

# KIT SAFETY DATA SHEET



**Kit Product Name** Immun-Blot Goat Anti-Mouse AP Kit

**Kit Catalogue Number(s)** 1706461, 1706461EDU

**Print date** 08-Feb-2021

## Kit Contents

| Catalogue Number(s)  | Product Name                              |
|--|---|
| 9701068***   | AP Color Reagent B***                     |
| 1706435, 9702901, 1706435EDU***  | 10x TBS***                                |
| 1706606, 1705017, 1706531,<br>1705017EDU, 1706531EDU,<br>1706531XTU, 9702906, 9701059,<br>25116*** | Tween 20***                               |
| 1706537, 9701117***  | Gelatin***                                |
| 1706520, 1706520EDU, 9701105,<br>9702902***  | Goat Anti-Mouse IgG (H+L) AP Conjugate*** |
| 9702818***   | 25X AP Color Development Buffer***        |
| 9701067***   | AP Color Reagent A***                     |



# SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:  
GB/T 16483-2008, GB/T 17519-2013

**Product Name** AP Color Reagent B

**Print date** 23-Dec-2020

**Revision Number** 1

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

### Product identifier

**Product Name** AP Color Reagent B

**Catalogue Number(s)** 9701068

### Other means of identification

**UN/ID no** UN1993

**Pure substance/mixture** Mixture

### 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 Laboratories, Life Science  
Group  
2000 Alfred Nobel Drive  
Hercules, California 94547  
USA

#### Legal Entity / Contact Address

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

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

### Emergency telephone number

**24 Hour Emergency Phone Number** CHEMTREC Hong Kong: 800-968-793

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

**Recommended use** Laboratory chemicals

## SECTION 2: Hazards identification

### **Emergency Overview**

Irritating to eyes  
HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames

**Appearance** clear liquid **Physical state** Liquid **Odour** Odourless

### Classification of the substance or mixture

|   |            |
|---|------------|
| Flammable liquids                         | Category 3 |
| Flammable liquids                         | Category 3 |
| Acute toxicity - Oral                     | Category 5 |
| Acute toxicity - Dermal                   | Category 4 |
| Acute toxicity - Inhalation (Gases)       | Category 4 |
| Acute toxicity - Inhalation (Dusts/Mists) | Category 4 |

**Product Name** AP Color Reagent B  
**Print date** 23-Dec-2020

**(M)SDS Number**

HRLS00061

|  |             |
|--|-------------|
| <b>Serious eye damage/eye irritation</b> | Category 2A |
| <b>Reproductive toxicity</b>             | Category 1B |

**Label elements**



**Signal word**

Danger

**Hazard statements**

Flammable liquid and vapour  
Flammable liquid and vapour  
May be harmful if swallowed  
Harmful in contact with skin  
Harmful if inhaled  
Causes serious eye irritation  
May damage fertility or the unborn child

**Precautionary statements**

**Prevention**

Do not handle until all safety precautions have been read and understood  
Wear protective gloves/protective clothing/eye protection/face protection  
Avoid breathing dust/fume/gas/mist/vapours/spray  
Use only outdoors or in a well-ventilated area  
Wash face, hands and any exposed skin thoroughly after handling  
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking  
Keep container tightly closed  
Ground/bond container and receiving equipment  
Use only non-sparking tools  
Take precautionary measures against static discharge

**Response**

Call a POISON CENTRE or doctor if you feel unwell  
IF INHALED: Remove person to fresh air and keep comfortable for breathing  
Call a POISON CENTRE or doctor if you feel unwell  
Call a POISON CENTRE or doctor if you feel unwell  
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower  
Wash contaminated clothing before reuse  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
If eye irritation persists: Get medical advice/attention  
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish

**Storage**

Store in a well-ventilated place. Keep cool

**Disposal**

Dispose of contents/container to an approved waste disposal plant

**Physical and chemical hazards**

Flammable; may be ignited by heat, sparks or flames. Vapours may form explosive mixtures with air. Vapours can travel considerable distances to a source of ignition where they can ignite, flash back, or explode. Runoff to sewer may create fire or explosion hazard. Containers may explode when heated.

**Health hazards**

Immediate Health Effects: If large quantities of this material are swallowed, call a doctor immediately. If symptoms persist, call a doctor. Harmful. Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed. Causes severe irritation (tears, blurred vision and redness). Irritating, but will not permanently injure eye tissue.  
Chronic effects: Contains a known or suspected reproductive toxin.

**Environmental hazards**

**Product Name** AP Color Reagent B  
**Print date** 23-Dec-2020

**(M)SDS Number**

HRLS00061

Not applicable

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

Not applicable

### **SECTION 3: Composition/information on ingredients**

**Substance**

Not applicable.

