Conforms to US OSHA Hazard Communication 29CFR1910.1200

# SAFETY DATA SHEET

Agilent Technologies

AdEasy Adenoviral Vector System Kit, Part Number 240009

## Section 1. Identification

### 1.1 Product identifier

**Product name** : AdEasy Adenoviral Vector System Kit, Part Number 240009

**Part no. (chemical kit)** : 240009

**Part no.** :

| | |
|---|---|
| pADEasy™ -1 Vector | 240005-51 |
| pShuttle Vector | 240006-51 |
| pShuttle-CMV Vector | 240007-51 |
| pShuttle-CMV-lacZ Control Vector | 240008-51 |
| BJ5183 electroporation competent cells | 200154-41 |
| XL10-Gold Ultracompetent cells | 200315-41 |
| XL10-Gold 2-Mercaptoethanol | 200314-43 |
| pUC 18 DNA Control Plasmid | 200231-42 |

**Validation date** : 6/12/2023

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

**Identified uses** : Analytical reagent.

| | |
|---|---|
| pADEasy™ -1 Vector | 0.025 ml (2.5 µg 100 ng/µl) |
| pShuttle Vector | 0.02 ml (20 µg 1 µg/µl ) |
| pShuttle-CMV Vector | 0.02 ml (20 µg 1 µg/µl) |
| pShuttle-CMV-lacZ Control Vector | 0.01 ml (10 µg 1 µg/µl) |
| BJ5183 electroporation competent cells | 0.5 ml |
| XL10-Gold Ultracompetent cells | 0.5 ml |
| XL10-Gold 2-Mercaptoethanol | 0.05 ml |
| pUC 18 DNA Control Plasmid | 0.01 ml (0.1 ng / µl) |

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

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

### 1.4 Emergency telephone number

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

## Section 2. Hazards identification

### 2.1 Classification of the substance or mixture

**OSHA/HCS status** :

| | |
|---|---|
| pADEasy™ -1 Vector | While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product. |
| pShuttle Vector | While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product. |
| pShuttle-CMV Vector | While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. |

# Section 2. Hazards identification

| | |
|---|---|
| | This SDS should be retained and available for employees and other users of this product. |
| pShuttle-CMV-lacZ Control Vector | While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product. |
| BJ5183 electroporation competent cells | While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product. |
| XL10-Gold Ultracompetent cells | This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). |
| XL10-Gold 2-Mercaptoethanol | This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). |
| pUC 18 DNA Control Plasmid | While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product. |

## Classification of the substance or mixture

**XL10-Gold Ultracompetent cells**

| | |
|---|---|
| H320 | EYE IRRITATION - Category 2B |

**XL10-Gold 2-Mercaptoethanol**

| | |
|---|---|
| H318 | SERIOUS EYE DAMAGE - Category 1 |
| H317 | SKIN SENSITIZATION - Category 1 |
| H361 | TOXIC TO REPRODUCTION - Category 2 |
| H373 | SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 |
| H412 | AQUATIC HAZARD (LONG-TERM) - Category 3 |

| | |
|---|---|
| BJ5183 electroporation competent cells | Percentage of the mixture consisting of ingredient (s) of unknown hazards to the aquatic environment: 2.3% |
| XL10-Gold Ultracompetent cells | Percentage of the mixture consisting of ingredient (s) of unknown hazards to the aquatic environment: 5% |

## 2.2 GHS label elements

**Hazard pictograms** : XL10-Gold 2-Mercaptoethanol

**Signal word** :

| | |
|---|---|
| pADEasy™ -1 Vector | No signal word. |
| pShuttle Vector | No signal word. |
| pShuttle-CMV Vector | No signal word. |
| pShuttle-CMV-lacZ Control Vector | No signal word. |
| BJ5183 electroporation competent cells | No signal word. |
| XL10-Gold Ultracompetent cells | Warning |
| XL10-Gold 2-Mercaptoethanol | Danger |
| pUC 18 DNA Control Plasmid | No signal word. |

# Section 2. Hazards identification

**Hazard statements** :

| | |
|---|---|
| pADEasy™ -1 Vector | No known significant effects or critical hazards. |
| pShuttle Vector | No known significant effects or critical hazards. |
| pShuttle-CMV Vector | No known significant effects or critical hazards. |
| pShuttle-CMV-lacZ Control Vector | No known significant effects or critical hazards. |
| BJ5183 electroporation competent cells | No known significant effects or critical hazards. |
| XL10-Gold Ultracompetent cells | H320 - Causes eye irritation. |
| XL10-Gold 2-Mercaptoethanol | H317 - May cause an allergic skin reaction.<br>H318 - Causes serious eye damage.<br>H361 - Suspected of damaging fertility or the unborn child.<br>H373 - May cause damage to organs through prolonged or repeated exposure.<br>H412 - Harmful to aquatic life with long lasting effects. |
| pUC 18 DNA Control Plasmid | No known significant effects or critical hazards. |

**Precautionary statements**

**Prevention** :

| | |
|---|---|
| pADEasy™ -1 Vector | Not applicable. |
| pShuttle Vector | Not applicable. |
| pShuttle-CMV Vector | Not applicable. |
| pShuttle-CMV-lacZ Control Vector | Not applicable. |
| BJ5183 electroporation competent cells | Not applicable. |
| XL10-Gold Ultracompetent cells | Not applicable. |
| XL10-Gold 2-Mercaptoethanol | P201 - Obtain special instructions before use.<br>P280 - Wear protective gloves, protective clothing and eye or face protection.<br>P273 - Avoid release to the environment.<br>P260 - Do not breathe vapor. |
| pUC 18 DNA Control Plasmid | Not applicable. |

**Response** :

| | |
|---|---|
| pADEasy™ -1 Vector | Not applicable. |
| pShuttle Vector | Not applicable. |
| pShuttle-CMV Vector | Not applicable. |
| pShuttle-CMV-lacZ Control Vector | Not applicable. |
| BJ5183 electroporation competent cells | Not applicable. |
| XL10-Gold Ultracompetent cells | P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.<br>P337 + P313 - If eye irritation persists: Get medical advice or attention. |
| XL10-Gold 2-Mercaptoethanol | P308 + P313 - IF exposed or concerned: Get medical advice or attention.<br>P363 - Wash contaminated clothing before reuse.<br>P302 + P352 - IF ON SKIN: Wash with plenty of water.<br>P333 + P313 - If skin irritation or rash occurs: Get medical advice or attention.<br>P305 + P351 + P338, P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor. |
| pUC 18 DNA Control Plasmid | Not applicable. |

# Section 2. Hazards identification

| | | | |
|---|---|---|---|
| **Storage** | : | pADEasy™ -1 Vector | Not applicable. |
| | | pShuttle Vector | Not applicable. |
| | | pShuttle-CMV Vector | Not applicable. |
| | | pShuttle-CMV-lacZ Control Vector | Not applicable. |
| | | BJ5183 electroporation competent cells | Not applicable. |
| | | XL10-Gold Ultracompetent cells | Not applicable. |
| | | XL10-Gold 2-Mercaptoethanol | Not applicable. |
| | | pUC 18 DNA Control Plasmid | Not applicable. |
| **Disposal** | : | pADEasy™ -1 Vector | Not applicable. |
| | | pShuttle Vector | Not applicable. |
| | | pShuttle-CMV Vector | Not applicable. |
| | | pShuttle-CMV-lacZ Control Vector | Not applicable. |
| | | BJ5183 electroporation competent cells | Not applicable. |
| | | XL10-Gold Ultracompetent cells | Not applicable. |
| | | XL10-Gold 2-Mercaptoethanol | P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations. |
| | | pUC 18 DNA Control Plasmid | Not applicable. |
| **Supplemental label elements** | : | pADEasy™ -1 Vector | None known. |
| | | pShuttle Vector | None known. |
| | | pShuttle-CMV Vector | None known. |
| | | pShuttle-CMV-lacZ Control Vector | None known. |
| | | BJ5183 electroporation competent cells | None known. |
| | | XL10-Gold Ultracompetent cells | None known. |
| | | XL10-Gold 2-Mercaptoethanol | None known. |
| | | pUC 18 DNA Control Plasmid | None known. |

