1 Identification

· Product identifier
  · Trade name: Polysorbate 20
  · Article number: 400035
  · CAS Number: 9005-64-5
  · NLP Number: 500-018-3

· Application of the substance / the mixture
  This product is for research use - Not for human or veterinary diagnostic or therapeutic use.

· Details of the supplier of the safety data sheet
  · Manufacturer/Supplier: Cayman Chemical Co.
    1180 E. Ellsworth Rd.
    Ann Arbor, MI 48108
    USA
  · Information department: Product safety department
  · Emergency telephone number:
    During normal opening times: +1 (734) 971-3335
    US/CANADA: 800-424-9300
    Outside US/CANADA: 703-741-5970

2 Hazard(s) identification

· Classification of the substance or mixture
  The substance is not classified, according to the Globally Harmonized System (GHS).

· Label elements
  · GHS label elements None
  · Hazard pictograms None
  · Signal word None
  · Hazard statements None

· Classification system:
  · NFPA ratings (scale 0 - 4)
  
  Health = 0
  Fire = 1
  Reactivity = 0

(Contd. on page 2)
Trade name: Polysorbate 20

- HMIS-ratings (scale 0 - 4)
  - Health = 0
  - Fire = 1
  - Reactivity = 0

- Other hazards
- Results of PBT and vPvB assessment
  - PBT: Not applicable.
  - vPvB: Not applicable.

### 3 Composition/information on ingredients

- Chemical characterization: Substances
- CAS No. Description
  - 9005-64-5 Polysorbate 20
- Identification number(s)
  - NLP Number: 500-018-3

### 4 First-aid measures

- Description of first aid measures
  - General information: No special measures required.
  - After inhalation: Supply fresh air; consult doctor in case of complaints.
  - After skin contact: Generally the product does not irritate the skin.
  - After eye contact: Rinse opened eye for several minutes under running water.
  - After swallowing: If symptoms persist consult doctor.
- Information for doctor:
  - Most important symptoms and effects, both acute and delayed
    May cause anemia, cough, CNS depression, drowsiness, headache, heart damage, lassitude (weakness, exhaustion), liver damage, narcosis, reproductive effects, teratogenic effects.
  - No further relevant information available.
- Indication of any immediate medical attention and special treatment needed
  - No further relevant information available.

### 5 Fire-fighting measures

- Extinguishing media
- Suitable extinguishing agents:
  - Use fire fighting measures that suit the environment.
  - A solid water stream may be inefficient.
- Special hazards arising from the substance or mixture
  - No further relevant information available.
- Advice for firefighters
  - Protective equipment: No special measures required.

### 6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures
  - Not required.
- Environmental precautions:
  - Do not allow to enter sewers/surface or ground water.
- Methods and material for containment and cleaning up:
  - Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Trade name: Polysorbate 20

· Reference to other sections
  See Section 7 for information on safe handling.
  See Section 8 for information on personal protection equipment.
  See Section 13 for disposal information.
· Protective Action Criteria for Chemicals
  · PAC-1: Substance is not listed.
  · PAC-2: Substance is not listed.
  · PAC-3: Substance is not listed.

* 7 Handling and storage

· Handling:
  · Precautions for safe handling: No special measures required.
  · Information about protection against explosions and fires: No special measures required.
· Conditions for safe storage, including any incompatibilities
  · Storage:
    · Requirements to be met by storerooms and receptacles: No special requirements.
    · Information about storage in one common storage facility: Not required.
    · Further information about storage conditions: None.
  · Specific end use(s) No further relevant information available.

* 8 Exposure controls/personal protection

· Additional information about design of technical systems: No further data; see item 7.
· Control parameters
  · Components with limit values that require monitoring at the workplace: Not required.
  · Additional information: The lists that were valid during the creation were used as basis.
· Exposure controls
  · Personal protective equipment:
    · General protective and hygienic measures: The usual precautionary measures for handling chemicals should be followed.
    · Breathing equipment: Not required.
    · Protection of hands: The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
    · Material of gloves: The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
    · Penetration time of glove material: The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
  · Eye protection: Goggles recommended during refilling.
3.1.21

9 Physical and chemical properties

- Information on basic physical and chemical properties
  - General Information
    - Appearance:
      - Form: Liquid
      - Color: Not determined
    - Odor:
      - Odor: Characteristic
      - Odor threshold: Not determined
    - pH-value: Not determined
  - Change in condition
    - Melting point/Melting range: Undetermined
    - Boiling point/Boiling range: Undetermined
  - Flash point: 275 °C (527 °F)
  - Flammability (solid, gaseous): Not applicable
  - Decomposition temperature:
    - Not determined
  - Auto igniting:
    - Not determined
  - Danger of explosion:
    - Product does not present an explosion hazard
  - Explosion limits:
    - Lower: Not determined
    - Upper: Not determined
  - Vapor pressure:
    - Not determined
  - Density:
    - Not determined
  - Relative density:
    - Not determined
  - Vapor density:
    - Not determined
  - Vaporization rate:
    - Not determined
  - Solubility in / Miscibility with
    - Water: Not determined
  - Partition coefficient (n-octanol/water):
    - Not determined
  - Viscosity:
    - Dynamic: Not determined
    - Kinematic: Not determined
  - Other information:
    - No further relevant information available

10 Stability and reactivity

- Reactivity:
  - No further relevant information available
- Chemical stability
  - Thermal decomposition / conditions to be avoided:
    - No decomposition if used according to specifications
  - Possibility of hazardous reactions:
    - No dangerous reactions known
  - Conditions to avoid:
    - No further relevant information available
  - Incompatible materials:
    - Strong oxidizing agents
11 Toxicological information

- **Hazardous decomposition products:** carbon oxides

<table>
<thead>
<tr>
<th>Method</th>
<th>LD50</th>
<th>LC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>&gt;33 g/kg (mouse)</td>
<td></td>
</tr>
<tr>
<td>Intraperitoneal LD50</td>
<td>3,850 mg/kg (rat)</td>
<td>3,850 mg/kg (rat)</td>
</tr>
<tr>
<td>Intraperitoneal LD50</td>
<td>3,850 mg/kg (rat)</td>
<td></td>
</tr>
</tbody>
</table>

- **Primary irritant effect:**
  - on the skin: No irritant effect.
  - on the eye: No irritating effect.

- **Sensitization:** No sensitizing effects known.

- **Additional toxicological information:**
  When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us. The substance is not subject to classification.

- **Carcinogenic categories**
  - IARC (International Agency for Research on Cancer) Substance is not listed.
  - NTP (National Toxicology Program) Substance is not listed.
  - OSHA-Ca (Occupational Safety & Health Administration) Substance is not listed.

12 Ecological information

- **Toxicity**
  - Aquatic toxicity: No further relevant information available.
  - Persistence and degradability: No further relevant information available.
  - Behavior in environmental systems:
    - Bioaccumulative potential: No further relevant information available.
    - Mobility in soil: No further relevant information available.

- **Additional ecological information:**
  - Water hazard class 1 (Assessment by list): slightly hazardous for water
  - Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

- **Results of PBT and vPvB assessment**
  - PBT: Not applicable.
  - vPvB: Not applicable.

- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:** Smaller quantities can be disposed of with household waste.
Trade name: Polysorbate 20

14 Transport information

- UN-Number
  - DOT, IMDG, IATA: not regulated
- UN proper shipping name
  - DOT, IMDG, IATA: not regulated
- Transport hazard class(es)
  - DOT, ADN, IMDG, IATA: not regulated
- Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable.
- UN "Model Regulation": not regulated

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
  - No further relevant information available.
- Section 355 (extremely hazardous substances): Substance is not listed.
- Section 313 (Specific toxic chemical listings): Substance is not listed.
- TSCA (Toxic Substances Control Act): ACTIVE
- Hazardous Air Pollutants Substance is not listed.
- Proposition 65
- Chemicals known to cause cancer: Substance is not listed.
- Chemicals known to cause reproductive toxicity for females: Substance is not listed.
- Chemicals known to cause reproductive toxicity for males: Substance is not listed.
- Chemicals known to cause developmental toxicity: Substance is not listed.
- Carcinogenic categories
- EPA (Environmental Protection Agency) Substance is not listed.
- TLV (Threshold Limit Value) Substance is not listed.
- NIOSH-Ca (National Institute for Occupational Safety and Health) Substance is not listed.
- Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

All chemicals may pose unknown hazards and should be used with caution. This SDS applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. Cayman Chemical Company assumes no responsibility for incidental or consequential damages, including lost profits, arising from the use of this material.
these data. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Cayman Chemical Company assumes no responsibility for the completeness or accuracy of the information contained herein.

- **Department issuing SDS**: Environment protection department.
- **Contact**: 
- **Date of preparation / last revision**: 01/14/2022 / -
- **Abbreviations and acronyms**:
  - IMDG: International Maritime Code for Dangerous Goods
  - DOT: US Department of Transportation
  - IATA: International Air Transport Association
  - EINECS: European Inventory of Existing Commercial Chemical Substances
  - CAS: Chemical Abstracts Service (division of the American Chemical Society)
  - NFPA: National Fire Protection Association (USA)
  - HMIS: Hazardous Materials Identification System (USA)
  - LC50: Lethal concentration, 50 percent
  - LD50: Lethal dose, 50 percent
  - PBT: Persistent, Bioaccumulative and Toxic
  - vPvB: very Persistent and very Bioaccumulative
  - NIOSH: National Institute for Occupational Safety
  - OSHA: Occupational Safety & Health
  - TLV: Threshold Limit Value
  - PEL: Permissible Exposure Limit
  - REL: Recommended Exposure Limit
- **Data compared to the previous version altered.**
Safety Data Sheet
acc. to OSHA HCS

1 Identification

· Product identifier
  · Trade name: Ellmans Reagent
  · Article number: 400050
· Application of the substance / the mixture
  This product is for research use - Not for human or veterinary diagnostic or therapeutic use.
· Details of the supplier of the safety data sheet
  · Manufacturer/Supplier: Cayman Chemical Co.
    1180 E. Ellsworth Rd.
    Ann Arbor, MI 48108
    USA
  · Information department: Product safety department
  · Emergency telephone number:
    During normal opening times: +1 (734) 971-3335
    US/CANADA: 800-424-9300
    Outside US/CANADA: 703-741-5970

2 Hazard(s) identification

· Classification of the substance or mixture
  GHS06 Skull and crossbones
  Acute Tox. 3 H301 Toxic if swallowed.
  Acute Tox. 3 H311 Toxic in contact with skin.

GHS08 Health hazard
  STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.

GHS05 Corrosion
  Eye Dam. 1 H318 Causes serious eye damage.

GHS07

(Contd. on page 2)
Trade name: Ellmans Reagent

Skin Irrit. 2  H315 Causes skin irritation.
STOT SE 3  H335 May cause respiratory irritation.

· Label elements
· GHS label elements
  The product is classified and labeled according to the Globally Harmonized System (GHS).
· Hazard pictograms

GHS05  GHS06  GHS07  GHS08

· Signal word Danger
· Hazard-determining components of labeling:
  Potassium phosphate dibasic
  Acetylthiocholine (iodide)
  Sodium chloride
  Potassium phosphate, Monobasic
· Hazard statements
  H301+H311 Toxic if swallowed or in contact with skin.
  H315  Causes skin irritation.
  H318  Causes serious eye damage.
  H335  May cause respiratory irritation.
  H373  May cause damage to organs through prolonged or repeated exposure.
· Precautionary statements
  P260  Do not breathe dust/fume/gas/mist/vapors/spray.
  P264  Wash thoroughly after handling.
  P270  Do not eat, drink or smoke when using this product.
  P271  Use only outdoors or in a well-ventilated area.
  P280  Wear protective gloves/protective clothing/eye protection/face protection.
  P301+P310  If swallowed: Immediately call a poison center/doctor.
  P321  Specific treatment (see on this label).
  P332+P313  If skin irritation occurs: Get medical advice/attention.
  P361+P364  Take off immediately all contaminated clothing and wash it before reuse.
  P330  Rinse mouth.
  P302+P352  If on skin: Wash with plenty of water.
  P304+P340  IF INHALED: Remove person to fresh air and keep comfortable for breathing.
  P305+P351+P338  If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  P312  Call a poison center/doctor if you feel unwell.
  P314  Get medical advice/attention if you feel unwell.
  P361+P364  Take off immediately all contaminated clothing and wash it before reuse.
  P332+P313  If skin irritation occurs: Get medical advice/attention.
  P403+P233  Store in a well-ventilated place. Keep container tightly closed.
  P405  Store locked up.
  P501  Dispose of contents/container in accordance with local/regional/national/international regulations.
· Classification system:
· NFPA ratings (scale 0 - 4)
  Health = 3
  Fire = 0
  Reactivity = 0
Trade name: Ellmans Reagent

- **HMIS-ratings (scale 0 - 4)**
  - **HEALTH**: Health = *3
  - **FIRE**: Fire = 0
  - **REACTIVITY**: Reactivity = 0

- **Other hazards**
  - **Results of PBT and vPvB assessment**
    - **PBT**: Not applicable.
    - **vPvB**: Not applicable.

### 3 Composition/information on ingredients

- **Chemical characterization**: Mixtures
- **Description**: Mixture of the substances listed below with nonhazardous additions.

#### Dangerous components:

<table>
<thead>
<tr>
<th>CAS</th>
<th>RTECS</th>
<th>Chemical Structure</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>7758-11-4</td>
<td>TC55800000</td>
<td>Potassium phosphate dibasic</td>
<td>45.2%</td>
</tr>
<tr>
<td>7647-14-5</td>
<td>VZ47250000</td>
<td>Sodium chloride</td>
<td>29.7%</td>
</tr>
<tr>
<td>7778-77-0</td>
<td>TC66155000</td>
<td>Potassium phosphate, Monobasic</td>
<td>10.9%</td>
</tr>
<tr>
<td>1866-15-5</td>
<td>FZ98650000</td>
<td>Acetylthiocholine (iodide)</td>
<td>7.4%</td>
</tr>
<tr>
<td>69-78-3</td>
<td>DG96500000</td>
<td>DTNB</td>
<td>6.8%</td>
</tr>
</tbody>
</table>

### 4 First-aid measures

- **Description of first aid measures**
  - **General information**: Immediately remove any clothing soiled by the product.
  - Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
  - In case of irregular breathing or respiratory arrest provide artificial respiration.
  - **After inhalation**: In case of unconsciousness place patient stably in side position for transportation.
  - **After skin contact**: Immediately wash with water and soap and rinse thoroughly.
  - **After eye contact**: Rinse opened eye for several minutes under running water. Then consult a doctor.
  - **After swallowing**: Do not induce vomiting; immediately call for medical help.
  - **Information for doctor**: Most important symptoms and effects, both acute and delayed
    - May cause anemia, cough, CNS depression, drowsiness, headache, heart damage, lassitude (weakness, exhaustion), liver damage, narcosis, reproductive effects, teratogenic effects.
    - No further relevant information available.
  - **Indication of any immediate medical attention and special treatment needed**
    - No further relevant information available.
5 Fire-fighting measures

- Extinguishing media
- Suitable extinguishing agents:
  Use fire fighting measures that suit the environment.
  A solid water stream may be inefficient.
- Special hazards arising from the substance or mixture
  67-56-1 During heating or in case of fire poisonous gases are produced.
- Advice for firefighters
  - Protective equipment: Mouth respiratory protective device.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures
  - Mount respiratory protective device.
  - Wear protective equipment. Keep unprotected persons away.
- Environmental precautions: Do not allow to enter sewers/ surface or ground water.
- Methods and material for containment and cleaning up:
  - Use neutralizing agent.
  - Dispose contaminated material as waste according to item 13.
  - Ensure adequate ventilation.
- Reference to other sections
  - See Section 7 for information on safe handling.
  - See Section 8 for information on personal protection equipment.
  - See Section 13 for disposal information.
- Protective Action Criteria for Chemicals
  - PAC-1:
    - 7758-11-4 Potassium phosphate dibasic 13 mg/m³
    - 7778-77-0 Potassium phosphate, Monobasic 9.6 mg/m³
  - PAC-2:
    - 7758-11-4 Potassium phosphate dibasic 140 mg/m³
    - 7778-77-0 Potassium phosphate, Monobasic 110 mg/m³
  - PAC-3:
    - 7758-11-4 Potassium phosphate dibasic 830 mg/m³
    - 7778-77-0 Potassium phosphate, Monobasic 630 mg/m³

7 Handling and storage

- Handling:
  - Precautions for safe handling
    - Thorough dedusting.
    - Ensure good ventilation/exhaustion at the workplace.
  - Information about protection against explosions and fires:
    - Keep respiratory protective device available.
- Conditions for safe storage, including any incompatibilities
- Storage:
  - Requirements to be met by storerooms and receptacles: No special requirements.
  - Information about storage in one common storage facility: Not required.
  - Further information about storage conditions: Keep receptacle tightly sealed.
8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see item 7.

