



## Safety Data Sheet

acc. to OSHA HCS

Printing date 01/05/2023

Revision date 01/05/2023

### 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)

US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/05/2023

Revision date 01/05/2023

Trade name: Polysorbate 20

(Contd. from page 1)

- **HMIS-ratings (scale 0 - 4)**

|            |   |                |
|------------|---|----------------|
| HEALTH     | 0 | Health = 0     |
| FIRE       | 1 | Fire = 1       |
| REACTIVITY | 0 | 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**  
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).
- **Reference to other sections**  
See Section 7 for information on safe handling.

(Contd. on page 3)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/05/2023

Revision date 01/05/2023

Trade name: Polysorbate 20

(Contd. from page 2)

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:** 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:** Goggles recommended during refilling.

US

(Contd. on page 4)

# Safety Data Sheet

## acc. to OSHA HCS

Printing date 01/05/2023

Revision date 01/05/2023

Trade name: Polysorbate 20

(Contd. from page 3)

### 9 Physical and chemical properties

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

- **General Information**

- **Appearance:**

|                   |                 |
|-------------------|-----------------|
| Form:             | Liquid          |
| Color:            | Not determined. |
| · Odor:           | Characteristic  |
| · Odor threshold: | Not applicable. |

- **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.

- **Evaporation 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

(Contd. on page 5)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/05/2023

Revision date 01/05/2023

Trade name: Polysorbate 20

(Contd. from page 4)

- **Hazardous decomposition products:** carbon oxides

## 11 Toxicological information

- **Information on toxicological effects**

- **Acute toxicity:**

- **LD/LC50 values that are relevant for classification:**

|      |                      |                    |
|------|----------------------|--------------------|
| Oral | LD50                 | >33 g/kg (mouse)   |
|      | LD50                 | 36,700 µL/kg (rat) |
|      | Intraperitoneal LD50 | 3,850 mg/kg (rat)  |
|      | Intraperitoneal LD50 | 3,850 mg/kg (rat)  |

- **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 (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 determined.

- **vPvB:** Not determined.

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

## 13 Disposal considerations

- **Waste treatment methods**

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

(Contd. on page 6)

US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/05/2023

Revision date 01/05/2023

Trade name: Polysorbate 20

(Contd. from page 5)

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

## 14 Transport information

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

(Contd. on page 7)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/05/2023

Revision date 01/05/2023

**Trade name: Polysorbate 20**

(Contd. from page 6)

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** 01/05/2023

- **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.**

US



## Safety Data Sheet acc. to OSHA HCS

Printing date 02/14/2023

Revision date 02/14/2023

### 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

Specific Target Organ Toxicity - Repeated Exposure H373 May cause damage to organs through prolonged or repeated exposure.



GHS05 Corrosion

Eye Damage 1

H318 Causes serious eye damage.



GHS07

Skin Irritation 2

H315 Causes skin irritation.

Specific Target Organ Toxicity - Single Exposure 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)



# Safety Data Sheet

acc. to OSHA HCS

Printing date 02/14/2023

Revision date 02/14/2023

Trade name: ELISA Buffer Concentrate (10X)

(Contd. from page 1)

- **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 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).  
P314 Get medical advice/attention if you feel unwell.  
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.

US

(Contd. on page 3)

# Safety Data Sheet

## acc. to OSHA HCS

Printing date 02/14/2023

Revision date 02/14/2023

Trade name: ELISA Buffer Concentrate (10X)

(Contd. from page 2)

### 3 Composition/information on ingredients

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

- **Dangerous components:**

|                                     |                                |       |
|-------------------------------------|--------------------------------|-------|
| CAS: 7647-14-5<br>RTECS: VZ4725000  | Sodium chloride                | 23.4% |
| CAS: 7758-11-4<br>RTECS: TC5580000  | Potassium phosphate dibasic    | 13.3% |
| CAS: 7778-77-0<br>RTECS: TC6615500  | Potassium phosphate, Monobasic | 3.21% |
| CAS: 9048-46-8<br>RTECS: AY9296000  | Albumin, bovine                | 1.0%  |
| CAS: 26628-22-8<br>RTECS: VY8050000 | Sodium azide                   | 0.1%  |

- **Other ingredients**

|                                    |                                |        |
|------------------------------------|--------------------------------|--------|
| CAS: 7732-18-5<br>RTECS: ZC0110000 | Water                          | 58.61% |
| CAS: 194491-31-1                   | EDTA, tetrasodium salt hydrate | 0.38%  |

### 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**  
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.

US

(Contd. on page 4)

# Safety Data Sheet

## acc. to OSHA HCS

Printing date 02/14/2023

Revision date 02/14/2023

Trade name: ELISA Buffer Concentrate (10X)

(Contd. from page 3)

### 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/m <sup>3</sup>    |
| 7778-77-0  | Potassium phosphate, Monobasic | 9.6 mg/m <sup>3</sup>   |
| 26628-22-8 | Sodium azide                   | 0.026 mg/m <sup>3</sup> |

- **PAC-2:**

|            |                                |                        |
|------------|--------------------------------|------------------------|
| 7758-11-4  | Potassium phosphate dibasic    | 140 mg/m <sup>3</sup>  |
| 7778-77-0  | Potassium phosphate, Monobasic | 110 mg/m <sup>3</sup>  |
| 26628-22-8 | Sodium azide                   | 0.29 mg/m <sup>3</sup> |

- **PAC-3:**

|            |                                |                       |
|------------|--------------------------------|-----------------------|
| 7758-11-4  | Potassium phosphate dibasic    | 830 mg/m <sup>3</sup> |
| 7778-77-0  | Potassium phosphate, Monobasic | 630 mg/m <sup>3</sup> |
| 26628-22-8 | Sodium azide                   | 5.3 mg/m <sup>3</sup> |

### 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:** 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.
- **Specific end use(s)** No further relevant information available.

US

(Contd. on page 5)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 02/14/2023

Revision date 02/14/2023

Trade name: ELISA Buffer Concentrate (10X)

(Contd. from page 4)

## 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

|     |   |
|-----|---|
| REL | Ceiling limit value: 0.3** mg/m <sup>3</sup> , 0.1* ppm<br>*as HN <sub>3</sub> ; **as NaN <sub>3</sub> ; Skin     |
| TLV | Ceiling limit value: 0.29** mg/m <sup>3</sup> , 0.11* ppm<br>*as HN <sub>3</sub> vapor **as NaN <sub>3</sub> , A4 |

- **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.

