Safety Data Sheet
acc. to OSHA HCS

Printing date 05/18/2021 Revision date 05/18/2021

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1 Identification

· **Product identifier**

· **Trade name: Precoated (Mouse Anti-Rabbit IgG) ELISA 96-Well Strip Plate**
· **Synonym** ÿ

· **Article number:** 400004_400006, 022955
· **Application of the substance / the mixture**
This product is for research use - Not for human or veterinary diagnostic or therapeutic use. It is the responsibility of the purchaser to determine suitability for other applications.

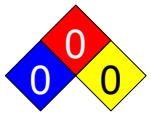
· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Cayman Chemical Co.
1180 E. Ellsworth Rd.
Ann Arbor, MI 48108
USA

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

2 Hazard(s) identification

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

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



Health = 0
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = 0
Fire = 0
Reactivity = 0

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

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/18/2021 Revision date 05/18/2021

Trade name: Precoated (Mouse Anti-Rabbit IgG) ELISA 96-Well Strip Plate

(Contd. from page 1)

3 Composition/information on ingredients

· **Chemical characterization: Substances**
· **CAS No. Description**
Precoated (Mouse Anti-Rabbit IgG) EIA 96-Well Plate

4 First-aid measures

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

5 Fire-fighting measures

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

6 Accidental release measures

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

· **PAC-1:**
Substance is not listed.

· **PAC-2:**
Substance is not listed.

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/18/2021 Revision date 05/18/2021

Trade name: Precoated (Mouse Anti-Rabbit IgG) ELISA 96-Well 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**
Keep container tightly closed.
Store in accordance with information listed on the product insert.
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** None.
· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

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

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

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

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9 Physical and chemical properties

· **Information on basic physical and chemical properties**
· **General Information**
· **Appearance:**
Form: Solid

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/18/2021 Revision date 05/18/2021

Trade name: Precoated (Mouse Anti-Rabbit IgG) ELISA 96-Well Strip Plate

(Contd. from page 3)

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

10 Stability and reactivity

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

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/18/2021 Revision date 05/18/2021

Trade name: Precoated (Mouse Anti-Rabbit IgG) ELISA 96-Well 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 05/18/2021 Revision date 05/18/2021

Trade name: Precoated (Mouse Anti-Rabbit IgG) ELISA 96-Well Strip Plate

(Contd. from page 5)

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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 05/18/2021 Revision date 05/18/2021

Trade name: Precoated (Mouse Anti-Rabbit IgG) ELISA 96-Well 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** 05/18/2021 / -
· **Abbreviations and acronyms:**
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
· *** Data compared to the previous version altered.**

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/05/2021 Revision date 10/05/2021

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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. It is the responsibility of the purchaser to determine suitability for other applications.

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Cayman Chemical Co.
1180 E. Ellsworth Rd.
Ann Arbor, MI 48108
USA

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

2 Hazard(s) identification

· **Classification of the substance or mixture**
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)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/05/2021 Revision date 10/05/2021

Trade name: Polysorbate 20

(Contd. from page 1)

· **HMIS-ratings (scale 0 - 4)**

Health = 0
Fire = 1
Reactivity = 0

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

*
3 Composition/information on ingredients

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

4 First-aid measures

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

5 Fire-fighting measures

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

6 Accidental release measures

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

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/05/2021 Revision date 10/05/2021

Trade name: Polysorbate 20

(Contd. from page 2)

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

*
7 Handling and storage

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

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

*
8 Exposure controls/personal protection

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

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

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

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/05/2021 Revision date 10/05/2021

Trade name: Polysorbate 20

(Contd. from page 3)

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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.
· **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 10/05/2021 Revision date 10/05/2021

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 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.

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/05/2021 Revision date 10/05/2021

Trade name: Polysorbate 20

(Contd. from page 5)

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

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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):** 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 10/05/2021 Revision date 10/05/2021

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** 10/05/2021 / -
· **Abbreviations and acronyms:**
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
· *** Data compared to the previous version altered.**

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/18/2021 Revision date 05/18/2021

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1 Identification

· **Product identifier**

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

· **Article number:** 400062, 025478
· **Application of the substance / the mixture**
This product is for research use - Not for human or veterinary diagnostic or therapeutic use. It is the responsibility of the purchaser to determine suitability for other applications.

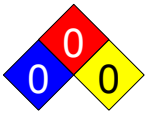
· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Cayman Chemical Co.
1180 E. Ellsworth Rd.
Ann Arbor, MI 48108
USA

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

2 Hazard(s) identification

· **Classification of the substance or mixture**
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)**



Health = 0
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = 0
Fire = 0
Reactivity = 0

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

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/18/2021 Revision date 05/18/2021

Trade name: Wash Buffer Concentrate (400X)

(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**		
CAS: 7758-11-4 RTECS: TC5580000	Potassium phosphate, dibasic	53.0%
CAS: 7732-18-5 RTECS: ZC0110000	Water	34.1%
CAS: 7778-77-0 RTECS: TC6615500	Potassium phosphate, Monobasic	12.9%

4 First-aid measures

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

5 Fire-fighting measures

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

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures** Not required.
· **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:** Pick up mechanically.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/18/2021 Revision date 05/18/2021

Trade name: Wash Buffer Concentrate (400X)

(Contd. from page 2)

· **Protective Action Criteria for Chemicals**

· **PAC-1:**		
7758-11-4	Potassium phosphate, dibasic	13 mg/m³
7778-77-0	Potassium phosphate, Monobasic	9.6 mg/m³
· **PAC-2:**		
7758-11-4	Potassium phosphate, dibasic	140 mg/m³
7778-77-0	Potassium phosphate, Monobasic	110 mg/m³
· **PAC-3:**		
7758-11-4	Potassium phosphate, dibasic	830 mg/m³
7778-77-0	Potassium phosphate, Monobasic	630 mg/m³

7 Handling and storage

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

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

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/18/2021 Revision date 05/18/2021

Trade name: Wash Buffer Concentrate (400X)

(Contd. from page 3)

· **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:	Liquid
Color:	Colorless
· **Odor:**	Characteristic
· **Odor threshold:**	Not determined.
· **Formulation**	Concentrated wash buffer (4 M phosphate, pH 7.4)
· **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 determined.
· **Decomposition temperature:**	Not determined.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure at 20 °C (68 °F):**	23 hPa (17.3 mm Hg)
· **Density at 20 °C (68 °F):**	1.159 g/cm³ (9.67186 lbs/gal)
· **Bulk density:**	1,159 kg/m³
· **Relative density**	Not determined.
· **Vapor density**	Not applicable.
· **Evaporation rate**	Not applicable.
· **Solubility in / Miscibility with**	
Water:	Soluble.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· **Solvent content:**	
Water:	34.1 %
VOC content:	0.00 %

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/18/2021 Revision date 05/18/2021

Trade name: Wash Buffer Concentrate (400X)

(Contd. from page 4)

· **Other information** No further relevant information available.

