



# SAFETY DATA SHEET

This safety data sheet complies with the requirements of:  
SS586: 2008 (2014)

Revision date 22-Jul-2022

Revision Number 3

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### Product identifier

**Product Name** PROTEIN PREPARATION - #20485

### Other means of identification

**Safety data sheet number** 20485

**Pure substance/mixture** Mixture

Contains Borax ( $B_4Na_2O_7 \cdot 10H_2O$ ), Trisodium phosphate

### Recommended use of the chemical and restrictions on use

**Recommended use** For research use only

**Uses advised against** No information available

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

#### Corporate Headquarters

Bio-Rad Laboratories Inc.  
1000 Alfred Nobel Drive  
Hercules, CA 94547  
USA

#### Manufacturer

Bio-Rad  
Endeavour House  
Langford Business Park  
Kidlington  
Oxford  
OX5 1GE  
United Kingdom  
e-mail:  
antibody\_safetydatasheets@bio-rad.com

#### Legal Entity / Contact Address

Bio-Rad Laboratories Ltd.  
1st and 2nd Floor, Lumpini 1 Building  
239/2, Rajdamri Road, Lumpini,  
Pathumwan, Bangkok 10330  
Thailand

For further information, please contact

**Technical Service** +66 2 652 8313  
ctsthailand@bio-rad.com

### Emergency telephone number

**24 Hour Emergency Phone Number** CHEMTREC Singapore: 65-31581349

## SECTION 2: Hazards identification

### GHS Classification

|  |                             |
|--|-----------------------------|
| <b>Acute toxicity - Dermal</b>           | Category 4                  |
| <b>Skin corrosion/irritation</b>         | Category 1                  |
| <b>Serious eye damage/eye irritation</b> | Category 1                  |
| <b>Carcinogenicity</b>                   | Classification not possible |
| <b>Reproductive toxicity</b>             | Category 1B                 |

### Label elements



**Signal word**  
Danger

**Hazard statements**

H312 - Harmful in contact with skin

H314 - Causes severe skin burns and eye damage

**Precautionary Statements - Prevention**

Obtain special instructions before use

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

Do not breathe dust/fume/gas/mist/vapours/spray

Wash face, hands and any exposed skin thoroughly after handling

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

**Precautionary Statements - Response**

IF exposed or concerned: Get medical advice/attention

Immediately call a POISON CENTRE or doctor

Wash contaminated clothing before reuse

Call a POISON CENTRE or doctor if you feel unwell

Take off all contaminated clothing and wash it before reuse

IF ON SKIN: Wash with plenty of water and soap

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

Immediately call a POISON CENTRE or doctor

Immediately call a POISON CENTRE or doctor

IF INHALED: Remove person to fresh air and keep comfortable for breathing

IF SWALLOWED: rinse mouth. Do NOT induce vomiting

**Precautionary Statements - Storage**

Store locked up

**Precautionary Statements - Disposal**

Dispose of contents/container to an approved waste disposal plant

**Other hazards which do not result in classification**

## SECTION 3: Composition/information on ingredients

**Substance**

Not applicable

**Mixture**

| Chemical name   | EC No     | CAS No    | Weight-% |
|---|-----------|-----------|----------|
| Sodium chloride   | 231-598-3 | 7647-14-5 | 20 - 35  |
| Borax (B <sub>4</sub> Na <sub>2</sub> O <sub>7</sub> ·10H <sub>2</sub> O) | -         | 1303-96-4 | 10 - 20  |
| Trisodium phosphate   | 231-509-8 | 7601-54-9 | 2.5 - 5  |

Non-hazardous  
ingredients

Proprietary

Balance

## SECTION 4: First aid measures

**Description of first aid measures**

|                       |  |
|-----------------------|--|
| <b>General advice</b> | Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.  |
| <b>Inhalation</b>     | Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur. Get immediate medical advice/attention. |
| <b>Eye contact</b>    | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.   |
| <b>Skin contact</b>   | Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get immediate medical advice/attention.  |
| <b>Ingestion</b>      | Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Get immediate medical advice/attention.  |