(Contd. on page 6)

US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 02/14/2023

Revision date 02/14/2023

Trade name: ELISA Buffer Concentrate (10X)

(Contd. from page 5)

## · Eye protection:



Tightly sealed goggles

## 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 applicable.

## · 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/cm<sup>3</sup> (8.345 lbs/gal)

## · Bulk density:

1,000 kg/m<sup>3</sup>

## · 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 %

(Contd. on page 7)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 02/14/2023

Revision date 02/14/2023

Trade name: ELISA Buffer Concentrate (10X)

(Contd. from page 6)

|                          |  |
|--------------------------|--|
| <b>VOC content:</b>      | 0.00 %<br>0.0 g/l / 0.00 lb/gal            |
| <b>Solids content:</b>   | 41.4 %                                     |
| <b>Other information</b> | 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 | 3,096 mg/kg  |
| Dermal | LD50 | 20,000 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)<br>3,000 mg/kg (rat) |
| Inhalative         | LD50                 | 4 g/kg (mouse)                           |
|                    | LC50                 | 320 mg/m <sup>3</sup> (mouse)            |
|                    | TCLO                 | 0.63 mg/m <sup>3</sup> (hmn)             |
| Irritation of skin | LCLO                 | 29,300 mg/m <sup>3</sup> /7h (mouse)     |
|                    | 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) |
|--|----------------------|-----------------|

(Contd. on page 8)

US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 02/14/2023

Revision date 02/14/2023

Trade name: ELISA Buffer Concentrate (10X)

(Contd. from page 7)

**26628-22-8 Sodium azide**

|            |                      |                            |
|------------|----------------------|----------------------------|
| Oral       | LDLO                 | 27 mg/kg (rat)             |
|            | TDLO                 | 3 ml/kg (wmn)              |
|            | LD50                 | 27 mg/kg (rat)             |
| Dermal     | Subcutaneous LD50    | 45,100 µg/kg (rat)         |
|            | LD50                 | 50 mg/kg (rat)             |
|            |                      | 20 mg/kg (rabbit)          |
| Inhalative | LC50                 | 37 mg/m <sup>3</sup> (rat) |
|            | Subcutaneous LD50    | 45,100 µg/kg (rat)         |
|            | Interperitoneal LDLO | 30 mg/kg (rat)             |
|            | Intraperitoneal LD50 | 28 mg/kg (mouse)           |
|            | Subcutaneous LD50    | 45 mg/kg (rat)             |
|            | 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:  
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 determined.
- **vPvB:** Not determined.

(Contd. on page 9)

# Safety Data Sheet

## acc. to OSHA HCS

Printing date 02/14/2023

Revision date 02/14/2023

Trade name: ELISA Buffer Concentrate (10X)

(Contd. from page 8)

- **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

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

|           |                                |        |
|-----------|--------------------------------|--------|
| 7732-18-5 | Water                          | ACTIVE |
| 7647-14-5 | Sodium chloride                | ACTIVE |
| 7758-11-4 | Potassium phosphate dibasic    | ACTIVE |
| 7778-77-0 | Potassium phosphate, Monobasic | ACTIVE |

(Contd. on page 10)



# Safety Data Sheet

acc. to OSHA HCS

Printing date 02/14/2023

Revision date 02/14/2023

**Trade name: ELISA Buffer Concentrate (10X)**

(Contd. from page 9)

|            |                 |        |
|------------|-----------------|--------|
| 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** 02/14/2023

**· 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 &amp; Health

(Contd. on page 11)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 02/14/2023

Revision date 02/14/2023

**Trade name: ELISA Buffer Concentrate (10X)**

(Contd. from page 10)

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Skin Irritation 2: Skin corrosion/irritation – Category 2

Eye Damage 1: Serious eye damage/eye irritation – Category 1

Specific Target Organ Toxicity - Single Exposure 3: Specific target organ toxicity (single exposure) – Category 3

Specific Target Organ Toxicity - Repeated Exposure 2: Specific target organ toxicity (repeated exposure) – Category 2

**\* Data compared to the previous version altered.**

US



## Safety Data Sheet

acc. to OSHA HCS

Printing date 01/05/2023

Revision date 01/05/2023

### 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 Damage 1

H318 Causes serious eye damage.



GHS07

Acute Toxicity - Oral 4

H302 Harmful if swallowed.

Skin Irritation 2

H315 Causes skin irritation.

Specific Target Organ Toxicity - Single Exposure 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)

US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/05/2023

Revision date 01/05/2023

Trade name: Wash Buffer Concentrate (400X)

(Contd. from page 1)

- **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 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.

US

(Contd. on page 3)

# Safety Data Sheet

## acc. to OSHA HCS

Printing date 01/05/2023

Revision date 01/05/2023

Trade name: Wash Buffer Concentrate (400X)

(Contd. from page 2)

### 3 Composition/information on ingredients

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

- **Dangerous components:**

|                                    |                                |       |
|------------------------------------|--------------------------------|-------|
| CAS: 7758-11-4<br>RTECS: TC5580000 | Potassium phosphate dibasic    | 53.0% |
| CAS: 7778-77-0<br>RTECS: TC6615500 | Potassium phosphate, Monobasic | 12.9% |

- **Other ingredients**

|                                    |       |       |
|------------------------------------|-------|-------|
| CAS: 7732-18-5<br>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**  
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.
- **Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

(Contd. on page 4)

# Safety Data Sheet

## acc. to OSHA HCS

Printing date 01/05/2023

Revision date 01/05/2023

### Trade name: Wash Buffer Concentrate (400X)

(Contd. from page 3)

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/m <sup>3</sup>  |
| 7778-77-0 | Potassium phosphate, Monobasic | 9.6 mg/m <sup>3</sup> |

· **PAC-2:**

|           |                                |                       |
|-----------|--------------------------------|-----------------------|
| 7758-11-4 | Potassium phosphate dibasic    | 140 mg/m <sup>3</sup> |
| 7778-77-0 | Potassium phosphate, Monobasic | 110 mg/m <sup>3</sup> |

· **PAC-3:**

|           |                                |                       |
|-----------|--------------------------------|-----------------------|
| 7758-11-4 | Potassium phosphate dibasic    | 830 mg/m <sup>3</sup> |
| 7778-77-0 | Potassium phosphate, Monobasic | 630 mg/m <sup>3</sup> |

## 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:** 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.

· **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.

(Contd. on page 5)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/05/2023

Revision date 01/05/2023

Trade name: Wash Buffer Concentrate (400X)

(Contd. from page 4)

- **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 applicable.

- **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.

- **Danger of explosion:**

Product does not present an explosion hazard.