## 2.3 Other hazards

| | | | |
|---|---|---|---|
| **Hazards not otherwise classified** | : | pADEasy™ -1 Vector | None known. |
| | | pShuttle Vector | None known. |
| | | pShuttle-CMV Vector | None known. |
| | | pShuttle-CMV-lacZ Control Vector | None known. |
| | | BJ5183 electroporation competent cells | None known. |
| | | XL10-Gold Ultracompetent cells | None known. |
| | | XL10-Gold 2-Mercaptoethanol | None known. |
| | | pUC 18 DNA Control Plasmid | None known. |

# Section 3. Composition/information on ingredients

| | | | |
|---|---|---|---|
| **Substance/mixture** | : | pADEasy™ -1 Vector | Mixture |
| | | pShuttle Vector | Mixture |
| | | pShuttle-CMV Vector | Mixture |
| | | pShuttle-CMV-lacZ Control Vector | Mixture |
| | | BJ5183 electroporation competent cells | Mixture |
| | | XL10-Gold Ultracompetent cells | Mixture |
| | | XL10-Gold 2-Mercaptoethanol | Mixture |
| | | pUC 18 DNA Control Plasmid | Mixture |

# Section 3. Composition/information on ingredients

| Ingredient name | % | CAS number |
|---|---|---|
| **BJ5183 electroporation competent cells** | | |
| Glycerol | <10 | 56-81-5 |
| **XL10-Gold Ultracompetent cells** | | |
| Glycerol | ≥10 - ≤25 | 56-81-5 |
| Dimethyl sulfoxide | ≤10 | 67-68-5 |
| Potassium chloride | ≤3 | 7447-40-7 |
| **XL10-Gold 2-Mercaptoethanol** | | |
| 2-Mercaptoethanol | ≤5 | 60-24-2 |

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

**There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.**

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

# Section 4. First aid measures

## 4.1 Description of necessary first aid measures

**Eye contact** :

| | |
|---|---|
| pADEasy™ -1 Vector | Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs. |
| pShuttle Vector | Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs. |
| pShuttle-CMV Vector | Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs. |
| pShuttle-CMV-lacZ Control Vector | Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs. |
| BJ5183 electroporation competent cells | Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs. |
| XL10-Gold Ultracompetent cells | Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. If irritation persists, get medical attention. |
| 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. |

# Section 4. First aid measures

| | | | |
|---|---|---|---|
| | | pUC 18 DNA Control Plasmid | Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs. |
| **Inhalation** | : | pADEasy™ -1 Vector | Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur. |
| | | pShuttle Vector | Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur. |
| | | pShuttle-CMV Vector | Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur. |
| | | pShuttle-CMV-lacZ Control Vector | Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur. |
| | | BJ5183 electroporation competent cells | Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur. |
| | | XL10-Gold Ultracompetent cells | Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. |
| | | XL10-Gold 2-Mercaptoethanol | Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. |
| | | pUC 18 DNA Control Plasmid | Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur. |
| **Skin contact** | : | pADEasy™ -1 Vector | Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. |
| | | pShuttle Vector | Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. |
| | | pShuttle-CMV Vector | Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. |
| | | pShuttle-CMV-lacZ Control Vector | Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get |

# Section 4. First aid measures

| | | |
|---|---|---|
| | | medical attention if symptoms occur. |
| | BJ5183 electroporation competent cells | Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. |
| | XL10-Gold Ultracompetent cells | Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse. |
| | XL10-Gold 2-Mercaptoethanol | Get medical attention immediately. Call a poison center or physician. Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse. |
| | pUC 18 DNA Control Plasmid | Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. |
| **Ingestion** : | pADEasy™ -1 Vector | Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur. |
| | pShuttle Vector | Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur. |
| | pShuttle-CMV Vector | Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur. |
| | pShuttle-CMV-lacZ Control Vector | Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur. |
| | BJ5183 electroporation competent cells | Wash out mouth with water. 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 dentures if any. 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. |

# Section 4. First aid measures

| | | |
|---|---|---|
| | | Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. |
| | XL10-Gold 2-Mercaptoethanol | Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. 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. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur. |

## 4.2 Most important symptoms/effects, acute and delayed

### Potential acute health effects

| | | | |
|---|---|---|---|
| **Eye contact** | : | pADEasy™ -1 Vector | No known significant effects or critical hazards. |
| | | pShuttle Vector | No known significant effects or critical hazards. |
| | | pShuttle-CMV Vector | No known significant effects or critical hazards. |
| | | pShuttle-CMV-lacZ Control Vector | No known significant effects or critical hazards. |
| | | BJ5183 electroporation competent cells | No known significant effects or critical hazards. |
| | | XL10-Gold Ultracompetent cells | Causes eye irritation. |
| | | XL10-Gold 2-Mercaptoethanol | Causes serious eye damage. |
| | | pUC 18 DNA Control Plasmid | No known significant effects or critical hazards. |
| **Inhalation** | : | pADEasy™ -1 Vector | No known significant effects or critical hazards. |
| | | pShuttle Vector | No known significant effects or critical hazards. |
| | | pShuttle-CMV Vector | No known significant effects or critical hazards. |
| | | pShuttle-CMV-lacZ Control Vector | No known significant effects or critical hazards. |
| | | BJ5183 electroporation competent cells | No known significant effects or critical hazards. |
| | | XL10-Gold Ultracompetent cells | No known significant effects or critical hazards. |
| | | XL10-Gold 2-Mercaptoethanol | No known significant effects or critical hazards. |
| | | pUC 18 DNA Control Plasmid | No known significant effects or critical hazards. |
| **Skin contact** | : | pADEasy™ -1 Vector | No known significant effects or critical hazards. |
| | | pShuttle Vector | No known significant effects or critical hazards. |
| | | pShuttle-CMV Vector | No known significant effects or critical hazards. |
| | | pShuttle-CMV-lacZ Control Vector | No known significant effects or critical hazards. |
| | | BJ5183 electroporation competent cells | No known significant effects or critical hazards. |
| | | XL10-Gold Ultracompetent cells | No known significant effects or critical hazards. |
| | | XL10-Gold 2-Mercaptoethanol | May cause an allergic skin reaction. |
| | | pUC 18 DNA Control Plasmid | No known significant effects or critical hazards. |

# Section 4. First aid measures

| | | | |
|---|---|---|---|
| **Ingestion** | : | pADEasy™ -1 Vector | No known significant effects or critical hazards. |
| | | pShuttle Vector | No known significant effects or critical hazards. |
| | | pShuttle-CMV Vector | No known significant effects or critical hazards. |
| | | pShuttle-CMV-lacZ Control Vector | No known significant effects or critical hazards. |
| | | BJ5183 electroporation competent cells | No known significant effects or critical hazards. |
| | | XL10-Gold Ultracompetent cells | No known significant effects or critical hazards. |
| | | XL10-Gold 2-Mercaptoethanol | No known significant effects or critical hazards. |
| | | pUC 18 DNA Control Plasmid | No known significant effects or critical hazards. |

**Over-exposure signs/symptoms**

| | | | |
|---|---|---|---|
| **Eye contact** | : | pADEasy™ -1 Vector | No specific data. |
| | | pShuttle Vector | No specific data. |
| | | pShuttle-CMV Vector | No specific data. |
| | | pShuttle-CMV-lacZ Control Vector | No specific data. |
| | | BJ5183 electroporation competent cells | No specific data. |
| | | XL10-Gold Ultracompetent cells | Adverse symptoms may include the following:<br>irritation<br>watering<br>redness |
| | | XL10-Gold 2-Mercaptoethanol | Adverse symptoms may include the following:<br>pain<br>watering<br>redness |
| | | pUC 18 DNA Control Plasmid | No specific data. |
| **Inhalation** | : | pADEasy™ -1 Vector | No specific data. |
| | | pShuttle Vector | No specific data. |
| | | pShuttle-CMV Vector | No specific data. |
| | | pShuttle-CMV-lacZ Control Vector | No specific data. |
| | | BJ5183 electroporation competent cells | No specific data. |
| | | XL10-Gold Ultracompetent cells | No specific data. |
| | | XL10-Gold 2-Mercaptoethanol | Adverse symptoms may include the following:<br>reduced fetal weight<br>increase in fetal deaths<br>skeletal malformations |
| | | pUC 18 DNA Control Plasmid | No specific data. |
| **Skin contact** | : | pADEasy™ -1 Vector | No specific data. |
| | | pShuttle Vector | No specific data. |
| | | pShuttle-CMV Vector | No specific data. |
| | | pShuttle-CMV-lacZ Control Vector | No specific data. |
| | | BJ5183 electroporation competent cells | No specific data. |
| | | XL10-Gold Ultracompetent cells | No specific data. |
| | | XL10-Gold 2-Mercaptoethanol | Adverse symptoms may include the following:<br>pain or irritation<br>redness<br>blistering may occur<br>reduced fetal weight<br>increase in fetal deaths<br>skeletal malformations |
| | | pUC 18 DNA Control Plasmid | No specific data. |
| **Ingestion** | : | pADEasy™ -1 Vector | No specific data. |
| | | pShuttle Vector | No specific data. |
| | | pShuttle-CMV Vector | No specific data. |
| | | pShuttle-CMV-lacZ Control Vector | No specific data. |
| | | BJ5183 electroporation competent cells | No specific data. |
| | | XL10-Gold Ultracompetent cells | No specific data. |