- Control parameters
- Components with limit values that require monitoring at the workplace:
  The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- Additional information: The lists that were valid during the creation were used as basis.

- Exposure controls
- Personal protective equipment:
- General protective and hygienic measures:
  Keep away from foodstuffs, beverages and feed.
  Immediately remove all soiled and contaminated clothing.
  Wash hands before breaks and at the end of work.
  Store protective clothing separately.
  Avoid contact with the skin.
  Avoid contact with the eyes and skin.

- Breathing equipment:
  In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

- Protection of hands:
  Protective gloves
  The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
  Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
  Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- Material of gloves
  The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

- Penetration time of glove material
  The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

- Eye protection:
  Tightly sealed goggles
9 Physical and chemical properties

| · Information on basic physical and chemical properties |
| · General Information |
| · Appearance: |
| · Form: Solid |
| · Color: Yellow |
| · Odor: Characteristic |
| · Odor threshold: Not determined |
| · Formulation: A lyophilized powder |
| · pH-value: Not applicable |
| · Change in condition |
| · Melting point/Melting range: Undetermined |
| · Boiling point/Boiling range: Undetermined |
| · Flash point: Not applicable |
| · Flammability (solid, gaseous): Not determined |
| · Decomposition temperature: Not determined |
| · Auto igniting: Product is not selfigniting |
| · Danger of explosion: Product does not present an explosion hazard |
| · Explosion limits: |
| · Lower: Not determined |
| · Upper: Not determined |
| · Vapor pressure: Not applicable |
| · Density: Not determined |
| · Relative density: Not determined |
| · Vapor density: Not applicable |
| · Evaporation rate: Not applicable |
| · Solubility in / Miscibility with |
| · Water: Soluble |
| · Partition coefficient (n-octanol/water): Not determined |
| · Viscosity: |
| · Dynamic: Not applicable |
| · Kinematic: Not applicable |
| · Solvent content: VOC content: 0.00 % |
| · Solids content: 100.0 % |
| · Other information: No further relevant information available |

10 Stability and reactivity

| · Reactivity: No further relevant information available |
| · Chemical stability |
| · Thermal decomposition / conditions to be avoided: |
| No decomposition if used according to specifications |


<table>
<thead>
<tr>
<th>11 Toxicological information</th>
</tr>
</thead>
<tbody>
<tr>
<td>· Information on toxicological effects</td>
</tr>
<tr>
<td>· Acute toxicity:</td>
</tr>
<tr>
<td>· LD/LC50 values that are relevant for classification:</td>
</tr>
</tbody>
</table>

**ATE (Acute Toxicity Estimate)**

<table>
<thead>
<tr>
<th>Oral</th>
<th>LD50</th>
<th>608 mg/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermal</td>
<td>LD50</td>
<td>4,054 mg/kg</td>
</tr>
</tbody>
</table>

**7647-14-5 Sodium chloride**

<table>
<thead>
<tr>
<th>Oral</th>
<th>LDLO</th>
<th>1,000 mg/kg (man)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDLO</td>
<td>650 ml/kg (man)</td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>4,000 mg/kg (mouse)</td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>3,000 mg/kg (rat)</td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>4 g/kg (mouse)</td>
<td></td>
</tr>
</tbody>
</table>

**Inhalative**

<table>
<thead>
<tr>
<th>LC50</th>
<th>320 mg/m³ (mouse)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCLO</td>
<td>0.63 mg/m³ (hmn)</td>
</tr>
<tr>
<td>LCLO</td>
<td>29,300 mg/m³/7h (mouse)</td>
</tr>
</tbody>
</table>

**Irritation of skin**

<table>
<thead>
<tr>
<th>Irritation</th>
<th>500 mg/24h (rabbit)</th>
</tr>
</thead>
</table>

**Irritation of eyes**

<table>
<thead>
<tr>
<th>Irritation</th>
<th>100 mg/24h (rabbit)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Intraperitoneal LD50</th>
<th>2,602 mg/kg (mouse)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subcutaneous LD50</td>
<td>31.6 mg/kg (rat)</td>
</tr>
<tr>
<td>Intravenous LD50</td>
<td>59.5 mg/kg (rat)</td>
</tr>
<tr>
<td>Data</td>
<td>15 mg/3D (hmn)</td>
</tr>
<tr>
<td>Subcutaneous LD50</td>
<td>3 g/kg (mouse)</td>
</tr>
</tbody>
</table>

**7778-77-0 Potassium phosphate, Monobasic**

<table>
<thead>
<tr>
<th>Oral</th>
<th>LDLO</th>
<th>4,640 mg/kg (rat)</th>
</tr>
</thead>
</table>

**1866-15-5 Acetylthiocholine (iodide)**

<table>
<thead>
<tr>
<th>Oral</th>
<th>LD50</th>
<th>100 mg/kg (rat)</th>
</tr>
</thead>
</table>

**69-78-3 DTNB**

<table>
<thead>
<tr>
<th>Intraperitoneal LD50</th>
<th>2,080 mg/kg (mouse)</th>
</tr>
</thead>
</table>

**Primary irritant effect:**

- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Strong irritant with the danger of severe eye injury.
- **Sensitization:** No sensitizing effects known.

**Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

- **Toxic**
- **Irritant**
### 5. Carcinogenic categories

- **IARC (International Agency for Research on Cancer)**
  
  None of the ingredients is listed.

- **NTP (National Toxicology Program)**
  
  None of the ingredients is listed.

- **OSHA-Ca (Occupational Safety & Health Administration)**
  
  None of the ingredients is listed.

### 12 Ecological information

- **Toxicity**
  - **Aquatic toxicity:** No further relevant information available.
  - **Persistence and degradability:** No further relevant information available.
  - **Behavior in environmental systems:**
    - **Bioaccumulative potential:** No further relevant information available.
  - **Mobility in soil:** No further relevant information available.
  - **Additional ecological information:**
    - **General notes:**
      - Water hazard class 3 (Self-assessment): extremely hazardous for water
      - Do not allow product to reach ground water, water course or sewage system, even in small quantities.
      - Must not reach bodies of water or drainage ditch undiluted or unneutralized.
      - Danger to drinking water if even extremely small quantities leak into the ground.

- **Results of PBT and vPvB assessment**
  - **PBT:** Not applicable.
  - **vPvB:** Not applicable.
  - **Other adverse effects:** No further relevant information available.

### 13 Disposal considerations

- **Waste treatment methods**
  - **Recommendation:**
    - Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

- **Uncleaned packagings**
  - **Recommendation:**
    - Disposal must be made according to official regulations.

- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

### 14 Transport information

- **UN-Number**
  - DOT, IMDG, IATA: not regulated

- **UN proper shipping name**
  - DOT, IMDG, IATA: not regulated
53.1.21

- Transport hazard class(es)
  - DOT, ADN, IMDG, IATA
    - Class: not regulated

- Packing group
  - DOT, IMDG, IATA: not regulated

- Environmental hazards: Not applicable.

- Special precautions for user Not applicable.

- Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.

- UN "Model Regulation": not regulated

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
  No further relevant information available.

- Sara

  - Section 355 (extremely hazardous substances):
    None of the ingredients is listed.

  - Section 313 (Specific toxic chemical listings):
    None of the ingredients is listed.

- TSCA (Toxic Substances Control Act):
  All components have the value ACTIVE.

- Hazardous Air Pollutants
  None of the ingredients is listed.

- Proposition 65

  - Chemicals known to cause cancer:
    None of the ingredients is listed.

  - Chemicals known to cause reproductive toxicity for females:
    None of the ingredients is listed.

  - Chemicals known to cause reproductive toxicity for males:
    None of the ingredients is listed.

  - Chemicals known to cause developmental toxicity:
    None of the ingredients is listed.

- Carcinogenic categories

  - EPA (Environmental Protection Agency)
    None of the ingredients is listed.

  - TLV (Threshold Limit Value)
    None of the ingredients is listed.

  - NIOSH-Ca (National Institute for Occupational Safety and Health)
    None of the ingredients is listed.
· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

All chemicals may pose unknown hazards and should be used with caution. This SDS applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. Cayman Chemical Company assumes no responsibility for incidental or consequential damages, including lost profits, arising from the use of these data. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Cayman Chemical Company assumes no responsibility for the completeness or accuracy of the information contained herein.

· Department issuing SDS: Environment protection department.
· Contact: -
· Date of preparation / last revision 01/14/2022 / -
· Abbreviations and acronyms:
  IMDG: International Maritime Code for Dangerous Goods
  DOT: US Department of Transportation
  IATA: International Air Transport Association
  EINECS: European Inventory of Existing Commercial Chemical Substances
  ELINCS: European List of Notified Chemical Substances
  CAS: Chemical Abstracts Service (division of the American Chemical Society)
  NFPA: National Fire Protection Association (USA)
  HMIS: Hazardous Materials Identification System (USA)
  VOC: Volatile Organic Compounds (USA, EU)
  LC50: Lethal concentration, 50 percent
  LD50: Lethal dose, 50 percent
  PBT: Persistent, Bioaccumulative and Toxic
  vPvB: very Persistent and very Bioaccumulative
  NIOSH: National Institute for Occupational Safety
  OSHA: Occupational Safety & Health
  TLV: Threshold Limit Value
  PEL: Permissible Exposure Limit
  REL: Recommended Exposure Limit
  Acute Tox. 3: Acute toxicity – Category 3
  Skin Irrit. 2: Skin corrosion/irritation – Category 2
  Eye Dam. 1: Serious eye damage/eye irritation – Category 1
  STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
  STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2
· * Data compared to the previous version altered.
# 1 Identification

- **Product identifier**
  - Trade name: **ELISA Buffer Concentrate (10X)**
  - Article number: 400060

- **Application of the substance / the mixture**
  This product is for research use - Not for human or veterinary diagnostic or therapeutic use.

- **Details of the supplier of the safety data sheet**
  - **Manufacturer/Supplier:** Cayman Chemical Co.
    - 1180 E. Ellsworth Rd.
    - Ann Arbor, MI 48108
    - USA
  - **Information department:** Product safety department
  - **Emergency telephone number:**
    - During normal opening times: +1 (734) 971-3335
    - US/CANADA: 800-424-9300
    - Outside US/CANADA: 703-741-5970

# 2 Hazard(s) identification

- **Classification of the substance or mixture**
  - **GHS08 Health hazard**
    - STOT RE 2  H373 May cause damage to organs through prolonged or repeated exposure.
  - **GHS05 Corrosion**
    - Eye Dam. 1  H318 Causes serious eye damage.
  - **GHS07**
    - Skin Irrit. 2  H315 Causes skin irritation.
  - **STOT SE 3  H335 May cause respiratory irritation.**

- **Label elements**
  - **GHS label elements**
    - The product is classified and labeled according to the Globally Harmonized System (GHS).

(Contd. on page 2)
Hazard pictograms

GHS05  GHS07  GHS08

Signal word Danger

Hazard-determining components of labeling:
- Potassium phosphate dibasic
- Sodium chloride
- Potassium phosphate, Monobasic

Hazard statements
- H315 Causes skin irritation.
- H318 Causes serious eye damage.
- H335 May cause respiratory irritation.
- H373 May cause damage to organs through prolonged or repeated exposure.

Precautionary statements
- P260 Do not breathe dust/fume/gas/mist/vapors/spray.
- P264 Wash thoroughly after handling.
- P271 Use only outdoors or in a well-ventilated area.
- P280 Wear protective gloves / eye protection / face protection.
- P302+P352 If on skin: Wash with plenty of water.
- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P310 Immediately call a poison center/doctor.
- P321 Specific treatment (see on this label).
- P324 Use PPE as specified by local regulatory authorities.
- P332+P313 If skin irritation occurs: Get medical advice/attention.
- P362+P364 Take off contaminated clothing and wash it before reuse.
- P335+P338 If inhaled: Remove person to fresh air and keep comfortable for breathing.
- P403+P402 If you feel unwell: Get medical advice/attention.
- P405 Store locked up.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Classification system:
- NFPA ratings (scale 0 - 4)
  - Health = 3
  - Fire = 0
  - Reactivity = 0

HMIS-ratings (scale 0 - 4)
- HEALTH Health = *3
- FIRE Fire = 0
- REACTIVITY Reactivity = 0

Other hazards
- Results of PBT and vPvB assessment
  - PBT: Not applicable.
  - vPvB: Not applicable.
3 Composition/information on ingredients

- Chemical characterization: Mixtures
  - Description: Mixture of the substances listed below with nonhazardous additions.

### Dangerous components:

<table>
<thead>
<tr>
<th>CAS</th>
<th>RTECS</th>
<th>Ingredient</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>7647-14-5</td>
<td>VZ4725000</td>
<td>Sodium chloride</td>
<td>23.4%</td>
</tr>
<tr>
<td>7758-11-4</td>
<td>TC5580000</td>
<td>Potassium phosphate dibasic</td>
<td>13.3%</td>
</tr>
<tr>
<td>7778-77-0</td>
<td>TC6615500</td>
<td>Potassium phosphate, Monobasic</td>
<td>3.21%</td>
</tr>
<tr>
<td>9048-46-8</td>
<td>AY9296000</td>
<td>Albumin, bovine</td>
<td>1.0%</td>
</tr>
<tr>
<td>26628-22-8</td>
<td>VY8050000</td>
<td>Sodium azide</td>
<td>0.1%</td>
</tr>
</tbody>
</table>

- Other ingredients

<table>
<thead>
<tr>
<th>CAS</th>
<th>RTECS</th>
<th>Ingredient</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>7732-18-5</td>
<td>ZC0110000</td>
<td>Water</td>
<td>58.61%</td>
</tr>
<tr>
<td>194491-31-1</td>
<td>VY80500000</td>
<td>EDTA, tetrasodium salt hydrate</td>
<td>0.38%</td>
</tr>
</tbody>
</table>

4 First-aid measures

- Description of first aid measures
  - General information:
    - Immediately remove any clothing soiled by the product.
    - Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
  - After inhalation: In case of unconsciousness place patient stably in side position for transportation.
  - After skin contact: Immediately wash with water and soap and rinse thoroughly.
  - After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
  - After swallowing: If symptoms persist consult doctor.
  - Information for doctor:
    - Most important symptoms and effects, both acute and delayed
      - May cause anemia, cough, CNS depression, drowsiness, headache, heart damage, lassitude (weakness, exhaustion), liver damage, narcosis, reproductive effects, teratogenic effects.
      - No further relevant information available.
    - Indication of any immediate medical attention and special treatment needed
      - No further relevant information available.