(Contd. on page 6)

US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/05/2023

Revision date 01/05/2023

Trade name: Wash Buffer Concentrate (400X)

(Contd. from page 5)

|   |  |
|---|--|
| · <b>Explosion limits:</b>                        |  |
| <b>Lower:</b>                                     | Not determined.                            |
| <b>Upper:</b>                                     | Not determined.                            |
| · <b>Vapor pressure at 20 °C (68 °F):</b>         | 23 hPa (17.3 mm Hg)                        |
| · <b>Density at 20 °C (68 °F):</b>                | 1.159 g/cm <sup>3</sup> (9.67186 lbs/gal)  |
| · <b>Bulk density:</b>                            | 1,159 kg/m <sup>3</sup>                    |
| · <b>Relative density</b>                         | Not determined.                            |
| · <b>Vapor density</b>                            | Not determined.                            |
| · <b>Evaporation rate</b>                         | Not determined.                            |
| · <b>Solubility in / Miscibility with Water:</b>  | Fully miscible.                            |
| · <b>Partition coefficient (n-octanol/water):</b> | Not determined.                            |
| · <b>Viscosity:</b>                               |  |
| <b>Dynamic:</b>                                   | Not determined.                            |
| <b>Kinematic:</b>                                 | Not determined.                            |
| · <b>Solvent content:</b>                         |  |
| <b>Water:</b>                                     | 34.1 %                                     |
| <b>VOC content:</b>                               | 0.00 %                                     |
|   | 0.0 g/l / 0.00 lb/gal                      |
| <b>Solids content:</b>                            | 65.9 %                                     |
| · <b>Other information</b>                        | 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.

(Contd. on page 7)

US



# Safety Data Sheet

## acc. to OSHA HCS

Printing date 01/05/2023

Revision date 01/05/2023

**Trade name: Wash Buffer Concentrate (400X)**

(Contd. from page 6)

- **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 determined.
- **vPvB:** Not determined.
- **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.

-US-

(Contd. on page 8)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/05/2023

Revision date 01/05/2023

Trade name: Wash Buffer Concentrate (400X)

(Contd. from page 7)

## 14 Transport information

- UN-Number
- DOT, IMDG, IATA not regulated
- UN proper shipping name
- DOT, ADN, IMDG, IATA not regulated
- 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.

(Contd. on page 9)

# Safety Data Sheet

## acc. to OSHA HCS

Printing date 01/05/2023

Revision date 01/05/2023

**Trade name: Wash Buffer Concentrate (400X)**

(Contd. from page 8)

· **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** 01/05/2023

· **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 Toxicity - Oral 4: Acute toxicity – Category 4

Skin Irritation 2: Skin corrosion/irritation – Category 2

Eye Damage 1: Serious eye damage/eye irritation – Category 1

Specific Target Organ Toxicity - Single Exposure 3: Specific target organ toxicity (single exposure) – Category 3

· **\* Data compared to the previous version altered.**

US



## Safety Data Sheet acc. to OSHA HCS

Printing date 01/05/2023

Revision date 01/05/2023

### 1 Identification

- **Product identifier**
- **Trade name: TMB Substrate Solution**
- **Article number:** 400074
- **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

Toxic to Reproduction 1B H360 May damage fertility or the unborn child.



GHS07

Skin Irritation 2

H315 Causes skin irritation.

Eye Irritation 2A

H319 Causes serious eye irritation.

- **Label elements**
- **GHS label elements**

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

(Contd. on page 2)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/05/2023

Revision date 01/05/2023

Trade name: TMB Substrate Solution

(Contd. from page 1)

- **Hazard pictograms**



GHS07 GHS08

- **Signal word** Danger

- **Hazard-determining components of labeling:**

N-Methyl-2-pyrrolidone

- **Hazard statements**

H315 Causes skin irritation.

H319 Causes serious eye irritation.

H360 May damage fertility or the unborn child.

- **Precautionary statements**

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P264 Wash thoroughly after handling.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P302+P352 If on skin: Wash with plenty of water.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308+P313 IF exposed or concerned: Get medical advice/attention.

P321 Specific treatment (see on this label).

P362+P364 Take off contaminated clothing and wash it before reuse.

P332+P313 If skin irritation occurs: Get medical advice/attention.

P337+P313 If eye irritation persists: 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 = 2

Fire = 1

Reactivity = 0

- **HMIS-ratings (scale 0 - 4)**



Health = \*2

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: Mixtures**

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

(Contd. on page 3)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/05/2023

Revision date 01/05/2023

Trade name: TMB Substrate Solution

(Contd. from page 2)

|                                   |                        |       |
|-----------------------------------|------------------------|-------|
| · <b>Dangerous components:</b>    |                        |       |
| CAS: 872-50-4<br>RTECS: UY5790000 | N-Methyl-2-pyrrolidone | 1–5%  |
| · <b>Other ingredients</b>        |                        |       |
|                                   | TMB Substrate Solution | 94.5% |
| CAS: 124-43-6<br>RTECS: YT4850000 | Urea peroxide          | 0.5%  |

## 4 First-aid measures

- **Description of first aid measures**
- **General information:** Immediately remove any clothing soiled by the product.
- **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. If symptoms persist, consult a doctor.
- **After swallowing:** If symptoms persist consult doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed**  
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:**  
CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **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:**  
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).  
Dispose contaminated material as waste according to item 13.
- **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**

|                 |                        |                       |
|-----------------|------------------------|-----------------------|
| · <b>PAC-1:</b> |                        |                       |
| 872-50-4        | N-Methyl-2-pyrrolidone | 30 ppm                |
| 124-43-6        | Urea peroxide          | 1.2 mg/m <sup>3</sup> |

(Contd. on page 4)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/05/2023

Revision date 01/05/2023

Trade name: TMB Substrate Solution

(Contd. from page 3)

| · PAC-2: |                        |                      |
|----------|------------------------|----------------------|
| 872-50-4 | N-Methyl-2-pyrrolidone | 32 ppm               |
| 124-43-6 | Urea peroxide          | 13 mg/m <sup>3</sup> |
| · PAC-3: |                        |                      |
| 872-50-4 | N-Methyl-2-pyrrolidone | 190 ppm              |
| 124-43-6 | Urea peroxide          | 79 mg/m <sup>3</sup> |

## 7 Handling and storage

- **Handling:**
- **Precautions for safe handling** Open and handle receptacle with care.
- **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:** 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.
- **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:

| 872-50-4 N-Methyl-2-pyrrolidone |                                 |
|---------------------------------|---------------------------------|
| TLV                             | BEI                             |
| WEEL                            | Long-term value: 10 ppm<br>Skin |

### · Ingredients with biological limit values:

| 872-50-4 N-Methyl-2-pyrrolidone |  |
|---------------------------------|--|
| BEI                             | 100 mg/L<br>Medium: urine<br>Time: end of shift<br>Parameter: 5-Hydroxy-N-methyl-2-pyrrolidone |

- **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 eyes and skin.
- **Breathing equipment:** Not required.