**Most important symptoms and effects, both acute and delayed**

|                 |                    |
|-----------------|--------------------|
| <b>Symptoms</b> | Burning sensation. |
|-----------------|--------------------|

**For emergency responders**

|   |  |
|---|--|
| <b>Self-protection of the first aider</b> | Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Wear personal protective clothing (see section 8). Avoid contact with skin, eyes or clothing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. |
|---|--|

**Indication of any immediate medical attention and special treatment needed**

|                           |  |
|---------------------------|--|
| <b>Note to physicians</b> | Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure. |
|---------------------------|--|

**SECTION 5: Firefighting measures**

**Suitable Extinguishing Media**

|                                     |   |
|-------------------------------------|---|
| <b>Suitable Extinguishing Media</b> | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
|-------------------------------------|---|

|                                       |                           |
|---------------------------------------|---------------------------|
| <b>Unsuitable extinguishing media</b> | No information available. |
|---------------------------------------|---------------------------|

**Specific hazards arising from the chemical**

|   |  |
|---|--|
| <b>Specific hazards arising from the chemical</b> | The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors. |
|---|--|

**Special protective actions for fire-fighters**

|   |  |
|---|--|
| <b>Special protective equipment and precautions for fire-fighters</b> | Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment. |
|---|--|

**SECTION 6: Accidental release measures**

**Personal precautions, protective equipment and emergency procedures**

|                                 |   |
|---------------------------------|---|
| <b>Personal precautions</b>     | Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Attention! Corrosive material. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. |
| <b>Other information</b>        | Refer to protective measures listed in Sections 7 and 8.  |
| <b>For emergency responders</b> | Use personal protection recommended in Section 8.   |

**Environmental precautions**

|                                  |   |
|----------------------------------|---|
| <b>Environmental precautions</b> | Prevent further leakage or spillage if safe to do so. Should not be released into the environment. Do not allow to enter into soil/subsoil. Prevent product from entering drains. |
|----------------------------------|---|

**Methods and material for containment and cleaning up**

|  |  |
|--|--|
| <b>Methods for containment</b>         | Prevent further leakage or spillage if safe to do so.                                |
| <b>Methods for cleaning up</b>         | Pick up and transfer to properly labeled containers.                                 |
| <b>Prevention of secondary hazards</b> | Clean contaminated objects and areas thoroughly observing environmental regulations. |
| <b>Reference to other sections</b>     | See section 8 for more information. See section 13 for more information.             |

**SECTION 7: Handling and storage****Precautions for safe handling**

|                                       |   |
|---------------------------------------|---|
| <b>Advice on safe handling</b>        | Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. Remove contaminated clothing and shoes.                        |
| <b>General hygiene considerations</b> | Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. |

**Conditions for safe storage, including any incompatibilities**

|                           |  |
|---------------------------|--|
| <b>Storage Conditions</b> | Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Protect from moisture. Keep out of the reach of children. Store away from other materials. |
|---------------------------|--|

**SECTION 8: Exposure controls/personal protection****Control parameters****Occupational exposure limits**

| Chemical name  | Singapore                | ACGIH TLV   |
|--|--------------------------|---|
| Borax (B <sub>4</sub> Na <sub>2</sub> O <sub>7</sub> ·10H <sub>2</sub> O)<br>1303-96-4 | PEL: 5 mg/m <sup>3</sup> | STEL: 6 mg/m <sup>3</sup> inhalable particulate matter<br>TWA: 2 mg/m <sup>3</sup> inhalable particulate matter |

