1 Identification

- Product identifier
  - Trade name: Substance P ELISA Standard
  - Article number: 483754
- Application of the substance / the mixture
  This product is for research use - Not for human or veterinary diagnostic or therapeutic use. It is the responsibility of the purchaser to determine suitability for other applications.

- 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.

(Contd. on page 2)
Label elements

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

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: Substance P 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>Substance</th>
<th>%</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>
</tbody>
</table>

· Other ingredients
  | Substance          | %  |
  | EDTA, tetrasodium salt hydrate | 0.88% |
  | Substance P | 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.
Trade name: Substance P ELISA Standard

- 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

<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
  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.

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>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Information</strong></td>
<td></td>
</tr>
<tr>
<td>Appearance</td>
<td>Lyophilized powder</td>
</tr>
<tr>
<td>Form:</td>
<td></td>
</tr>
<tr>
<td>Color:</td>
<td>Not determined.</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></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>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>
</tbody>
</table>
| 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 %                                    |
# Safety Data Sheet
acc. to OSHA HCS

Printing date 11/29/2021
Revision date 11/29/2021

Trade name: Substance P ELISA Standard

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## 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>
<th>Oral</th>
<th>LD50</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1,305 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></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></td>
<td>3,000 mg/kg (rat)</td>
</tr>
<tr>
<td>Inhalative</td>
<td>LD50</td>
<td>4 g/kg (mouse)</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>
</tbody>
</table>

| Irritation of skin | Irritation 500 mg/24h (rabbit) |
| Irritation of eyes | Irritation 100 mg/24h (rabbit) |

### Intraperitoneal LD50

| LD50 | 2,602 mg/kg (mouse) |

### Subcutaneous LD50

| 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) |

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

- **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
Safety Data Sheet
acc. to OSHA HCS

Trade name: Substance P ELISA Standard

· 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 11/29/2021 / -

· 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

(Contd. on page 11)
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

* Data compared to the previous version altered.