(Contd. on page 5)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/05/2023

Revision date 01/05/2023

Trade name: TMB Substrate Solution

(Contd. from page 4)

- **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:**

Not determined.

- **Odor:**

Characteristic

- **Odor threshold:**

Not determined.

- **Formulation**

A solution of 3.3',5,5'-tetramethylbenzidine

- **pH-value at 20 °C (68 °F):**

5.9

- **Change in condition**

- **Melting point/Melting range:**

Undetermined.

- **Boiling point/Boiling range:**

202 °C (395.6 °F)

- **Flash point:**

93 °C (199.4 °F)

- **Flammability (solid, gaseous):**

Not applicable.

- **Ignition temperature:**

270 °C (518 °F)

- **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.

(Contd. on page 6)



# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/05/2023

Revision date 01/05/2023

Trade name: TMB Substrate Solution

(Contd. from page 5)

|   |  |
|---|--|
| <b>Upper:</b>                                     | Not determined.  |
| · <b>Vapor pressure:</b>                          | Not determined.  |
| · <b>Density at 20 °C (68 °F):</b>                | 0.25018–3.65333 g/cm <sup>3</sup> (2.08775–30.48704 lbs/gal) |
| · <b>Bulk density:</b>                            | 250–3,653 kg/m <sup>3</sup>                                  |
| · <b>Relative density</b>                         | Not determined.  |
| · <b>Vapor density</b>                            | Not determined.  |
| · <b>Evaporation rate</b>                         | Not determined.  |
| · <b>Solubility in / Miscibility with Water:</b>  | Fully miscible.  |
| · <b>Partition coefficient (n-octanol/water):</b> | Not determined.  |
| · <b>Viscosity:</b>                               |  |
| <b>Dynamic:</b>                                   | Not determined.  |
| <b>Kinematic:</b>                                 | Not determined.  |
| · <b>Solvent content:</b>                         |  |
| <b>Organic solvents:</b>                          | 1–5 %  |
| <b>VOC content:</b>                               | 1–5 %  |
|   | 12.5–182.7 g/l / 0.1–1.52 lb/gal                             |
| · <b>Solids content:</b>                          | 95.0 %   |
| · <b>Other information</b>                        | 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:**

### 872-50-4 N-Methyl-2-pyrrolidone

|        |                      |                      |
|--------|----------------------|----------------------|
| Oral   | LD50                 | 3,914 mg/kg (rat)    |
| Dermal | LD50                 | 8,000 mg/kg (rabbit) |
|        | Intraperitoneal LD50 | 2,472 mg/kg (rat)    |
|        | Subcutaneous LD50    | >2 g/kg (rat)        |

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Sensitization:** No sensitizing effects known.

(Contd. on page 7)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/05/2023

Revision date 01/05/2023

Trade name: TMB Substrate Solution

(Contd. from page 6)

- **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.

- **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

(Contd. on page 8)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/05/2023

Revision date 01/05/2023

Trade name: TMB Substrate Solution

(Contd. from page 7)

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

## 15 Regulatory information

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

|  |
|--|
| <b>· Section 355 (extremely hazardous substances):</b> |
|--|

|                                    |
|------------------------------------|
| None of the ingredients is listed. |
|------------------------------------|

|  |
|--|
| <b>· Section 313 (Specific toxic chemical listings):</b> |
|--|

|          |                        |  |
|----------|------------------------|--|
| 872-50-4 | N-Methyl-2-pyrrolidone |  |
|----------|------------------------|--|

|   |
|---|
| <b>· TSCA (Toxic Substances Control Act):</b> |
|---|

|          |                        |        |
|----------|------------------------|--------|
| 872-50-4 | N-Methyl-2-pyrrolidone | ACTIVE |
|----------|------------------------|--------|

|          |               |        |
|----------|---------------|--------|
| 124-43-6 | Urea peroxide | ACTIVE |
|----------|---------------|--------|

|                                   |
|-----------------------------------|
| <b>· Hazardous Air Pollutants</b> |
|-----------------------------------|

|                                    |
|------------------------------------|
| None of the ingredients is listed. |
|------------------------------------|

|                         |
|-------------------------|
| <b>· Proposition 65</b> |
|-------------------------|

|   |
|---|
| <b>· Chemicals known to cause cancer:</b> |
|---|

|                                    |
|------------------------------------|
| None of the ingredients is listed. |
|------------------------------------|

|  |
|--|
| <b>· Chemicals known to cause reproductive toxicity for females:</b> |
|--|

|                                    |
|------------------------------------|
| None of the ingredients is listed. |
|------------------------------------|

|  |
|--|
| <b>· Chemicals known to cause reproductive toxicity for males:</b> |
|--|

|                                    |
|------------------------------------|
| None of the ingredients is listed. |
|------------------------------------|

|   |
|---|
| <b>· Chemicals known to cause developmental toxicity:</b> |
|---|

|          |                        |  |
|----------|------------------------|--|
| 872-50-4 | N-Methyl-2-pyrrolidone |  |
|----------|------------------------|--|

|                                  |
|----------------------------------|
| <b>· Carcinogenic categories</b> |
|----------------------------------|

|  |
|--|
| <b>· EPA (Environmental Protection Agency)</b> |
|--|

|                                    |
|------------------------------------|
| None of the ingredients is listed. |
|------------------------------------|

|                                      |
|--------------------------------------|
| <b>· TLV (Threshold Limit Value)</b> |
|--------------------------------------|

|                                    |
|------------------------------------|
| None of the ingredients is listed. |
|------------------------------------|

|   |
|---|
| <b>· NIOSH-Ca (National Institute for Occupational Safety and Health)</b> |
|---|

|                                    |
|------------------------------------|
| None of the ingredients is listed. |
|------------------------------------|

(Contd. on page 9)

# Safety Data Sheet

## acc. to OSHA HCS

Printing date 01/05/2023

Revision date 01/05/2023

**Trade name: TMB Substrate Solution**

(Contd. from page 8)

· **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** 01/05/2023

· **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

BEI: Biological Exposure Limit

Skin Irritation 2: Skin corrosion/irritation – Category 2

Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A

Toxic to Reproduction 1B: Reproductive toxicity – Category 1B

· **\* Data compared to the previous version altered.**

## Safety Data Sheet acc. to OSHA HCS

Printing date 03/22/2024

Revision date 03/22/2024

### 1 Identification

- **Product identifier**
- **Trade name:** Anti-PAD2 (human) HRP Conjugate
- **Synonym**
- **Article number:** 401451
- **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 product 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)**



- **HMIS-ratings (scale 0 - 4)**

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

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

(Contd. on page 2)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 03/22/2024

Revision date 03/22/2024

Trade name: Anti-PAD2 (human) HRP Conjugate

· **vPvB:** Not applicable.