10 Stability and reactivity

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

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
· **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.

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/18/2021 Revision date 05/18/2021

Trade name: Wash Buffer Concentrate (400X)

(Contd. from page 5)

· **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.

*
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):**
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.

(Contd. on page 7)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/18/2021 Revision date 05/18/2021

Trade name: Wash Buffer Concentrate (400X)

(Contd. from page 6)

· **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** 05/18/2021 / -
· **Abbreviations and acronyms:**
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
· *** Data compared to the previous version altered.**

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/03/2020 Revision date 05/03/2020

1 Identification

· **Product identifier**

· **Trade name: TMB Substrate Solution**

· **Article number:** 400074, 008155
· **Application of the substance / the mixture** For research use only - not for human or veterinary 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

Repr. 1B H360 May damage fertility or the unborn child.


GHS07

Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2A H319 Causes serious eye irritation.

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



GHS07 GHS08

· **Signal word** Danger

· **Hazard-determining components of labeling:**
N-Methyl-2-pyrrolidone
· **Hazard statements**
Causes skin irritation.
Causes serious eye irritation.
May damage fertility or the unborn child.

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/03/2020 Revision date 05/03/2020

Trade name: TMB Substrate Solution

(Contd. from page 1)

· **Precautionary statements**
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Wash thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection.
If on skin: Wash with plenty of water.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF exposed or concerned: Get medical advice/attention.
Specific treatment (see on this label).
Take off contaminated clothing and wash it before reuse.
If skin irritation occurs: Get medical advice/attention.
If eye irritation persists: Get medical advice/attention.
Store locked up.
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.

· **Dangerous components:**		
CAS: 872-50-4 RTECS: UY5790000	N-Methyl-2-pyrrolidone	1–5%

· **Other ingredients**		
	TMB Substrate Solution	94.5%
CAS: 124-43-6 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.

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/03/2020 Revision date 05/03/2020

Trade name: TMB Substrate Solution

(Contd. from page 2)

· **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**
May cause anemia, cough, CNS depression, drowsiness, headache, heart damage, lassitude (weakness, exhaustion), liver damage, narcosis, reproductive effects, teratogenic effects.
No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, 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**

· **PAC-1:**		
872-50-4	N-Methyl-2-pyrrolidone	30 ppm
124-43-6	Urea peroxide	1.2 mg/m³

· **PAC-2:**		
872-50-4	N-Methyl-2-pyrrolidone	32 ppm
124-43-6	Urea peroxide	13 mg/m³

· **PAC-3:**		
872-50-4	N-Methyl-2-pyrrolidone	190 ppm
124-43-6	Urea peroxide	79 mg/m³

7 Handling and storage

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

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/03/2020 Revision date 05/03/2020

Trade name: TMB Substrate Solution

(Contd. from page 3)

· **Information about protection against explosions and fires:**
Keep respiratory protective device available.

· **Conditions for safe storage, including any incompatibilities**
Keep container tightly closed.
Store in accordance with information listed on the product insert.
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** Keep receptacle tightly sealed.
· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

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

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
872-50-4 N-Methyl-2-pyrrolidone	
TLV	BEI
WEEL	Long-term value: 10 ppm Skin

· **Ingredients with biological limit values:**	
872-50-4 N-Methyl-2-pyrrolidone	
BEI	100 mg/L Medium: urine Time: end of shift 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.
· **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

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/03/2020 Revision date 05/03/2020

Trade name: TMB Substrate Solution

(Contd. from page 4)

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.
· **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.
Upper:	Not determined.
· **Vapor pressure:**	Not determined.
· **Density at 20 °C (68 °F):**	0.25018–3.65333 g/cm³ (2.08775–30.48704 lbs/gal)
· **Bulk density:**	250–3,653 kg/m³
· **Relative density**	Not determined.
· **Vapor density**	Not determined.
· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with**	
Water:	Fully miscible.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/03/2020 Revision date 05/03/2020

Trade name: TMB Substrate Solution

(Contd. from page 5)

Kinematic:	Not determined.
· **Solvent content:**	
Organic solvents:	1–5 %
VOC content:	1–5 % 12.5–182.7 g/l / 0.1–1.52 lb/gal
Solids content:	0.5 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

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

11 Toxicological information

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

· **LD/LC50 values that are relevant for classification:**		
ATE (Acute Toxicity Estimate)		
Oral	LD50	78,280–391,400 mg/kg (rat)

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.
· **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.

(Contd. on page 7)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/03/2020 Revision date 05/03/2020

Trade name: TMB Substrate Solution

(Contd. from page 6)

· **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
· **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.

(Contd. on page 8)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/03/2020 Revision date 05/03/2020

Trade name: TMB Substrate Solution

(Contd. from page 7)

· **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**
· **Sara**

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

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

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

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

872-50-4	N-Methyl-2-pyrrolidone	ACTIVE
124-43-6	Urea peroxide	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:**

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

· **Carcinogenic categories**

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

· **TLV (Threshold Limit Value established by ACGIH)**
None of the ingredients is listed.

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

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

GHS07 GHS08

· **Signal word** Danger

(Contd. on page 9)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/03/2020 Revision date 05/03/2020

Trade name: TMB Substrate Solution

(Contd. from page 8)

· **Hazard-determining components of labeling:**
N-Methyl-2-pyrrolidone
· **Hazard statements**
Causes skin irritation.
Causes serious eye irritation.
May damage fertility or the unborn child.
· **Precautionary statements**
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Wash thoroughly after handling.
Wear protective gloves/protective clothing/eye protection/face protection.
If on skin: Wash with plenty of water.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF exposed or concerned: Get medical advice/attention.
Specific treatment (see on this label).
Take off contaminated clothing and wash it before reuse.
If skin irritation occurs: Get medical advice/attention.
If eye irritation persists: Get medical advice/attention.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.
· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** Environment protection department.
· **Contact:** -
· **Date of preparation / last revision** 05/03/2020 / -
· **Abbreviations and acronyms:**
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
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 Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
Repr. 1B: Reproductive toxicity – Category 1B

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/03/2020 Revision date 05/03/2020

1 Identification

· **Product identifier**

· **Trade name: Immunoassay Buffer D Concentration (5X)**

· **Article number:** 400108, 024717
· **Application of the substance / the mixture** For research use only - not for human or veterinary use.

