 g/L Fresh water	Daphnia - Daphnia pulex	21 days
	Chronic NOEC 100 mg/l Fresh water	Fish - Gambusia holbrooki - Adult	8 weeks

## SECTION 12: Ecological information

Sodium chloride	Acute EC50 2430000 µg/l Fresh water Acute EC50 519.6 mg/l Fresh water	Algae - Navicula seminulum Crustaceans - Cypris subglobosa	96 hours 48 hours
	Acute IC50 6.87 g/L Fresh water Acute LC50 1661 mg/l Fresh water Acute LC50 1000000 µg/l Fresh water Chronic LC10 781 mg/l Fresh water	Aquatic plants - Lemna minor Daphnia - Daphnia magna Fish - Morone saxatilis - Larvae Crustaceans - Hyalella azteca - Juvenile (Fledgling, Hatchling, Weanling)	96 hours 48 hours 96 hours 3 weeks
	Chronic NOEC 6 g/L Fresh water Chronic NOEC 0.314 g/L Fresh water Chronic NOEC 100 mg/l Fresh water	Aquatic plants - Lemna minor Daphnia - Daphnia pulex Fish - Gambusia holbrooki - Adult	96 hours 21 days 8 weeks

### 12.2 Persistence and degradability

Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
<b>2X EZClone Enzyme Mix</b> Polyoxyethylene octyl phenyl ether	-	-	Readily

### 12.3 Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
<b>EZClone Solution</b> Dimethyl sulfoxide	-1.35	3.16	low
<b>Mutazyme II</b> Poly(oxy-1,2-ethanediyl), . alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-. omega.-hydroxy-	3.77	78.67	low
<b>2X EZClone Enzyme Mix</b> Polyoxyethylene octyl phenyl ether	4.86	-	high
<b>XL10-Gold</b> <b>2-Mercaptoethanol</b> 2-Mercaptoethanol	-0.056	-	low

### 12.4 Mobility in soil

**Soil/water partition coefficient (K<sub>oc</sub>)** : Not available.

**Mobility** : Not available.

### 12.5 Results of PBT and vPvB assessment

**PBT** : Not applicable.

**vPvB** : Not applicable.

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

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product

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

**Hazardous waste** : The classification of the product may meet the criteria for a hazardous waste.

#### Packaging

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

**Special precautions** : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

## SECTION 14: Transport information

### Regulatory information

**ADR/RID / IMDG / IATA** : Not regulated.

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

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

## SECTION 15: Regulatory information

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

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

#### Annex XIV - List of substances subject to authorisation

##### Annex XIV

None of the components are listed.

#### Substances of very high concern

Ingredient name	Intrinsic property	Status	Reference number	Date of revision
<b>Mutazyme II</b> Poly(oxy-1,2-ethanediyl), .alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy-	Substance of equivalent concern for environment	Recommended	ED/169/2012	02/10/2014
<b>2X EZClone Enzyme Mix</b> Polyoxyethylene octyl phenyl ether	Substance of equivalent concern for environment	Recommended	ED/169/2012	02/10/2014

**Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles** : EZClone Solution Not applicable.  
Mutazyme II Not applicable.  
10X Mutazyme II Reaction Not applicable.  
Buffer Not applicable.  
40 mM dNTP Mix (10 mM dNTP) Not applicable.  
2X EZClone Enzyme Mix Not applicable.  
Dpn I restriction enzyme Not applicable.

## SECTION 15: Regulatory information

Positive Control Plasmid	Not applicable.
Positive Control Primer Mix	Not applicable.
1.1 kb Gel Standard	Not applicable.
XL10-Gold Ultracompetent cells	Not applicable.
XL10-Gold	Not applicable.
2-Mercaptoethanol	Not applicable.
pUC 18 DNA Control Plasmid	Not applicable.

### Other EU regulations

**Europe inventory** : All components are listed or exempted.

**Industrial emissions (integrated pollution prevention and control) - Air** : Listed

### Ozone depleting substances (1005/2009/EU)

Not listed.

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

Not listed.

### Seveso Directive

This product is not controlled under the Seveso Directive.

### International regulations

#### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

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

Not listed.

#### Stockholm Convention on Persistent Organic Pollutants

Not listed.

#### Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

#### UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

### International lists

#### National inventory

<b>Australia</b>	: Not determined.
<b>Canada</b>	: All components are listed or exempted.
<b>China</b>	: Not determined.
<b>Japan</b>	: <b>Japan inventory (ENCS)</b> : Not determined. <b>Japan inventory (ISHL)</b> : Not determined.
<b>Malaysia</b>	: Not determined.
<b>New Zealand</b>	: Not determined.
<b>Philippines</b>	: Not determined.
<b>Republic of Korea</b>	: Not determined.
<b>Taiwan</b>	: All components are listed or exempted.
<b>Turkey</b>	: Not determined.
<b>United States</b>	: All components are listed or exempted.

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

## SECTION 16: Other information

✔ Indicates information that has changed from previously issued version.

### Abbreviations and acronyms

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

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

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

### Full text of abbreviated H statements

<b>Mutazyme II</b> H315 H318 H411	Causes skin irritation. Causes serious eye damage. Toxic to aquatic life with long lasting effects.
<b>2X EZClone Enzyme Mix</b> H302 H315 H318 H411	Harmful if swallowed. Causes skin irritation. Causes serious eye damage. Toxic to aquatic life with long lasting effects.
<b>Dpn I restriction enzyme</b> H319	Causes serious eye irritation.
<b>XL10-Gold 2-Mercaptoethanol</b> H301 H310 H315 H317 H318 H319 H330 H335 H411 H412	Toxic if swallowed. Fatal in contact with skin. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage. Causes serious eye irritation. Fatal if inhaled. May cause respiratory irritation. Toxic to aquatic life with long lasting effects. Harmful to aquatic life with long lasting effects.

### Full text of classifications [CLP/GHS]

<b>Mutazyme II</b> Aquatic Chronic 2, H411 Eye Dam. 1, H318 Skin Irrit. 2, H315	LONG-TERM AQUATIC HAZARD - Category 2 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1 SKIN CORROSION/IRRITATION - Category 2
<b>2X EZClone Enzyme Mix</b> Acute Tox. 4, H302 Aquatic Chronic 2, H411 Eye Dam. 1, H318 Skin Irrit. 2, H315	ACUTE TOXICITY (oral) - Category 4 LONG-TERM AQUATIC HAZARD - Category 2 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1 SKIN CORROSION/IRRITATION - Category 2
<b>Dpn I restriction enzyme</b> Eye Irrit. 2, H319	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
<b>XL10-Gold 2-Mercaptoethanol</b> Acute Tox. 2, H310 Acute Tox. 2, H330 Acute Tox. 3, H301	ACUTE TOXICITY (dermal) - Category 2 ACUTE TOXICITY (inhalation) - Category 2 ACUTE TOXICITY (oral) - Category 3

**SECTION 16: Other information**

Aquatic Chronic 2, H411 Aquatic Chronic 3, H412 Eye Dam. 1, H318 Eye Irrit. 2, H319 Skin Irrit. 2, H315 Skin Sens. 1, H317 STOT SE 3, H335	LONG-TERM AQUATIC HAZARD - Category 2 LONG-TERM AQUATIC HAZARD - Category 3 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2 SKIN CORROSION/IRRITATION - Category 2 SKIN SENSITISATION - Category 1 SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Respiratory tract irritation) - Category 3
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**Date of issue/ Date of revision** : 19/10/2016

**Date of previous issue** : No previous validation.

**Version** : 1

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