(Contd. from page 1)

## 3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** Mixture of the substances listed below with nonhazardous additions.
- **Dangerous components:** None

- **Other ingredients**

|                                    |       |
|------------------------------------|-------|
| StabilZyme                         | 99.5% |
| Monoclonal anti-PAD2-HRP Conjugate | 0.5%  |

## 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**  
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:**  
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).
- **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.

(Contd. on page 3)

US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 03/22/2024

Revision date 03/22/2024

Trade name: Anti-PAD2 (human) HRP Conjugate

(Contd. from page 2)

## · Protective Action Criteria for Chemicals

### · PAC-1:

None of the ingredients is listed.

### · PAC-2:

None of the ingredients is listed.

### · PAC-3:

None of the ingredients is 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 section 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:**  
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. 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.

(Contd. on page 4)

# Safety Data Sheet

## acc. to OSHA HCS

Printing date 03/22/2024

Revision date 03/22/2024

Trade name: Anti-PAD2 (human) HRP Conjugate

(Contd. from page 3)

- **Eye protection:** Goggles recommended during refilling.

## 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.

#### · pH-value:

Not determined.

#### · Change in condition

Melting point/Melting range:

Undetermined.

Boiling point/Boiling range:

Undetermined.

#### · Flash point:

Not applicable.

#### · Flammability (solid, gaseous):

Not applicable.

#### · Decomposition temperature:

Not determined.

#### · Ignition temperature:

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 determined.

#### · Density:

Not determined.

#### · 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:

VOC content:

0.00 %

0.0 g/l / 0.00 lb/gal

Solids content:

0.0 %

#### · Other information

No further relevant information available.

## 10 Stability and reactivity

- **Reactivity** No further relevant information available.

(Contd. on page 5)



# Safety Data Sheet

## acc. to OSHA HCS

Printing date 03/22/2024

Revision date 03/22/2024

**Trade name: Anti-PAD2 (human) HRP Conjugate**

(Contd. from page 4)

- **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.
- **Additional toxicological information:**  
The product is not subject to classification according to internally approved calculation methods for preparations:  
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.

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

US

(Contd. on page 6)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 03/22/2024

Revision date 03/22/2024

Trade name: Anti-PAD2 (human) HRP Conjugate

(Contd. from page 5)

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

## 14 Transport information

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

None of the ingredients is listed.

· **Hazardous Air Pollutants**

None of the ingredients is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

(Contd. on page 7)

-US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 03/22/2024

Revision date 03/22/2024

**Trade name: Anti-PAD2 (human) HRP Conjugate**

(Contd. from page 6)

· **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** 03/22/2024 / -

· **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)

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

## Safety Data Sheet acc. to OSHA HCS

Printing date 03/22/2024

Revision date 03/22/2024

### 1 Identification

- **Product identifier**
- **Trade name:** Anti-PAD2 (human) ELISA Strip Plate
- **Synonym**
- **Article number:** 401452
- **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)**



- **HMIS-ratings (scale 0 - 4)**



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

(Contd. on page 2)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 03/22/2024

Revision date 03/22/2024

Trade name: Anti-PAD2 (human) ELISA Strip Plate

· **vPvB:** Not applicable.

(Contd. from page 1)

### 3 Composition/information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description**  
Anti-PAD2 (human) 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**  
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.

(Contd. on page 3)

US

# Safety Data Sheet

## acc. to OSHA HCS

Printing date 03/22/2024

Revision date 03/22/2024

Trade name: Anti-PAD2 (human) ELISA Strip Plate

(Contd. from page 2)

· **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:** 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 section 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

(Contd. on page 4)

-US

# Safety Data Sheet

## acc. to OSHA HCS

Printing date 03/22/2024

Revision date 03/22/2024

**Trade name: Anti-PAD2 (human) ELISA Strip Plate**

(Contd. from page 3)

|   |   |
|---|---|
| · <b>Odor threshold:</b>  | Not determined.                               |
| · <b>pH-value:</b>  | Not applicable.                               |
| · <b>Change in condition</b><br><b>Melting point/Melting range:</b> | Undetermined.                                 |
| <b>Boiling point/Boiling range:</b>                                 | Undetermined.                                 |
| · <b>Flash point:</b>   | Not applicable.                               |
| · <b>Flammability (solid, gaseous):</b>                             | Product is not flammable.                     |
| · <b>Decomposition temperature:</b>                                 | Not determined.                               |
| · <b>Ignition temperature:</b>                                      | Not determined.                               |
| · <b>Danger of explosion:</b>                                       | Product does not present an explosion hazard. |
| · <b>Explosion limits:</b><br><b>Lower:</b>                         | Not determined.                               |
| <b>Upper:</b>   | Not determined.                               |
| · <b>Vapor pressure:</b>  | Not applicable.                               |
| · <b>Density:</b>   | Not determined.                               |
| · <b>Relative density</b>   | Not determined.                               |
| · <b>Vapor density</b>  | Not applicable.                               |
| · <b>Evaporation rate</b>   | Not applicable.                               |
| · <b>Solubility in / Miscibility with</b><br><b>Water:</b>          | Soluble.                                      |
| · <b>Partition coefficient (n-octanol/water):</b>                   | Not determined.                               |
| · <b>Viscosity:</b><br><b>Dynamic:</b>                              | Not applicable.                               |
| <b>Kinematic:</b>   | Not applicable.                               |
| <b>VOC content:</b>   | 0.00 %  |
| <b>Solids content:</b>  | 100.0 %                                       |
| · <b>Other information</b>  | 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.

US

(Contd. on page 5)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 03/22/2024

Revision date 03/22/2024

Trade name: Anti-PAD2 (human) ELISA Strip Plate

(Contd. from page 4)

## 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.

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

US

(Contd. on page 6)



# Safety Data Sheet

acc. to OSHA HCS

Printing date 03/22/2024

Revision date 03/22/2024

Trade name: Anti-PAD2 (human) ELISA Strip Plate

(Contd. from page 5)

## 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  |                 |
| · 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):

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.

(Contd. on page 7)

# Safety Data Sheet

## acc. to OSHA HCS

Printing date 03/22/2024

Revision date 03/22/2024

**Trade name: Anti-PAD2 (human) ELISA Strip Plate**

(Contd. from page 6)

· **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** 03/22/2024 / -

· **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

US

## Safety Data Sheet acc. to OSHA HCS

Printing date 03/22/2024

Revision date 03/22/2024

### 1 Identification

- **Product identifier**
- **Trade name:** PAD2 (human) ELISA Standard
- **Synonym**
- **Article number:** 401454
- **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

Specific Target Organ Toxicity - Repeated Exposure H373 May cause damage to organs through prolonged or repeated exposure.