**Mixture**

| Chemical name            | Weight-% | CAS No  |
|--------------------------|----------|---------|
| N,N-Dimethylformamide*** | 50 - 100 | 68-12-2 |

### **SECTION 4: First aid measures**

**Description of necessary first aid measures**

|   |  |
|---|--|
| <b>General advice</b>   | Show this safety data sheet to the doctor in attendance.   |
| <b>Inhalation</b>   | Remove to fresh air. If symptoms persist, call a doctor. If breathing has stopped, give artificial respiration. Get medical attention immediately.   |
| <b>Eye contact</b>  | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get medical attention if irritation develops and persists.  |
| <b>Skin contact</b>   | Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. If symptoms persist, call a doctor.  |
| <b>Ingestion</b>  | Do NOT induce vomiting. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Get medical attention.   |
| <b><u>Most important symptoms and effects, both acute and delayed</u></b> | May cause redness and tearing of the eyes. Burning sensation. Coughing and/ or wheezing. Difficulty in breathing.  |
| <b><u>For emergency responders</u></b>                                    | Remove all sources of ignition. Avoid contact with skin, eyes or clothing. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid breathing vapours or mists. Use personal protective equipment as required. See section 8 for more information. |
| <b><u>Note to doctors</u></b>   | Treat symptomatically.   |

### **SECTION 5: Firefighting measures**

**Extinguishing media**

**Suitable Extinguishing Media** Dry chemical. Carbon dioxide (CO2). Water spray. Alcohol resistant foam.

**Unsuitable extinguishing media** No information available.

**Specific hazards arising from the chemical** Risk of ignition. Keep product and empty container away from heat and sources of ignition. In the event of fire, cool tanks with water spray. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

**Product Name** AP Color Reagent B  
**Print date** 23-Dec-2020

**(M)SDS Number**

HRLS00061

**Special protective actions for fire-fighters**

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**

**Personal precautions**

Evacuate personnel to safe areas. See section 8 for more information. Keep people away from and upwind of spill/leak. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Pay attention to flashback. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Avoid breathing vapours or mists. Use personal protective equipment as required.

**Other information**

Ventilate the area. Refer to protective measures listed in Sections 7 and 8.

**For emergency responders**

Use personal protection recommended in Section 8.

**Environmental precautions**

Refer to protective measures listed in Sections 7 and 8. Prevent product from entering drains. Prevent further leakage or spillage if safe to do so.

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

Stop leak if you can do it without risk. Do not touch or walk through spilled material. A vapour suppressing foam may be used to reduce vapours. Dyke far ahead of spill to collect run-off water. Keep out of drains, sewers, ditches and waterways. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Take precautionary measures against static discharges. Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labelled containers.

**Precautions to prevent secondary hazards**

Clean contaminated objects and areas thoroughly observing environmental regulations.

## **SECTION 7: Handling and storage**

**Precautions for safe handling**

Use personal protection equipment. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use grounding and bonding connection when transferring this material to prevent static discharge, fire or explosion. Use with local exhaust ventilation. Use spark-proof tools and explosion-proof equipment. Keep in an area equipped with sprinklers. Use according to package label instructions. Remove contaminated clothing and shoes. Avoid contact with skin, eyes or clothing. Handle in accordance with good industrial hygiene and safety practice. Avoid breathing vapours or mists. In case of insufficient ventilation, wear suitable respiratory equipment. Do not eat, drink or smoke when using this product. 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. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. See Section 8 for information on appropriate personal protective equipment.

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

Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Keep in properly labelled containers. Do not store near combustible materials. Keep in an area equipped with sprinklers. Store in accordance with the particular national regulations. Store in accordance with local regulations. Store locked up. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Store according to product and label instructions.

**Incompatible materials**

None known based on information supplied.

## SECTION 8: Exposure controls/personal protection

### Occupational exposure limits

| Chemical name                      | China  | ACGIH TLV        |
|------------------------------------|--|------------------|
| N,N-Dimethylformamide*** - 68-12-2 | TWA: 20 mg/m <sup>3</sup><br>STEL: 40 mg/m <sup>3</sup><br>Skin* | TWA: 5 ppm<br>S* |

**Note** See section 16 for terms and abbreviations

### Biological occupational exposure limits

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

| Chemical name                      | Biological standards | Monitoring and observation processes | ACGIH  |
|------------------------------------|----------------------|--------------------------------------|--|
| N,N-Dimethylformamide*** - 68-12-2 |                      |                                      | 30 mg/L - urine (Total N-methylformamide) - end of shift<br>30 mg/L - urine (N-Acetyl-S-(N-methylcarbamoyl)cysteine) - end of shift at end of workweek |

### Monitoring and observation processes

No applicable information was found.

### Engineering controls

Showers  
Eyewash stations  
Ventilation systems.