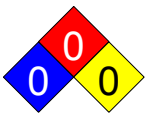
· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Cayman Chemical Co.
1180 E. Ellsworth Rd.
Ann Arbor, MI 48108
USA

· **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)**



Health = 0
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = 0
Fire = 0
Reactivity = 0

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

3 Composition/information on ingredients

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

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/03/2020 Revision date 05/03/2020

Trade name: Immunoassay Buffer D Concentration (5X)

(Contd. from page 1)

· **Dangerous components:**		
CAS: 7647-14-5 RTECS: VZ4725000	Sodium chloride	11.7%
CAS: 7758-11-4 RTECS: TC5580000	Potassium phosphate, dibasic	6.6%

· **Other ingredients**		
CAS: 7732-18-5 RTECS: ZC0110000	Water	74.408%
CAS: 9048-46-8 RTECS: MT6446000	Albumin, bovine	5.5%
CAS: 7778-77-0 RTECS: TC6615500	Potassium phosphate, Monobasic	1.6%
CAS: 194491-31-1	EDTA, tetrasodium salt, hydrate	0.19%
CAS: 2682-20-4 RTECS: NX8157080	2-Methyl-4-isothiazolin-3-one	<0.001%
CAS: 26172-55-4 RTECS: NX8156850	5-Chloro-2-methyl-4-isothiazolin-3-one	0.001%

4 First-aid measures

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

5 Fire-fighting measures

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

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures** Not required.
· **Environmental precautions:**
Dilute with plenty of water.

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/03/2020 Revision date 05/03/2020

Trade name: Immunoassay Buffer D Concentration (5X)

(Contd. from page 2)

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.

· **Protective Action Criteria for Chemicals**

· **PAC-1:**		
7758-11-4	Potassium phosphate, dibasic	13 mg/m³
7778-77-0	Potassium phosphate, Monobasic	9.6 mg/m³
26172-55-4	5-Chloro-2-methyl-4-isothiazolin-3-one	0.6 mg/m³

· **PAC-2:**		
7758-11-4	Potassium phosphate, dibasic	140 mg/m³
7778-77-0	Potassium phosphate, Monobasic	110 mg/m³
26172-55-4	5-Chloro-2-methyl-4-isothiazolin-3-one	6.6 mg/m³

· **PAC-3:**		
7758-11-4	Potassium phosphate, dibasic	830 mg/m³
7778-77-0	Potassium phosphate, Monobasic	630 mg/m³
26172-55-4	5-Chloro-2-methyl-4-isothiazolin-3-one	40 mg/m³

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**
Keep container tightly closed.
Store in accordance with information listed on the product insert.
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** 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:**	
7647-14-5 Sodium chloride	
PEL	Long-term value: 10 ppm
TLV	Long-term value: 10 mg/m³, 10 ppm
7758-11-4 Potassium phosphate, dibasic	
PEL	Short-term value: 10 mg/m³ Long-term value: 10 ppm аэрозоль

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/03/2020 Revision date 05/03/2020

Trade name: Immunoassay Buffer D Concentration (5X)

(Contd. from page 3)

TLV	Short-term value: 10 mg/m³ Long-term value: 10 ppm аэрозоль

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

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

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/03/2020 Revision date 05/03/2020

Trade name: Immunoassay Buffer D Concentration (5X)

(Contd. from page 4)

· **Vapor pressure at 20 °C (68 °F):**	23 hPa (17.3 mm Hg)
· **Density at 20 °C (68 °F):**	1 g/cm³ (8.345 lbs/gal)
· **Bulk density:**	1,000 kg/m³
· **Relative density**	Not determined.
· **Vapor density**	Not determined.
· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with Water:**	Fully miscible.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Solvent content:**	
Water:	74.4 %
VOC content:	0.00 % 0.0 g/l / 0.00 lb/gal
Solids content:	25.4 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

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

11 Toxicological information

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

· **LD/LC50 values that are relevant for classification:**		
ATE (Acute Toxicity Estimate)		
Oral	LD50	25,641 mg/kg (rat)

7647-14-5 Sodium chloride		
Oral	LDLO	1,000 mg/kg (man)
	TDLO	650 ml/kg (man)
	LD50	4,000 mg/kg (mouse)
		3,000 mg/kg (rat)
	LD50	4 g/kg (mouse)
Inhalative	LC50	320 mg/m³ (mouse)

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/03/2020 Revision date 05/03/2020

Trade name: Immunoassay Buffer D Concentration (5X)

(Contd. from page 5)

	TCLO	0.63 mg/m³ (hmn)
	LCLO	29,300 mg/m³/7h (mouse)
Irritation of skin	Irritation	500 mg/24h (rabbit)
Irritation of eyes	Irritation	100 mg/24h (rabbit)
	Intraperitoneal LD50	2,602 mg/kg (mouse)
	Subcutaneous LD50	31.6 mg/kg (rat)
	Intravenous LD50	59.5 mg/kg (rat)
	Data	15 mg/3D (hmn)
	Subcutaneous LD50	3 g/kg (mouse)

· **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.

(Contd. on page 7)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/03/2020 Revision date 05/03/2020

Trade name: Immunoassay Buffer D Concentration (5X)

(Contd. from page 6)

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

· **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**
· **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):**

7732-18-5	Water	ACTIVE
7647-14-5	Sodium chloride	ACTIVE
7758-11-4	Potassium phosphate, dibasic	ACTIVE
9048-46-8	Albumin, bovine	ACTIVE
7778-77-0	Potassium phosphate, Monobasic	ACTIVE
2682-20-4	2-Methyl-4-isothiazolin-3-one	ACTIVE
26172-55-4	5-Chloro-2-methyl-4-isothiazolin-3-one	ACTIVE

(Contd. on page 8)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/03/2020 Revision date 05/03/2020

Trade name: Immunoassay Buffer D Concentration (5X)

(Contd. from page 7)

· **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 established by ACGIH)**
None of the ingredients is listed.

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

· **GHS label elements** None
· **Hazard pictograms** None
· **Signal word** None
· **Hazard statements** None
· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** Environment protection department.
· **Contact:** -
· **Date of preparation / last revision** 05/03/2020 / -
· **Abbreviations and acronyms:**
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
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

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

1 Identification

· **Product identifier**

· **Trade name: SARS-CoV-2 Spike Reagent**

· **Article number:** 502221
· **Application of the substance / the mixture**
This product is for research use - Not for human or veterinary diagnostic or therapeutic use. It is the responsibility of the purchaser to determine suitability for other applications.

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Cayman Chemical Co.
1180 E. Ellsworth Rd.
Ann Arbor, MI 48108
USA

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

2 Hazard(s) identification

· **Classification of the substance or mixture**

GHS08 Health hazard

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

GHS05 Corrosion

Eye Dam. 1 H318 Causes serious eye damage.

GHS07

Acute Tox. 4 H302 Harmful if swallowed.
Skin Irrit. 2 H315 Causes skin irritation.
Skin Sens. 1 H317 May cause an allergic skin reaction.
STOT SE 3 H335 May cause respiratory irritation.

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: SARS-CoV-2 Spike Reagent

(Contd. from page 1)

Aquatic Acute 3 H402 Harmful to aquatic life.
Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects.