GHS07

Acute Toxicity - Oral 4

H302 Harmful if swallowed.

Skin Irritation 2

H315 Causes skin irritation.

Eye Irritation 2A

H319 Causes serious eye irritation.

Specific Target Organ Toxicity - Single Exposure 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)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 03/22/2024

Revision date 03/22/2024

Trade name: PAD2 (human) ELISA Standard

(Contd. from page 1)

- **Hazard pictograms**



GHS07 GHS08

- **Signal word** Warning

- **Hazard-determining components of labeling:**

Albumin, bovine  
Sodium chloride

- **Hazard statements**

H302 Harmful if swallowed.  
H315 Causes skin irritation.  
H319 Causes serious eye irritation.  
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.  
P330 Rinse mouth.  
P302+P352 If on skin: Wash with plenty of water.  
P321 Specific treatment (see on this label).  
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.  
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.  
P337+P313 If eye irritation persists: 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 = 2  
Fire = 0  
Reactivity = 0

- **HMIS-ratings (scale 0 - 4)**



HEALTH 2 Health = 2  
FIRE 0 Fire = 0  
REACTIVITY 0 Reactivity = 0

- **Other hazards**

- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.

(Contd. on page 3)

# Safety Data Sheet

## acc. to OSHA HCS

Printing date 03/22/2024

Revision date 03/22/2024

Trade name: **PAD2 (human) ELISA Standard**

(Contd. from page 2)

· **vPvB:** Not applicable.

### 3 Composition/information on ingredients

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

- **Dangerous components:**

|                                    |                 |         |
|------------------------------------|-----------------|---------|
| CAS: 9048-46-8<br>RTECS: AY9296000 | Albumin, bovine | 33.233% |
| CAS: 7647-14-5<br>RTECS: VZ4725000 | Sodium chloride | 26.587% |

- **Other ingredients**

|                                    |                                 |         |
|------------------------------------|---------------------------------|---------|
| CAS: 7791-18-6<br>RTECS: OM2975000 | Magnesium chloride, hexahydrate | 33.898% |
| CAS: 7558-79-4<br>RTECS: WC4500000 | Sodium phosphate, Dibasic       | 4.786%  |
| CAS: 7778-77-0<br>RTECS: TC6615500 | Potassium phosphate, Monobasic  | 0.798%  |
| CAS: 7447-40-7<br>RTECS: TS8050000 | Potassium chloride              | 0.665%  |
|                                    | recombinant PAD2 (Human)        | 0.033%  |

### 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. If symptoms persist, consult a doctor.
- **After swallowing:** Immediately call a doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed**  
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.

(Contd. on page 4)

US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 03/22/2024

Revision date 03/22/2024

Trade name: PAD2 (human) ELISA Standard

(Contd. from page 3)

- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Mount respiratory protective device.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**  
Dispose contaminated material as waste according to section 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:**

|           |                                 |                       |
|-----------|---------------------------------|-----------------------|
| 7791-18-6 | Magnesium chloride, hexahydrate | 34 mg/m <sup>3</sup>  |
| 7778-77-0 | Potassium phosphate, Monobasic  | 9.6 mg/m <sup>3</sup> |

- **PAC-2:**

|           |                                 |                       |
|-----------|---------------------------------|-----------------------|
| 7791-18-6 | Magnesium chloride, hexahydrate | 370 mg/m <sup>3</sup> |
| 7778-77-0 | Potassium phosphate, Monobasic  | 110 mg/m <sup>3</sup> |

- **PAC-3:**

|           |                                 |                         |
|-----------|---------------------------------|-------------------------|
| 7791-18-6 | Magnesium chloride, hexahydrate | 1,600 mg/m <sup>3</sup> |
| 7778-77-0 | Potassium phosphate, Monobasic  | 630 mg/m <sup>3</sup>   |

## 7 Handling and storage

- **Handling:**
- **Precautions for safe handling** 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.
- **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 section 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.

(Contd. on page 5)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 03/22/2024

Revision date 03/22/2024

Trade name: PAD2 (human) ELISA Standard

(Contd. from page 4)

- **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 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:**

|               |                                    |
|---------------|------------------------------------|
| <b>Form:</b>  | Lyophilized powder                 |
| <b>Color:</b> | According to product specification |
- **Odor:** Characteristic
- **Odor threshold:** Not determined.
- **pH-value:** Not applicable.
- **Change in condition**

|                                     |               |
|-------------------------------------|---------------|
| <b>Melting point/Melting range:</b> | Undetermined. |
| <b>Boiling point/Boiling range:</b> | Undetermined. |
- **Flash point:** Not applicable.

(Contd. on page 6)

US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 03/22/2024

Revision date 03/22/2024

Trade name: PAD2 (human) ELISA Standard

(Contd. from page 5)

|   |   |
|---|---|
| · <b>Flammability (solid, gaseous):</b>           | Not determined.                               |
| · <b>Decomposition temperature:</b>               | Not determined.                               |
| · <b>Ignition temperature:</b>                    | Product is not selfigniting.                  |
| · <b>Danger of explosion:</b>                     | Product does not present an explosion hazard. |
| · <b>Explosion limits:</b>                        |   |
| <b>Lower:</b>                                     | Not determined.                               |
| <b>Upper:</b>                                     | Not determined.                               |
| · <b>Vapor pressure:</b>                          | Not applicable.                               |
| · <b>Density:</b>                                 | Not determined.                               |
| · <b>Relative density</b>                         | Not determined.                               |
| · <b>Vapor density</b>                            | Not applicable.                               |
| · <b>Evaporation rate</b>                         | Not applicable.                               |
| · <b>Solubility in / Miscibility with Water:</b>  | Soluble.                                      |
| · <b>Partition coefficient (n-octanol/water):</b> | Not determined.                               |
| · <b>Viscosity:</b>                               |   |
| <b>Dynamic:</b>                                   | Not applicable.                               |
| <b>Kinematic:</b>                                 | Not applicable.                               |
| · <b>Solvent content:</b>                         |   |
| <b>VOC content:</b>                               | 0.00 %  |
| <b>Solids content:</b>                            | 100.0 %                                       |
| · <b>Other information</b>                        | 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:**

|   |      |             |
|---|------|-------------|
| · <b>LD/LC50 values that are relevant for classification:</b> |      |             |
| <b>ATE (Acute Toxicity Estimate)</b>                          |      |             |
| Oral  | LD50 | 1,505 mg/kg |

(Contd. on page 7)