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

|                                       |  |
|---------------------------------------|--|
| <b>Eye/face protection</b>            | Tight sealing safety goggles.  |
| <b>Skin and body protection</b>       | Chemical resistant apron. Antistatic boots. Long sleeved clothing. Wear suitable protective clothing.  |
| <b>Hand protection</b>                | Impervious gloves. Wear suitable gloves.   |
| <b>Respiratory protection</b>         | No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.   |
| <b>General hygiene considerations</b> | 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. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. |

## SECTION 9: Physical and chemical properties

### Information on basic physical and chemical properties

|                        |                          |
|------------------------|--------------------------|
| <b>Appearance</b>      | clear liquid             |
| <b>Colour</b>          | colourless               |
| <b>Physical state</b>  | Liquid                   |
| <b>Odour</b>           | Odourless                |
| <b>Odour threshold</b> | No information available |

| Property | Values                   | Remarks • Method |
|----------|--------------------------|------------------|
| pH       | No information available | None known       |

**Product Name** AP Color Reagent B  
**Print date** 23-Dec-2020

**(M)SDS Number**

HRLS00061

|   |                     |            |
|---|---------------------|------------|
| <b>Melting point / freezing point</b>         | No data available   | None known |
| <b>Boiling point / boiling range</b>          | 100 °C              |            |
| <b>Flash point</b>                            | 58 °C               |            |
| <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>                       | Immiscible 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>              | No data available   | None known |
| <b>Kinematic viscosity</b>                    | No data available   | None known |
| <b>Dynamic viscosity</b>                      | No data available   | None known |

**Additional information**

**Explosive properties** Not applicable  
**Oxidising properties** Not applicable

## SECTION 10: Stability and reactivity

**Stability** Stable under normal conditions.

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

**Sensitivity to mechanical impact** None.

**Sensitivity to static discharge** Yes.

**Conditions to avoid** Heat, flames and sparks. Excessive heat.

**Incompatible materials** None known based on information supplied.

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

## SECTION 11: Toxicological information

**Acute toxicity**

**Numerical measures of toxicity**

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

|                               |                  |
|-------------------------------|------------------|
| ATEmix (oral)                 | 4,000.0000 mg/kg |
| ATEmix (dermal)               | 1,571.40 mg/kg   |
| ATEmix (inhalation-gas)       | 4,300.00 mg/l    |
| ATEmix (inhalation-dust/mist) | 2.14 mg/l        |

**Unknown acute toxicity**

- 0 % of the mixture consists of ingredient(s) of unknown acute oral toxicity
- 0 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity
- 0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)
- 0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

**Component Information**

| Chemical name | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|---------------|-----------|-------------|-----------------|
|---------------|-----------|-------------|-----------------|

**Product Name** AP Color Reagent B  
**Print date** 23-Dec-2020

**(M)SDS Number**

HRLS00061

|                          |  |  |   |
|--------------------------|--|--|---|
| N,N-Dimethylformamide*** | = 2800 mg/kg ( Rat )<br>= 2000 mg/kg ( Rat ) | = 1100 mg/kg ( Rat )<br>> 3.2 g/kg ( Rat ) | - |
|--------------------------|--|--|---|

**Skin corrosion/irritation** May cause skin irritation.

**Serious eye damage/eye irritation** Classification based on data available for ingredients. Causes serious eye irritation.

**Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.

**Germ cell mutagenicity** Based on available data, the classification criteria are not met.

**Carcinogenicity** .

The table below indicates whether each agency has listed any ingredient as a carcinogen.

| Chemical name            | China | IARC     |
|--------------------------|-------|----------|
| N,N-Dimethylformamide*** | -     | Group 2A |

#### Legend

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

Group 2A - Probably Carcinogenic to Humans

**Reproductive toxicity** Contains a known or suspected reproductive toxin. Classification based on data available for ingredients. May damage fertility or the unborn child.

**Specific target organ toxicity — single exposure** Based on available data, the classification criteria are not met.

**Specific target organ toxicity — repeated exposure** Based on available data, the classification criteria are not met.

**Target organ effects** Liver. Kidney. Respiratory system. Eyes. Skin. Central Vascular System (CVS).

**Aspiration hazard** Based on available data, the classification criteria are not met.

## SECTION 12: Ecological information

**Ecotoxicity** .

**Unknown aquatic toxicity** 0 % of the mixture consists of component(s) of unknown hazards to the aquatic environment

| Chemical name            | Algae/aquatic plants                             | Fish   | Crustacea  |
|--------------------------|--|--|--|
| N,N-Dimethylformamide*** | EC50: >500mg/L (96h,<br>Desmodesmus subspicatus) | LC50: =10410mg/L (96h,<br>Pimephales promelas)<br>LC50: =6300mg/L (96h,<br>Lepomis macrochirus)<br>LC50: =9800mg/L (96h,<br>Oncorhynchus mykiss) | EC50: 6800 - 13900mg/L (48h,<br>Daphnia magna)<br>EC50: =7500mg/L (48h,<br>Daphnia magna)<br>EC50: =8485mg/L (48h,<br>Daphnia magna) |