5 Fire-fighting measures

- Extinguishing media
- Suitable extinguishing agents:
  - Use fire fighting measures that suit the environment.
  - A solid water stream may be inefficient.
- Special hazards arising from the substance or mixture
  - During heating or in case of fire poisonous gases are produced.
6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
  Mount respiratory protective device.
  Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:**
  Dilute with plenty of water.
  Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
  Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
  Use neutralizing agent.
  Dispose contaminated material as waste according to item 13.
  Ensure adequate ventilation.
- **Reference to other sections**
  See Section 7 for information on safe handling.
  See Section 8 for information on personal protection equipment.
  See Section 13 for disposal information.
- **Protective Action Criteria for Chemicals**

  | PAC-1: | 7758-11-4 | Potassium phosphate dibasic | 13 mg/m³ |
  | 7778-77-0 | Potassium phosphate, Monobasic | 9.6 mg/m³ |
  | 26628-22-8 | Sodium azide | 0.026 mg/m³ |

  | PAC-2: | 7758-11-4 | Potassium phosphate dibasic | 140 mg/m³ |
  | 7778-77-0 | Potassium phosphate, Monobasic | 110 mg/m³ |
  | 26628-22-8 | Sodium azide | 0.29 mg/m³ |

  | PAC-3: | 7758-11-4 | Potassium phosphate dibasic | 830 mg/m³ |
  | 7778-77-0 | Potassium phosphate, Monobasic | 630 mg/m³ |
  | 26628-22-8 | Sodium azide | 5.3 mg/m³ |

7 Handling and storage

- **Handling:**
  - **Precautions for safe handling**
    Ensure good ventilation/exhaustion at the workplace.
    Prevent formation of aerosols.
  - **Information about protection against explosions and fires:**
    Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
  Keep container tightly closed.
  Store in accordance with information listed on the product insert.
- **Storage:**
  - **Requirements to be met by storerooms and receptacles:** No special requirements.
  - **Information about storage in one common storage facility:** Not required.
  - **Further information about storage conditions:** Keep receptacle tightly sealed.
Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see item 7.
- Components with limit values that require monitoring at the workplace:
  - The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.
  - At this time, the other constituents have no known exposure limits.

<table>
<thead>
<tr>
<th>26628-22-8 Sodium azide</th>
</tr>
</thead>
<tbody>
<tr>
<td>REL Ceiling limit value: 0.3** mg/m³, 0.1* ppm</td>
</tr>
<tr>
<td>*as HN3; **as NaN₃; Skin</td>
</tr>
<tr>
<td>TLV Ceiling limit value: 0.29** mg/m³, 0.11* ppm</td>
</tr>
<tr>
<td>*as HN₃ vapor **as NaN₃, A₄</td>
</tr>
</tbody>
</table>

- Additional information: The lists that were valid during the creation were used as basis.
- Exposure controls
- Personal protective equipment:
  - General protective and hygienic measures:
    - Keep away from foodstuffs, beverages and feed.
    - Immediately remove all soiled and contaminated clothing.
    - Wash hands before breaks and at the end of work.
    - Store protective clothing separately.
    - Avoid contact with the skin.
    - Avoid contact with the eyes and skin.
  - Breathing equipment:
    - In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
  - Protection of hands:

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation.

- Material of gloves
  - The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

- Penetration time of glove material
  - The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
## 9 Physical and chemical properties

- **Information on basic physical and chemical properties**
  - **General Information**
  - **Appearance:**
    - **Form:** Liquid
    - **Color:** According to product specification
  - **Odor:** Characteristic
  - **Odor threshold:** Not determined.
  - **Formulation:** 1 M phosphate solution containing 1% BSA, 4 M sodium chloride, 10 mM EDTA and 0.1% sodium azide

- **pH-value at 20 °C (68 °F):** 7

- **Change in condition**
  - **Melting point/Melting range:** Undetermined.
  - **Boiling point/Boiling range:** 100 °C (212 °F)

- **Flash point:** Not applicable.

- **Flammability (solid, gaseous):** Not applicable.

- **Decomposition temperature:** Not determined.

- **Auto igniting:** Product is not selfigniting.

- **Danger of explosion:** Product does not present an explosion hazard.

- **Explosion limits:**
  - **Lower:** Not determined.
  - **Upper:** Not determined.

- **Vapor pressure at 20 °C (68 °F):** 23 hPa (17.3 mm Hg)

- **Density at 20 °C (68 °F):** 1 g/cm³ (8.345 lbs/gal)

- **Bulk density:** 1,000 kg/m³

- **Relative density:** Not determined.

- **Vapor density:** Not determined.

- **Evaporation rate:** Not determined.

- **Solubility in / Miscibility with**
  - **Water:** Fully miscible.

- **Partition coefficient (n-octanol/water):** Not determined.

- **Viscosity:**
  - **Dynamic:** Not determined.
  - **Kinematic:** Not determined.

- **Solvent content:**
  - **Water:** 58.6 %
Safety Data Sheet
acc. to OSHA HCS

Printing date 01/14/2022
Revision date 01/14/2022

Trade name: ELISA Buffer Concentrate (10X)

<table>
<thead>
<tr>
<th>VOC content:</th>
<th>0.00 %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solids content:</td>
<td>41.4 %</td>
</tr>
</tbody>
</table>

Other information: No further relevant information available.

10 Stability and reactivity

- Reactivity: No further relevant information available.
- Chemical stability:
  - Thermal decomposition / conditions to be avoided:
    No decomposition if used according to specifications.
- Possibility of hazardous reactions: No dangerous reactions known.
- Conditions to avoid: No further relevant information available.
- Incompatible materials: No further relevant information available.
- Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- Information on toxicological effects
- Acute toxicity:
  - LD/LC50 values that are relevant for classification:

<table>
<thead>
<tr>
<th>ATE (Acute Toxicity Estimate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
</tr>
</tbody>
</table>

7647-14-5 Sodium chloride

<table>
<thead>
<tr>
<th>Oral</th>
<th>LDLO</th>
<th>1,000 mg/kg (man)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TDLO</td>
<td>650 ml/kg (man)</td>
</tr>
<tr>
<td></td>
<td>LD50</td>
<td>4,000 mg/kg (mouse)</td>
</tr>
<tr>
<td></td>
<td>3,000 mg/kg (rat)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>LD50</td>
<td>4 g/kg (mouse)</td>
</tr>
<tr>
<td>Inhalative</td>
<td>LC50</td>
<td>320 mg/m³ (mouse)</td>
</tr>
<tr>
<td></td>
<td>TCLO</td>
<td>0.63 mg/m³ (hmn)</td>
</tr>
<tr>
<td></td>
<td>LCLO</td>
<td>29,300 mg/m³/7h (mouse)</td>
</tr>
<tr>
<td>Irritation of skin</td>
<td>Irritation</td>
<td>500 mg/24h (rabbit)</td>
</tr>
<tr>
<td>Intraperitoneal LD50</td>
<td>2,602 mg/kg (mouse)</td>
<td></td>
</tr>
<tr>
<td>Subcutaneous LD50</td>
<td>31.6 mg/kg (rat)</td>
<td></td>
</tr>
<tr>
<td>Intravenous LD50</td>
<td>59.5 mg/kg (rat)</td>
<td></td>
</tr>
<tr>
<td>Data</td>
<td>15 mg/3D (hmn)</td>
<td></td>
</tr>
<tr>
<td>Subcutaneous LD50</td>
<td>3 g/kg (mouse)</td>
<td></td>
</tr>
</tbody>
</table>

7778-77-0 Potassium phosphate, Monobasic

| Oral | LDLO | 4,640 mg/kg (rat) |

9048-46-8 Albumin, bovine

| Intraperitoneal TDLO | 0.2 pph (mouse) |
Trade name: ELISA Buffer Concentrate (10X)

### 26628-22-8 Sodium azide

<table>
<thead>
<tr>
<th>Route</th>
<th>LD50</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>27 mg/kg (rat)</td>
<td></td>
</tr>
<tr>
<td>TDLO</td>
<td>3 ml/kg (wmn)</td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>27 mg/kg (rat)</td>
<td></td>
</tr>
<tr>
<td>Subcutaneous LD50</td>
<td>45,100 µg/kg (rat)</td>
<td></td>
</tr>
<tr>
<td>Dermal</td>
<td>LD50</td>
<td>50 mg/kg (rat)</td>
</tr>
<tr>
<td></td>
<td>20 mg/kg (rabbit)</td>
<td></td>
</tr>
<tr>
<td>Inhalative</td>
<td>LC50</td>
<td>37 mg/m³ (rat)</td>
</tr>
<tr>
<td>Subcutaneous LD50</td>
<td>45,100 µg/kg (rat)</td>
<td></td>
</tr>
<tr>
<td>Interperitoneal LDLO</td>
<td>30 mg/kg (rat)</td>
<td></td>
</tr>
<tr>
<td>Intraperitoneal LD50</td>
<td>28 mg/kg (mouse)</td>
<td></td>
</tr>
<tr>
<td>Subcutaneous LD50</td>
<td>45 mg/kg (rat)</td>
<td></td>
</tr>
<tr>
<td>Data</td>
<td>5,500 mg/kg (mouse)</td>
<td></td>
</tr>
</tbody>
</table>

- **Primary irritant effect:**
  - on the skin: Irritant to skin and mucous membranes.
  - on the eye: Strong irritant with the danger of severe eye injury.
  - Sensitization: No sensitizing effects known.

- **Additional toxicological information:**
  The product shows the following dangers according to internally approved calculation methods for preparations:
  - Irritant

- **Carcinogenic categories**
  - IARC (International Agency for Research on Cancer)
    - None of the ingredients is listed.
  - NTP (National Toxicology Program)
    - None of the ingredients is listed.
  - OSHA-Ca (Occupational Safety & Health Administration)
    - None of the ingredients is listed.

### 12 Ecological information

- **Toxicity**
  - Aquatic toxicity: No further relevant information available.
  - Persistence and degradability: No further relevant information available.

- **Behavior in environmental systems:**
  - Bioaccumulative potential: No further relevant information available.
  - Mobility in soil: No further relevant information available.

- **Additional ecological information:**
  - General notes:
    - Water hazard class 1 (Self-assessment): slightly hazardous for water
    - Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
    - Must not reach bodies of water or drainage ditch undiluted or unneutralized.
  - Results of PBT and vPvB assessment
    - PBT: Not applicable.
    - vPvB: Not applicable.
13 Disposal considerations

· Waste treatment methods
  · Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

· Uncleaned packagings:
  · Recommendation: Disposal must be made according to official regulations.
  · Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

· UN-Number
  · DOT, IMDG, IATA not regulated

· UN proper shipping name
  · DOT, IMDG, IATA not regulated

· Transport hazard class(es)
  · DOT, ADN, IMDG, IATA not regulated

· Packing group
  · DOT, IMDG, IATA not regulated

· Environmental hazards: Not applicable.

· Special precautions for user Not applicable.

· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.

· UN "Model Regulation": not regulated

15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture
  No further relevant information available.

· Sara
  · Section 355 (extremely hazardous substances): 26628-22-8 Sodium azide
  · Section 313 (Specific toxic chemical listings): 26628-22-8 Sodium azide

· TSCA (Toxic Substances Control Act):
  · Water 7732-18-5 ACTIVE
  · Sodium chloride 7647-14-5 ACTIVE
  · Potassium phosphate dibasic 7758-11-4 ACTIVE
  · Potassium phosphate, Monobasic 7778-77-0 ACTIVE
### Hazardous Air Pollutants
None of the ingredients is listed.

### Proposition 65
- **Chemicals known to cause cancer:** None of the ingredients is listed.
- **Chemicals known to cause reproductive toxicity for females:** None of the ingredients is listed.
- **Chemicals known to cause reproductive toxicity for males:** None of the ingredients is listed.
- **Chemicals known to cause developmental toxicity:** None of the ingredients is listed.

### Carcinogenic categories
- **EPA (Environmental Protection Agency)** None of the ingredients is listed.
- **TLV (Threshold Limit Value)**
  - 26628-22-8 Sodium azide
  - **ACTIVE**
- **NIOSH-Ca (National Institute for Occupational Safety and Health)** None of the ingredients is listed.
- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### 16 Other information
All chemicals may pose unknown hazards and should be used with caution. This SDS applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. Cayman Chemical Company assumes no responsibility for incidental or consequential damages, including lost profits, arising from the use of these data. It shall be the user’s responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Cayman Chemical Company assumes no responsibility for the completeness or accuracy of the information contained herein.

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- **Contact:** -
- **Date of preparation / last revision** 01/14/2022 / -
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  - NFPA: National Fire Protection Association (USA)
  - HMIS: Hazardous Materials Identification System (USA)
  - VOC: Volatile Organic Compounds (USA, EU)
  - LC50: Lethal concentration, 50 percent
  - LD50: Lethal dose, 50 percent
  - PBT: Persistent, Bioaccumulative and Toxic
  - vPvB: very Persistent and very Bioaccumulative
  - NIOSH: National Institute for Occupational Safety
  - OSHA: Occupational Safety & Health
Trade name: ELISA Buffer Concentrate (10X)

TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

* Data compared to the previous version altered.
1 Identification

· Product identifier
  · Trade name: Wash Buffer Concentrate (400X)
  · Article number: 400062

· Application of the substance / the mixture
  This product is for research use - Not for human or veterinary diagnostic or therapeutic use.

· Details of the supplier of the safety data sheet
  · Manufacturer/Supplier: Cayman Chemical Co.
    1180 E. Ellsworth Rd.
    Ann Arbor, MI 48108
    USA
  · Information department: Product safety department
  · Emergency telephone number:
    During normal opening times: +1 (734) 971-3335
    US/CANADA: 800-424-9300
    Outside US/CANADA: 703-741-5970

2 Hazard(s) identification

· Classification of the substance or mixture

  GHS05 Corrosion
  Eye Dam. 1  H318 Causes serious eye damage.

  GHS07
  Acute Tox. 4  H302 Harmful if swallowed.
  Skin Irrit. 2  H315 Causes skin irritation.
  STOT SE 3  H335 May cause respiratory irritation.

· Label elements
  · GHS label elements
    The product is classified and labeled according to the Globally Harmonized System (GHS).
Trade name: Wash Buffer Concentrate (400X)

- Hazard pictograms
  - GHS05
  - GHS07

- Signal word Danger

- Hazard-determining components of labeling:
  - Potassium phosphate dibasic
  - Potassium phosphate, Monobasic

- Hazard statements
  - H302 Harmful if swallowed.
  - H315 Causes skin irritation.
  - H318 Causes serious eye damage.
  - H335 May cause respiratory irritation.

- Precautionary statements
  - P261 Avoid breathing dust/fume/gas/mist/vapors/spray
  - P264 Wash thoroughly after handling.
  - P270 Do not eat, drink or smoke when using this product.
  - P271 Use only outdoors or in a well-ventilated area.
  - P280 Wear protective gloves / eye protection / face protection.
  - P301+P312 If swallowed: Call a poison center/doctor if you feel unwell.
  - P302+P352 If on skin: Wash with plenty of water.
  - P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
  - P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  - P310 Immediately call a poison center/doctor.
  - P321 Specific treatment (see on this label).
  - P330 Rinse mouth.
  - P362+P364 Take off contaminated clothing and wash it before reuse.
  - P332+P313 If skin irritation occurs: Get medical advice/attention.
  - P403+P233 Store in a well-ventilated place. Keep container tightly closed.
  - P405 Store locked up.
  - P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- Classification system:
  - NFPA ratings (scale 0 - 4)
    - Health = 3
    - Fire = 0
    - Reactivity = 0

- HMIS-ratings (scale 0 - 4)
  - Health = *3
  - Fire = 0
  - Reactivity = 0

- Other hazards
  - Results of PBT and vPvB assessment
    - PBT: Not applicable.
    - vPvB: Not applicable.
3 Composition/information on ingredients

· Chemical characterization: Mixtures
· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:
  - CAS: 7758-11-4  
    RTECS: TC5580000  
    Potassium phosphate dibasic  
    53.0%
  - CAS: 7778-77-0  
    RTECS: TC6615500  
    Potassium phosphate, Monobasic  
    12.9%

· Other ingredients:
  - CAS: 7732-18-5  
    RTECS: ZC0110000  
    Water  
    34.1%

4 First-aid measures

· Description of first aid measures
  - General information:
    Immediately remove any clothing soiled by the product.
    Symptoms of poisoning may even occur after several hours; therefore medical observation for at least
    48 hours after the accident.
  - After inhalation: In case of unconsciousness place patient stably in side position for transportation.
  - After skin contact: Immediately wash with water and soap and rinse thoroughly.
  - After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
  - After swallowing: Immediately call a doctor.
  - Information for doctor:
    · Most important symptoms and effects, both acute and delayed
      May cause anemia, cough, CNS depression, drowsiness, headache, heart damage, lassitude
      (weakness, exhaustion), liver damage, narcosis, reproductive effects, teratogenic effects.
      No further relevant information available.
    · Indication of any immediate medical attention and special treatment needed
      No further relevant information available.