**Biological occupational exposure limits**

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific

regulatory bodies

### Appropriate engineering controls

**Engineering controls**                      Showers  
    Eyewash stations  
    Ventilation systems.

### Individual protection measures, such as personal protective equipment

**Eye/face protection**                      Tight sealing safety goggles. Face protection shield.

**Skin and body protection**                Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron.

**Hand protection**                            Wear suitable gloves. Impervious gloves.

**Respiratory protection**                    No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

**Environmental exposure controls**        No information available.

## **SECTION 9: Physical and chemical properties**

### Information on basic physical and chemical properties

**Physical state**                                Solid  
**Appearance**                                Powder  
**Colour**                                        Varies  
**Odour**                                        No information available.  
**Odour threshold**                            No information available

| <u>Property</u>                               | <u>Values</u>            | <u>Remarks • Method</u> |
|---|--------------------------|-------------------------|
| <b>pH</b>                                     |                          | None known              |
| <b>Melting point / freezing point</b>         | No data available        | None known              |
| <b>Boiling point / boiling range</b>          | No data available        | None known              |
| <b>Flash point</b>                            | No data available        | None known              |
| <b>Evaporation rate</b>                       | No data available        | None known              |
| <b>Flammability (solid, gas)</b>              | No data available        | None known              |
| <b>Flammability Limit in Air</b>              |                          | None known              |
| <b>Upper flammability or explosive limits</b> | No data available        |                         |
| <b>Lower flammability or explosive limits</b> | No data available        |                         |
| <b>Vapour pressure</b>                        | No data available        | None known              |
| <b>Vapour density</b>                         | No data available        | None known              |
| <b>Relative density</b>                       | No data available        | None known              |
| <b>Water solubility</b>                       | Soluble in water         |                         |
| <b>Solubility(ies)</b>                        | No data available        | None known              |
| <b>Partition coefficient</b>                  | No data available        | None known              |
| <b>Autoignition temperature</b>               | No data available        | None known              |
| <b>Decomposition temperature</b>              |                          | None known              |
| <b>Kinematic viscosity</b>                    | No data available        | None known              |
| <b>Dynamic viscosity</b>                      | No data available        | None known              |
| <b>Other information</b>                      | No information available |                         |

## **SECTION 10: Stability and reactivity**

### Reactivity

**Reactivity** No information available.

**Chemical stability**

**Stability** Stable under normal conditions.

**Explosion data**

**Sensitivity to mechanical impact** None.

**Sensitivity to static discharge** None.

**Possibility of hazardous reactions** None under normal processing.

**Conditions to avoid**

**Conditions to avoid** Exposure to air or moisture over prolonged periods.

**Incompatible materials**

**Incompatible materials** Acids. Bases. Oxidizing agent.

**Hazardous decomposition products**

**Hazardous decomposition products** None known based on information supplied.

## **SECTION 11: Toxicological information**

**Information on likely routes of exposure**

**Product Information**

|                     |   |
|---------------------|---|
| <b>Inhalation</b>   | Specific test data for the substance or mixture is not available. Corrosive by inhalation. (based on components). Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Inhaled corrosive substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal.                                   |
| <b>Eye contact</b>  | Specific test data for the substance or mixture is not available. Causes serious eye damage. (based on components). Corrosive to the eyes and may cause severe damage including blindness. May cause irreversible damage to eyes.   |
| <b>Skin contact</b> | Specific test data for the substance or mixture is not available. Corrosive. (based on components). Causes burns. May be absorbed through the skin in harmful amounts. Harmful in contact with skin.  |
| <b>Ingestion</b>    | Specific test data for the substance or mixture is not available. Causes burns. (based on components). Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways. |

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

**Symptoms** Redness. Burning. May cause blindness. Coughing and/ or wheezing.

**Acute toxicity**

**Numerical measures of toxicity**

The following values are calculated based on chapter 3.1 of the GHS document

|                               |                |
|-------------------------------|----------------|
| ATEmix (oral)                 | 3,787.90 mg/kg |
| ATEmix (dermal)               | 1,896.90 mg/kg |
| ATEmix (inhalation-dust/mist) | 7.05 mg/l      |

58.4 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity.

|                 |                          |
|-----------------|--------------------------|
| Oral LD50       | No information available |
| Dermal LD50     | No information available |
| Inhalation LC50 | No information available |
| Inhalation LC50 | No information available |