**Persistence and degradability** No information available.

**Bioaccumulative potential** There is no data for this product.

#### Component Information

| Chemical name            | Partition coefficient |
|--------------------------|-----------------------|
| N,N-Dimethylformamide*** | -1.028                |

**Mobility in soil** No information available.

**Other adverse effects** .



Product Name AP Color Reagent B  
Print date 23-Dec-2020

(M)SDS Number

HRLS00061

## SECTION 13: Disposal considerations

### Waste chemicals

Should not be released into the environment. Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

### Contaminated packaging

Empty containers pose a potential fire and explosion hazard. Do not cut, puncture or weld containers.

## SECTION 14: Transport information

### IMDG

UN number UN1993  
UN proper shipping name FLAMMABLE LIQUID, N.O.S.  
Description UN1993, FLAMMABLE LIQUID, N.O.S. (N,N-Dimethylformamide), 3, III, (58°C C.C.)  
Transport hazard class(es) 3  
Packing group III  
Marine pollutant NP  
Special Provisions 223, 274, 955  
EmS-No F-E, S-E  
Transport in bulk according to Annex II of MARPOL and the IBC Code No information available

### IATA

UN number UN1993  
UN proper shipping name Flammable liquid, n.o.s.  
Description UN1993, Medicines, flammable, liquid, n.o.s. (N,N-Dimethylformamide), 3, III  
Transport hazard class(es) 3  
Packing group III  
Special Provisions A3  
ERG Code 3L

### China

UN proper shipping name FLAMMABLE LIQUID, N.O.S.  
Description .?1 FLAMMABLE LIQUID, N.O.S..?2

### Special precautions for user

Please refer to the applicable dangerous goods regulations for additional information

## SECTION 15: Regulatory information

### Safety, health and environmental regulations/legislation specific for the substance or mixture

#### National regulations

#### Law of the People's Republic of China on Prevention and Control of Occupational Diseases

Catalogue of occupational hazard factors:

Listed. Chemical hazards.

Catalogue of occupational diseases:

Listed. Occupational poisoning.

| Chemical name            | Category         |
|--------------------------|------------------|
| N,N-Dimethylformamide*** | Chemical hazards |

#### Regulations on the Control over Safety of Hazardous Chemicals

##### Inventory of hazardous chemicals

The table below indicates ingredients above the cut-off threshold considered as relevant which are listed. Verify that licence requirements are met.

Flammable liquid - Category 3 Weight-% 70

| Chemical name | Inventory of hazardous chemicals |
|---------------|----------------------------------|
|---------------|----------------------------------|

**Product Name** AP Color Reagent B  
**Print date** 23-Dec-2020

**(M)SDS Number**

HRLS00061

|                          |        |
|--------------------------|--------|
| N,N-Dimethylformamide*** | Listed |
|--------------------------|--------|

GB 18218-2009 Identification of major hazard installations for dangerous chemicals

Category

Flammable liquids

Threshold quantity (T)

5000

**List of hazardous chemicals under priority management**

Not applicable

**Regulations on Labour Protection in Workplaces Where Toxic Substances Are Used**

Inventory of highly toxic goods

Not applicable

**Regulations for Environmental Management on the First Import of Chemicals and the Import and Export of Toxic Chemicals**

List of toxic chemicals severely restricted for import and export in China

Not applicable

**Measures for the Environmental Management of New Chemical Substances**

**IECSC - China Inventory of Existing Chemical Substances** Contact supplier for inventory compliance status.

### 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

## **SECTION 16: Other information**

**Prepared By** Bio-Rad Laboratories, Environmental Health and Safety

**Print date** 23-Dec-2020

**Revision Note** \*\*\* Indicates this information has changed since the previous revision.

### **Abbreviations and acronyms**

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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

### **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) (AELG(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  
Australian 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)  
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications  
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme  
Organisation for Economic Co-operation and Development Screening Information Data Set  
RTECS (Registry of Toxic Effects of Chemical Substances)

**Product Name** AP Color Reagent B  
**Print date** 23-Dec-2020

**(M)SDS Number**

HRLS00061

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World Health Organization

**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**



# SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:  
GB/T 16483-2008, GB/T 17519-2013

**Product Name** 10x TBS  
**Print date** 09-Jan-2021  
**Revision Number** 1

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

### Product identifier

**Product Name** 10x TBS  
**Catalogue Number(s)** 1706435, 9702901, 1706435EDU

### Other means of identification

**Pure substance/mixture** Mixture

### 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 Laboratories, Life Science  
Group  
2000 Alfred Nobel Drive  
Hercules, California 94547  
USA