# Section 4. First aid measures

| | | |
|---|---|---|
| | XL10-Gold 2-Mercaptoethanol | Adverse symptoms may include the following:<br>stomach pains<br>reduced fetal weight<br>increase in fetal deaths<br>skeletal malformations |
| | pUC 18 DNA Control Plasmid | No specific data. |

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

| | | | |
|---|---|---|---|
| **Notes to physician** | : | pADEasy™ -1 Vector | Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. |
| | | pShuttle Vector | Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. |
| | | pShuttle-CMV Vector | Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. |
| | | pShuttle-CMV-lacZ Control Vector | Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. |
| | | BJ5183 electroporation competent cells | Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. |
| | | XL10-Gold Ultracompetent cells | Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. |
| | | XL10-Gold 2-Mercaptoethanol | Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. |
| | | pUC 18 DNA Control Plasmid | Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. |
| **Specific treatments** | : | pADEasy™ -1 Vector | No specific treatment. |
| | | pShuttle Vector | No specific treatment. |
| | | pShuttle-CMV Vector | No specific treatment. |
| | | pShuttle-CMV-lacZ Control Vector | No specific treatment. |
| | | BJ5183 electroporation competent cells | No specific treatment. |
| | | XL10-Gold Ultracompetent cells | No specific treatment. |
| | | XL10-Gold 2-Mercaptoethanol | No specific treatment. |
| | | pUC 18 DNA Control Plasmid | No specific treatment. |
| **Protection of first-aiders** | : | pADEasy™ -1 Vector | No action shall be taken involving any personal risk or without suitable training. |
| | | pShuttle Vector | No action shall be taken involving any personal risk or without suitable training. |
| | | pShuttle-CMV Vector | No action shall be taken involving any personal risk or without suitable training. |
| | | pShuttle-CMV-lacZ Control Vector | No action shall be taken involving any personal risk or without suitable training. |
| | | BJ5183 electroporation competent cells | No action shall be taken involving any personal risk or without suitable training. |
| | | XL10-Gold Ultracompetent cells | No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. |
| | | 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 |

# Section 4. First aid measures

| | | |
|---|---|---|
| | | apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. |
| | pUC 18 DNA Control Plasmid | No action shall be taken involving any personal risk or without suitable training. |

**See toxicological information (Section 11)**

# Section 5. Fire-fighting measures

## 5.1 Extinguishing media

| | | | |
|---|---|---|---|
| **Suitable extinguishing media** | : | pADEasy™ -1 Vector | Use an extinguishing agent suitable for the surrounding fire. |
| | | pShuttle Vector | Use an extinguishing agent suitable for the surrounding fire. |
| | | pShuttle-CMV Vector | Use an extinguishing agent suitable for the surrounding fire. |
| | | pShuttle-CMV-lacZ Control Vector | Use an extinguishing agent suitable for the surrounding fire. |
| | | BJ5183 electroporation competent cells | Use an extinguishing agent suitable for the surrounding fire. |
| | | XL10-Gold Ultracompetent cells | Use an extinguishing agent suitable for the surrounding fire. |
| | | XL10-Gold 2-Mercaptoethanol | Use an extinguishing agent suitable for the surrounding fire. |
| | | pUC 18 DNA Control Plasmid | Use an extinguishing agent suitable for the surrounding fire. |
| **Unsuitable extinguishing media** | : | pADEasy™ -1 Vector | None known. |
| | | pShuttle Vector | None known. |
| | | pShuttle-CMV Vector | None known. |
| | | pShuttle-CMV-lacZ Control Vector | None known. |
| | | BJ5183 electroporation competent cells | None known. |
| | | XL10-Gold Ultracompetent cells | None known. |
| | | XL10-Gold 2-Mercaptoethanol | None known. |
| | | pUC 18 DNA Control Plasmid | None known. |

## 5.2 Special hazards arising from the substance or mixture

| | | | |
|---|---|---|---|
| **Specific hazards arising from the chemical** | : | pADEasy™ -1 Vector | In a fire or if heated, a pressure increase will occur and the container may burst. |
| | | pShuttle Vector | In a fire or if heated, a pressure increase will occur and the container may burst. |
| | | pShuttle-CMV Vector | In a fire or if heated, a pressure increase will occur and the container may burst. |
| | | pShuttle-CMV-lacZ Control Vector | In a fire or if heated, a pressure increase will occur and the container may burst. |
| | | BJ5183 electroporation competent cells | In a fire or if heated, a pressure increase will occur and the container may burst. |
| | | XL10-Gold Ultracompetent cells | In a fire or if heated, a pressure increase will occur and the container may burst. |
| | | XL10-Gold 2-Mercaptoethanol | In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain. |
| | | pUC 18 DNA Control Plasmid | In a fire or if heated, a pressure increase will occur and the container may burst. |

# Section 5. Fire-fighting measures

| | | | |
|---|---|---|---|
| **Hazardous thermal decomposition products** | : | pADEasy™ -1 Vector | No specific data. |
| | | pShuttle Vector | No specific data. |
| | | pShuttle-CMV Vector | No specific data. |
| | | pShuttle-CMV-lacZ Control Vector | No specific data. |
| | | BJ5183 electroporation competent cells | Decomposition products may include the following materials:<br>carbon dioxide<br>carbon monoxide |
| | | XL10-Gold Ultracompetent cells | Decomposition products may include the following materials:<br>carbon dioxide<br>carbon monoxide<br>sulfur oxides<br>halogenated compounds<br>metal oxide/oxides |
| | | XL10-Gold 2-Mercaptoethanol | Decomposition products may include the following materials:<br>carbon dioxide<br>carbon monoxide<br>sulfur oxides<br>halogenated compounds<br>metal oxide/oxides |
| | | pUC 18 DNA Control Plasmid | No specific data. |

## 5.3 Advice for firefighters

| | | | |
|---|---|---|---|
| **Special protective actions for fire-fighters** | : | pADEasy™ -1 Vector | Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. |
| | | pShuttle Vector | Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. |
| | | pShuttle-CMV Vector | Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. |
| | | pShuttle-CMV-lacZ Control Vector | Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. |
| | | BJ5183 electroporation competent cells | Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. |
| | | XL10-Gold Ultracompetent cells | Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. |
| | | XL10-Gold 2-Mercaptoethanol | Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. |
| | | pUC 18 DNA Control Plasmid | Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. |

## Section 5. Fire-fighting measures

| | | |
|---|---|---|
| **Special protective equipment for fire-fighters** : | pADEasy™ -1 Vector | Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. |
| | pShuttle Vector | Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. |
| | pShuttle-CMV Vector | Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. |
| | pShuttle-CMV-lacZ Control Vector | Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. |
| | BJ5183 electroporation competent cells | Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. |
| | XL10-Gold Ultracompetent cells | Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. |
| | XL10-Gold 2-Mercaptoethanol | Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. |
| | pUC 18 DNA Control Plasmid | Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. |

## Section 6. Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

| | | |
|---|---|---|
| **For non-emergency personnel** : | pADEasy™ -1 Vector | No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment. |
| | pShuttle Vector | No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment. |
| | pShuttle-CMV Vector | No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment. |
| | pShuttle-CMV-lacZ Control Vector | No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment. |