5 Fire-fighting measures

· Extinguishing media
  · Suitable extinguishing agents:
    Use fire fighting measures that suit the environment.
    A solid water stream may be inefficient.
  · Special hazards arising from the substance or mixture
    No further relevant information available.
  · Advice for firefighters
  · Protective equipment: No special measures required.

6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures
  Wear protective equipment. Keep unprotected persons away.
· Environmental precautions:
  Dilute with plenty of water.
  Do not allow to enter sewers/ surface or ground water.

(Contd. on page 4)
Trade name: Wash Buffer Concentrate (400X)

- **Methods and material for containment and cleaning up:**
  Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
  Use neutralizing agent.
  Dispose contaminated material as waste according to item 13.
  Ensure adequate ventilation.

- **Reference to other sections**
  See Section 7 for information on safe handling.
  See Section 8 for information on personal protection equipment.
  See Section 13 for disposal information.

- **Protective Action Criteria for Chemicals**

<table>
<thead>
<tr>
<th>PAC-1:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>7758-11-4 Potassium phosphate dibasic</td>
<td>13 mg/m³</td>
</tr>
<tr>
<td>7778-77-0 Potassium phosphate, Monobasic</td>
<td>9.6 mg/m³</td>
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</table>

<table>
<thead>
<tr>
<th>PAC-2:</th>
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</thead>
<tbody>
<tr>
<td>7758-11-4 Potassium phosphate dibasic</td>
<td>140 mg/m³</td>
</tr>
<tr>
<td>7778-77-0 Potassium phosphate, Monobasic</td>
<td>110 mg/m³</td>
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</table>

<table>
<thead>
<tr>
<th>PAC-3:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>7758-11-4 Potassium phosphate dibasic</td>
<td>830 mg/m³</td>
</tr>
<tr>
<td>7778-77-0 Potassium phosphate, Monobasic</td>
<td>630 mg/m³</td>
</tr>
</tbody>
</table>

- **7 Handling and storage**

  - **Handling:**
  - **Precautions for safe handling**
    Ensure good ventilation/exhaustion at the workplace.
    Prevent formation of aerosols.
  - **Information about protection against explosions and fires:** No special measures required.
  - **Conditions for safe storage, including any incompatibilities**
  - **Storage:**
    - **Requirements to be met by storerooms and receptacles:** No special requirements.
    - **Information about storage in one common storage facility:** Not required.
    - **Further information about storage conditions:** Keep receptacle tightly sealed.
    - **Specific end use(s)** No further relevant information available.

- **8 Exposure controls/personal protection**

  - **Additional information about design of technical systems:** No further data; see item 7.
  - **Control parameters**
  - **Components with limit values that require monitoring at the workplace:**
    The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
  - **Additional information:** The lists that were valid during the creation were used as basis.
  - **Exposure controls**
  - **Personal protective equipment:**
    - **General protective and hygienic measures:**
      Keep away from foodstuffs, beverages and feed.
      Immediately remove all soiled and contaminated clothing.
      Wash hands before breaks and at the end of work.
Avoid contact with the skin.
Avoid contact with the eyes and skin.

- **Breathing equipment:**
  In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

- **Protection of hands:**
  
  **Protective gloves**

  The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

  Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

  **Material of gloves**

  The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

  **Penetration time of glove material**

  The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

- **Eye protection:**
  
  **Tightly sealed goggles**

---

### 9 Physical and chemical properties

- **Information on basic physical and chemical properties**
  
  **General Information**

  - **Appearance:**
    - Form: Liquid
    - Color: Colorless
  
  - **Odor:** Characteristic
  
  - **Odor threshold:** Not determined.
  
  - **Formulation**
    - Concentrated wash buffer
  
  - **pH-value at 20 °C (68 °F):** 7.4
  
  - **Change in condition**
    - Melting point/Melting range: Undetermined.
    - Boiling point/Boiling range: 100 °C (212 °F)
  
  - **Flash point:** Not applicable.
  
  - **Flammability (solid, gaseous):** Not applicable.
  
  - **Decomposition temperature:** Not determined.
  
  - **Auto igniting:** Product is not selfigniting.
Trade name: Wash Buffer Concentrate (400X)

- **Danger of explosion:** Product does not present an explosion hazard.

- **Explosion limits:**
  - Lower: Not determined.
  - Upper: Not determined.

- **Vapor pressure at 20 °C (68 °F):** 23 hPa (17.3 mm Hg)

- **Density at 20 °C (68 °F):** 1.159 g/cm³ (9.67186 lbs/gal)

- **Bulk density:** 1,159 kg/m³
- **Relative density:** Not determined.
- **Vapor density:** Not determined.
- **Evaporation rate:** Not determined.

- **Solubility in / Miscibility with Water:** Fully miscible.

- **Partition coefficient (n-octanol/water):** Not determined.

- **Viscosity:**
  - Dynamic: Not determined.
  - Kinematic: Not determined.

- **Solvent content:**
  - Water: 34.1 %
  - VOC content: 0.00 %
  - 0.0 g/l / 0.00 lb/gal

- **Solids content:** 65.9 %
- **Other information** No further relevant information available.

### 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

### 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
  - **LD/LC50 values that are relevant for classification:**
    - **ATE (Acute Toxicity Estimate)**
      - Oral LD50 943 mg/kg
    - 7778-77-0 Potassium phosphate, Monobasic
      - Oral LDLO 4,640 mg/kg (rat)
· Primary irritant effect:
  · on the skin: Irritant to skin and mucous membranes.
  · on the eye: Strong irritant with the danger of severe eye injury.
  · Sensitization: No sensitizing effects known.
· Additional toxicological information:
The product shows the following dangers according to internally approved calculation methods for preparations:
  Harmful
  Irritant
· Carcinogenic categories
  · IARC (International Agency for Research on Cancer)
    None of the ingredients is listed.
  · NTP (National Toxicology Program)
    None of the ingredients is listed.
  · OSHA-Ca (Occupational Safety & Health Administration)
    None of the ingredients is listed.

12 Ecological information
· Toxicity
  · Aquatic toxicity: No further relevant information available.
  · Persistence and degradability No further relevant information available.
· Behavior in environmental systems:
  · Bioaccumulative potential No further relevant information available.
  · Mobility in soil No further relevant information available.
· Additional ecological information:
  · General notes:
    Water hazard class 1 (Self-assessment): slightly hazardous for water
    Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
    Must not reach bodies of water or drainage ditch undiluted or unneutralized.
· Results of PBT and vPvB assessment
  · PBT: Not applicable.
  · vPvB: Not applicable.
· Other adverse effects No further relevant information available.

13 Disposal considerations
· Waste treatment methods
  · Recommendation:
    Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
  · Uncleaned packagings:
    · Recommendation: Disposal must be made according to official regulations.
    · Recommended cleansing agent: Water, if necessary with cleansing agents.
14 Transport information

- UN-Number
  - DOT, IMDG, IATA: not regulated

- UN proper shipping name
  - DOT, IMDG, IATA: not regulated

- Transport hazard class(es)
  - DOT, ADN, IMDG, IATA: not regulated

- Packing group
  - DOT, IMDG, IATA: not regulated

- Environmental hazards:
  - Not applicable.

- Special precautions for user:
  - Not applicable.

- Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
  - Not applicable.

- UN "Model Regulation": not regulated

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
  - No further relevant information available.

- Sara
  - Section 355 (extremely hazardous substances):
    - None of the ingredients is listed.

  - Section 313 (Specific toxic chemical listings):
    - None of the ingredients is listed.

- TSCA (Toxic Substances Control Act):
  - All components have the value ACTIVE.

- Hazardous Air Pollutants
  - None of the ingredients is listed.

- Proposition 65
  - Chemicals known to cause cancer:
    - None of the ingredients is listed.

  - Chemicals known to cause reproductive toxicity for females:
    - None of the ingredients is listed.

  - Chemicals known to cause reproductive toxicity for males:
    - None of the ingredients is listed.

  - Chemicals known to cause developmental toxicity:
    - None of the ingredients is listed.

- Carcinogenic categories
  - EPA (Environmental Protection Agency)
    - None of the ingredients is listed.
## 16 Other information

All chemicals may pose unknown hazards and should be used with caution. This SDS applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. Cayman Chemical Company assumes no responsibility for incidental or consequential damages, including lost profits, arising from the use of these data. It shall be the user’s responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Cayman Chemical Company assumes no responsibility for the completeness or accuracy of the information contained herein.

- **Department issuing SDS:** Environment protection department.
- **Contact:** -
- **Date of preparation / last revision** 01/14/2022 / -
- **Abbreviations and acronyms:**
  - IMDG: International Maritime Code for Dangerous Goods
  - DOT: US Department of Transportation
  - IATA: International Air Transport Association
  - EINECS: European Inventory of Existing Commercial Chemical Substances
  - ELINCS: European List of Notified Chemical Substances
  - CAS: Chemical Abstracts Service (division of the American Chemical Society)
  - NFPA: National Fire Protection Association (USA)
  - HMIS: Hazardous Materials Identification System (USA)
  - VOC: Volatile Organic Compounds (USA, EU)
  - LC50: Lethal concentration, 50 percent
  - LD50: Lethal dose, 50 percent
  - PBT: Persistent, Bioaccumulative and Toxic
  - vPvB: very Persistent and very Bioaccumulative
  - NIOSH: National Institute for Occupational Safety
  - OSHA: Occupational Safety & Health
  - TLV: Threshold Limit Value
  - PEL: Permissible Exposure Limit
  - REL: Recommended Exposure Limit
  - Acute Tox. 4: Acute toxicity – Category 4
  - Skin Irrit. 2: Skin corrosion/irritation – Category 2
  - Eye Dam. 1: Serious eye damage/eye irritation – Category 1
  - STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
- *Data compared to the previous version altered.*
1 Identification

· Product identifier
  · Trade name: Human Plasma
  · Article number: 400100

· Application of the substance / the mixture
  This product is for research use - Not for human or veterinary diagnostic or therapeutic use.

· Details of the supplier of the safety data sheet
  · Manufacturer/Supplier: Cayman Chemical Co.
    1180 E. Ellsworth Rd.
    Ann Arbor, MI 48108
    USA
  · Information department: Product safety department
  · Emergency telephone number:
    During normal opening times: +1 (734) 971-3335
    US/CANADA: 800-424-9300
    Outside US/CANADA: 703-741-5970

2 Hazard(s) identification

· Classification of the substance or mixture
  The substance is not classified, according to the Globally Harmonized System (GHS).

· Label elements
  · GHS label elements None
  · Hazard pictograms None
  · Signal word None
  · Hazard statements None
  · Classification system:
    · NFPA ratings (scale 0 - 4)
      Health = 0
      Fire = 0
      Reactivity = 0
  · HMIS-ratings (scale 0 - 4)
    HEALTH Health = 0
    FIRE Fire = 0
    REACTIVITY Reactivity = 0

(Contd. on page 2)
Trade name: Human Plasma

- Other hazards
- Results of PBT and vPvB assessment
  - PBT: Not applicable.
  - vPvB: Not applicable.

3 Composition/information on ingredients

- Chemical characterization: Substances
- CAS No. Description
  Human Plasma

4 First-aid measures

- Description of first aid measures
  - General information: No special measures required.
  - After inhalation: Supply fresh air; consult doctor in case of complaints.
  - After skin contact: Generally the product does not irritate the skin.
  - After eye contact: Rinse opened eye for several minutes under running water.
  - After swallowing: If symptoms persist consult doctor.
  - Information for doctor:
    - Most important symptoms and effects, both acute and delayed
      May cause anemia, cough, CNS depression, drowsiness, headache, heart damage, lassitude (weakness, exhaustion), liver damage, narcosis, reproductive effects, teratogenic effects.
      No further relevant information available.
    - Indication of any immediate medical attention and special treatment needed
      No further relevant information available.

5 Fire-fighting measures

- Extinguishing media
  - Suitable extinguishing agents:
    Use fire fighting measures that suit the environment.
    A solid water stream may be inefficient.
  - Special hazards arising from the substance or mixture
    No further relevant information available.
  - Advice for firefighters
    - Protective equipment: No special measures required.

6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures
  Not required.
- Environmental precautions: Do not allow to enter sewers/ surface or ground water.
- Methods and material for containment and cleaning up: Pick up mechanically.
- Reference to other sections
  See Section 7 for information on safe handling.
  See Section 8 for information on personal protection equipment.
  See Section 13 for disposal information.
- Protective Action Criteria for Chemicals
  - PAC-1:
    Substance is not listed.
Safety Data Sheet
acc. to OSHA HCS

Printing date 02/08/2022
Revision date 02/08/2022

Trade name: Human Plasma

7 Handling and storage

· Handling:
  · Precautions for safe handling: No special measures required.
  · Information about protection against explosions and fires: No special measures required.

· Conditions for safe storage, including any incompatibilities

· Storage:
  · Requirements to be met by storerooms and receptacles: No special requirements.
  · Information about storage in one common storage facility: Not required.
  · Further information about storage conditions: None.

· Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

· Additional information about design of technical systems: No further data; see item 7.

· Control parameters
  · Components with limit values that require monitoring at the workplace: Not required.
  · Additional information: The lists that were valid during the creation were used as basis.

· Exposure controls
  · Personal protective equipment:
    · General protective and hygienic measures:
      The usual precautionary measures for handling chemicals should be followed.
    · Breathing equipment: Not required.
  · Protection of hands:
    The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
    Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
    Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
    · Material of gloves
      The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
    · Penetration time of glove material
      The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
  · Eye protection: Not required.
## 9 Physical and chemical properties

- **Information on basic physical and chemical properties**
  - **General Information**
  - **Appearance:**
    - Form: lyophilized
    - Color: Not determined.
  - **Odor:**
    - Characteristic
    - Odor threshold: Not determined.
  - **pH-value:**
    - Not applicable.
  - **Change in condition**
    - Melting point/Melting range: Undetermined.
    - Boiling point/Boiling range: Undetermined.
  - **Flash point:**
    - Not applicable.
  - **Flammability (solid, gaseous):**
    - Product is not flammable.
  - **Decomposition temperature:**
    - Not determined.
  - **Auto igniting:**
    - Not determined.
  - **Danger of explosion:**
    - Product does not present an explosion hazard.
  - **Explosion limits:**
    - Lower: Not determined.
    - Upper: Not determined.
  - **Vapor pressure:**
    - Not applicable.
  - **Density:**
    - Not determined.
  - **Relative density:**
    - Not determined.
  - **Vapor density:**
    - Not applicable.
  - **Evaporation rate:**
    - Not applicable.
  - **Solubility in / Miscibility with Water:**
    - Soluble.
  - **Partition coefficient (n-octanol/water):**
    - Not determined.
  - **Viscosity:**
    - Dynamic: Not applicable.
    - Kinematic: Not applicable.
    - VOC content: 0.00 %
  - **Solids content:**
    - 100.0 %
  - **Other information**
    - No further relevant information available.