#### Legal Entity / Contact Address

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

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

### Emergency telephone number

**24 Hour Emergency Phone Number** CHEMTREC Hong Kong: 800-968-793

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

**Recommended use** Laboratory chemicals

## SECTION 2: Hazards identification

### **Emergency Overview**

No significant adverse health effects

**Appearance** aqueous solution

**Physical state** Liquid

**Odour** Odourless

### Classification of the substance or mixture

Not classified

### Label elements

#### **Hazard statements**

Not classified

#### **Physical and chemical hazards**

**Product Name** 10x TBS  
**Print date** 09-Jan-2021

**(M)SDS Number**

HRLS00068-2

Not applicable.

**Health hazards**

Immediate Health Effects: Not applicable.

Chronic effects: Not applicable.

**Environmental hazards**

Not applicable

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

Not applicable

### SECTION 3: Composition/information on ingredients

**Substance**

Not applicable.

**Mixture**

Not classified.

### SECTION 4: First aid measures

**Description of necessary first aid measures**

|   |  |
|---|--|
| <b>General advice</b>   | No hazards which require special first aid measures.   |
| <b>Inhalation</b>   | Remove to fresh air.   |
| <b>Eye contact</b>  | Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids.<br>Consult a doctor. |
| <b>Skin contact</b>   | Wash skin with soap and water.   |
| <b>Ingestion</b>  | Rinse mouth thoroughly with water.   |
| <b><u>Most important symptoms and effects, both acute and delayed</u></b> | No information available.  |
| <b><u>For emergency responders</u></b>                                    | No information available.  |
| <b><u>Note to doctors</u></b>   | Treat symptomatically.   |

### SECTION 5: Firefighting measures

**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.  |
| <b><u>Specific hazards arising from the chemical</u></b>   | No information available.  |
| <b><u>Special protective actions for fire-fighters</u></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>  | See section 8 for more information.   |
| <b>For emergency responders</b>                                    | Use personal protection recommended in Section 8.   |
| <b><u>Environmental precautions</u></b>                            | See Section 12 for additional Ecological Information.   |
| <b><u>Methods and material for containment and cleaning up</u></b> | Prevent further leakage or spillage if safe to do so. Pick up and transfer to properly labelled containers. |
| <b><u>Precautions to prevent secondary hazards</u></b>             | Clean contaminated objects and areas thoroughly observing environmental regulations.                        |

## SECTION 7: Handling and storage

|  |  |
|--|--|
| <b><u>Precautions for safe handling</u></b>                                | Handle in accordance with good industrial hygiene and safety practice. See Section 8 for information on appropriate personal protective equipment. |
| <b><u>Conditions for safe storage, including any incompatibilities</u></b> | Store according to product and label instructions.   |
| <b>Incompatible materials</b>  | None known based on information supplied.  |

## SECTION 8: Exposure controls/personal protection

### Occupational exposure limits

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

**Note** See section 16 for terms and abbreviations

### Biological occupational exposure limits

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

### Monitoring and observation processes

No applicable information was found.

|                                    |   |
|------------------------------------|---|
| <b><u>Engineering controls</u></b> | Showers<br>Eyewash stations<br>Ventilation systems. |
|------------------------------------|---|

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

|                                 |  |
|---------------------------------|--|
| <b>Eye/face protection</b>      | Wear safety glasses with side shields (or goggles).  |
| <b>Skin and body protection</b> | Wear suitable protective clothing.   |
| <b>Hand protection</b>          | Wear suitable gloves.  |
| <b>Respiratory protection</b>   | No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required. |

**General hygiene considerations** Handle in accordance with good industrial hygiene and safety practice.

## SECTION 9: Physical and chemical properties

### Information on basic physical and chemical properties

|                 |                          |
|-----------------|--------------------------|
| Appearance      | aqueous solution         |
| Colour          | colourless               |
| Physical state  | Liquid                   |
| Odour           | Odourless                |
| Odour threshold | No information available |

| <u>Property</u>                        | <u>Values</u>     | <u>Remarks • Method</u> |
|--|-------------------|-------------------------|
| pH                                     | 7-8               |                         |
| Melting point / freezing point         | No data available | None known              |
| Boiling point / boiling range          | No data available | None known              |
| Flash point                            | No data available | None known              |
| Evaporation rate                       | No data available | None known              |
| Flammability (solid, gas)              | No data available | None known              |
| Flammability Limit in Air              |                   | None known              |
| Upper flammability or explosive limits | No data available |                         |
| Lower flammability or explosive limits | No data available |                         |
| Vapour pressure                        | No data available | None known              |
| Vapour density                         | No data available | None known              |
| Relative density                       | No data available | None known              |
| Water solubility                       | Miscible in water |                         |
| Solubility(ies)                        | No data available | None known              |
| Partition coefficient                  | No data available | None known              |
| Autoignition temperature               | No data available | None known              |
| Decomposition temperature              | No data available | None known              |
| Kinematic viscosity                    | No data available | None known              |
| Dynamic viscosity                      | No data available | None known              |