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

GHS05 GHS07 GHS08

· **Signal word** Danger

· **Hazard-determining components of labeling:**
Potassium phosphate dibasic
Sodium chloride
Methylchloroisothiazolinone
Albumin, bovine
Methylisothiazolinone
· **Hazard statements**
H302 Harmful if swallowed.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H317 May cause an allergic skin reaction.
H335 May cause respiratory irritation.
H373 May cause damage to organs through prolonged or repeated exposure.
H402 Harmful to aquatic life.
H412 Harmful to aquatic life with long lasting effects.
· **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.
P272	Contaminated work clothing must not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves / eye protection / face protection.
P301+P312	If swallowed: Call a poison center/doctor if you feel unwell.
P302+P352	If on skin: Wash with plenty of water.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a poison center/doctor.
P321	Specific treatment (see on this label).
P314	Get medical advice/attention if you feel unwell.
P330	Rinse mouth.
P362+P364	Take off contaminated clothing and wash it before reuse.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P363	Wash contaminated clothing before reuse.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: SARS-CoV-2 Spike Reagent

(Contd. from page 2)

· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 3
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = *3
Fire = 0
Reactivity = 0

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

3 Composition/information on ingredients

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

· **Dangerous components:**

CAS: 7647-14-5 RTECS: VZ4725000	Sodium chloride	45.718%
CAS: 7758-11-4 RTECS: TC5580000	Potassium phosphate dibasic	25.79%
CAS: 9048-46-8 RTECS: AY9296000	Albumin, bovine	21.492%
CAS: 7778-77-0 RTECS: TC6615500	Potassium phosphate, Monobasic	6.251%
CAS: 26172-55-4 RTECS: NX8156850	Methylchloroisothiazolinone	0.004%
	Methylisothiazolinone	≥0.0015–<0.025%

· **Other ingredients**

194491-31-1	EDTA, tetrasodium salt hydrate	0.742%
	Recombinant SARS-CoV-2 Spike Protein	0.001%

· **Additional information:**
The specific chemical identity of composition and exact percentage is being withheld as a trade secret. The specific chemical identity and exact percentage is made available to health professionals, employees, and designated representatives in accordance with the applicable provisions of paragraph §1910.1200.

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.

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: SARS-CoV-2 Spike Reagent

(Contd. from page 3)

· **After inhalation:**
Supply fresh air and to be sure call for a doctor.
In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing:** Immediately call a doctor.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed**
May cause anemia, cough, CNS depression, drowsiness, headache, heart damage, lassitude (weakness, exhaustion), liver damage, narcosis, reproductive effects, teratogenic effects.
No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

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

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Mount respiratory protective device.
Wear protective equipment. Keep unprotected persons away.
· **Environmental precautions:**
Do not allow product to reach sewage system or any water course.
Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Use neutralizing agent.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· **Protective Action Criteria for Chemicals**

· **PAC-1:**		
7758-11-4	Potassium phosphate dibasic	13 mg/m³
7778-77-0	Potassium phosphate, Monobasic	9.6 mg/m³
26172-55-4	Methylchloroisothiazolinone	0.6 mg/m³

· **PAC-2:**		
7758-11-4	Potassium phosphate dibasic	140 mg/m³
7778-77-0	Potassium phosphate, Monobasic	110 mg/m³

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: SARS-CoV-2 Spike Reagent

(Contd. from page 4)

26172-55-4	Methylchloroisothiazolinone	6.6 mg/m³

· **PAC-3:**

7758-11-4	Potassium phosphate dibasic	830 mg/m³
7778-77-0	Potassium phosphate, Monobasic	630 mg/m³
26172-55-4	Methylchloroisothiazolinone	40 mg/m³

7 Handling and storage

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

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** Keep receptacle tightly sealed.
· **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.
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.

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: SARS-CoV-2 Spike Reagent

(Contd. from page 5)

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:	Lyophilized powder
Color:	Not determined.
· **Odor:**	Characteristic
· **Odor threshold:**	Not determined.
· **pH-value:**	Not applicable.
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Not determined.
· **Decomposition temperature:**	Not determined.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure:**	Not applicable.
· **Density:**	Not determined.
· **Relative density**	Not determined.
· **Vapor density**	Not applicable.
· **Evaporation rate**	Not applicable.

(Contd. on page 7)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: SARS-CoV-2 Spike Reagent

(Contd. from page 6)

· **Solubility in / Miscibility with**	
Water:	Soluble.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· **Solvent content:**	
VOC content:	0.00 %
Solids content:	100.0 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

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

11 Toxicological information

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

· **LD/LC50 values that are relevant for classification:**		
ATE (Acute Toxicity Estimate)		
Oral	LD50	1,057 mg/kg

7647-14-5 Sodium chloride		
Oral	LDLO	1,000 mg/kg (man)
	TDLO	650 ml/kg (man)
	LD50	4,000 mg/kg (mouse)
		3,000 mg/kg (rat)
	LD50	4 g/kg (mouse)
Inhalative	LC50	320 mg/m³ (mouse)
	TCLO	0.63 mg/m³ (hmn)
	LCLO	29,300 mg/m³/7h (mouse)
Irritation of skin	Irritation	500 mg/24h (rabbit)
Irritation of eyes	Irritation	100 mg/24h (rabbit)
	Intraperitoneal LD50	2,602 mg/kg (mouse)
	Subcutaneous LD50	31.6 mg/kg (rat)
	Intravenous LD50	59.5 mg/kg (rat)

(Contd. on page 8)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: SARS-CoV-2 Spike Reagent

(Contd. from page 7)

	Data	15 mg/3D (hmn)
	Subcutaneous LD50	3 g/kg (mouse)
9048-46-8 Albumin, bovine		
	Intraperitoneal TDLO	0.2 pph (mouse)
7778-77-0 Potassium phosphate, Monobasic		
Oral	LDLO	4,640 mg/kg (rat)

· **Primary irritant effect:**
· **on the skin:** Irritant to skin and mucous membranes.
· **on the eye:** Strong irritant with the danger of severe eye injury.
· **Sensitization:** Sensitization possible through skin contact.
· **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.
· **Ecotoxical effects:**
· **Remark:** Harmful to fish
· **Additional ecological information:**
· **General notes:**
Water hazard class 2 (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Must not reach bodies of water or drainage ditch undiluted or unneutralized.
Danger to drinking water if even small quantities leak into the ground.
Harmful to aquatic organisms
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

(Contd. on page 9)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: SARS-CoV-2 Spike Reagent

(Contd. from page 8)

13 Disposal considerations

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

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

*

14 Transport information

· **UN-Number** · **DOT, IMDG, IATA**	not regulated
· **UN proper shipping name** · **DOT, IMDG, IATA**	not regulated
· **Transport hazard class(es)** · **DOT, ADN, IMDG, IATA** · **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):**

7647-14-5	Sodium chloride	ACTIVE
7758-11-4	Potassium phosphate dibasic	ACTIVE
9048-46-8	Albumin, bovine	ACTIVE
7778-77-0	Potassium phosphate, Monobasic	ACTIVE
26172-55-4	Methylchloroisothiazolinone	ACTIVE
	Methylisothiazolinone	ACTIVE

(Contd. on page 10)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: SARS-CoV-2 Spike Reagent

(Contd. from page 9)

· **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** 10/08/2021 / -
· **Abbreviations and acronyms:**
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit

(Contd. on page 11)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: SARS-CoV-2 Spike Reagent

(Contd. from page 10)

Acute Tox. 4: Acute toxicity – Category 4
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Skin Sens. 1: Skin sensitisation – Category 1
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2
Aquatic Acute 3: Hazardous to the aquatic environment - acute aquatic hazard – Category 3
Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3

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

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

1 Identification

· **Product identifier**

· **Trade name: ACE2-HRP**

· **Article number:** 502222
· **Application of the substance / the mixture**
This product is for research use - Not for human or veterinary diagnostic or therapeutic use. It is the responsibility of the purchaser to determine suitability for other applications.