## Section 6. Accidental release measures

| | | |
|---|---|---|
| | BJ5183 electroporation competent cells | No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled 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 spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. 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 spilled material. Do not breathe vapor 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 spilled material. Put on appropriate personal protective equipment. |
| **For emergency responders :** | pADEasy™ -1 Vector | If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel". |
| | pShuttle Vector | If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel". |
| | pShuttle-CMV Vector | If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel". |
| | pShuttle-CMV-lacZ Control Vector | If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel". |
| | BJ5183 electroporation competent cells | If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel". |
| | XL10-Gold Ultracompetent cells | If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel". |
| | XL10-Gold 2-Mercaptoethanol | If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel". |
| | pUC 18 DNA Control Plasmid | If specialized clothing is required to deal with the spillage, take note of any information in Section 8 |

# Section 6. Accidental release measures

| | | | |
|---|---|---|---|
| | | | on suitable and unsuitable materials. See also the information in "For non-emergency personnel". |
| **6.2 Environmental precautions** | : | pADEasy™ -1 Vector | Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). |
| | | pShuttle Vector | Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). |
| | | pShuttle-CMV Vector | Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). |
| | | pShuttle-CMV-lacZ Control Vector | Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). |
| | | BJ5183 electroporation competent cells | Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). |
| | | XL10-Gold Ultracompetent cells | Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). |
| | | XL10-Gold 2-Mercaptoethanol | Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. |
| | | pUC 18 DNA Control Plasmid | Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). |

### 6.3 Methods and materials for containment and cleaning up

| | | | |
|---|---|---|---|
| **Methods for cleaning up** | : | pADEasy™ -1 Vector | Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor. |
| | | pShuttle Vector | Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor. |

# Section 6. Accidental release measures

| | |
|---|---|
| pShuttle-CMV Vector | Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor. |
| pShuttle-CMV-lacZ Control Vector | Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor. |
| BJ5183 electroporation competent cells | Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor. |
| XL10-Gold Ultracompetent cells | Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor. |
| XL10-Gold 2-Mercaptoethanol | Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor. |
| pUC 18 DNA Control Plasmid | Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor. |

# Section 7. Handling and storage

## 7.1 Precautions for safe handling

| | | | |
|---|---|---|---|
| **Protective measures** | : | pADEasy™ -1 Vector | Put on appropriate personal protective equipment (see Section 8). |
| | | pShuttle Vector | Put on appropriate personal protective equipment (see Section 8). |
| | | pShuttle-CMV Vector | Put on appropriate personal protective equipment (see Section 8). |
| | | pShuttle-CMV-lacZ Control Vector | Put on appropriate personal protective equipment (see Section 8). |
| | | BJ5183 electroporation competent cells | Put on appropriate personal protective equipment (see Section 8). |
| | | XL10-Gold Ultracompetent cells | Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container. |
| | | XL10-Gold 2-Mercaptoethanol | Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin |

# Section 7. Handling and storage

| | | |
|---|---|---|
| | | sensitization problems should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Avoid release to the environment. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container. |
| | pUC 18 DNA Control Plasmid | Put on appropriate personal protective equipment (see Section 8). |
| **Advice on general occupational hygiene** : | pADEasy™ -1 Vector | Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures. |
| | pShuttle Vector | Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures. |
| | pShuttle-CMV Vector | Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures. |
| | pShuttle-CMV-lacZ Control Vector | Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures. |
| | BJ5183 electroporation competent cells | Potentially biohazardous material. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures. |
| | XL10-Gold Ultracompetent cells | Potentially biohazardous material. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional |

# Section 7. Handling and storage

| | | |
|---|---|---|
| | | information on hygiene measures. |
| | XL10-Gold 2-Mercaptoethanol | Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures. |
| | pUC 18 DNA Control Plasmid | Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures. |
| **7.2 Conditions for safe storage, including any incompatibilities** | : pÂDEasy™ -1 Vector | Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use. |
| | pShuttle Vector | Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use. |
| | pShuttle-CMV Vector | Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use. |
| | pShuttle-CMV-lacZ Control Vector | Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use. |

# Section 7. Handling and storage

| | |
|---|---|
| BJ5183 electroporation competent cells | Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use. |
| 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 unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use. |
| 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 unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use. |
| pUC 18 DNA Control Plasmid | Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use. |

## 7.3 Specific end use(s)

**Recommendations** :

| | |
|---|---|
| pADEasy™ -1 Vector | Industrial applications, Professional applications. |
| pShuttle Vector | Industrial applications, Professional applications. |
| pShuttle-CMV Vector | Industrial applications, Professional applications. |
| pShuttle-CMV-lacZ Control Vector | Industrial applications, Professional applications. |
| BJ5183 electroporation competent cells | Industrial applications, Professional applications. |
| XL10-Gold Ultracompetent cells | Industrial applications, Professional applications. |
| XL10-Gold 2-Mercaptoethanol | Industrial applications, Professional applications. |
| pUC 18 DNA Control Plasmid | Industrial applications, Professional applications. |

# Section 7. Handling and storage

| | | | |
|---|---|---|---|
| **Industrial sector specific solutions** | : | pADEasy™ -1 Vector | Not available. |
| | | pShuttle Vector | Not available. |
| | | pShuttle-CMV Vector | Not available. |
| | | pShuttle-CMV-lacZ Control Vector | Not available. |
| | | BJ5183 electroporation competent cells | Not available. |
| | | XL10-Gold Ultracompetent cells | Not available. |
| | | XL10-Gold 2-Mercaptoethanol | Not available. |
| | | pUC 18 DNA Control Plasmid | Not available. |

# Section 8. Exposure controls/personal protection

## 8.1 Control parameters

### Occupational exposure limits

| Ingredient name | Exposure limits |
|---|---|
| **BJ5183 electroporation competent cells** | |
| Glycerol | **OSHA PEL 1989 (United States, 3/1989).**<br>TWA: 5 mg/m³ 8 hours. Form: Respirable fraction<br>TWA: 10 mg/m³ 8 hours. Form: Total dust<br>**OSHA PEL (United States, 5/2018).**<br>TWA: 5 mg/m³ 8 hours. Form: Respirable fraction<br>TWA: 15 mg/m³ 8 hours. Form: Total dust<br>**CAL OSHA PEL (United States, 5/2018).**<br>TWA: 5 mg/m³ 8 hours. Form: respirable fraction<br>TWA: 10 mg/m³ 8 hours. Form: total dust |
| **XL10-Gold Ultracompetent cells** | |
| Glycerol | **OSHA PEL 1989 (United States, 3/1989).**<br>TWA: 5 mg/m³ 8 hours. Form: Respirable fraction<br>TWA: 10 mg/m³ 8 hours. Form: Total dust<br>**OSHA PEL (United States, 5/2018).**<br>TWA: 5 mg/m³ 8 hours. Form: Respirable fraction<br>TWA: 15 mg/m³ 8 hours. Form: Total dust<br>**CAL OSHA PEL (United States, 5/2018).**<br>TWA: 5 mg/m³ 8 hours. Form: respirable fraction<br>TWA: 10 mg/m³ 8 hours. Form: total dust |
| Dimethyl sulfoxide | **OARS WEEL (United States, 4/2022).**<br>TWA: 250 ppm 8 hours. |
| Potassium chloride | None. |
| **XL10-Gold 2-Mercaptoethanol** | |
| 2-Mercaptoethanol | **OARS WEEL (United States, 4/2022).**<br>**Absorbed through skin.**<br>TWA: 0.2 ppm 8 hours. |

### Biological exposure indices

No exposure indices known.