#### Component Information

| Chemical name   | Oral LD50             | Dermal LD50              | Inhalation LC50                   |
|---|-----------------------|--------------------------|-----------------------------------|
| D-Mannitol  | = 13500 mg/kg ( Rat ) |                          |                                   |
| Dextran   | > 3 g/kg ( Rat )      |                          |                                   |
| Sodium chloride   | = 3 g/kg ( Rat )      | > 10000 mg/kg ( Rabbit ) | > 42 mg/L ( Rat ) 1 h             |
| Borax (B <sub>4</sub> Na <sub>2</sub> O <sub>7</sub> ·10H <sub>2</sub> O) | = 3493 mg/kg ( Rat )  | > 10000 mg/kg ( Rabbit ) | > 2 mg/m <sup>3</sup> ( Rat ) 4 h |
| Trisodium phosphate   | > 2000 mg/kg ( Rat )  | > 300 mg/kg ( Rabbit )   | > 2.16 mg/L ( Rat ) 1 h           |

#### Delayed and immediate effects as well as chronic effects from short and long-term exposure

|                                   |   |
|-----------------------------------|---|
| Skin corrosion/irritation         | Classification based on data available for ingredients.   |
| Serious eye damage/eye irritation | Classification based on data available for ingredients. Causes burns.   |
| Respiratory or skin sensitization | Based on available data, the classification criteria are not met.   |
| Germ cell mutagenicity            | Based on available data, the classification criteria are not met.   |
| Carcinogenicity                   | Based on available data, the classification criteria are not met.   |
| Reproductive toxicity             | Contains a known or suspected reproductive toxin. Classification based on data available for ingredients. May damage fertility or the unborn child. |

| Chemical name   | European Union |
|---|----------------|
| Borax (B <sub>4</sub> Na <sub>2</sub> O <sub>7</sub> ·10H <sub>2</sub> O) | Repr. 1B       |

STOT - single exposure Based on available data, the classification criteria are not met.

STOT - repeated exposure Based on available data, the classification criteria are not met.

Aspiration hazard Classification not possible.

## SECTION 12: Ecological information

### Ecotoxicity

#### Ecotoxicity

Unknown aquatic toxicity Contains 0 % of components with unknown hazards to the aquatic environment

| Chemical name   | Algae/aquatic plants | Fish   | Crustacea                                    |
|-----------------|----------------------|--|--|
| Sodium chloride | -                    | LC50: 4747 - 7824mg/L (96h, Oncorhynchus mykiss) | EC50: 340.7 - 469.2mg/L (48h, Daphnia magna) |

|  |  |   |                                      |
|--|--|---|--------------------------------------|
|  |  | LC50: 5560 - 6080mg/L (96h, Lepomis macrochirus)<br>LC50: 6020 - 7070mg/L (96h, Pimephales promelas)<br>LC50: 6420 - 6700mg/L (96h, Pimephales promelas)<br>LC50: =12946mg/L (96h, Lepomis macrochirus)<br>LC50: =7050mg/L (96h, Pimephales promelas) | EC50: =1000mg/L (48h, Daphnia magna) |
|--|--|---|--------------------------------------|

#### Persistence and degradability

**Persistence and degradability** No information available.

#### Bioaccumulative potential

**Bioaccumulation** No information available.

#### Mobility

**Mobility in soil** No information available.

#### **PBT and vPvB assessment**

| Chemical name       | PBT and vPvB assessment                                       |
|---------------------|---|
| Sodium chloride     | The substance is not PBT / vPvB                               |
| Trisodium phosphate | The substance is not PBT / vPvB PBT assessment does not apply |

#### Other adverse effects

**Other adverse effects** No information available

### SECTION 13: Disposal considerations

#### Waste treatment methods

**Waste from residues/unused products** Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

**Contaminated packaging** Do not reuse empty containers.

### SECTION 14: Transport information

**ADR** Not regulated

**IMDG** Not regulated  
**Transport in bulk according to Annex II of MARPOL and the IBC Code** No information available

**IATA** Not regulated

### SECTION 15: Regulatory information



**Safety, health and environmental regulations/legislation specific for the substance or mixture****Singapore****Environmental Protection and Management (Hazardous Substances) Regulations**