## 10 Stability and reactivity

- **Reactivity**
  - No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:**
  - No decomposition if used according to specifications.
- **Possibility of hazardous reactions**
  - No dangerous reactions known.
- **Conditions to avoid**
  - No further relevant information available.
- **Incompatible materials:**
  - No further relevant information available.
Trade name: Human Plasma

11 Toxicological information

- **Hazardous decomposition products**: No dangerous decomposition products known.

- **Information on toxicological effects**
  - **Acute toxicity**:
  - **Primary irritant effect**:
    - **on the skin**: No irritant effect.
    - **on the eye**: No irritating effect.
  - **Sensitization**: No sensitizing effects known.
  - **Additional toxicological information**:
    When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us. The substance is not subject to classification.

- **Carcinogenic categories**
  - **IARC (International Agency for Research on Cancer)**
    Substance is not listed.
  - **NTP (National Toxicology Program)**
    Substance is not listed.
  - **OSHA-Ca (Occupational Safety & Health Administration)**
    Substance is not listed.

12 Ecological information

- **Toxicity**
  - **Aquatic toxicity**: No further relevant information available.
  - **Persistence and degradability**: No further relevant information available.
  - **Behavior in environmental systems**:
    - **Bioaccumulative potential**: No further relevant information available.
    - **Mobility in soil**: No further relevant information available.
  - **Additional ecological information**:
    - **General notes**:
      Water hazard class 1 (Self-assessment): slightly hazardous for water
      Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
    - **Results of PBT and vPvB assessment**
      - **PBT**: Not applicable.
      - **vPvB**: Not applicable.
  - **Other adverse effects**: No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
  - **Recommendation**: Smaller quantities can be disposed of with household waste.

- **Uncleaned packagings**:
  - **Recommendation**: Disposal must be made according to official regulations.
Trade name: Human Plasma

- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

### 14 Transport information

- **UN-Number**
  - DOT, IMDG, IATA: not regulated
- **UN proper shipping name**
  - DOT, IMDG, IATA: not regulated
- **Transport hazard class(es)**
  - DOT, ADN, IMDG, IATA: not regulated
- **Packing group**
  - DOT, IMDG, IATA: not regulated
- **Environmental hazards:** Not applicable.
- **Special precautions for user** Not applicable.
- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.
- **UN "Model Regulation":** not regulated

### 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
  - No further relevant information available.
- **Sara**
  - **Section 355 (extremely hazardous substances):** Substance is not listed.
  - **Section 313 (Specific toxic chemical listings):** Substance is not listed.
  - **TSCA (Toxic Substances Control Act):** Substance is not listed.
- **Hazardous Air Pollutants** Substance is not listed.
- **Proposition 65**
  - **Chemicals known to cause cancer:** Substance is not listed.
  - **Chemicals known to cause reproductive toxicity for females:** Substance is not listed.
  - **Chemicals known to cause reproductive toxicity for males:** Substance is not listed.
  - **Chemicals known to cause developmental toxicity:** Substance is not listed.
### Trade name: Human Plasma

<table>
<thead>
<tr>
<th>Carcinogenic categories</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EPA (Environmental Protection Agency)</strong></td>
</tr>
<tr>
<td>Substance is not listed.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TLV (Threshold Limit Value)</th>
</tr>
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<tbody>
<tr>
<td>Substance is not listed.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NIOSH-Ca (National Institute for Occupational Safety and Health)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substance is not listed.</td>
</tr>
</tbody>
</table>

- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

### 16 Other information

All chemicals may pose unknown hazards and should be used with caution. This SDS applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. Cayman Chemical Company assumes no responsibility for incidental or consequential damages, including lost profits, arising from the use of these data. It shall be the user’s responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Cayman Chemical Company assumes no responsibility for the completeness or accuracy of the information contained herein.

- **Department issuing SDS:** Environment protection department.
- **Contact:** -
- **Date of preparation / last revision:** 02/08/2022 / -
- **Abbreviations and acronyms:**
  - IMDG: International Maritime Code for Dangerous Goods
  - DOT: US Department of Transportation
  - IATA: International Air Transport Association
  - CAS: Chemical Abstracts Service (division of the American Chemical Society)
  - NFPA: National Fire Protection Association (USA)
  - HMIS: Hazardous Materials Identification System (USA)
  - VOC: Volatile Organic Compounds (USA, EU)
  - PBT: Persistent, Bioaccumulative and Toxic
  - vPvB: very Persistent and very Bioaccumulative
  - NIOSH: National Institute for Occupational Safety
  - OSHA: Occupational Safety & Health
  - TLV: Threshold Limit Value
  - PEL: Permissible Exposure Limit
  - REL: Recommended Exposure Limit

- * Data compared to the previous version altered.
1 Identification

· Product identifier
· Trade name: Non-specific Mouse Serum
· Article number: 400110

· Application of the substance / the mixture
This product is for research use - Not for human or veterinary diagnostic or therapeutic use.

· Details of the supplier of the safety data sheet
· Manufacturer/Supplier: Cayman Chemical Co.
  1180 E. Ellsworth Rd.
  Ann Arbor, MI 48108
  USA
· Information department: Product safety department
· Emergency telephone number:
  During normal opening times: +1 (734) 971-3335
  US/CANADA: 800-424-9300
  Outside US/CANADA: 703-741-5970

2 Hazard(s) identification

· Classification of the substance or mixture
  The substance is not classified, according to the Globally Harmonized System (GHS).

· Label elements
  · GHS label elements None
  · Hazard pictograms None
  · Signal word None
  · Hazard statements None
  · Classification system:
  · NFPA ratings (scale 0 - 4)
  
    Health = 0
    Fire = 0
    Reactivity = 0

· HMIS-ratings (scale 0 - 4)

  HEALTH 0  Health = 0
  FIRE 0  Fire = 0
  REACTIVITY 0  Reactivity = 0

(Contd. on page 2)
Trade name: Non-specific Mouse Serum

- Other hazards
  - Results of PBT and vPvB assessment
    - PBT: Not applicable.
    - vPvB: Not applicable.

### 3 Composition/information on ingredients

- Chemical characterization: Substances
- CAS No. Description
  - Non-specific Mouse Serum

### 4 First-aid measures

- Description of first aid measures
  - General information: No special measures required.
  - After inhalation: Supply fresh air; consult doctor in case of complaints.
  - After skin contact: Generally the product does not irritate the skin.
  - After eye contact: Rinse opened eye for several minutes under running water.
  - After swallowing: If symptoms persist consult doctor.
- Information for doctor:
  - Most important symptoms and effects, both acute and delayed
    May cause anemia, cough, CNS depression, drowsiness, headache, heart damage, lassitude (weakness, exhaustion), liver damage, narcosis, reproductive effects, teratogenic effects.
    No further relevant information available.
  - Indication of any immediate medical attention and special treatment needed
    No further relevant information available.

### 5 Fire-fighting measures

- Extinguishing media
  - Suitable extinguishing agents:
    - Use fire fighting measures that suit the environment.
    - A solid water stream may be inefficient.
  - Special hazards arising from the substance or mixture
    No further relevant information available.
- Advice for firefighters
  - Protective equipment: No special measures required.

### 6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures
  - Not required.
- Environmental precautions:
  - Do not allow to enter sewers/ surface or ground water.
- Methods and material for containment and cleaning up:
  - Pick up mechanically.
- Reference to other sections
  - See Section 7 for information on safe handling.
  - See Section 8 for information on personal protection equipment.
  - See Section 13 for disposal information.
- Protective Action Criteria for Chemicals
  - PAC-1:
    - Substance is not listed.
7 Handling and storage

· Handling:
  · Precautions for safe handling: No special measures required.
  · Information about protection against explosions and fires: No special measures required.

· Conditions for safe storage, including any incompatibilities
  · Storage:
    · Requirements to be met by storerooms and receptacles: No special requirements.
    · Information about storage in one common storage facility: Not required.
    · Further information about storage conditions: None.

· Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

· Additional information about design of technical systems: No further data; see item 7.

· Control parameters
  · Components with limit values that require monitoring at the workplace: Not required.
  · Additional information: The lists that were valid during the creation were used as basis.

· Exposure controls
  · Personal protective equipment:
    · General protective and hygienic measures:
      The usual precautionary measures for handling chemicals should be followed.
    · Breathing equipment: Not required.
    · Protection of hands:
      The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
      Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
    · Material of gloves
      The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
    · Penetration time of glove material
      The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
    · Eye protection: Not required.
### 9 Physical and chemical properties

<table>
<thead>
<tr>
<th>Information on basic physical and chemical properties</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Information</strong></td>
</tr>
<tr>
<td><strong>Appearance:</strong></td>
</tr>
<tr>
<td>Form: lyophilized</td>
</tr>
<tr>
<td>Color: Not determined</td>
</tr>
<tr>
<td>Odor: Characteristic</td>
</tr>
<tr>
<td>Odor threshold: Not determined.</td>
</tr>
<tr>
<td><em>pH</em>-value: Not applicable.</td>
</tr>
<tr>
<td><strong>Change in condition</strong></td>
</tr>
<tr>
<td>Melting point/Melting range: Undetermined.</td>
</tr>
<tr>
<td>Boiling point/Boiling range: Undetermined.</td>
</tr>
<tr>
<td><strong>Flash point:</strong></td>
</tr>
<tr>
<td>Not applicable.</td>
</tr>
<tr>
<td><strong>Flammability (solid, gaseous):</strong></td>
</tr>
<tr>
<td>Product is not flammable.</td>
</tr>
<tr>
<td><strong>Decomposition temperature:</strong></td>
</tr>
<tr>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Auto igniting:</strong></td>
</tr>
<tr>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Danger of explosion:</strong></td>
</tr>
<tr>
<td>Product does not present an explosion hazard.</td>
</tr>
<tr>
<td><strong>Explosion limits:</strong></td>
</tr>
<tr>
<td>Lower: Not determined</td>
</tr>
<tr>
<td>Upper: Not determined</td>
</tr>
<tr>
<td><strong>Vapor pressure:</strong></td>
</tr>
<tr>
<td>Not applicable.</td>
</tr>
<tr>
<td><strong>Density:</strong></td>
</tr>
<tr>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Relative density</strong></td>
</tr>
<tr>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Vapor density</strong></td>
</tr>
<tr>
<td>Not applicable.</td>
</tr>
<tr>
<td><strong>Evaporation rate</strong></td>
</tr>
<tr>
<td>Not applicable.</td>
</tr>
<tr>
<td><strong>Solubility in / Miscibility with</strong></td>
</tr>
<tr>
<td>Water: Soluble.</td>
</tr>
<tr>
<td><strong>Partition coefficient (n-octanol/water):</strong></td>
</tr>
<tr>
<td>Not determined.</td>
</tr>
<tr>
<td><strong>Viscosity:</strong></td>
</tr>
<tr>
<td>Dynamic: Not applicable</td>
</tr>
<tr>
<td>Kinematic: Not applicable</td>
</tr>
<tr>
<td>VOC content: 0.00 %</td>
</tr>
<tr>
<td><strong>Solids content:</strong> 100.0 %</td>
</tr>
<tr>
<td><strong>Other information</strong></td>
</tr>
<tr>
<td>No further relevant information available.</td>
</tr>
</tbody>
</table>

### 10 Stability and reactivity

<table>
<thead>
<tr>
<th>Reactivity</th>
<th>No further relevant information available.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical stability</td>
<td></td>
</tr>
<tr>
<td>Thermal decomposition / conditions to be avoided:</td>
<td></td>
</tr>
<tr>
<td>No decomposition if used according to specifications.</td>
<td></td>
</tr>
<tr>
<td>Possibility of hazardous reactions</td>
<td>No dangerous reactions known.</td>
</tr>
<tr>
<td>Conditions to avoid</td>
<td>No further relevant information available.</td>
</tr>
<tr>
<td>Incompatible materials:</td>
<td>No further relevant information available.</td>
</tr>
</tbody>
</table>
11 Toxicological information

- Information on toxicological effects
  - Acute toxicity:
  - Primary irritant effect:
    - on the skin: No irritant effect.
    - on the eye: No irritating effect.
  - Sensitization: No sensitizing effects known.
  - Additional toxicological information:
    When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us. The substance is not subject to classification.

- Carcinogenic categories
  - IARC (International Agency for Research on Cancer)
    Substance is not listed.
  - NTP (National Toxicology Program)
    Substance is not listed.
  - OSHA-Ca (Occupational Safety & Health Administration)
    Substance is not listed.

12 Ecological information

- Toxicity
  - Aquatic toxicity: No further relevant information available.
  - Persistence and degradability: No further relevant information available.
  - Behavior in environmental systems:
    - Bioaccumulative potential: No further relevant information available.
    - Mobility in soil: No further relevant information available.
  - Additional ecological information:

- General notes:
  Water hazard class 1 (Self-assessment): slightly hazardous for water
  Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

- Results of PBT and vPvB assessment
  - PBT: Not applicable.
  - vPvB: Not applicable.
  - Other adverse effects: No further relevant information available.

13 Disposal considerations

- Waste treatment methods
  - Recommendation: Smaller quantities can be disposed of with household waste.

- Uncleaned packagings:
  - Recommendation: Disposal must be made according to official regulations.
Trade name: Non-specific Mouse Serum

**Recommended cleansing agent:** Water, if necessary with cleansing agents.

### 14 Transport information

- **UN-Number**
  - DOT, IMDG, IATA: not regulated
- **UN proper shipping name**
  - DOT, IMDG, IATA: not regulated
- **Transport hazard class(es)**
  - DOT, ADN, IMDG, IATA: not regulated
- **Packing group**
  - DOT, IMDG, IATA: not regulated
- **Environmental hazards:**
  - Not applicable.
- **Special precautions for user**
  - Not applicable.
- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**
  - Not applicable.
- **UN "Model Regulation"**
  - not regulated

### 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
  - No further relevant information available.
- **Sara**
  - **Section 355 (extremely hazardous substances):**
    - Substance is not listed.
  - **Section 313 (Specific toxic chemical listings):**
    - Substance is not listed.
  - **TSCA (Toxic Substances Control Act):**
    - Substance is not listed.
  - **Hazardous Air Pollutants**
    - Substance is not listed.
  - **Proposition 65**
    - **Chemicals known to cause cancer:**
      - Substance is not listed.
    - **Chemicals known to cause reproductive toxicity for females:**
      - Substance is not listed.
    - **Chemicals known to cause reproductive toxicity for males:**
      - Substance is not listed.
    - **Chemicals known to cause developmental toxicity:**
      - Substance is not listed.
Trade name: Non-specific Mouse Serum

<table>
<thead>
<tr>
<th>(Contd. from page 6)</th>
</tr>
</thead>
</table>

- **Carcinogenic categories**
  - **EPA (Environmental Protection Agency)**
    Substance is not listed.
  - **TLV (Threshold Limit Value)**
    Substance is not listed.
  - **NIOSH-Ca (National Institute for Occupational Safety and Health)**
    Substance is not listed.
  - **Chemical safety assessment**: A Chemical Safety Assessment has not been carried out.

### 16 Other information

All chemicals may pose unknown hazards and should be used with caution. This SDS applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. Cayman Chemical Company assumes no responsibility for incidental or consequential damages, including lost profits, arising from the use of these data. It shall be the user’s responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Cayman Chemical Company assumes no responsibility for the completeness or accuracy of the information contained herein.