## 8.2 Exposure controls

# Section 8. Exposure controls/personal protection

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

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

## Individual protection measures

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

**Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

## Skin protection

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

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

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

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

# Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

## Appearance

**Physical state** :

| | |
|---|---|
| pADEasy™ -1 Vector | Liquid. |
| pShuttle Vector | Liquid. |
| pShuttle-CMV Vector | Liquid. |
| pShuttle-CMV-lacZ Control Vector | Liquid. |
| BJ5183 electroporation competent cells | Liquid. |
| XL10-Gold Ultracompetent cells | Liquid. |
| XL10-Gold 2-Mercaptoethanol | Liquid. |
| pUC 18 DNA Control Plasmid | Liquid. |

# Section 9. Physical and chemical properties and safety characteristics

| | | | |
|---|---|---|---|
| **Color** | : | pADEasy™ -1 Vector | Not available. |
| | | pShuttle Vector | Not available. |
| | | pShuttle-CMV Vector | Not available. |
| | | pShuttle-CMV-lacZ Control Vector | Not available. |
| | | BJ5183 electroporation competent cells | Not available. |
| | | XL10-Gold Ultracompetent cells | Not available. |
| | | XL10-Gold 2-Mercaptoethanol | Not available. |
| | | pUC 18 DNA Control Plasmid | Not available. |
| **Odor** | : | pADEasy™ -1 Vector | Not available. |
| | | pShuttle Vector | Not available. |
| | | pShuttle-CMV Vector | Not available. |
| | | pShuttle-CMV-lacZ Control Vector | Not available. |
| | | BJ5183 electroporation competent cells | Not available. |
| | | XL10-Gold Ultracompetent cells | Not available. |
| | | XL10-Gold 2-Mercaptoethanol | Not available. |
| | | pUC 18 DNA Control Plasmid | Not available. |
| **Odor threshold** | : | pADEasy™ -1 Vector | Not available. |
| | | pShuttle Vector | Not available. |
| | | pShuttle-CMV Vector | Not available. |
| | | pShuttle-CMV-lacZ Control Vector | Not available. |
| | | BJ5183 electroporation competent cells | Not available. |
| | | XL10-Gold Ultracompetent cells | Not available. |
| | | XL10-Gold 2-Mercaptoethanol | Not available. |
| | | pUC 18 DNA Control Plasmid | Not available. |
| **pH** | : | pADEasy™ -1 Vector | 7.5 |
| | | pShuttle Vector | 7.5 |
| | | pShuttle-CMV Vector | 7.5 |
| | | pShuttle-CMV-lacZ Control Vector | 7.5 |
| | | BJ5183 electroporation competent cells | Not available. |
| | | XL10-Gold Ultracompetent cells | 6.4 |
| | | XL10-Gold 2-Mercaptoethanol | Not available. |
| | | pUC 18 DNA Control Plasmid | 7.5 |
| **Melting point/freezing point** | : | pADEasy™ -1 Vector | 0°C (32°F) |
| | | pShuttle Vector | 0°C (32°F) |
| | | pShuttle-CMV Vector | 0°C (32°F) |
| | | pShuttle-CMV-lacZ Control Vector | 0°C (32°F) |
| | | BJ5183 electroporation competent cells | Not available. |
| | | XL10-Gold Ultracompetent cells | Not available. |
| | | XL10-Gold 2-Mercaptoethanol | Not available. |
| | | pUC 18 DNA Control Plasmid | 0°C (32°F) |
| **Boiling point, initial boiling point, and boiling range** | : | pADEasy™ -1 Vector | 100°C (212°F) |
| | | pShuttle Vector | 100°C (212°F) |
| | | pShuttle-CMV Vector | 100°C (212°F) |
| | | pShuttle-CMV-lacZ Control Vector | 100°C (212°F) |
| | | BJ5183 electroporation competent cells | Not available. |
| | | XL10-Gold Ultracompetent cells | Not available. |
| | | XL10-Gold 2-Mercaptoethanol | Not available. |
| | | pUC 18 DNA Control Plasmid | 100°C (212°F) |
| **Flash point** | : | | |

# Section 9. Physical and chemical properties and safety characteristics

| | Closed cup | | | Open cup | | |
|---|---|---|---|---|---|---|
| **Ingredient name** | **°C** | **°F** | **Method** | **°C** | **°F** | **Method** |
| **BJ5183 electroporation competent cells** | | | | | | |
| Glycerol | | | | 177 | 350.6 | |
| D-Glucitol | | | | 282.85 | 541.1 | |
| **XL10-Gold Ultracompetent cells** | | | | | | |
| Dimethyl sulfoxide | 87 | 188.6 | ASTM D 93 | 87 | 188.6 | |
| Glycerol | | | | 177 | 350.6 | |
| **XL10-Gold 2-Mercaptoethanol** | | | | | | |
| 2-Mercaptoethanol | 74 | 165.2 | | 74 | 165.2 | |

**Evaporation rate** :

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

**Flammability** :

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

**Lower and upper explosion limit/flammability limit** :

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

**Vapor pressure** :

# Section 9. Physical and chemical properties and safety characteristics

| Ingredient name | Vapor Pressure at 20˚C | | | Vapor pressure at 50˚C | | |
|---|---|---|---|---|---|---|
| | mm Hg | kPa | Method | mm Hg | kPa | Method |
| **pADEasy™ -1 Vector** | | | | | | |
| water | 17.5 | 2.3 | | 92.258 | 12.3 | |
| **pShuttle Vector** | | | | | | |
| water | 17.5 | 2.3 | | 92.258 | 12.3 | |
| **pShuttle-CMV Vector** | | | | | | |
| water | 17.5 | 2.3 | | 92.258 | 12.3 | |
| **pShuttle-CMV-lacZ Control Vector** | | | | | | |
| water | 17.5 | 2.3 | | 92.258 | 12.3 | |
| **BJ5183 electroporation competent cells** | | | | | | |
| water | 17.5 | 2.3 | | 92.258 | 12.3 | |
| Glycerol | 0.000075 | 0.00001 | | 0.0025 | 0.00033 | |
| **XL10-Gold Ultracompetent cells** | | | | | | |
| water | 17.5 | 2.3 | | 92.258 | 12.3 | |
| Dimethyl sulfoxide | 0.42 | 0.056 | EU A.4 | | | |
| **XL10-Gold 2-Mercaptoethanol** | | | | | | |
| water | 17.5 | 2.3 | | 92.258 | 12.3 | |
| 2-Mercaptoethanol | 0.98 | 0.13 | | | | |
| **pUC 18 DNA Control Plasmid** | | | | | | |
| water | 17.5 | 2.3 | | 92.258 | 12.3 | |

# Section 9. Physical and chemical properties and safety characteristics

**Relative vapor density** :

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

**Relative density** :

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

**Solubility(ies)** :

| Media | Result |
|---|---|
| **pADEasy™ -1 Vector** | |
| water | Soluble |
| **pShuttle Vector** | |
| water | Soluble |
| **pShuttle-CMV Vector** | |
| water | Soluble |
| **pShuttle-CMV-lacZ Control Vector** | |
| water | Soluble |
| **BJ5183 electroporation competent cells** | |
| water | Soluble |
| **XL10-Gold Ultracompetent cells** | |
| water | Soluble |
| **XL10-Gold 2-Mercaptoethanol** | |
| water | Soluble |
| **pUC 18 DNA Control Plasmid** | |
| water | Soluble |

**Partition coefficient: n-octanol/water** :

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

**Auto-ignition temperature** :

# Section 9. Physical and chemical properties and safety characteristics

| Ingredient name | °C | °F | Method |
|---|---|---|---|
| **BJ5183 electroporation competent cells** | | | |
| Glycerol | 370 | 698 | |
| **XL10-Gold Ultracompetent cells** | | | |
| Dimethyl sulfoxide | 300 to 302 | 572 to 575.6 | |
| Glycerol | 370 | 698 | |
| **XL10-Gold 2-Mercaptoethanol** | | | |
| 2-Mercaptoethanol | 295 | 563 | |

**Decomposition temperature** :

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

**Viscosity** :

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

**Particle characteristics**

**Median particle size** :

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

# Section 10. Stability and reactivity

**10.1 Reactivity** :

| | |
|---|---|
| pADEasy™ -1 Vector | No specific test data related to reactivity available for this product or its ingredients. |
| pShuttle Vector | No specific test data related to reactivity available for this product or its ingredients. |
| pShuttle-CMV Vector | No specific test data related to reactivity available for this product or its ingredients. |
| pShuttle-CMV-lacZ Control Vector | No specific test data related to reactivity available for this product or its ingredients. |
| BJ5183 electroporation competent cells | No specific test data related to reactivity available for this product or its ingredients. |