### Additional information

|                      |                |
|----------------------|----------------|
| Explosive properties | Not applicable |
| Oxidising properties | Not applicable |
| Liquid Density       | 1.18           |

## SECTION 10: Stability and reactivity

**Stability** Stable under normal conditions.

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

**Sensitivity to mechanical impact** None.

**Sensitivity to static discharge** None.

**Conditions to avoid** None known based on information supplied.

**Incompatible materials** None known based on information supplied.

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

## SECTION 11: Toxicological information

**Acute toxicity**

**Numerical measures of toxicity**

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

ATEmix (oral) 10,274.00 mg/kg  
ATEmix (dermal) 34,280.80 mg/kg

|   |   |
|---|---|
| <b>Skin corrosion/irritation</b>                          | Based on available data, the classification criteria are not met. |
| <b>Serious eye damage/eye irritation</b>                  | Based on available data, the classification criteria are not met. |
| <b>Respiratory or skin sensitisation</b>                  | Based on available data, the classification criteria are not met. |
| <b>Germ cell mutagenicity</b>                             | Based on available data, the classification criteria are not met. |
| <b>Carcinogenicity</b>                                    | Based on available data, the classification criteria are not met. |
| <b>Reproductive toxicity</b>                              | Based on available data, the classification criteria are not met. |
| <b>Specific target organ toxicity — single exposure</b>   | Based on available data, the classification criteria are not met. |
| <b>Specific target organ toxicity — repeated exposure</b> | Based on available data, the classification criteria are not met. |
| <b>Aspiration hazard</b>                                  | Based on available data, the classification criteria are not met. |

## SECTION 12: Ecological information

|                                      |   |
|--------------------------------------|---|
| <b>Ecotoxicity</b>                   | .   |
| <b>Unknown aquatic toxicity</b>      | 2.34192 % of the mixture consists of component(s) of unknown hazards to the aquatic environment |
| <b>Persistence and degradability</b> | No information available.   |
| <b>Bioaccumulative potential</b>     | No information available.   |
| <b>Mobility in soil</b>              | No information available.   |

## SECTION 13: Disposal considerations

|                               |   |
|-------------------------------|---|
| <b>Waste chemicals</b>        | Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation. |
| <b>Contaminated packaging</b> | Do not reuse empty containers.  |

## SECTION 14: Transport information

|   |                          |
|---|--------------------------|
| <b>IMDG</b>   | Not regulated            |
| <b>Transport in bulk according to Annex II of MARPOL and the IBC Code</b> | No information available |
| <b>IATA</b>   | Not regulated            |



**Product Name** 10x TBS  
**Print date** 09-Jan-2021

**(M)SDS Number**

HRLS00068-2

China Not regulated

**Special precautions for user**

Please refer to the applicable dangerous goods regulations for additional information

## SECTION 15: Regulatory information

### Safety, health and environmental regulations/legislation specific for the substance or mixture

#### National regulations

##### **Law of the People's Republic of China on Prevention and Control of Occupational Diseases**

|   |                 |
|---|-----------------|
| Catalogue of occupational hazard factors: | Not applicable. |
| Catalogue of occupational diseases:       | Not applicable. |

##### **Regulations on the Control over Safety of Hazardous Chemicals**

|   |                 |
|---|-----------------|
| <u>Inventory of hazardous chemicals</u> | Not applicable. |
|---|-----------------|

|   |                |
|---|----------------|
| <u>GB 18218-2009 Identification of major hazard installations for dangerous chemicals</u> | Not applicable |
|---|----------------|

|  |                |
|--|----------------|
| <b>List of hazardous chemicals under priority management</b> | Not applicable |
|--|----------------|

##### **Regulations on Labour Protection in Workplaces Where Toxic Substances Are Used**

|                                 |                |
|---------------------------------|----------------|
| Inventory of highly toxic goods | Not applicable |
|---------------------------------|----------------|

##### **Regulations for Environmental Management on the First Import of Chemicals and the Import and Export of Toxic Chemicals**

|  |                |
|--|----------------|
| List of toxic chemicals severely restricted for import and export in China | Not applicable |
|--|----------------|

##### **Measures for the Environmental Management of New Chemical Substances**

|  |   |
|--|---|
| <b>IECSC - China Inventory of Existing Chemical Substances</b> | Contact supplier for inventory compliance status. |
|--|---|