- **Department issuing SDS**: Environment protection department.
- **Contact**: -
- **Date of preparation / last revision**: 02/08/2022 / -
- **Abbreviations and acronyms**:
  - IMDG: International Maritime Code for Dangerous Goods
  - DOT: US Department of Transportation
  - IATA: International Air Transport Association
  - CAS: Chemical Abstracts Service (division of the American Chemical Society)
  - NFPA: National Fire Protection Association (USA)
  - HMIS: Hazardous Materials Identification System (USA)
  - VOC: Volatile Organic Compounds (USA, EU)
  - PBT: Persistent, Bioaccumulative and Toxic
  - vPvB: very Persistent and very Bioaccumulative
  - NIOSH: National Institute for Occupational Safety
  - OSHA: Occupational Safety & Health
  - TLV: Threshold Limit Value
  - PEL: Permissible Exposure Limit
  - REL: Recommended Exposure Limit
- * Data compared to the previous version altered.
1 Identification

· Product identifier
  · Trade name: Endothelin AChE-FAb' Conjugate
  · Article number: 483150

· Application of the substance / the mixture
  This product is for research use - Not for human or veterinary diagnostic or therapeutic use.

· Details of the supplier of the safety data sheet
  · Manufacturer/Supplier: Cayman Chemical Co.
    1180 E. Ellsworth Rd.
    Ann Arbor, MI 48108
    USA
  · Information department: Product safety department
  · Emergency telephone number:
    During normal opening times: +1 (734) 971-3335
    US/CANADA: 800-424-9300
    Outside US/CANADA: 703-741-5970

2 Hazard(s) identification

· Classification of the substance or mixture
  GHS08 Health hazard
  STOT RE 2  H373 May cause damage to organs through prolonged or repeated exposure.
  GHS05 Corrosion
  Eye Dam. 1  H318 Causes serious eye damage.
  GHS07
  Acute Tox. 4  H302 Harmful if swallowed.
  Skin Irrit. 2  H315 Causes skin irritation.
  STOT SE 3  H335 May cause respiratory irritation.

· Label elements
  · GHS label elements
  The product is classified and labeled according to the Globally Harmonized System (GHS).
Hazard pictograms

Hazard-determining components of labeling:
Potassium phosphate dibasic
Sodium chloride
Potassium phosphate, Monobasic
Albumin, bovine

Hazard statements
H302 Harmful if swallowed.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H335 May cause respiratory irritation.
H373 May cause damage to organs through prolonged or repeated exposure.

Precautionary statements
P260 Do not breathe dust/fume/gas/mist/vapors/spray.
P264 Wash thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves / eye protection / face protection.
P301+P312 If swallowed: Call a poison center/doctor if you feel unwell.
P302+P352 If on skin: Wash with plenty of water.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a poison center/doctor.
P311 Specific treatment (see on this label).
P314 Get medical advice/attention if you feel unwell.
P332+P313 If skin irritation occurs: Get medical advice/attention.
P362+P364 Take off contaminated clothing and wash it before reuse.
P332+P313 If skin irritation occurs: Get medical advice/attention.
P362+P364 Take off contaminated clothing and wash it before reuse.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

Classification system:
NFPA ratings (scale 0 - 4)
Health = 3
Fire = 0
Reactivity = 0

HMIS-ratings (scale 0 - 4)
Health = *3
Fire = 0
Reactivity = 0
Trade name: Endothelin AChE-FAb’ Conjugate

· Other hazards
· Results of PBT and vPvB assessment
    · PBT: Not applicable.
    · vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures
· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:

<table>
<thead>
<tr>
<th>CAS</th>
<th>Substance</th>
<th>RTECS</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>7647-14-5</td>
<td>Sodium chloride</td>
<td>VZ4725000</td>
<td>57.36%</td>
</tr>
<tr>
<td>7758-11-4</td>
<td>Potassium phosphate dibasic</td>
<td>TC5580000</td>
<td>31.51%</td>
</tr>
<tr>
<td>7778-77-0</td>
<td>Potassium phosphate, Monobasic</td>
<td>TC6615500</td>
<td>7.63%</td>
</tr>
<tr>
<td>9048-46-8</td>
<td>Albumin, bovine</td>
<td>AY9296000</td>
<td>2.37%</td>
</tr>
<tr>
<td>26628-22-8</td>
<td>Sodium azide</td>
<td>VY8050000</td>
<td>0.24%</td>
</tr>
</tbody>
</table>

· Other ingredients

<table>
<thead>
<tr>
<th>CAS</th>
<th>Substance</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>194491-31-1</td>
<td>EDTA, tetrasodium salt hydrate</td>
<td>0.88%</td>
</tr>
<tr>
<td></td>
<td>Endothelin AChE-FAb’ Conjugate</td>
<td>0.01%</td>
</tr>
</tbody>
</table>

4 First-aid measures

· Description of first aid measures
· General information:
    · Immediately remove any clothing soiled by the product.
    · Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
· After inhalation: In case of unconsciousness place patient stably in side position for transportation.
· After skin contact: Immediately wash with water and soap and rinse thoroughly.
· After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
· After swallowing: Immediately call a doctor.
· Information for doctor:
· Most important symptoms and effects, both acute and delayed
    · May cause anemia, cough, CNS depression, drowsiness, headache, heart damage, lassitude (weakness, exhaustion), liver damage, narcosis, reproductive effects, teratogenic effects.
    · No further relevant information available.
· Indication of any immediate medical attention and special treatment needed
    · No further relevant information available.

5 Fire-fighting measures

· Extinguishing media
· Suitable extinguishing agents:
    · Use fire fighting measures that suit the environment.
    · A solid water stream may be inefficient.
6 Accidental release measures

- Personal precautions, protective equipment and emergency procedures
  Mount respiratory protective device.
  Wear protective equipment. Keep unprotected persons away.
- Environmental precautions: Do not allow to enter sewers/surface or ground water.
- Methods and material for containment and cleaning up:
  Use neutralizing agent.
  Dispose contaminated material as waste according to item 13.
  Ensure adequate ventilation.
- Reference to other sections
  See Section 7 for information on safe handling.
  See Section 8 for information on personal protection equipment.
  See Section 13 for disposal information.
- Protective Action Criteria for Chemicals
  PAC-1:
<table>
<thead>
<tr>
<th>Compound</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>7758-11-4</td>
<td>13 mg/m³</td>
</tr>
<tr>
<td>7778-77-0</td>
<td>9.6 mg/m³</td>
</tr>
<tr>
<td>26628-22-8</td>
<td>0.026 mg/m³</td>
</tr>
</tbody>
</table>
  PAC-2:
<table>
<thead>
<tr>
<th>Compound</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>7758-11-4</td>
<td>140 mg/m³</td>
</tr>
<tr>
<td>7778-77-0</td>
<td>110 mg/m³</td>
</tr>
<tr>
<td>26628-22-8</td>
<td>0.29 mg/m³</td>
</tr>
</tbody>
</table>
  PAC-3:
<table>
<thead>
<tr>
<th>Compound</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>7758-11-4</td>
<td>830 mg/m³</td>
</tr>
<tr>
<td>7778-77-0</td>
<td>630 mg/m³</td>
</tr>
<tr>
<td>26628-22-8</td>
<td>5.3 mg/m³</td>
</tr>
</tbody>
</table>

7 Handling and storage

- Handling:
  - Precautions for safe handling
    Thorough dedusting.
    Ensure good ventilation/exhaustion at the workplace.
  - Information about protection against explosions and fires:
    Keep respiratory protective device available.
- Conditions for safe storage, including any incompatibilities
  - Storage: Store in accordance with information listed on the product insert.
  - Requirements to be met by storerooms and receptacles: No special requirements.
  - Information about storage in one common storage facility: Not required.
  - Further information about storage conditions: Keep receptacle tightly sealed.
Trade name: Endothelin AChE-FAb' Conjugate

Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see item 7.

- Control parameters

- Components with limit values that require monitoring at the workplace:
The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.
At this time, the other constituents have no known exposure limits.

**26628-22-8 Sodium azide**

<table>
<thead>
<tr>
<th>REL</th>
<th>Ceiling limit value: 0.3** mg/m³, 0.1* ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>*as HN3; **as NaN3; Skin</td>
</tr>
<tr>
<td>TLV</td>
<td>Ceiling limit value: 0.29** mg/m³, 0.11* ppm</td>
</tr>
<tr>
<td></td>
<td>*as HN3 vapor **as NaN3, A4</td>
</tr>
</tbody>
</table>

- Additional information: The lists that were valid during the creation were used as basis.

- Exposure controls

- Personal protective equipment:

- General protective and hygienic measures:
  Keep away from foodstuffs, beverages and feed.
  Immediately remove all soiled and contaminated clothing.
  Wash hands before breaks and at the end of work.
  Store protective clothing separately.
  Avoid contact with the skin.
  Avoid contact with the eyes and skin.

- Breathing equipment:
  In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

- Protection of hands:

  **Protective gloves**

  The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- Material of gloves
  The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

- Penetration time of glove material
  The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
Trade name: Endothelin AChE-FAb' Conjugate

- **Eye protection:**
  - Tightly sealed goggles

### 9 Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Information on basic physical and chemical properties</strong></td>
<td></td>
</tr>
<tr>
<td><strong>General Information</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Appearance</strong></td>
<td></td>
</tr>
<tr>
<td>Form</td>
<td>Lyophilized powder</td>
</tr>
<tr>
<td>Color</td>
<td>According to product specification</td>
</tr>
<tr>
<td><strong>Odor</strong></td>
<td>Characteristic</td>
</tr>
<tr>
<td><strong>Odor threshold</strong></td>
<td>Not determined</td>
</tr>
<tr>
<td><strong>pH-value</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Change in condition</strong></td>
<td></td>
</tr>
<tr>
<td>Melting point/Melting range</td>
<td>Undetermined</td>
</tr>
<tr>
<td>Boiling point/Boiling range</td>
<td>Undetermined</td>
</tr>
<tr>
<td><strong>Flash point</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Flammability (solid, gaseous)</strong></td>
<td>Not determined</td>
</tr>
<tr>
<td><strong>Decomposition temperature</strong></td>
<td>Not determined</td>
</tr>
<tr>
<td><strong>Auto igniting</strong></td>
<td>Product is not selfigniting</td>
</tr>
<tr>
<td><strong>Danger of explosion</strong></td>
<td>Product does not present an explosion hazard.</td>
</tr>
<tr>
<td><strong>Explosion limits</strong></td>
<td></td>
</tr>
<tr>
<td>Lower</td>
<td>Not determined</td>
</tr>
<tr>
<td>Upper</td>
<td>Not determined</td>
</tr>
<tr>
<td><strong>Vapor pressure</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Density</strong></td>
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</tr>
<tr>
<td><strong>Relative density</strong></td>
<td>Not determined</td>
</tr>
<tr>
<td><strong>Vapor density</strong></td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Evaporation rate</strong></td>
<td>Not applicable</td>
</tr>
<tr>
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<td><strong>Partition coefficient (n-octanol/water)</strong></td>
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<tr>
<td><strong>Viscosity</strong></td>
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</tr>
<tr>
<td>Dynamic</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Kinematic</td>
<td>Not applicable</td>
</tr>
<tr>
<td><strong>Solvent content</strong></td>
<td></td>
</tr>
<tr>
<td>VOC content</td>
<td>0.00 %</td>
</tr>
<tr>
<td>Solids content</td>
<td>100.0 %</td>
</tr>
</tbody>
</table>
Trade name: Endothelin AChE-FAb’ Conjugate

10 Stability and reactivity

- **Reactivity**: No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided**: No decomposition if used according to specifications.
- **Possibility of hazardous reactions**: No dangerous reactions known.
- **Conditions to avoid**: No further relevant information available.
- **Incompatible materials**: No further relevant information available.
- **Hazardous decomposition products**: No dangerous decomposition products known.

11 Toxicological information

- **Information on toxicological effects**
  - **Acute toxicity**:
    - **LD/LC50 values that are relevant for classification**:
      - **ATE (Acute Toxicity Estimate)**
        - **Oral**
          - **LD50**: 1,305 mg/kg
      - **7647-14-5 Sodium chloride**
        - **Oral**
          - **LDLO**: 1,000 mg/kg (man)
          - **TDLO**: 650 ml/kg (man)
          - **LD50**: 4,000 mg/kg (mouse)
            - 3,000 mg/kg (rat)
          - **LD50**: 4 g/kg (mouse)
        - **Inhalative**
          - **LD50**: 4 g/kg (mouse)
          - **LC50**: 320 mg/m³ (mouse)
          - **TCLO**: 0.63 mg/m³ (hmn)
          - **LCLO**: 29,300 mg/m³/7h (mouse)
        - **Irritation of skin**
          - **Irritation**: 500 mg/24h (rabbit)
        - **Irritation of eyes**
          - **Irritation**: 100 mg/24h (rabbit)
          - **Intraperitoneal LD50**: 2,602 mg/kg (mouse)
          - **Subcutaneous LD50**: 31.6 mg/kg (rat)
          - **Intravenous LD50**: 59.5 mg/kg (rat)
          - **Data**: 15 mg/3D (hmn)
          - **Subcutaneous LD50**: 3 g/kg (mouse)
      - **7778-77-0 Potassium phosphate, Monobasic**
        - **Oral**
          - **LDLO**: 4,640 mg/kg (rat)
      - **9048-46-8 Albumin, bovine**
        - **Intraperitoneal TDLO**: 0.2 pph (mouse)
      - **26628-22-8 Sodium azide**
        - **Oral**
          - **LDLO**: 27 mg/kg (rat)
          - **TDLO**: 3 ml/kg (wmn)
          - **LD50**: 27 mg/kg (rat)
### 5.2.1.2 Subcutaneous LD50
- 45,100 µg/kg (rat)
- 50 mg/kg (rat)

### 5.2.1.3 Dermal LD50
- 20 mg/kg (rabbit)

### 5.2.1.4 Inhalative LC50
- 37 mg/m³ (rat)

### 5.2.1.5 Subcutaneous LD50
- 45,100 µg/kg (rat)

### 5.2.1.6 Interperitoneal LD50
- 30 mg/kg (rat)

### 5.2.1.7 Intraperitoneal LD50
- 28 mg/kg (mouse)

### 5.2.1.8 Subcutaneous LD50
- 45 mg/kg (rat)

### 5.2.1.9 Data
- 5,500 mg/kg (mouse)

#### Primary irritant effect:
- **on the skin**: Irritant to skin and mucous membranes.
- **on the eye**: Strong irritant with the danger of severe eye injury.
- **Sensitization**: No sensitizing effects known.

#### Additional toxicological information:
The product shows the following dangers according to internally approved calculation methods for preparations:
- **Harmful**
- **Irritant**

#### Carcinogenic categories
- **IARC (International Agency for Research on Cancer)**
  - None of the ingredients is listed.
- **NTP (National Toxicology Program)**
  - None of the ingredients is listed.
- **OSHA-Ca (Occupational Safety & Health Administration)**
  - None of the ingredients is listed.

### 12 Ecological information

#### Toxicity
- **Aquatic toxicity**: No further relevant information available.
- **Persistence and degradability**: No further relevant information available.
- **Behavior in environmental systems**:
  - **Bioaccumulative potential**: No further relevant information available.
  - **Mobility in soil**: No further relevant information available.
- **Additional ecological information**:
- **General notes**:
  - Water hazard class 1 (Self-assessment): slightly hazardous for water
  - Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
  - Must not reach bodies of water or drainage ditch undiluted or unneutralized.
- **Results of PBT and vPvB assessment**
  - **PBT**: Not applicable.
  - **vPvB**: Not applicable.
- **Other adverse effects**: No further relevant information available.
13 Disposal considerations

- **Waste treatment methods**
  - **Recommendation:** Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

- **Uncleaned packagings:**
  - **Recommendation:** Disposal must be made according to official regulations.
  - **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

- **UN-Number**
  - DOT, IMDG, IATA: not regulated

- **UN proper shipping name**
  - DOT, IMDG, IATA: not regulated

- **Transport hazard class(es)**
  - DOT, ADN, IMDG, IATA: not regulated

- **Packing group**
  - DOT, IMDG, IATA: not regulated

- **Environmental hazards:** Not applicable.

- **Special precautions for user** Not applicable.

- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.