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Cayman Chemical Co.
1180 E. Ellsworth Rd.
Ann Arbor, MI 48108
USA

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

2 Hazard(s) identification

· **Classification of the substance or mixture**

GHS08 Health hazard

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

GHS05 Corrosion

Eye Dam. 1 H318 Causes serious eye damage.

GHS07

Acute Tox. 4 H302 Harmful if swallowed.
Skin Irrit. 2 H315 Causes skin irritation.
Skin Sens. 1 H317 May cause an allergic skin reaction.
STOT SE 3 H335 May cause respiratory irritation.

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: ACE2-HRP

(Contd. from page 1)

Aquatic Acute 3 H402 Harmful to aquatic life.
Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects.

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

GHS05 GHS07 GHS08

· **Signal word** Danger

· **Hazard-determining components of labeling:**
Potassium phosphate dibasic
Sodium chloride
Methylchloroisothiazolinone
Albumin, bovine
Methylisothiazolinone
· **Hazard statements**
H302 Harmful if swallowed.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H317 May cause an allergic skin reaction.
H335 May cause respiratory irritation.
H373 May cause damage to organs through prolonged or repeated exposure.
H402 Harmful to aquatic life.
H412 Harmful to aquatic life with long lasting effects.
· **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.
P272	Contaminated work clothing must not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves / eye protection / face protection.
P301+P312	If swallowed: Call a poison center/doctor if you feel unwell.
P302+P352	If on skin: Wash with plenty of water.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a poison center/doctor.
P321	Specific treatment (see on this label).
P314	Get medical advice/attention if you feel unwell.
P330	Rinse mouth.
P362+P364	Take off contaminated clothing and wash it before reuse.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P363	Wash contaminated clothing before reuse.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: ACE2-HRP

(Contd. from page 2)

· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 3
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = *3
Fire = 0
Reactivity = 0

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

3 Composition/information on ingredients

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

· **Dangerous components:**

CAS: 7647-14-5 RTECS: VZ4725000	Sodium chloride	45.718%
CAS: 7758-11-4 RTECS: TC5580000	Potassium phosphate dibasic	25.79%
CAS: 9048-46-8 RTECS: AY9296000	Albumin, bovine	21.492%
CAS: 7778-77-0 RTECS: TC6615500	Potassium phosphate, Monobasic	6.251%
CAS: 26172-55-4 RTECS: NX8156850	Methylchloroisothiazolinone	0.004%
	Methylisothiazolinone	≥0.0015–<0.025%

· **Other ingredients**

194491-31-1	EDTA, tetrasodium salt hydrate	0.742%
	ACE2-HRP	0.001%

· **Additional information:**
The specific chemical identity of composition and exact percentage is being withheld as a trade secret. The specific chemical identity and exact percentage is made available to health professionals, employees, and designated representatives in accordance with the applicable provisions of paragraph §1910.1200.

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.

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: ACE2-HRP

(Contd. from page 3)

· **After inhalation:**
Supply fresh air and to be sure call for a doctor.
In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing:** Immediately call a doctor.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed**
May cause anemia, cough, CNS depression, drowsiness, headache, heart damage, lassitude (weakness, exhaustion), liver damage, narcosis, reproductive effects, teratogenic effects.
No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

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

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Mount respiratory protective device.
Wear protective equipment. Keep unprotected persons away.
· **Environmental precautions:**
Do not allow product to reach sewage system or any water course.
Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Use neutralizing agent.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· **Protective Action Criteria for Chemicals**

· **PAC-1:**		
7758-11-4	Potassium phosphate dibasic	13 mg/m³
7778-77-0	Potassium phosphate, Monobasic	9.6 mg/m³
26172-55-4	Methylchloroisothiazolinone	0.6 mg/m³

· **PAC-2:**		
7758-11-4	Potassium phosphate dibasic	140 mg/m³
7778-77-0	Potassium phosphate, Monobasic	110 mg/m³

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: ACE2-HRP

(Contd. from page 4)

26172-55-4	Methylchloroisothiazolinone	6.6 mg/m³

· **PAC-3:**

7758-11-4	Potassium phosphate dibasic	830 mg/m³
7778-77-0	Potassium phosphate, Monobasic	630 mg/m³
26172-55-4	Methylchloroisothiazolinone	40 mg/m³

7 Handling and storage

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

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** Keep receptacle tightly sealed.
· **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.
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.

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: ACE2-HRP

(Contd. from page 5)

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:	Lyophilized powder
Color:	Not determined.
· **Odor:**	Characteristic
· **Odor threshold:**	Not determined.
· **pH-value:**	Not applicable.
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Not determined.
· **Decomposition temperature:**	Not determined.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure:**	Not applicable.
· **Density:**	Not determined.
· **Relative density**	Not determined.
· **Vapor density**	Not applicable.
· **Evaporation rate**	Not applicable.