#### 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

## SECTION 16: Other information

**Prepared By** Bio-Rad Laboratories, Environmental Health and Safety

**Print date** 09-Jan-2021

**Revision Note** \*\*\* Indicates this information has changed since the previous revision.

#### **Abbreviations and acronyms**

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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

#### **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))

**Product Name** 10x TBS  
**Print date** 09-Jan-2021

**(M)SDS Number**

HRLS00068-2

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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  
Australian 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)  
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications  
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme  
Organisation for Economic Co-operation and Development Screening Information Data Set  
RTECS (Registry of Toxic Effects of Chemical Substances)  
World Health Organization

**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**



# SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:  
GB/T 16483-2008, GB/T 17519-2013

**Product Name** Tween 20  
**Print date** 23-Dec-2020  
**Revision Number** 1

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

### Product identifier

**Product Name** Tween 20

**Catalogue Number(s)** 1706606, 1705017, 1706531, 1705017EDU, 1706531EDU, 1706531XTU, 9702906, 9701059, 25116

**English chemical name** Polyoxyethylene sorbitan monolaurate

### Other means of identification

**Pure substance/mixture** Substance

### 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 Laboratories, Life Science  
Group  
2000 Alfred Nobel Drive  
Hercules, California 94547  
USA

#### Legal Entity / Contact Address

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

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

### Emergency telephone number

**24 Hour Emergency Phone Number** CHEMTREC Hong Kong: 800-968-793

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

**Recommended use** Laboratory chemicals

## SECTION 2: Hazards identification

### **Emergency Overview**

No significant adverse health effects

**Appearance** Liquid

**Physical state** Liquid

**Odour** Odourless

### Classification of the substance or mixture

Not classified

### Label elements

#### **Hazard statements**

Not classified

**Product Name** Tween 20  
**Print date** 23-Dec-2020

**(M)SDS Number**

HRLS00094

**Physical and chemical hazards**

Not applicable.

**Health hazards**

Immediate Health Effects: Not applicable.

Chronic effects: Not applicable.

**Environmental hazards**

Not applicable

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

Not applicable

### SECTION 3: Composition/information on ingredients

**Substance**

Not classified.

| Chemical name                           | Weight-% | CAS No    |
|---|----------|-----------|
| Polyoxyethylene sorbitan monolaurate*** | 50 - 100 | 9005-64-5 |

### SECTION 4: First aid measures

**Description of necessary first aid measures**

|   |  |
|---|--|
| <b>General advice</b>   | No hazards which require special first aid measures.   |
| <b>Inhalation</b>   | Remove to fresh air.   |
| <b>Eye contact</b>  | Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids.<br>Consult a doctor. |
| <b>Skin contact</b>   | Wash skin with soap and water.   |
| <b>Ingestion</b>  | Rinse mouth thoroughly with water.   |
| <b><u>Most important symptoms and effects, both acute and delayed</u></b> | No information available.  |
| <b><u>For emergency responders</u></b>                                    | No information available.  |
| <b><u>Note to doctors</u></b>   | Treat symptomatically.   |

### SECTION 5: Firefighting measures

**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.   |
| <b><u>Specific hazards arising from the chemical</u></b> | No information available.   |

**Special protective actions for fire-fighters**

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**

**Personal precautions** See section 8 for more information.

**For emergency responders** Use personal protection recommended in Section 8.

**Environmental precautions** See Section 12 for additional Ecological Information.

**Methods and material for containment and cleaning up** Prevent further leakage or spillage if safe to do so. Pick up and transfer to properly labelled containers.

**Precautions to prevent secondary hazards** Clean contaminated objects and areas thoroughly observing environmental regulations.

## **SECTION 7: Handling and storage**

**Precautions for safe handling** Handle in accordance with good industrial hygiene and safety practice. See Section 8 for information on appropriate personal protective equipment.

**Conditions for safe storage, including any incompatibilities** Store according to product and label instructions.

**Incompatible materials** None known based on information supplied.

## **SECTION 8: Exposure controls/personal protection**

### **Occupational exposure limits**

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

**Note** See section 16 for terms and abbreviations

### **Biological occupational exposure limits**

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

### **Monitoring and observation processes**

No applicable information was found.