- **UN "Model Regulation"**: not regulated

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
  - No further relevant information available.

- **Sara**
  - **Section 355 (extremely hazardous substances):**
    - 26628-22-8 Sodium azide

- **Section 313 (Specific toxic chemical listings):**
  - 26628-22-8 Sodium azide

- **TSCA (Toxic Substances Control Act):**
  - 7647-14-5 Sodium chloride: ACTIVE
  - 7758-11-4 Potassium phosphate dibasic: ACTIVE
  - 7778-77-0 Potassium phosphate, Monobasic: ACTIVE
  - 9048-46-8 Albumin, bovine: ACTIVE
  - 26628-22-8 Sodium azide: ACTIVE

(Contd. on page 10)
Trade name: Endothelin AChE-Fab' Conjugate

- **Hazardous Air Pollutants**
  None of the ingredients is listed.

- **Proposition 65**
  - **Chemicals known to cause cancer:**
    None of the ingredients is listed.
  - **Chemicals known to cause reproductive toxicity for females:**
    None of the ingredients is listed.
  - **Chemicals known to cause reproductive toxicity for males:**
    None of the ingredients is listed.
  - **Chemicals known to cause developmental toxicity:**
    None of the ingredients is listed.

- **Carcinogenic categories**
  - **EPA (Environmental Protection Agency)**
    None of the ingredients is listed.
  - **TLV (Threshold Limit Value)**
    26628-22-8 Sodium azide A4
  - **NIOSH-Ca (National Institute for Occupational Safety and Health)**
    None of the ingredients is listed.
  - **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

All chemicals may pose unknown hazards and should be used with caution. This SDS applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. Cayman Chemical Company assumes no responsibility for incidental or consequential damages, including lost profits, arising from the use of these data. It shall be the user’s responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Cayman Chemical Company assumes no responsibility for the completeness or accuracy of the information contained herein.

- **Department issuing SDS:** Environment protection department.
- **Contact:** -
- **Date of preparation / last revision** 03/24/2022 / -
- **Abbreviations and acronyms:**
  - IMDG: International Maritime Code for Dangerous Goods
  - DOT: US Department of Transportation
  - IATA: International Air Transport Association
  - EINECS: European Inventory of Existing Commercial Chemical Substances
  - ELINCS: European List of Notified Chemical Substances
  - CAS: Chemical Abstracts Service (division of the American Chemical Society)
  - NFPA: National Fire Protection Association (USA)
  - HMIS: Hazardous Materials Identification System (USA)
  - VOC: Volatile Organic Compounds (USA, EU)
  - LC50: Lethal concentration, 50 percent
  - LD50: Lethal dose, 50 percent
  - PBT: Persistent, Bioaccumulative and Toxic
  - vPvB: very Persistent and very Bioaccumulative
  - NIOSH: National Institute for Occupational Safety
  - OSHA: Occupational Safety & Health
  - TLV: Threshold Limit Value
  - PEL: Permissible Exposure Limit
  - REL: Recommended Exposure Limit
Trade name: Endothelin AChE-FAb’ Conjugate

Acute Tox. 4: Acute toxicity – Category 4
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2
1 Identification

· Product identifier
· Trade name: Anti-Endothelin ELISA Strip Plate
· Article number: 483152
· Application of the substance / the mixture
  This product is for research use - Not for human or veterinary diagnostic or therapeutic use.
· Details of the supplier of the safety data sheet
· Manufacturer/Supplier:
  Cayman Chemical Co.
  1180 E. Ellsworth Rd.
  Ann Arbor, MI 48108
  USA
· Information department: Product safety department
· Emergency telephone number:
  During normal opening times: +1 (734) 971-3335
  US/CANADA: 800-424-9300
  Outside US/CANADA: 703-741-5970

2 Hazard(s) identification

· Classification of the substance or mixture
  The substance is not classified, according to the Globally Harmonized System (GHS).
· Label elements
  · GHS label elements None
  · Hazard pictograms None
  · Signal word None
  · Hazard statements None
  · Classification system:
  · NFPA ratings (scale 0 - 4)
    Health = 0
    Fire = 0
    Reactivity = 0
  · HMIS-ratings (scale 0 - 4)
    HEALTH 0: Health = 0
    FIRE 0: Fire = 0
    REACTIVITY 0: Reactivity = 0

(Contd. on page 2)
Trade name: Anti-Endothelin ELISA Strip Plate

3 Composition/information on ingredients

Chemical characterization: Substances
CAS No. Description
Anti-Endothelin ELISA Strip Plate

4 First-aid measures

Description of first aid measures
General information: No special measures required.
After inhalation: Supply fresh air; consult doctor in case of complaints.
After skin contact: Generally the product does not irritate the skin.
After eye contact: Rinse opened eye for several minutes under running water.
After swallowing: If symptoms persist consult doctor.
Information for doctor:
Most important symptoms and effects, both acute and delayed
May cause anemia, cough, CNS depression, drowsiness, headache, heart damage, lassitude (weakness, exhaustion), liver damage, narcosis, reproductive effects, teratogenic effects.
No further relevant information available.
Indication of any immediate medical attention and special treatment needed
No further relevant information available.

5 Fire-fighting measures

Extinguishing media
Suitable extinguishing agents:
Use fire fighting measures that suit the environment.
A solid water stream may be inefficient.
Special hazards arising from the substance or mixture: No further relevant information available.
Advice for firefighters
Protective equipment: No special measures required.

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures: Not required.
Environmental precautions: Do not allow to enter sewers/ surface or ground water.
Methods and material for containment and cleaning up: Pick up mechanically.
Reference to other sections
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
Protective Action Criteria for Chemicals
PAC-1: Substance is not listed.
PAC-2: Substance is not listed.
7 Handling and storage

· Handling:
  · Precautions for safe handling: No special measures required.
  · Information about protection against explosions and fires: No special measures required.

· Conditions for safe storage, including any incompatibilities
  · Storage: Store in accordance with information listed on the product insert.
  · Requirements to be met by storerooms and receptacles: No special requirements.
  · Information about storage in one common storage facility: Not required.
  · Further information about storage conditions: None.
  · Specific end use(s): No further relevant information available.

8 Exposure controls/personal protection

· Additional information about design of technical systems: No further data; see item 7.

· Control parameters
  · Components with limit values that require monitoring at the workplace: Not required.
  · Additional information: The lists that were valid during the creation were used as basis.

· Exposure controls
  · Personal protective equipment:
    · General protective and hygienic measures:
      The usual precautionary measures for handling chemicals should be followed.
    · Breathing equipment: Not required.
    · Protection of hands:
      The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
    · Material of gloves
      The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
    · Penetration time of glove material
      The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
    · Eye protection: Not required.

9 Physical and chemical properties

· Information on basic physical and chemical properties
  · General Information
    · Appearance:
      Form: PLATE
      Color: According to product specification
      Odor: Characteristic
    · Odor threshold: Not determined.
Trade name: Anti-Endothelin ELISA Strip Plate

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH-value</td>
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<td>Change in condition</td>
<td>Undetermined</td>
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<tr>
<td>Melting point/Melting range</td>
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<tr>
<td>Boiling point/Boiling range</td>
<td>Undetermined</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability (solid, gaseous)</td>
<td>Product is not flammable</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not determined</td>
</tr>
<tr>
<td>Auto igniting</td>
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<td>Danger of explosion</td>
<td>Product does not present an explosion hazard</td>
</tr>
<tr>
<td>Explosion limits</td>
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<td>Lower</td>
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<tr>
<td>Upper</td>
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<td>Vapor pressure</td>
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</tr>
<tr>
<td>Density</td>
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</tr>
<tr>
<td>Relative density</td>
<td>Not determined</td>
</tr>
<tr>
<td>Vapor density</td>
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</tr>
<tr>
<td>Evaporation rate</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Solubility in / Miscibility with Water</td>
<td>Not determined</td>
</tr>
<tr>
<td>Partition coefficient (n-octanol/water)</td>
<td>Not determined</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Dynamic</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Kinematic</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Other information</td>
<td>No further relevant information available</td>
</tr>
</tbody>
</table>

10 Stability and reactivity

- Reactivity: No further relevant information available.
- Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- Possibility of hazardous reactions: No dangerous reactions known.
- Conditions to avoid: No further relevant information available.
- Incompatible materials: No further relevant information available.
- Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicological information

- Information on toxicological effects
- Acute toxicity:
- Primary irritant effect:
  - on the skin: No irritant effect.
  - on the eye: No irritating effect.
- Sensitization: No sensitizing effects known.
Trade name: Anti-Endothelin ELISA Strip Plate

- **Additional toxicological information:**
  When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us. The substance is not subject to classification.

- **Carcinogenic categories**
  - IARC (International Agency for Research on Cancer) Substance is not listed.
  - NTP (National Toxicology Program) Substance is not listed.
  - OSHA-Ca (Occupational Safety & Health Administration) Substance is not listed.

### 12 Ecological information

- **Toxicity**
  - Aquatic toxicity: No further relevant information available.
  - Persistence and degradability: No further relevant information available.

- **Behavior in environmental systems:**
  - Bioaccumulative potential: No further relevant information available.
  - Mobility in soil: No further relevant information available.

- **Additional ecological information:**
  - General notes:
    Water hazard class 1 (Self-assessment): slightly hazardous for water
    Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

- **Results of PBT and vPvB assessment**
  - PBT: Not applicable.
  - vPvB: Not applicable.
  - Other adverse effects: No further relevant information available.

### 13 Disposal considerations

- **Waste treatment methods**
  - Recommendation: Smaller quantities can be disposed of with household waste.

- **Uncleaned packagings:**
  - Recommendation: Disposal must be made according to official regulations.

### 14 Transport information

- **UN-Number**
  - DOT, IMDG, IATA: not regulated

- **UN proper shipping name**
  - DOT, IMDG, IATA: not regulated

- **Transport hazard class(es)**
  - DOT, ADN, IMDG, IATA: not regulated

- **Packing group**
  - DOT, IMDG, IATA: not regulated

- **Environmental hazards:**
  - Not applicable.
Trade name: Anti-Endothelin ELISA Strip Plate

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
  - No further relevant information available.
- Sara
- Section 355 (extremely hazardous substances): Substance is not listed.
- Section 313 (Specific toxic chemical listings): Substance is not listed.
- TSCA (Toxic Substances Control Act): Substance is not listed.
- Hazardous Air Pollutants: Substance is not listed.
- Proposition 65
  - Chemicals known to cause cancer: Substance is not listed.
  - Chemicals known to cause reproductive toxicity for females: Substance is not listed.
  - Chemicals known to cause reproductive toxicity for males: Substance is not listed.
  - Chemicals known to cause developmental toxicity: Substance is not listed.
- Carcinogenic categories
- EPA (Environmental Protection Agency) Substance is not listed.
- TLV (Threshold Limit Value) Substance is not listed.
- NIOSH-Ca (National Institute for Occupational Safety and Health) Substance is not listed.
- Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

All chemicals may pose unknown hazards and should be used with caution. This SDS applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. Cayman Chemical Company assumes no responsibility for incidental or consequential damages, including lost profits, arising from the use of these data. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Cayman Chemical Company assumes no responsibility for the completeness or accuracy of the information contained herein.

- Department issuing SDS: Environment protection department.
- Contact: -
- Date of preparation / last revision 03/24/2022 / -
- Abbreviations and acronyms:
  - IMDG: International Maritime Code for Dangerous Goods
  - DOT: US Department of Transportation
  - IATA: International Air Transport Association
  - CAS: Chemical Abstracts Service (division of the American Chemical Society)
  - NFPA: National Fire Protection Association (USA)
  - HMIS: Hazardous Materials Identification System (USA)
  - PBT: Persistent, Bioaccumulative and Toxic
  - vPvB: very Persistent and very Bioaccumulative
  - NIOSH: National Institute for Occupational Safety
  - OSHA: Occupational Safety & Health
  - TLV: Threshold Limit Value
  - PEL: Permissible Exposure Limit
  - REL: Recommended Exposure Limit
1 Identification

· Product identifier

· Trade name: Endothelin ELISA Standard

· Article number: 483154

· Application of the substance / the mixture
  This product is for research use - Not for human or veterinary diagnostic or therapeutic use.

· Details of the supplier of the safety data sheet

· Manufacturer/Supplier:
  Cayman Chemical Co.
  1180 E. Ellsworth Rd.
  Ann Arbor, MI 48108
  USA

· Information department: Product safety department

· Emergency telephone number:
  During normal opening times: +1 (734) 971-3335
  US/CANADA: 800-424-9300
  Outside US/CANADA: 703-741-5970

2 Hazard(s) identification

· Classification of the substance or mixture

  GHS08 Health hazard
  STOT RE 2  H373 May cause damage to organs through prolonged or repeated exposure.

  GHS05 Corrosion
  Eye Dam. 1  H318 Causes serious eye damage.

  GHS07
  Acute Tox. 4  H302 Harmful if swallowed.
  Skin Irrit. 2  H315 Causes skin irritation.
  STOT SE 3  H335 May cause respiratory irritation.

· Label elements

· GHS label elements
  The product is classified and labeled according to the Globally Harmonized System (GHS).
Trade name: Endothelin ELISA Standard

- **Hazard pictograms**
  - GHS05
  - GHS07
  - GHS08

- **Signal word** Danger

- **Hazard-determining components of labeling:**
  - Potassium phosphate dibasic
  - Sodium chloride
  - Potassium phosphate, Monobasic
  - Albumin, bovine

- **Hazard statements**
  - H302 Harmful if swallowed.
  - H315 Causes skin irritation.
  - H318 Causes serious eye damage.
  - H335 May cause respiratory irritation.
  - H373 May cause damage to organs through prolonged or repeated exposure.

- **Precautionary statements**
  - P260 Do not breathe dust/fume/gas/mist/vapors/spray.
  - P264 Wash thoroughly after handling.
  - P270 Do not eat, drink or smoke when using this product.
  - P271 Use only outdoors or in a well-ventilated area.
  - P280 Wear protective gloves / eye protection / face protection.
  - P301+P312 If swallowed: Call a poison center/doctor if you feel unwell.
  - P302+P352 If on skin: Wash with plenty of water.
  - P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
  - P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  - P310 Immediately call a poison center/doctor.
  - P321 Specific treatment (see on this label).
  - P314 Get medical advice/attention if you feel unwell.
  - P330 Rinse mouth.
  - P362+P364 Take off contaminated clothing and wash it before reuse.
  - P332+P313 If skin irritation occurs: Get medical advice/attention.
  - P403+P233 Store in a well-ventilated place. Keep container tightly closed.
  - P405 Store locked up.
  - P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Classification system:**
  - **NFPA ratings (scale 0 - 4)**
    - Health = 3
    - Fire = 0
    - Reactivity = 0
  - **HMIS-ratings (scale 0 - 4)**
    - Health = *3
    - Fire = 0
    - Reactivity = 0
Trade name: Endothelin ELISA Standard

- Other hazards
- Results of PBT and vPvB assessment
  - PBT: Not applicable.
  - vPvB: Not applicable.

### 3 Composition/information on ingredients

- Chemical characterization: Mixtures
  - Description: Mixture of the substances listed below with nonhazardous additions.