Verify that licence requirements are met.

| Chemical name   | Hazardous Substances  | transport                                  |
|---|---|--|
| Borax (B <sub>4</sub> Na <sub>2</sub> O <sub>7</sub> ·10H <sub>2</sub> O) | Exclusions: 1. Boric acid or Sodium borate in medicinal preparations, cosmetics, toilet preparations and substances being preparations intended for human consumption. 2. Preparations containing Boric acid or Sodium borate or a combination of both where water or solvent is not the only other part of the composition | 5000kg Boric acid and Sodium borate, total |

**Environmental Public Health Act**

Dispose of waste product or used containers according to local regulations.

**Hazardous Waste (Control of Export, Import and Transit) Act**

It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Take note that wastes may be subject to export, import, or transit controls pursuant to the Basel convention and/or local regulations implementing the Basel convention.

**Poison**

Verify that licence requirements are met Verify that requirements related to using, handling, and storing substances subject to prohibition, authorisation or restriction are met

| Chemical name   | Poison | Poison Schedule Number                              |
|---|--------|---|
| Borax (B <sub>4</sub> Na <sub>2</sub> O <sub>7</sub> ·10H <sub>2</sub> O) |        | First schedule<br>Second schedule<br>Third schedule |

**Strategic Goods (Control) Act**

Verify that requirements related to using, handling, and storing substances subject to prohibition, authorisation or restriction are met.

| Chemical name   | Strategic Goods (Control) Act |
|---|-------------------------------|
| Borax (B <sub>4</sub> Na <sub>2</sub> O <sub>7</sub> ·10H <sub>2</sub> O) | 1C225                         |

**Workplace Safety and Health Act**

See section 8 for national exposure control parameters. Comply with the health and safety at work laws.

**International Regulations****The Montreal Protocol on Substances that Deplete the Ozone Layer** Not applicable**The Stockholm Convention on Persistent Organic Pollutants** Not applicable**The Rotterdam Convention** Not applicable**International Inventories**

Contact supplier for inventory compliance status

**SECTION 16: Other information****Key or legend to abbreviations and acronyms used in the safety data sheet**

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

|         |                             |      |                                  |
|---------|-----------------------------|------|----------------------------------|
| TWA     | TWA (time-weighted average) | STEL | STEL (Short Term Exposure Limit) |
| Ceiling | Maximum limit value         | *    | Skin designation                 |

**Key literature references and sources for data used to compile the SDS**

Agency for Toxic Substances and Disease Registry (ATSDR)  
 U.S. Environmental Protection Agency ChemView Database  
 European Food Safety Authority (EFSA)  
 EPA (Environmental Protection Agency)  
 Acute Exposure Guideline Level(s) (AEGL(s))  
 U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act  
 U.S. Environmental Protection Agency High Production Volume Chemicals  
 Food Research Journal  
 Hazardous Substance Database  
 International Uniform Chemical Information Database (IUCLID)  
 Japan GHS Classification  
 Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)  
 NIOSH (National Institute for Occupational Safety and Health)  
 National Library of Medicine's ChemID Plus (NLM CIP)  
 National Library of Medicine's PubMed database (NLM PUBMED)  
 National Toxicology Program (NTP)  
 New Zealand's Chemical Classification and Information Database (CCID)  
 Organization for Economic Co-operation and Development Environment, Health, and Safety Publications  
 Organization for Economic Co-operation and Development High Production Volume Chemicals Program  
 Organization for Economic Co-operation and Development Screening Information Data Set  
 RTECS (Registry of Toxic Effects of Chemical Substances)  
 World Health Organization

**Label elements**

P280 - Wear protective gloves/protective clothing/eye protection/face protection  
 P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]  
 P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting  
 P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
 P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

**Issuing Date** Bio-Rad Laboratories, Environmental Health and Safety

**Revision date** 22-Jul-2022

**Revision Note** Significant changes throughout SDS. Review all sections.

**This safety data sheet complies with the requirements of: SS586: 2008 (2014)**

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

**End of Safety Data Sheet**