US



# Safety Data Sheet

## acc. to OSHA HCS

Printing date 03/22/2024

Revision date 03/22/2024

Trade name: PAD2 (human) ELISA Standard

(Contd. from page 6)

| 9048-46-8 Albumin, bovine |                      |  |
|---------------------------|----------------------|--|
|                           | Intraperitoneal TDLO | 0.2 pph (mouse)                          |
| 7647-14-5 Sodium chloride |                      |  |
| Oral                      | LDLO                 | 1,000 mg/kg (man)                        |
|                           | TDLO                 | 650 ml/kg (man)                          |
|                           | LD50                 | 4,000 mg/kg (mouse)<br>3,000 mg/kg (rat) |
| Inhalative                | LD50                 | 4 g/kg (mouse)                           |
|                           | LC50                 | 320 mg/m <sup>3</sup> (mouse)            |
|                           | TCLO                 | 0.63 mg/m <sup>3</sup> (human)           |
| Irritation of skin        | LCLO                 | 29,300 mg/m <sup>3</sup> /7h (mouse)     |
|                           | Irritation           | 500 mg/24h (rabbit)<br>mild              |
| Irritation of eyes        | Irritation           | 100 mg/24h (rabbit)<br>moderate          |
|                           | 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 (human)<br>mild                 |
|                           | Subcutaneous LD50    | 3 g/kg (mouse)                           |

- **Primary irritant effect:**

- **on the skin:** Irritant to skin and mucous membranes.

- **on the eye:** Irritating effect.

- **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.

(Contd. on page 8)

# Safety Data Sheet

## acc. to OSHA HCS

Printing date 03/22/2024

Revision date 03/22/2024

Trade name: PAD2 (human) ELISA Standard

(Contd. from page 7)

- **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:**  
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

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

(Contd. on page 9)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 03/22/2024

Revision date 03/22/2024

Trade name: PAD2 (human) ELISA Standard

(Contd. from page 8)

· **Section 313 (Specific toxic chemical listings):**

None of the ingredients is listed.

· **TSCA (Toxic Substances Control Act):**

|           |                                |        |
|-----------|--------------------------------|--------|
| 9048-46-8 | Albumin, bovine                | ACTIVE |
| 7647-14-5 | Sodium chloride                | ACTIVE |
| 7558-79-4 | Sodium phosphate, Dibasic      | ACTIVE |
| 7778-77-0 | Potassium phosphate, Monobasic | ACTIVE |
| 7447-40-7 | Potassium chloride             | 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** 03/22/2024 / -

· **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)

(Contd. on page 10)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 03/22/2024

Revision date 03/22/2024

**Trade name: PAD2 (human) ELISA Standard**

(Contd. from page 9)

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 Toxicity - Oral 4: Acute toxicity – Category 4  
Skin Irritation 2: Skin corrosion/irritation – Category 2  
Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A  
Specific Target Organ Toxicity - Single Exposure 3: Specific target organ toxicity (single exposure) – Category 3  
Specific Target Organ Toxicity - Repeated Exposure 2: Specific target organ toxicity (repeated exposure) – Category 2

US

## Safety Data Sheet acc. to OSHA HCS

Printing date 01/05/2023

Revision date 01/05/2023

### 1 Identification

- **Product identifier**
- **Trade name:** HRP Stop Solution
- **Article number:** 10011355
- **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

Skin Corrosion 1A H314 Causes severe skin burns and eye damage.

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



GHS05

- **Signal word** Danger
- **Hazard statements**  
H314 Causes severe skin burns and eye damage.
- **Precautionary statements**  
P260 Do not breathe dusts or mists.  
P264 Wash thoroughly after handling.

(Contd. on page 2)

US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/05/2023

Revision date 01/05/2023

Trade name: HRP Stop Solution

(Contd. from page 1)

- P280 Wear protective gloves/protective clothing/eye protection/face protection.  
 P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.  
 P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
 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).  
 P363 Wash contaminated clothing before reuse.  
 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 Health = 3  
 FIRE 0 Fire = 0  
 REACTIVITY 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: 7664-93-9   | Sulfuric acid | 2.8% |
| RTECS: WS5600000 |               |      |

### · Other ingredients

|                  |       |       |
|------------------|-------|-------|
| CAS: 7732-18-5   | Water | 97.2% |
| RTECS: ZC0110000 |       |       |

## 4 First-aid measures

- **Description of first aid measures**
- **General information:** Immediately remove any clothing soiled by the product.
- **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:** Drink copious amounts of water and provide fresh air. Immediately call a doctor.

(Contd. on page 3)

US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/05/2023

Revision date 01/05/2023

Trade name: HRP Stop Solution

(Contd. from page 2)

- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed**  
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:** Dilute with plenty of 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:**

|           |               |                        |
|-----------|---------------|------------------------|
| 7664-93-9 | Sulfuric acid | 0.20 mg/m <sup>3</sup> |
|-----------|---------------|------------------------|

- **PAC-2:**

|           |               |                       |
|-----------|---------------|-----------------------|
| 7664-93-9 | Sulfuric acid | 8.7 mg/m <sup>3</sup> |
|-----------|---------------|-----------------------|

- **PAC-3:**

|           |               |                       |
|-----------|---------------|-----------------------|
| 7664-93-9 | Sulfuric acid | 160 mg/m <sup>3</sup> |
|-----------|---------------|-----------------------|

## \* 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.

(Contd. on page 4)

US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/05/2023

Revision date 01/05/2023

Trade name: HRP Stop Solution

(Contd. from page 3)

- **Conditions for safe storage, including any incompatibilities**  
Keep container tightly closed.  
Store in accordance with information listed on the product insert.
- **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.
- **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:**

### 7664-93-9 Sulfuric acid

|     |  |
|-----|--|
| PEL | Long-term value: 1 mg/m <sup>3</sup>                                 |
| REL | Long-term value: 1 mg/m <sup>3</sup>                                 |
| TLV | Long-term value: 0.2* mg/m <sup>3</sup><br>*as thoracic fraction, A2 |

- **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 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.

(Contd. on page 5)

-US



# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/05/2023

Revision date 01/05/2023

Trade name: HRP Stop Solution

(Contd. from page 4)

## · Eye protection:



Tightly sealed goggles

## 9 Physical and chemical properties

## · Information on basic physical and chemical properties

## · General Information

## · Appearance:

|                      |                                      |
|----------------------|--------------------------------------|
| · Form:              | Liquid                               |
| · Color:             | Clear                                |
| · Odor:              | Characteristic                       |
| · Structural Formula | H <sub>2</sub> O                     |
| · Molecular Weight   | 18 g/mol                             |
| · Odor threshold:    | Not determined.                      |
| · Formulation        | 0.5 M H <sub>2</sub> SO <sub>4</sub> |

· pH-value: Not determined.