#### Dangerous components:

<table>
<thead>
<tr>
<th>CAS</th>
<th>RTECS</th>
<th>Ingredient</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>7647-14-5</td>
<td>VZ4725000</td>
<td>Sodium chloride</td>
<td>57.36%</td>
</tr>
<tr>
<td>7758-11-4</td>
<td>TC5580000</td>
<td>Potassium phosphate dibasic</td>
<td>31.51%</td>
</tr>
<tr>
<td>7778-77-0</td>
<td>TC6615500</td>
<td>Potassium phosphate, Monobasic</td>
<td>7.63%</td>
</tr>
<tr>
<td>9048-46-8</td>
<td>AY9296000</td>
<td>Albumin, bovine</td>
<td>2.37%</td>
</tr>
<tr>
<td>26628-22-8</td>
<td>VY8050000</td>
<td>Sodium azide</td>
<td>0.24%</td>
</tr>
<tr>
<td>194491-31-1</td>
<td>EDTA, tetrasodium salt hydrate</td>
<td></td>
<td>0.88%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Endothelin</td>
<td>0.01%</td>
</tr>
</tbody>
</table>

#### Other ingredients

- 194491-31-1 EDTA, tetrasodium salt hydrate 0.88%
- Endothelin 0.01%

### 4 First-aid measures

- Description of first aid measures
  - General information:
    - Immediately remove any clothing soiled by the product.
    - Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
  - After inhalation: In case of unconsciousness place patient stably in side position for transportation.
  - After skin contact: Immediately wash with water and soap and rinse thoroughly.
  - After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
  - After swallowing: Immediately call a doctor.
  - Information for doctor:
    - Most important symptoms and effects, both acute and delayed
      - May cause anemia, cough, CNS depression, drowsiness, headache, heart damage, lassitude (weakness, exhaustion), liver damage, narcosis, reproductive effects, teratogenic effects.
      - No further relevant information available.
    - Indication of any immediate medical attention and special treatment needed
      - No further relevant information available.

### 5 Fire-fighting measures

- Extinguishing media
  - Suitable extinguishing agents:
    - Use fire fighting measures that suit the environment.
    - A solid water stream may be inefficient.

(Contd. on page 4)
Trade name: Endothelin ELISA Standard

- **Special hazards arising from the substance or mixture**
  - 67-55-1 During heating or in case of fire poisonous gases are produced.
  - **Advice for firefighters**
  - **Protective equipment**: Mouth respiratory protective device.

### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
  - Mount respiratory protective device.
  - Wear protective equipment. Keep unprotected persons away.
  - **Environmental precautions**: Do not allow to enter sewers/surface or ground water.

- **Methods and material for containment and cleaning up**
  - Use neutralizing agent.
  - Dispose contaminated material as waste according to item 13.
  - Ensure adequate ventilation.

- **Reference to other sections**
  - See Section 7 for information on safe handling.
  - See Section 8 for information on personal protection equipment.
  - See Section 13 for disposal information.

- **Protective Action Criteria for Chemicals**

<table>
<thead>
<tr>
<th>PAC-1:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>7758-11-4</td>
<td>Potassium phosphate dibasic</td>
</tr>
<tr>
<td>7778-77-0</td>
<td>Potassium phosphate, Monobasic</td>
</tr>
<tr>
<td>26628-22-8</td>
<td>Sodium azide</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PAC-2:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>7758-11-4</td>
<td>Potassium phosphate dibasic</td>
</tr>
<tr>
<td>7778-77-0</td>
<td>Potassium phosphate, Monobasic</td>
</tr>
<tr>
<td>26628-22-8</td>
<td>Sodium azide</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PAC-3:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>7758-11-4</td>
<td>Potassium phosphate dibasic</td>
</tr>
<tr>
<td>7778-77-0</td>
<td>Potassium phosphate, Monobasic</td>
</tr>
<tr>
<td>26628-22-8</td>
<td>Sodium azide</td>
</tr>
</tbody>
</table>

### 7 Handling and storage

- **Handling**
  - **Precautions for safe handling**
    - Thorough dedusting.
    - Ensure good ventilation/exhaustion at the workplace.
    - **Information about protection against explosions and fires**
      - Keep respiratory protective device available.

- **Conditions for safe storage, including any incompatibilities**
  - **Storage**: Store in accordance with information listed on the product insert.
  - **Requirements to be met by storerooms and receptacles**: No special requirements.
  - **Information about storage in one common storage facility**: Not required.
  - **Further information about storage conditions**: Keep receptacle tightly sealed.
Trade name: Endothelin ELISA Standard

8 Exposure controls/personal protection

- Additional information about design of technical systems: No further data; see item 7.

- Control parameters

- Components with limit values that require monitoring at the workplace:
The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.
At this time, the other constituents have no known exposure limits.

<table>
<thead>
<tr>
<th>26628-22-8 Sodium azide</th>
</tr>
</thead>
<tbody>
<tr>
<td>REL Ceiling limit value: 0.3** mg/m³, 0.1* ppm</td>
</tr>
<tr>
<td>*as HN3; **as NaN₃; Skin</td>
</tr>
<tr>
<td>TLV Ceiling limit value: 0.29** mg/m³, 0.11* ppm</td>
</tr>
<tr>
<td>*as HN₃ vapor **as NaN₃, A4</td>
</tr>
</tbody>
</table>

- Additional information: The lists that were valid during the creation were used as basis.

- Exposure controls

- Personal protective equipment:

- General protective and hygienic measures:
  Keep away from foodstuffs, beverages and feed.
  Immediately remove all soiled and contaminated clothing.
  Wash hands before breaks and at the end of work.
  Store protective clothing separately.
  Avoid contact with the skin.
  Avoid contact with the eyes and skin.

- Breathing equipment:
  In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

- Protection of hands:

  Protective gloves

  The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

- Material of gloves
  The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

- Penetration time of glove material
  The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
# 9 Physical and chemical properties

<table>
<thead>
<tr>
<th>· Information on basic physical and chemical properties</th>
<th>· General Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>· Appearance:</td>
<td>Lyophilized powder</td>
</tr>
<tr>
<td>· Form:</td>
<td></td>
</tr>
<tr>
<td>· Color:</td>
<td>According to product specification</td>
</tr>
<tr>
<td>· Odor:</td>
<td>Characteristic</td>
</tr>
<tr>
<td>· Odor threshold:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>· pH-value:</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>· Change in condition</td>
<td>Undetermined.</td>
</tr>
<tr>
<td>· Melting point/Melting range:</td>
<td></td>
</tr>
<tr>
<td>· Boiling point/Boiling range:</td>
<td>Undetermined.</td>
</tr>
<tr>
<td>· Flash point:</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>· Flammability (solid, gaseous):</td>
<td>Not determined.</td>
</tr>
<tr>
<td>· Decomposition temperature:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>· Auto igniting:</td>
<td>Product is not selfigniting.</td>
</tr>
<tr>
<td>· Danger of explosion:</td>
<td>Product does not present an explosion hazard.</td>
</tr>
<tr>
<td>· Explosion limits:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>· Lower:</td>
<td></td>
</tr>
<tr>
<td>· Upper:</td>
<td></td>
</tr>
<tr>
<td>· Vapor pressure:</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>· Density:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>· Relative density:</td>
<td>Not determined.</td>
</tr>
<tr>
<td>· Vapor density:</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>· Evaporation rate:</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>· Solubility in / Miscibility with Water:</td>
<td>Soluble.</td>
</tr>
<tr>
<td>· Partition coefficient (n-octanol/water):</td>
<td>Not determined.</td>
</tr>
<tr>
<td>· Viscosity:</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>· Dynamic:</td>
<td></td>
</tr>
<tr>
<td>· Kinematic:</td>
<td></td>
</tr>
<tr>
<td>· Solvent content:</td>
<td>0.00 %</td>
</tr>
<tr>
<td>· VOC content:</td>
<td></td>
</tr>
<tr>
<td>· Solids content:</td>
<td>100.0 %</td>
</tr>
</tbody>
</table>

(Contd. on page 7)
10 Stability and reactivity

- **Reactivity**: No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided**: No decomposition if used according to specifications.
- **Possibility of hazardous reactions**: No dangerous reactions known.
- **Conditions to avoid**: No further relevant information available.
- **Incompatible materials**: No further relevant information available.
- **Hazardous decomposition products**: No dangerous decomposition products known.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity**:

<table>
<thead>
<tr>
<th>ATE (Acute Toxicity Estimate)</th>
<th>Oral LD50</th>
<th>1,305 mg/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>7647-14-5 Sodium chloride</td>
<td>Oral</td>
<td></td>
</tr>
<tr>
<td>LDLO</td>
<td>1,000 mg/kg (man)</td>
<td></td>
</tr>
<tr>
<td>TDLO</td>
<td>650 ml/kg (man)</td>
<td></td>
</tr>
<tr>
<td>LD50</td>
<td>4,000 mg/kg (mouse)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3,000 mg/kg (rat)</td>
<td></td>
</tr>
<tr>
<td>LC50</td>
<td>320 mg/m³ (mouse)</td>
<td></td>
</tr>
<tr>
<td>TCLO</td>
<td>0.63 mg/m³ (hmn)</td>
<td></td>
</tr>
<tr>
<td>LCLO</td>
<td>29,300 mg/m³/7h (mouse)</td>
<td></td>
</tr>
<tr>
<td>Irritation of skin</td>
<td>Irritation 500 mg/24h (rabbit)</td>
<td></td>
</tr>
<tr>
<td>Irritation of eyes</td>
<td>Irritation 100 mg/24h (rabbit)</td>
<td></td>
</tr>
<tr>
<td>Intraperitoneal LD50</td>
<td>2,602 mg/kg (mouse)</td>
<td></td>
</tr>
<tr>
<td>Subcutaneous LD50</td>
<td>31.6 mg/kg (rat)</td>
<td></td>
</tr>
<tr>
<td>Intravenous LD50</td>
<td>59.5 mg/kg (rat)</td>
<td></td>
</tr>
<tr>
<td>Data</td>
<td>15 mg/3D (hmn)</td>
<td></td>
</tr>
<tr>
<td>Subcutaneous LD50</td>
<td>3 g/kg (mouse)</td>
<td></td>
</tr>
</tbody>
</table>

  | 7778-77-0 Potassium phosphate, Monobasic | Oral LDLO | 4,640 mg/kg (rat) |
  | 9048-46-8 Albumin, bovine          | Intraperitoneal TDLO | 0.2 pph (mouse) |
  | 26628-22-8 Sodium azide           | Oral LDLO | 27 mg/kg (rat)   |
  |                                 | TDLO      | 3 ml/kg (wmn)    |
  |                                 | LD50      | 27 mg/kg (rat)   |

(Contd. on page 8)
Trade name: Endothelin ELISA Standard

<table>
<thead>
<tr>
<th>Route</th>
<th>LD50/LC50 Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dermal</td>
<td>Subcutaneous LD50 45,100 µg/kg (rat)</td>
</tr>
<tr>
<td></td>
<td>LD50 50 mg/kg (rat)</td>
</tr>
<tr>
<td></td>
<td>20 mg/kg (rabbit)</td>
</tr>
<tr>
<td>Inhalative</td>
<td>LC50 37 mg/m³ (rat)</td>
</tr>
<tr>
<td></td>
<td>Subcutaneous LD50 45,100 µg/kg (rat)</td>
</tr>
<tr>
<td></td>
<td>Interperitoneal LDLO 30 mg/kg (rat)</td>
</tr>
<tr>
<td></td>
<td>Intraperitoneal LD50 28 mg/kg (mouse)</td>
</tr>
<tr>
<td></td>
<td>Subcutaneous LD50 45 mg/kg (rat)</td>
</tr>
<tr>
<td></td>
<td>Data 5,500 mg/kg (mouse)</td>
</tr>
</tbody>
</table>

- **Primary irritant effect:**
  - **on the skin:** Irritant to skin and mucous membranes.
  - **on the eye:** Strong irritant with the danger of severe eye injury.
  - **Sensitization:** No sensitizing effects known.

- **Additional toxicological information:**
  The product shows the following dangers according to internally approved calculation methods for preparations:
  - Harmful
  - Irritant

- **Carcinogenic categories**
  - **IARC (International Agency for Research on Cancer)**
    None of the ingredients is listed.
  - **NTP (National Toxicology Program)**
    None of the ingredients is listed.
  - **OSHA-Ca (Occupational Safety & Health Administration)**
    None of the ingredients is listed.

### 12 Ecological information

- **Toxicity**
  - **Aquatic toxicity:** No further relevant information available.
  - **Persistence and degradability** No further relevant information available.
  - **Behavior in environmental systems:**
    - **Bioaccumulative potential** No further relevant information available.
    - **Mobility in soil** No further relevant information available.
  - **Additional ecological information:**
    - **General notes:**
      Water hazard class 1 (Self-assessment): slightly hazardous for water
      Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
      Must not reach bodies of water or drainage ditch undiluted or unneutralized.
  - **Results of PBT and vPvB assessment**
    - **PBT:** Not applicable.
    - **vPvB:** Not applicable.
  - **Other adverse effects** No further relevant information available.
13 Disposal considerations

- Waste treatment methods
  - Recommendation: Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

- Uncleaned packagings:
  - Recommendation: Disposal must be made according to official regulations.
  - Recommended cleansing agent: Water, if necessary with cleansing agents.

14 Transport information

- UN-Number
  - DOT, IMDG, IATA: Not regulated

- UN proper shipping name
  - DOT, IMDG, IATA: Not regulated

- Transport hazard class(es)
  - DOT, ADN, IMDG, IATA: Not regulated

- Packing group
  - DOT, IMDG, IATA: Not regulated

- Environmental hazards: Not applicable.

- Special precautions for user: Not applicable.

- Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable.

- UN "Model Regulation": Not regulated

15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
  - No further relevant information available.

- Sara

- Section 355 (extremely hazardous substances):
  - 26628-22-8 Sodium azide

- Section 313 (Specific toxic chemical listings):
  - 26628-22-8 Sodium azide

- TSCA (Toxic Substances Control Act):
  - 7647-14-5 Sodium chloride: ACTIVE
  - 7758-11-4 Potassium phosphate dibasic: ACTIVE
  - 7778-77-0 Potassium phosphate, Monobasic: ACTIVE
  - 9048-46-8 Albumin, bovine: ACTIVE
  - 26628-22-8 Sodium azide: ACTIVE
### Hazardous Air Pollutants

None of the ingredients is listed.

### Proposition 65

- **Chemicals known to cause cancer:**
  None of the ingredients is listed.

- **Chemicals known to cause reproductive toxicity for females:**
  None of the ingredients is listed.

- **Chemicals known to cause reproductive toxicity for males:**
  None of the ingredients is listed.

- **Chemicals known to cause developmental toxicity:**
  None of the ingredients is listed.

### Carcinogenic categories

- **EPA (Environmental Protection Agency)**
  None of the ingredients is listed.

- **TLV (Threshold Limit Value)**
  26628-22-8 Sodium azide A4

- **NIOSH-Ca (National Institute for Occupational Safety and Health)**
  None of the ingredients is listed.

- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## 16 Other information

All chemicals may pose unknown hazards and should be used with caution. This SDS applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. Cayman Chemical Company assumes no responsibility for incidental or consequential damages, including lost profits, arising from the use of these data. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Cayman Chemical Company assumes no responsibility for the completeness or accuracy of the information contained herein.

- **Department issuing SDS:** Environment protection department.

- **Contact:** -

- **Date of preparation / last revision** 03/24/2022 / -

- **Abbreviations and acronyms:**
  - IMDG: International Maritime Code for Dangerous Goods
  - DOT: US Department of Transportation
  - IATA: International Air Transport Association
  - EINECS: European Inventory of Existing Commercial Chemical Substances
  - ELINCS: European List of Notified Chemical Substances
  - CAS: Chemical Abstracts Service (division of the American Chemical Society)
  - NFPA: National Fire Protection Association (USA)
  - HMIS: Hazardous Materials Identification System (USA)
  - VOC: Volatile Organic Compounds (USA, EU)
  - LC50: Lethal concentration, 50 percent
  - LD50: Lethal dose, 50 percent
  - PBT: Persistent, Bioaccumulative and Toxic
  - vPvB: very Persistent and very Bioaccumulative
  - NIOSH: National Institute for Occupational Safety
  - OSHA: Occupational Safety & Health
  - TLV: Threshold Limit Value
  - PEL: Permissible Exposure Limit
  - REL: Recommended Exposure Limit
Acute Tox. 4: Acute toxicity – Category 4
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2