(Contd. on page 7)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: ACE2-HRP

(Contd. from page 6)

· **Solubility in / Miscibility with**	
Water:	Soluble.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· **Solvent content:**	
VOC content:	0.00 %
Solids content:	100.0 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

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

11 Toxicological information

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

· **LD/LC50 values that are relevant for classification:**		
ATE (Acute Toxicity Estimate)		
Oral	LD50	1,057 mg/kg

7647-14-5 Sodium chloride		
Oral	LDLO	1,000 mg/kg (man)
	TDLO	650 ml/kg (man)
	LD50	4,000 mg/kg (mouse)
		3,000 mg/kg (rat)
	LD50	4 g/kg (mouse)
Inhalative	LC50	320 mg/m³ (mouse)
	TCLO	0.63 mg/m³ (hmn)
	LCLO	29,300 mg/m³/7h (mouse)
Irritation of skin	Irritation	500 mg/24h (rabbit)
Irritation of eyes	Irritation	100 mg/24h (rabbit)
	Intraperitoneal LD50	2,602 mg/kg (mouse)
	Subcutaneous LD50	31.6 mg/kg (rat)
	Intravenous LD50	59.5 mg/kg (rat)

(Contd. on page 8)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: ACE2-HRP

(Contd. from page 7)

	Data	15 mg/3D (hmn)
	Subcutaneous LD50	3 g/kg (mouse)
9048-46-8 Albumin, bovine		
	Intraperitoneal TDLO	0.2 pph (mouse)
7778-77-0 Potassium phosphate, Monobasic		
Oral	LDLO	4,640 mg/kg (rat)

· **Primary irritant effect:**
· **on the skin:** Irritant to skin and mucous membranes.
· **on the eye:** Strong irritant with the danger of severe eye injury.
· **Sensitization:** Sensitization possible through skin contact.
· **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.
· **Ecotoxical effects:**
· **Remark:** Harmful to fish
· **Additional ecological information:**
· **General notes:**
Water hazard class 2 (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Must not reach bodies of water or drainage ditch undiluted or unneutralized.
Danger to drinking water if even small quantities leak into the ground.
Harmful to aquatic organisms
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

(Contd. on page 9)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: ACE2-HRP

(Contd. from page 8)

13 Disposal considerations

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

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

*

14 Transport information

· **UN-Number** · **DOT, IMDG, IATA**	not regulated
· **UN proper shipping name** · **DOT, IMDG, IATA**	not regulated
· **Transport hazard class(es)** · **DOT, ADN, IMDG, IATA** · **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):**

7647-14-5	Sodium chloride	ACTIVE
7758-11-4	Potassium phosphate dibasic	ACTIVE
9048-46-8	Albumin, bovine	ACTIVE
7778-77-0	Potassium phosphate, Monobasic	ACTIVE
26172-55-4	Methylchloroisothiazolinone	ACTIVE
	Methylisothiazolinone	ACTIVE

(Contd. on page 10)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: ACE2-HRP

(Contd. from page 9)

· **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** 10/08/2021 / -
· **Abbreviations and acronyms:**
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit

(Contd. on page 11)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: ACE2-HRP

(Contd. from page 10)

Acute Tox. 4: Acute toxicity – Category 4
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Skin Sens. 1: Skin sensitisation – Category 1
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2
Aquatic Acute 3: Hazardous to the aquatic environment - acute aquatic hazard – Category 3
Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3

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

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

1 Identification

· **Product identifier**

· **Trade name: SARS-CoV-2 Neutralizing Antibody Standard**

· **Article number:** 502223
· **Application of the substance / the mixture**
This product is for research use - Not for human or veterinary diagnostic or therapeutic use. It is the responsibility of the purchaser to determine suitability for other applications.

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Cayman Chemical Co.
1180 E. Ellsworth Rd.
Ann Arbor, MI 48108
USA

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

2 Hazard(s) identification

· **Classification of the substance or mixture**


GHS08 Health hazard

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


GHS05 Corrosion

Eye Dam. 1 H318 Causes serious eye damage.


GHS07

Acute Tox. 4 H302 Harmful if swallowed.
Skin Irrit. 2 H315 Causes skin irritation.
Skin Sens. 1 H317 May cause an allergic skin reaction.
STOT SE 3 H335 May cause respiratory irritation.

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: SARS-CoV-2 Neutralizing Antibody Standard

(Contd. from page 1)

Aquatic Acute 3 H402 Harmful to aquatic life.
Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects.

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

GHS05 GHS07 GHS08

· **Signal word** Danger

· **Hazard-determining components of labeling:**
Potassium phosphate dibasic
Sodium chloride
Methylchloroisothiazolinone
Albumin, bovine
Methylisothiazolinone
· **Hazard statements**
H302 Harmful if swallowed.
H315 Causes skin irritation.
H318 Causes serious eye damage.
H317 May cause an allergic skin reaction.
H335 May cause respiratory irritation.
H373 May cause damage to organs through prolonged or repeated exposure.
H402 Harmful to aquatic life.
H412 Harmful to aquatic life with long lasting effects.
· **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.
P272	Contaminated work clothing must not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective gloves / eye protection / face protection.
P301+P312	If swallowed: Call a poison center/doctor if you feel unwell.
P302+P352	If on skin: Wash with plenty of water.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a poison center/doctor.
P321	Specific treatment (see on this label).
P314	Get medical advice/attention if you feel unwell.
P330	Rinse mouth.
P362+P364	Take off contaminated clothing and wash it before reuse.
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P363	Wash contaminated clothing before reuse.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/international regulations.

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: SARS-CoV-2 Neutralizing Antibody Standard

(Contd. from page 2)

· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 3
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = *3
Fire = 0
Reactivity = 0

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

3 Composition/information on ingredients

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

· **Dangerous components:**		
CAS: 7647-14-5 RTECS: VZ4725000	Sodium chloride	45.7%
CAS: 7758-11-4 RTECS: TC5580000	Potassium phosphate dibasic	25.79%
CAS: 9048-46-8 RTECS: AY9296000	Albumin, bovine	21.491%
CAS: 7778-77-0 RTECS: TC6615500	Potassium phosphate, Monobasic	6.251%
CAS: 26172-55-4 RTECS: NX8156850	Methylchloroisothiazolinone	0.004%
	Methylisothiazolinone	≥0.0015–<0.025%

· **Other ingredients**		
194491-31-1	EDTA, tetrasodium salt hydrate	0.742%
	Anti-SARS-CoV-2 RBD Neutralizing Antibody, Human IgG1	0.02%

· **Additional information:**
The specific chemical identity of composition and exact percentage is being withheld as a trade secret. The specific chemical identity and exact percentage is made available to health professionals, employees, and designated representatives in accordance with the applicable provisions of paragraph §1910.1200.

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.

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: SARS-CoV-2 Neutralizing Antibody Standard

(Contd. from page 3)

· **After inhalation:**
Supply fresh air and to be sure call for a doctor.
In case of unconsciousness place patient stably in side position for transportation.
· **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
· **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
· **After swallowing:** Immediately call a doctor.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed**
May cause anemia, cough, CNS depression, drowsiness, headache, heart damage, lassitude (weakness, exhaustion), liver damage, narcosis, reproductive effects, teratogenic effects.
No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

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

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Mount respiratory protective device.
Wear protective equipment. Keep unprotected persons away.
· **Environmental precautions:**
Do not allow product to reach sewage system or any water course.
Inform respective authorities in case of seepage into water course or sewage system.
Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Use neutralizing agent.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· **Protective Action Criteria for Chemicals**

· **PAC-1:**		
7758-11-4	Potassium phosphate dibasic	13 mg/m³
7778-77-0	Potassium phosphate, Monobasic	9.6 mg/m³
26172-55-4	Methylchloroisothiazolinone	0.6 mg/m³

· **PAC-2:**		
7758-11-4	Potassium phosphate dibasic	140 mg/m³
7778-77-0	Potassium phosphate, Monobasic	110 mg/m³

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: SARS-CoV-2 Neutralizing Antibody Standard

(Contd. from page 4)

26172-55-4	Methylchloroisothiazolinone	6.6 mg/m³

· **PAC-3:**

7758-11-4	Potassium phosphate dibasic	830 mg/m³
7778-77-0	Potassium phosphate, Monobasic	630 mg/m³
26172-55-4	Methylchloroisothiazolinone	40 mg/m³

7 Handling and storage

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

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** Keep receptacle tightly sealed.
· **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.
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.