# Section 10. Stability and reactivity

| | | |
|---|---|---|
| | XL10-Gold Ultracompetent cells | No specific test data related to reactivity available for this product or its ingredients. |
| | XL10-Gold 2-Mercaptoethanol | No specific test data related to reactivity available for this product or its ingredients. |
| | pUC 18 DNA Control Plasmid | No specific test data related to reactivity available for this product or its ingredients. |
| **10.2 Chemical stability** : | pADEasy™ -1 Vector | The product is stable. |
| | pShuttle Vector | The product is stable. |
| | pShuttle-CMV Vector | The product is stable. |
| | pShuttle-CMV-lacZ Control Vector | The product is stable. |
| | BJ5183 electroporation competent cells | The product is stable. |
| | XL10-Gold Ultracompetent cells | The product is stable. |
| | XL10-Gold 2-Mercaptoethanol | The product is stable. |
| | pUC 18 DNA Control Plasmid | The product is stable. |
| **10.3 Possibility of hazardous reactions** : | pADEasy™ -1 Vector | Under normal conditions of storage and use, hazardous reactions will not occur. |
| | pShuttle Vector | Under normal conditions of storage and use, hazardous reactions will not occur. |
| | pShuttle-CMV Vector | Under normal conditions of storage and use, hazardous reactions will not occur. |
| | pShuttle-CMV-lacZ Control Vector | Under normal conditions of storage and use, hazardous reactions will not occur. |
| | BJ5183 electroporation competent cells | Under normal conditions of storage and use, hazardous reactions will not occur. |
| | XL10-Gold Ultracompetent cells | Under normal conditions of storage and use, hazardous reactions will not occur. |
| | XL10-Gold 2-Mercaptoethanol | Under normal conditions of storage and use, hazardous reactions will not occur. |
| | pUC 18 DNA Control Plasmid | Under normal conditions of storage and use, hazardous reactions will not occur. |
| **10.4 Conditions to avoid** : | pADEasy™ -1 Vector | No specific data. |
| | pShuttle Vector | No specific data. |
| | pShuttle-CMV Vector | No specific data. |
| | pShuttle-CMV-lacZ Control Vector | No specific data. |
| | BJ5183 electroporation competent cells | No specific data. |
| | XL10-Gold Ultracompetent cells | No specific data. |
| | XL10-Gold 2-Mercaptoethanol | No specific data. |
| | pUC 18 DNA Control Plasmid | No specific data. |
| **10.5 Incompatible materials** : | pADEasy™ -1 Vector | May react or be incompatible with oxidizing materials. |
| | pShuttle Vector | May react or be incompatible with oxidizing materials. |
| | pShuttle-CMV Vector | May react or be incompatible with oxidizing materials. |
| | pShuttle-CMV-lacZ Control Vector | May react or be incompatible with oxidizing materials. |
| | BJ5183 electroporation competent cells | May react or be incompatible with oxidizing materials. |
| | XL10-Gold Ultracompetent cells | May react or be incompatible with oxidizing materials. |
| | XL10-Gold 2-Mercaptoethanol | May react or be incompatible with oxidizing materials. |

# Section 10. Stability and reactivity

| | | |
|---|---|---|
| | pUC 18 DNA Control Plasmid | May react or be incompatible with oxidizing materials. |
| **10.6 Hazardous decomposition products** : | pADEasy™ -1 Vector | Under normal conditions of storage and use, hazardous decomposition products should not be produced. |
| | pShuttle Vector | Under normal conditions of storage and use, hazardous decomposition products should not be produced. |
| | pShuttle-CMV Vector | Under normal conditions of storage and use, hazardous decomposition products should not be produced. |
| | pShuttle-CMV-lacZ Control Vector | Under normal conditions of storage and use, hazardous decomposition products should not be produced. |
| | BJ5183 electroporation competent cells | Under normal conditions of storage and use, hazardous decomposition products should not be produced. |
| | XL10-Gold Ultracompetent cells | Under normal conditions of storage and use, hazardous decomposition products should not be produced. |
| | XL10-Gold 2-Mercaptoethanol | Under normal conditions of storage and use, hazardous decomposition products should not be produced. |
| | pUC 18 DNA Control Plasmid | Under normal conditions of storage and use, hazardous decomposition products should not be produced. |

# Section 11. Toxicological information

## 11.1 Information on toxicological effects

### Acute toxicity

| Product/ingredient name | Result | Species | Dose | Exposure |
|---|---|---|---|---|
| **BJ5183 electroporation competent cells** | | | | |
| Glycerol | LD50 Oral | Rat | 12600 mg/kg | - |
| **XL10-Gold Ultracompetent cells** | | | | |
| Glycerol | LD50 Oral | Rat | 12600 mg/kg | - |
| Dimethyl sulfoxide | LD50 Dermal | Rat | 40000 mg/kg | - |
| | LD50 Oral | Rat | 14500 mg/kg | - |
| Potassium chloride | LD50 Oral | Rat | 2600 mg/kg | - |
| **XL10-Gold 2-Mercaptoethanol** | | | | |
| 2-Mercaptoethanol | LD50 Oral | Rat | 244 mg/kg | - |

### Irritation/Corrosion

| Product/ingredient name | Result | Species | Score | Exposure | Observation |
|---|---|---|---|---|---|
| **BJ5183 electroporation competent cells** | | | | | |
| Glycerol | Eyes - Mild irritant | Rabbit | - | 24 hours 500 mg | - |
| | Skin - Mild irritant | Rabbit | - | 24 hours 500 mg | - |
| **XL10-Gold Ultracompetent** | | | | | |

# Section 11. Toxicological information

| | | | | | |
|---|---|---|---|---|---|
| **cells** | | | | | |
| Glycerol | Eyes - Mild irritant | Rabbit | - | 24 hours 500 mg | - |
| | Skin - Mild irritant | Rabbit | - | 24 hours 500 mg | - |
| Dimethyl sulfoxide | Eyes - Mild irritant | Rabbit | - | 100 mg | - |
| | Eyes - Mild irritant | Rabbit | - | 24 hours 500 mg | - |
| | Skin - Mild irritant | Rabbit | - | 100 mg | - |
| | Skin - Mild irritant | Rabbit | - | 24 hours 500 mg | - |
| Potassium chloride | Eyes - Mild irritant | Rabbit | - | 24 hours 500 mg | - |
| **XL10-Gold** | | | | | |
| **2-Mercaptoethanol** | | | | | |
| 2-Mercaptoethanol | Eyes - Severe irritant | Rabbit | - | 2 mg | - |

**Sensitization**

Not available.

**Mutagenicity**

**Conclusion/Summary** : Not available.

**Carcinogenicity**

**Conclusion/Summary** : Not available.

**Reproductive toxicity**

**Conclusion/Summary** : Not available.

**Teratogenicity**

**Conclusion/Summary** : Not available.

**Specific target organ toxicity (single exposure)**

| Name | Category | Route of exposure | Target organs |
|---|---|---|---|
| **XL10-Gold 2-Mercaptoethanol** | | | |
| 2-Mercaptoethanol | Category 3 | - | Respiratory tract irritation |

**Specific target organ toxicity (repeated exposure)**

| Name | Category | Route of exposure | Target organs |
|---|---|---|---|
| **XL10-Gold 2-Mercaptoethanol** | | | |
| 2-Mercaptoethanol | Category 2 | oral | heart, liver |

**Aspiration hazard**

Not available.

**Information on the likely routes of exposure** :

| | |
|---|---|
| pADEasy™ -1 Vector | Not available. |
| pShuttle Vector | Not available. |
| pShuttle-CMV Vector | Not available. |
| pShuttle-CMV-lacZ Control Vector | Not available. |
| BJ5183 electroporation competent cells | Not available. |
| XL10-Gold Ultracompetent cells | Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes. |
| XL10-Gold 2-Mercaptoethanol | Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes. |
| pUC 18 DNA Control Plasmid | Not available. |