## · Change in condition

|                                |                 |
|--------------------------------|-----------------|
| · Melting point/Melting range: | 0 °C (32 °F)    |
| · 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): 1.02352 g/cm<sup>3</sup> (8.54127 lbs/gal)

· 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 at 20 °C (68 °F): | 0.952 mPas      |
| · Kinematic:                | Not determined. |

## · Solvent content:

· Water: 97.2 %

(Contd. on page 6)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/05/2023

Revision date 01/05/2023

Trade name: HRP Stop Solution

(Contd. from page 5)

|                          |  |
|--------------------------|--|
| <b>VOC content:</b>      | 0.00 %<br>0.0 g/l / 0.00 lb/gal            |
| <b>Solids content:</b>   | 0.0 %                                      |
| <b>Other information</b> | 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:**

| 7664-93-9 Sulfuric acid |            |                               |
|-------------------------|------------|-------------------------------|
| Oral                    | LD50       | 2,140 mg/kg (rat)             |
| Inhalative              | LC50       | 320 mg/m <sup>3</sup> (mouse) |
|                         | TCLO       | 0.63 mg/m <sup>3</sup> (hmn)  |
|                         | TCLO       | 0.63 (hmn)                    |
| Irritation of eyes      | Irritation | 5 mg/30s (rabbit)             |

- **Primary irritant effect:**
- **on the skin:** Strong caustic effect on skin and mucous membranes.
- **on the eye:** Strong caustic effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**  
The product shows the following dangers according to internally approved calculation methods for preparations:  
Corrosive  
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

|           |               |   |
|-----------|---------------|---|
| 7664-93-9 | Sulfuric acid | 1 |
|-----------|---------------|---|

- **NTP (National Toxicology Program)**

|           |               |   |
|-----------|---------------|---|
| 7664-93-9 | Sulfuric acid | K |
|-----------|---------------|---|

- **OSHA-Ca (Occupational Safety & Health Administration)**

|                                    |  |  |
|------------------------------------|--|--|
| None of the ingredients is listed. |  |  |
|------------------------------------|--|--|

US

(Contd. on page 7)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/05/2023

Revision date 01/05/2023

Trade name: HRP Stop Solution

(Contd. from page 6)


## 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:**
  - Not hazardous for water.
  - 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

- |                                     |   |
|-------------------------------------|---|
| · <b>UN-Number</b>                  |   |
| · <b>DOT, IMDG, IATA</b>            | UN2796  |
| · <b>UN proper shipping name</b>    |   |
| · <b>DOT</b>                        | Sulfuric acid   |
| · <b>IMDG</b>                       | SULPHURIC ACID  |
| · <b>IATA</b>                       | Sulphuric acid  |
| · <b>Transport hazard class(es)</b> |   |
| · <b>DOT</b>                        |   |
|                                     |  |
| · <b>Class</b>                      | 8 Corrosive substances  |
| · <b>Label</b>                      | 8   |

(Contd. on page 8)

-US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/05/2023

Revision date 01/05/2023

Trade name: HRP Stop Solution

(Contd. from page 7)

· **IMDG, IATA**

· **Class** 8 Corrosive substances  
 · **Label** 8

· **Packing group**  
 · **DOT, IMDG, IATA** II

· **Environmental hazards:** Not applicable.

· **Special precautions for user** Warning: Corrosive substances  
 · **Hazard identification number (Kemler code):** 80  
 · **EMS Number:** F-A,S-B  
 · **Segregation groups** (SGG1a) Strong acids  
 · **Stowage Category** B  
 · **Segregation Code** SG36 Stow "separated from" SGG18-alkalis.  
 SG49 Stow "separated from" SGG6-cyanides

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

· **Transport/Additional information:**

· **DOT**  
 · **Quantity limitations** On passenger aircraft/rail: 1 L  
 On cargo aircraft only: 30 L

· **IMDG**

· **Limited quantities (LQ)** 1L  
 · **Excepted quantities (EQ)** Code: E2  
 Maximum net quantity per inner packaging: 30 ml  
 Maximum net quantity per outer packaging: 500 ml

· **IATA**

· **Remarks:** When sold in quantities of less than or equal to 1 mL, or 1 g, with an Excepted Quantity Code of E1, E2, E4, or E5, this item meets the De Minimis Quantities exemption, per IATA 2.6.10. Therefore packaging does not have to be labeled as Dangerous Goods/Excepted Quantity.

· **UN "Model Regulation":** UN 2796 SULPHURIC ACID, 8, II

## 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):**

|           |               |
|-----------|---------------|
| 7664-93-9 | Sulfuric acid |
|-----------|---------------|

(Contd. on page 9)

US

# Safety Data Sheet

## acc. to OSHA HCS

Printing date 01/05/2023

Revision date 01/05/2023

Trade name: HRP Stop Solution

(Contd. from page 8)

|  |               |
|--|---------------|
| · <b>Section 313 (Specific toxic chemical listings):</b> |               |
| 7664-93-9  | Sulfuric acid |

|   |
|---|
| · <b>TSCA (Toxic Substances Control Act):</b> |
| All components have the value ACTIVE.         |

|                                    |
|------------------------------------|
| · <b>Hazardous Air Pollutants</b>  |
| None of the ingredients is listed. |

|   |
|---|
| · <b>Proposition 65</b>                   |
| · <b>Chemicals known to cause cancer:</b> |
| None of the ingredients is listed.        |

|  |
|--|
| · <b>Chemicals known to cause reproductive toxicity for females:</b> |
| None of the ingredients is listed.                                   |

|  |
|--|
| · <b>Chemicals known to cause reproductive toxicity for males:</b> |
| None of the ingredients is listed.                                 |

|   |
|---|
| · <b>Chemicals known to cause developmental toxicity:</b> |
| None of the ingredients is listed.                        |

|  |
|--|
| · <b>Carcinogenic categories</b>               |
| · <b>EPA (Environmental Protection Agency)</b> |
| None of the ingredients is listed.             |

|                                      |               |    |
|--------------------------------------|---------------|----|
| · <b>TLV (Threshold Limit Value)</b> |               |    |
| 7664-93-9                            | Sulfuric acid | A2 |

|   |
|---|
| · <b>NIOSH-Ca (National Institute for Occupational Safety and Health)</b> |
| None of the ingredients is listed.  |

|   |
|---|
| · <b>Chemical safety assessment:</b> 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** 01/05/2023

· **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

(Contd. on page 10)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/05/2023

Revision date 01/05/2023

**Trade name: HRP Stop Solution**

(Contd. from page 9)

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  
Skin Corrosion 1A: Skin corrosion/irritation – Category 1A

**\* Data compared to the previous version altered.**

US