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: SARS-CoV-2 Neutralizing Antibody Standard

(Contd. from page 5)

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:	Lyophilized powder
Color:	Not determined.
· **Odor:**	Characteristic
· **Odor threshold:**	Not determined.
· **pH-value:**	Not applicable.
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Not determined.
· **Decomposition temperature:**	Not determined.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure:**	Not applicable.
· **Density:**	Not determined.
· **Relative density**	Not determined.
· **Vapor density**	Not applicable.
· **Evaporation rate**	Not applicable.

(Contd. on page 7)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: SARS-CoV-2 Neutralizing Antibody Standard

(Contd. from page 6)

· **Solubility in / Miscibility with**	
Water:	Soluble.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· **Solvent content:**	
VOC content:	0.00 %
Solids content:	100.0 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

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

11 Toxicological information

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

· **LD/LC50 values that are relevant for classification:**		
ATE (Acute Toxicity Estimate)		
Oral	LD50	1,058 mg/kg

7647-14-5 Sodium chloride		
Oral	LDLO	1,000 mg/kg (man)
	TDLO	650 ml/kg (man)
	LD50	4,000 mg/kg (mouse)
		3,000 mg/kg (rat)
	LD50	4 g/kg (mouse)
Inhalative	LC50	320 mg/m³ (mouse)
	TCLO	0.63 mg/m³ (hmn)
	LCLO	29,300 mg/m³/7h (mouse)
Irritation of skin	Irritation	500 mg/24h (rabbit)
Irritation of eyes	Irritation	100 mg/24h (rabbit)
	Intraperitoneal LD50	2,602 mg/kg (mouse)
	Subcutaneous LD50	31.6 mg/kg (rat)
	Intravenous LD50	59.5 mg/kg (rat)

(Contd. on page 8)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: SARS-CoV-2 Neutralizing Antibody Standard

(Contd. from page 7)

	Data	15 mg/3D (hmn)
	Subcutaneous LD50	3 g/kg (mouse)
9048-46-8 Albumin, bovine		
	Intraperitoneal TDLO	0.2 pph (mouse)
7778-77-0 Potassium phosphate, Monobasic		
Oral	LDLO	4,640 mg/kg (rat)

· **Primary irritant effect:**
· **on the skin:** Irritant to skin and mucous membranes.
· **on the eye:** Strong irritant with the danger of severe eye injury.
· **Sensitization:** Sensitization possible through skin contact.
· **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.
· **Ecotoxical effects:**
· **Remark:** Harmful to fish
· **Additional ecological information:**
· **General notes:**
Water hazard class 2 (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Must not reach bodies of water or drainage ditch undiluted or unneutralized.
Danger to drinking water if even small quantities leak into the ground.
Harmful to aquatic organisms
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

(Contd. on page 9)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: SARS-CoV-2 Neutralizing Antibody Standard

(Contd. from page 8)

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.

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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):**
None of the ingredients is listed.

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

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

7647-14-5	Sodium chloride	ACTIVE
7758-11-4	Potassium phosphate dibasic	ACTIVE
9048-46-8	Albumin, bovine	ACTIVE
7778-77-0	Potassium phosphate, Monobasic	ACTIVE
26172-55-4	Methylchloroisothiazolinone	ACTIVE
	Methylisothiazolinone	ACTIVE

(Contd. on page 10)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: SARS-CoV-2 Neutralizing Antibody Standard

(Contd. from page 9)

· **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** 10/08/2021 / -
· **Abbreviations and acronyms:**
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit

(Contd. on page 11)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: SARS-CoV-2 Neutralizing Antibody Standard

(Contd. from page 10)

Acute Tox. 4: Acute toxicity – Category 4
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Dam. 1: Serious eye damage/eye irritation – Category 1
Skin Sens. 1: Skin sensitisation – Category 1
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2
Aquatic Acute 3: Hazardous to the aquatic environment - acute aquatic hazard – Category 3
Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3

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

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

1 Identification

· **Product identifier**

· **Trade name: SARS-CoV-2 Neutralizing Antibody Positive Control**

· **Article number:** 502224
· **Application of the substance / the mixture**
This product is for research use - Not for human or veterinary diagnostic or therapeutic use. It is the responsibility of the purchaser to determine suitability for other applications.

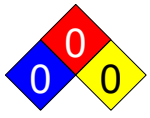
· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Cayman Chemical Co.
1180 E. Ellsworth Rd.
Ann Arbor, MI 48108
USA

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

2 Hazard(s) identification

· **Classification of the substance or mixture**
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)**



Health = 0
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = 0
Fire = 0
Reactivity = 0

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: SARS-CoV-2 Neutralizing Antibody Positive Control

(Contd. from page 1)

· **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:** None

· **Other ingredients**	
Dilute Human Plasma	99.999%
Anti-SARS-CoV-2 RBD Neutralizing Antibody, Human IgG1	0.001%

4 First-aid measures

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

5 Fire-fighting measures

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

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures** Not required.
· **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:** Pick up mechanically.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: SARS-CoV-2 Neutralizing Antibody Positive Control

(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:**
· **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:**
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 10/08/2021 Revision date 10/08/2021

Trade name: SARS-CoV-2 Neutralizing Antibody Positive Control

(Contd. from page 3)

· **Eye protection:** Not required.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Lyophilized powder
Color:	Not determined.
· **Odor:**	Characteristic
· **Odor threshold:**	Not determined.
· **pH-value:**	Not applicable.
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Not determined.
· **Decomposition temperature:**	Not determined.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure:**	Not applicable.
· **Density:**	Not determined.
· **Relative density**	Not determined.
· **Vapor density**	Not applicable.
· **Evaporation rate**	Not applicable.
· **Solubility in / Miscibility with**	
Water:	Soluble.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· **Solvent content:**	
VOC content:	0.00 %
· **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 10/08/2021 Revision date 10/08/2021

Trade name: SARS-CoV-2 Neutralizing Antibody Positive Control

(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.

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: SARS-CoV-2 Neutralizing Antibody Positive Control

(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

· **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):**
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)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: SARS-CoV-2 Neutralizing Antibody Positive Control

(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** 10/08/2021 / -
· **Abbreviations and acronyms:**
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
· *** Data compared to the previous version altered.**

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

1 Identification

· **Product identifier**

· **Trade name: SARS-CoV-2 Neutralizing Antibody Negative Control**

· **Article number:** 502225
· **Application of the substance / the mixture**
This product is for research use - Not for human or veterinary diagnostic or therapeutic use. It is the responsibility of the purchaser to determine suitability for other applications.