# Section 11. Toxicological information

## Potential acute health effects

| | | | |
|---|---|---|---|
| **Eye contact** | : | pADEasy™ -1 Vector | No known significant effects or critical hazards. |
| | | pShuttle Vector | No known significant effects or critical hazards. |
| | | pShuttle-CMV Vector | No known significant effects or critical hazards. |
| | | pShuttle-CMV-lacZ Control Vector | No known significant effects or critical hazards. |
| | | BJ5183 electroporation competent cells | No known significant effects or critical hazards. |
| | | XL10-Gold Ultracompetent cells | Causes eye irritation. |
| | | XL10-Gold 2-Mercaptoethanol | Causes serious eye damage. |
| | | pUC 18 DNA Control Plasmid | No known significant effects or critical hazards. |
| **Inhalation** | : | pADEasy™ -1 Vector | No known significant effects or critical hazards. |
| | | pShuttle Vector | No known significant effects or critical hazards. |
| | | pShuttle-CMV Vector | No known significant effects or critical hazards. |
| | | pShuttle-CMV-lacZ Control Vector | No known significant effects or critical hazards. |
| | | BJ5183 electroporation competent cells | No known significant effects or critical hazards. |
| | | XL10-Gold Ultracompetent cells | No known significant effects or critical hazards. |
| | | XL10-Gold 2-Mercaptoethanol | No known significant effects or critical hazards. |
| | | pUC 18 DNA Control Plasmid | No known significant effects or critical hazards. |
| **Skin contact** | : | pADEasy™ -1 Vector | No known significant effects or critical hazards. |
| | | pShuttle Vector | No known significant effects or critical hazards. |
| | | pShuttle-CMV Vector | No known significant effects or critical hazards. |
| | | pShuttle-CMV-lacZ Control Vector | No known significant effects or critical hazards. |
| | | BJ5183 electroporation competent cells | No known significant effects or critical hazards. |
| | | XL10-Gold Ultracompetent cells | No known significant effects or critical hazards. |
| | | XL10-Gold 2-Mercaptoethanol | May cause an allergic skin reaction. |
| | | pUC 18 DNA Control Plasmid | No known significant effects or critical hazards. |
| **Ingestion** | : | pADEasy™ -1 Vector | No known significant effects or critical hazards. |
| | | pShuttle Vector | No known significant effects or critical hazards. |
| | | pShuttle-CMV Vector | No known significant effects or critical hazards. |
| | | pShuttle-CMV-lacZ Control Vector | No known significant effects or critical hazards. |
| | | BJ5183 electroporation competent cells | No known significant effects or critical hazards. |
| | | XL10-Gold Ultracompetent cells | No known significant effects or critical hazards. |
| | | XL10-Gold 2-Mercaptoethanol | No known significant effects or critical hazards. |
| | | pUC 18 DNA Control Plasmid | No known significant effects or critical hazards. |

## Symptoms related to the physical, chemical and toxicological characteristics

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

# Section 11. Toxicological information

| | | | |
|---|---|---|---|
| **Inhalation** | : | pADEasy™ -1 Vector | No specific data. |
| | | pShuttle Vector | No specific data. |
| | | pShuttle-CMV Vector | No specific data. |
| | | pShuttle-CMV-lacZ Control Vector | No specific data. |
| | | BJ5183 electroporation competent cells | No specific data. |
| | | XL10-Gold Ultracompetent cells | No specific data. |
| | | XL10-Gold 2-Mercaptoethanol | Adverse symptoms may include the following:<br>reduced fetal weight<br>increase in fetal deaths<br>skeletal malformations |
| | | pUC 18 DNA Control Plasmid | No specific data. |
| **Skin contact** | : | pADEasy™ -1 Vector | No specific data. |
| | | pShuttle Vector | No specific data. |
| | | pShuttle-CMV Vector | No specific data. |
| | | pShuttle-CMV-lacZ Control Vector | No specific data. |
| | | BJ5183 electroporation competent cells | No specific data. |
| | | XL10-Gold Ultracompetent cells | No specific data. |
| | | XL10-Gold 2-Mercaptoethanol | Adverse symptoms may include the following:<br>pain or irritation<br>redness<br>blistering may occur<br>reduced fetal weight<br>increase in fetal deaths<br>skeletal malformations |
| | | pUC 18 DNA Control Plasmid | No specific data. |
| **Ingestion** | : | pADEasy™ -1 Vector | No specific data. |
| | | pShuttle Vector | No specific data. |
| | | pShuttle-CMV Vector | No specific data. |
| | | pShuttle-CMV-lacZ Control Vector | No specific data. |
| | | BJ5183 electroporation competent cells | No specific data. |
| | | XL10-Gold Ultracompetent cells | No specific data. |
| | | XL10-Gold 2-Mercaptoethanol | Adverse symptoms may include the following:<br>stomach pains<br>reduced fetal weight<br>increase in fetal deaths<br>skeletal malformations |
| | | pUC 18 DNA Control Plasmid | No specific data. |

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

### Short term exposure

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

### Long term exposure

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

### Potential chronic health effects

# Section 11. Toxicological information

| | | | |
|---|---|---|---|
| **General** | : | pADEasy™ -1 Vector | No known significant effects or critical hazards. |
| | | pShuttle Vector | No known significant effects or critical hazards. |
| | | pShuttle-CMV Vector | No known significant effects or critical hazards. |
| | | pShuttle-CMV-lacZ Control Vector | No known significant effects or critical hazards. |
| | | BJ5183 electroporation competent cells | No known significant effects or critical hazards. |
| | | XL10-Gold Ultracompetent cells | No known significant effects or critical hazards. |
| | | XL10-Gold 2-Mercaptoethanol | May cause damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels. |
| | | pUC 18 DNA Control Plasmid | No known significant effects or critical hazards. |
| **Carcinogenicity** | : | pADEasy™ -1 Vector | No known significant effects or critical hazards. |
| | | pShuttle Vector | No known significant effects or critical hazards. |
| | | pShuttle-CMV Vector | No known significant effects or critical hazards. |
| | | pShuttle-CMV-lacZ Control Vector | No known significant effects or critical hazards. |
| | | BJ5183 electroporation competent cells | No known significant effects or critical hazards. |
| | | XL10-Gold Ultracompetent cells | No known significant effects or critical hazards. |
| | | XL10-Gold 2-Mercaptoethanol | No known significant effects or critical hazards. |
| | | pUC 18 DNA Control Plasmid | No known significant effects or critical hazards. |
| **Mutagenicity** | : | pADEasy™ -1 Vector | No known significant effects or critical hazards. |
| | | pShuttle Vector | No known significant effects or critical hazards. |
| | | pShuttle-CMV Vector | No known significant effects or critical hazards. |
| | | pShuttle-CMV-lacZ Control Vector | No known significant effects or critical hazards. |
| | | BJ5183 electroporation competent cells | No known significant effects or critical hazards. |
| | | XL10-Gold Ultracompetent cells | No known significant effects or critical hazards. |
| | | XL10-Gold 2-Mercaptoethanol | No known significant effects or critical hazards. |
| | | pUC 18 DNA Control Plasmid | No known significant effects or critical hazards. |
| **Reproductive toxicity** | : | pADEasy™ -1 Vector | No known significant effects or critical hazards. |
| | | pShuttle Vector | No known significant effects or critical hazards. |
| | | pShuttle-CMV Vector | No known significant effects or critical hazards. |
| | | pShuttle-CMV-lacZ Control Vector | No known significant effects or critical hazards. |
| | | BJ5183 electroporation competent cells | No known significant effects or critical hazards. |
| | | XL10-Gold Ultracompetent cells | No known significant effects or critical hazards. |
| | | XL10-Gold 2-Mercaptoethanol | Suspected of damaging fertility or the unborn child. |
| | | pUC 18 DNA Control Plasmid | No known significant effects or critical hazards. |

## Numerical measures of toxicity

### Acute toxicity estimates

| Product/ingredient name | Oral (mg/kg) | Dermal (mg/kg) | Inhalation (gases) (ppm) | Inhalation (vapors) (mg/l) | Inhalation (dusts and mists) (mg/l) |
|---|---|---|---|---|---|
| **BJ5183 electroporation competent cells** | | | | | |
| Glycerol | 12600 | N/A | N/A | N/A | N/A |
| **XL10-Gold Ultracompetent cells** | | | | | |
| XL10-Gold Ultracompetent cells | 136842.1 | N/A | N/A | N/A | N/A |
| Glycerol | 12600 | N/A | N/A | N/A | N/A |
| Dimethyl sulfoxide | 14500 | 40000 | N/A | N/A | N/A |
| Potassium chloride | 2600 | N/A | N/A | N/A | N/A |
| **XL10-Gold 2-Mercaptoethanol** | | | | | |
| XL10-Gold 2-Mercaptoethanol | 4615.5 | 4545.5 | N/A | 60.7 | N/A |

# Section 11. Toxicological information

| | | | | | |
|---|---|---|---|---|---|
| 2-Mercaptoethanol | 244 | 200 | N/A | 3 | N/A |