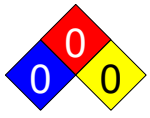
· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Cayman Chemical Co.
1180 E. Ellsworth Rd.
Ann Arbor, MI 48108
USA

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

2 Hazard(s) identification

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

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



Health = 0
Fire = 0
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = 0
Fire = 0
Reactivity = 0

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: SARS-CoV-2 Neutralizing Antibody Negative Control

(Contd. from page 1)

· **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**
Dilute Human Plasma

4 First-aid measures

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

5 Fire-fighting measures

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

6 Accidental release measures

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

· **PAC-1:**
Substance is not listed.

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: SARS-CoV-2 Neutralizing Antibody Negative Control

(Contd. from page 2)

· **PAC-2:**
Substance is not listed.

· **PAC-3:**
Substance is not listed.

7 Handling and storage

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

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

8 Exposure controls/personal protection

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

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

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

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: SARS-CoV-2 Neutralizing Antibody Negative Control

(Contd. from page 3)

9 Physical and chemical properties

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

10 Stability and reactivity

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

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: SARS-CoV-2 Neutralizing Antibody Negative Control

(Contd. from page 4)

· **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:**
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.

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: SARS-CoV-2 Neutralizing Antibody Negative Control

(Contd. from page 5)

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

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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.

(Contd. on page 7)

Safety Data Sheet
acc. to OSHA HCS

Printing date 10/08/2021 Revision date 10/08/2021

Trade name: SARS-CoV-2 Neutralizing Antibody Negative Control

(Contd. from page 6)

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**
Substance is not listed.

· **TLV (Threshold Limit Value)**
Substance is not listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
Substance is not listed.

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

16 Other information

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

· **Department issuing SDS:** Environment protection department.
· **Contact:** -
· **Date of preparation / last revision** 10/08/2021 / -
· **Abbreviations and acronyms:**
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
· *** Data compared to the previous version altered.**

Safety Data Sheet
acc. to OSHA HCS

Printing date 07/15/2021 Revision date 07/15/2021

*
1 Identification

· **Product identifier**

· **Trade name: HRP Stop Solution**

· **Article number:** 10011355, 007104
· **Application of the substance / the mixture** For research use only, not for human or veterinary 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 Corr. 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.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Printing date 07/15/2021 Revision date 07/15/2021

Trade name: HRP Stop Solution

(Contd. from page 1)

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
Fire = 0
Reactivity = 0

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

*
3 Composition/information on ingredients

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

· **Dangerous components:**		
CAS: 7664-93-9 RTECS: WS5600000	Sulfuric acid	2.8%

· **Other ingredients**		
CAS: 7732-18-5 RTECS: ZC0110000	Water	97.2%

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)

Safety Data Sheet
acc. to OSHA HCS

Printing date 07/15/2021 Revision date 07/15/2021

Trade name: HRP Stop Solution

(Contd. from page 2)

· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed**
May cause anemia, cough, CNS depression, drowsiness, headache, heart damage, lassitude (weakness, exhaustion), liver damage, narcosis, reproductive effects, teratogenic effects.
No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

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

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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/m³

· **PAC-2:**		
7664-93-9	Sulfuric acid	8.7 mg/m³

· **PAC-3:**		
7664-93-9	Sulfuric acid	160 mg/m³

7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Printing date 07/15/2021 Revision date 07/15/2021

Trade name: HRP Stop Solution

(Contd. from page 3)

· **Information about protection against explosions and fires:**
Keep respiratory protective device available.

· **Conditions for safe storage, including any incompatibilities**
Keep container tightly closed.
Store in accordance with information listed on the product insert.
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** Keep receptacle tightly sealed.
· **Specific end use(s)** No further relevant information available.

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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/m³
REL	Long-term value: 1 mg/m³
TLV	Long-term value: 0.2* mg/m³ *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)

Safety Data Sheet
acc. to OSHA HCS

Printing date 07/15/2021 Revision date 07/15/2021

Trade name: HRP Stop Solution

(Contd. from page 4)

· **Eye protection:**

Tightly sealed goggles

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9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Liquid
Color:	Clear
· **Odor:**	Characteristic
· **Structural Formula**	H2 O
· **Molecular Weight**	18 g/mol
· **Odor threshold:**	Not determined.
· **Formulation**	0.5 M H2SO4
· **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):**	1.04119 g/cm³ (8.68873 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 07/15/2021 Revision date 07/15/2021

Trade name: HRP Stop Solution

(Contd. from page 5)

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.
· **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/m³ (mouse)
	TCLO	0.63 mg/m³ (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.

(Contd. on page 7)

Safety Data Sheet
acc. to OSHA HCS

Printing date 07/15/2021 Revision date 07/15/2021

Trade name: HRP Stop Solution

(Contd. from page 6)

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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.

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14 Transport information

· **UN-Number**	
· **DOT, IMDG, IATA**	UN3264
· **UN proper shipping name**	
· **DOT**	Corrosive liquid, acidic, inorganic, n.o.s. (Sulfuric acid)
· **IMDG**	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (SULPHURIC ACID)
· **IATA**	Corrosive liquid, acidic, inorganic, n.o.s. (SULPHURIC ACID)
· **Transport hazard class(es)**	
· **DOT**	

· **Class**	8 Corrosive substances

(Contd. on page 8)

Safety Data Sheet
acc. to OSHA HCS

Printing date 07/15/2021 Revision date 07/15/2021

Trade name: HRP Stop Solution

(Contd. from page 7)

· **Label**	8
· **IMDG, IATA**	
	
· **Class**	8 Corrosive substances
· **Label**	8
· **Packing group**	
· **DOT, IMDG, IATA**	III
· **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**	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: 5 L On cargo aircraft only: 60 L
· **IMDG**	
· **Limited quantities (LQ)**	5L
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 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 3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (SULPHURIC ACID), 8, III

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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)

Safety Data Sheet
acc. to OSHA HCS

Printing date 07/15/2021 Revision date 07/15/2021

Trade name: HRP Stop Solution

(Contd. from page 8)

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

7664-93-9	Sulfuric acid

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

All components have the value ACTIVE.

· **Hazardous Air Pollutants**

None of the ingredients is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

· **TLV (Threshold Limit Value)**

7664-93-9	Sulfuric acid	A2

· **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** 07/15/2021 / -
· **Abbreviations and acronyms:**
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic

(Contd. on page 10)

Safety Data Sheet
acc. to OSHA HCS

Printing date 07/15/2021 Revision date 07/15/2021

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 Corr. 1A: Skin corrosion/irritation – Category 1A

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