# Section 12. Ecological information

## 12.1 Toxicity

| Product/ingredient name | Result | Species | Exposure |
|---|---|---|---|
| **BJ5183 electroporation competent cells** | | | |
| Glycerol | Acute LC50 54000 mg/l Fresh water | Fish - Oncorhynchus mykiss | 96 hours |
| **XL10-Gold Ultracompetent cells** | | | |
| Glycerol | Acute LC50 54000 mg/l Fresh water | Fish - Oncorhynchus mykiss | 96 hours |
| 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 ul/L Marine water | Algae - Ulva lactuca | 72 hours |
| | Chronic NOEC 100 ul/L Fresh water | Daphnia - Daphnia magna - Juvenile (Fledgling, Hatchling, Weanling) | 21 days |
| Potassium chloride | Acute EC50 9.24 g/L Fresh water | Algae - Desmodesmus subspicatus | 72 hours |
| | Acute EC50 1337000 µg/l Fresh water | Algae - Navicula seminulum | 96 hours |
| | Acute LC50 9.68 mg/l Fresh water | Crustaceans - Pseudosida ramosa - Neonate | 48 hours |
| | Acute LC50 93000 µg/l Fresh water | Daphnia - Daphnia magna | 48 hours |
| | Acute LC50 509.65 mg/l Fresh water | Fish - Danio rerio | 96 hours |

## 12.2 Persistence and degradability

| Product/ingredient name | Test | Result | Dose | Inoculum |
|---|---|---|---|---|
| **BJ5183 electroporation competent cells** | | | | |
| Glycerol | 301D Ready Biodegradability - Closed Bottle Test | 93 % - 30 days | - | - |
| **XL10-Gold Ultracompetent cells** | | | | |
| Glycerol | 301D Ready Biodegradability - Closed Bottle Test | 93 % - 30 days | - | - |
| Dimethyl sulfoxide | OECD 301D Ready Biodegradability - Closed Bottle Test | 31 % - Not readily - 28 days | - | - |
| **XL10-Gold 2-Mercaptoethanol** | | | | |
| 2-Mercaptoethanol | OECD 310 Ready Biodegradability - | 69 % - Not readily - 60 days | 20 mg/l | - |

# Section 12. Ecological information

| | | | | |
|---|---|---|---|---|
| | $CO_2$ in Sealed Vessels (Headspace Test) | | | |

| Product/ingredient name | Aquatic half-life | Photolysis | Biodegradability |
|---|---|---|---|
| **XL10-Gold Ultracompetent cells** | | | |
| Dimethyl sulfoxide | - | - | Not readily |
| Potassium chloride | - | - | Readily |
| **XL10-Gold 2-Mercaptoethanol** | | | |
| 2-Mercaptoethanol | - | - | Not readily |

## 12.3 Bioaccumulative potential

| Product/ingredient name | $LogP_{ow}$ | BCF | Potential |
|---|---|---|---|
| **BJ5183 electroporation competent cells** | | | |
| Glycerol | -1.76 | - | low |
| **XL10-Gold Ultracompetent cells** | | | |
| Glycerol | -1.76 | - | low |
| Dimethyl sulfoxide | -1.35 | 3.16 | low |
| Potassium chloride | -0.46 | - | low |
| **XL10-Gold 2-Mercaptoethanol** | | | |
| 2-Mercaptoethanol | -0.056 | - | low |

## 12.4 Mobility in soil

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

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

# Section 13. Disposal considerations

## 13.1 Waste treatment methods

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

# Section 13. Disposal considerations

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

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

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

# Section 14. Transport information

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

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

**Transport in bulk according to IMO instruments** : Not available.

# Section 15. Regulatory information

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

**U.S. Federal regulations** : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

**Clean Water Act (CWA) 311**: Edetic acid

**Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)** : Listed

**Clean Air Act Section 602 Class I Substances** : Not listed

**Clean Air Act Section 602 Class II Substances** : Not listed

**DEA List I Chemicals (Precursor Chemicals)** : Not listed

**DEA List II Chemicals (Essential Chemicals)** : Not listed

**SARA 302/304**

**Composition/information on ingredients**

No products were found.

**SARA 304 RQ** : Not applicable.

**SARA 311/312**

**Classification** :

| | |
|---|---|
| pADEasy-1 Vector | Not applicable. |
| pShuttle Vector | Not applicable. |
| pShuttle-CMV Vector | Not applicable. |
| pShuttle-CMV-lacZ Control Vector | Not applicable. |
| BJ5183 electroporation competent cells | Not applicable. |
| XL10-Gold Ultracompetent cells | EYE IRRITATION - Category 2B |
| XL10-Gold 2-Mercaptoethanol | SERIOUS EYE DAMAGE - Category 1 |
| | SKIN SENSITIZATION - Category 1 |
| | TOXIC TO REPRODUCTION - Category 2 |
| | SPECIFIC TARGET ORGAN TOXICITY (REPEATED |

# Section 15. Regulatory information

| | | |
|---|---|---|
| | | EXPOSURE) - Category 2 |
| | pUC 18 DNA Control Plasmid | Not applicable. |

## Composition/information on ingredients

| Name | % | Classification |
|---|---|---|
| **BJ5183 electroporation competent cells** | | |
| Glycerol | <10 | EYE IRRITATION - Category 2B |
| **XL10-Gold Ultracompetent cells** | | |
| Glycerol | ≥10 - ≤25 | EYE IRRITATION - Category 2B |
| Dimethyl sulfoxide | ≤10 | FLAMMABLE LIQUIDS - Category 4<br>EYE IRRITATION - Category 2B |
| Sucrose | ≤10 | COMBUSTIBLE DUSTS |
| Potassium chloride | ≤3 | EYE IRRITATION - Category 2B |
| **XL10-Gold 2-Mercaptoethanol** | | |
| 2-Mercaptoethanol | ≤5 | FLAMMABLE LIQUIDS - Category 4<br>ACUTE TOXICITY (oral) - Category 3<br>ACUTE TOXICITY (dermal) - Category 2<br>ACUTE TOXICITY (inhalation) - Category 3<br>SKIN IRRITATION - Category 2<br>SERIOUS EYE DAMAGE - Category 1<br>SKIN SENSITIZATION - Category 1A<br>TOXIC TO REPRODUCTION - Category 2<br>SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3<br>SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 |

## State regulations

**Massachusetts** : The following components are listed: GLYCERINE MIST

**New York** : None of the components are listed.

**New Jersey** : The following components are listed: GLYCERIN; DIMETHYL SULFOXIDE; METHANE, SULFINYLBIS-

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

## California Prop. 65

This product does not require a Safe Harbor warning under California Prop. 65.

## International regulations

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

Not listed.

### Montreal Protocol

Not listed.

### Stockholm Convention on Persistent Organic Pollutants

Not listed.

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

Not listed.

### UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

## Inventory list

**Australia** : Not determined.

**Canada** : Not determined.

**China** : Not determined.

# Section 15. Regulatory information

**Eurasian Economic Union** : **Russian Federation inventory**: Not determined.

**Japan** : **Japan inventory (CSCL)**: Not determined.
**Japan inventory (ISHL)**: All components are listed or exempted.

**New Zealand** : Not determined.

**Philippines** : Not determined.

**Republic of Korea** : Not determined.

**Taiwan** : All components are listed or exempted.

**Thailand** : Not determined.

**Turkey** : Not determined.

**United States** : All components are active or exempted.

**Viet Nam** : Not determined.

# Section 16. Other information

**Procedure used to derive the classification**

| Classification | Justification |
|---|---|
| **XL10-Gold Ultracompetent cells** | |
| EYE IRRITATION - Category 2B | Calculation method |
| **XL10-Gold 2-Mercaptoethanol** | |
| SERIOUS EYE DAMAGE - Category 1 | Calculation method |
| SKIN SENSITIZATION - Category 1 | Calculation method |
| TOXIC TO REPRODUCTION - Category 2 | Calculation method |
| SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 | Calculation method |
| AQUATIC HAZARD (LONG-TERM) - Category 3 | Calculation method |

**History**

**Date of issue** : 06/12/2023

**Date of previous issue** : 12/03/2020

**Version** : 8

**Key to abbreviations** : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
N/A = Not available
UN = United Nations

**Indicates information that has changed from previously issued version.**

**Notice to reader**

**Disclaimer: The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.**