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

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

**Eye/face protection** Wear safety glasses with side shields (or goggles).

**Skin and body protection** Wear suitable protective clothing.

**Hand protection** Wear suitable 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. |
| General hygiene considerations | Handle in accordance with good industrial hygiene and safety practice.   |

## SECTION 9: Physical and chemical properties

### Information on basic physical and chemical properties

|                 |                          |
|-----------------|--------------------------|
| Appearance      | Liquid                   |
| Colour          | light yellow             |
| Physical state  | Liquid                   |
| Odour           | Odourless                |
| Odour threshold | No information available |

| Property                               | Values                   | Remarks • Method |
|--|--------------------------|------------------|
| pH                                     | No information available | None known       |
| Melting point / freezing point         | No data available        | None known       |
| Boiling point / boiling range          | No data available        | None known       |
| Flash point                            | 110 °C                   |                  |
| Evaporation rate                       | No data available        | None known       |
| Flammability (solid, gas)              | No data available        | None known       |
| Flammability Limit in Air              |                          | None known       |
| Upper flammability or explosive limits | No data available        |                  |
| Lower flammability or explosive limits | No data available        |                  |
| Vapour pressure                        | No data available        | None known       |
| Vapour density                         | No data available        | None known       |
| Relative density                       | No data available        | None known       |
| Water solubility                       | Miscible in water        |                  |
| Solubility(ies)                        | No data available        | None known       |
| Partition coefficient                  | No data available        | None known       |
| Autoignition temperature               | No data available        | None known       |
| Decomposition temperature              | No data available        | None known       |
| Kinematic viscosity                    | No data available        | None known       |
| Dynamic viscosity                      | No data available        | None known       |

### Additional information

|                      |                |
|----------------------|----------------|
| Explosive properties | Not applicable |
| Oxidising properties | Not applicable |

## SECTION 10: Stability and reactivity

|                                    |   |
|------------------------------------|---|
| Stability                          | Stable under normal conditions.           |
| Possibility of hazardous reactions | None under normal processing.             |
| Sensitivity to mechanical impact   | None.                                     |
| Sensitivity to static discharge    | None.                                     |
| Conditions to avoid                | None known based on information supplied. |
| Incompatible materials             | None known based on information supplied. |
| Hazardous decomposition products   | None known based on information supplied. |

## SECTION 11: Toxicological information

### Acute toxicity

### Numerical measures of toxicity

#### Component Information

| Chemical name                           | Oral LD50                                      | Dermal LD50 | Inhalation LC50 |
|---|--|-------------|-----------------|
| Polyoxyethylene sorbitan monolaurate*** | = 37000 mg/kg ( Rat )<br>= 36700 µL/kg ( Rat ) | -           | -               |

**Skin corrosion/irritation** Based on available data, the classification criteria are not met.

**Serious eye damage/eye irritation** Based on available data, the classification criteria are not met.

**Respiratory or skin sensitisation** 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** Based on available data, the classification criteria are not met.

**Specific target organ toxicity — single exposure** Based on available data, the classification criteria are not met.

**Specific target organ toxicity — repeated exposure** Based on available data, the classification criteria are not met.

**Aspiration hazard** Based on available data, the classification criteria are not met.

### SECTION 12: Ecological information

**Ecotoxicity** The environmental impact of this product has not been fully investigated.

**Persistence and degradability** No information available.

**Bioaccumulative potential** No information available.

**Mobility in soil** No information available.

### SECTION 13: Disposal considerations

**Waste chemicals** 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

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

**IATA** Not regulated

**Product Name** Tween 20  
**Print date** 23-Dec-2020

**(M)SDS Number**

HRLS00094

China Not regulated

**Special precautions for user**

Please refer to the applicable dangerous goods regulations for additional information

## SECTION 15: Regulatory information

### Safety, health and environmental regulations/legislation specific for the substance or mixture

#### National regulations

##### **Law of the People's Republic of China on Prevention and Control of Occupational Diseases**

|   |                 |
|---|-----------------|
| Catalogue of occupational hazard factors: | Not applicable. |
| Catalogue of occupational diseases:       | Not applicable. |

##### **Regulations on the Control over Safety of Hazardous Chemicals**

|   |                 |
|---|-----------------|
| <u>Inventory of hazardous chemicals</u> | Not applicable. |
|---|-----------------|

|   |                |
|---|----------------|
| <u>GB 18218-2009 Identification of major hazard installations for dangerous chemicals</u> | Not applicable |
|---|----------------|

|  |                |
|--|----------------|
| <b>List of hazardous chemicals under priority management</b> | Not applicable |
|--|----------------|

##### **Regulations on Labour Protection in Workplaces Where Toxic Substances Are Used**

|                                 |                |
|---------------------------------|----------------|
| Inventory of highly toxic goods | Not applicable |
|---------------------------------|----------------|

##### **Regulations for Environmental Management on the First Import of Chemicals and the Import and Export of Toxic Chemicals**

|  |                |
|--|----------------|
| List of toxic chemicals severely restricted for import and export in China | Not applicable |
|--|----------------|

##### **Measures for the Environmental Management of New Chemical Substances**

|  |   |
|--|---|
| <b>IECSC - China Inventory of Existing Chemical Substances</b> | Contact supplier for inventory compliance status. |
|--|---|

#### 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

## SECTION 16: Other information

**Prepared By** Bio-Rad Laboratories, Environmental Health and Safety

**Print date** 23-Dec-2020

**Revision Note** \*\*\* Indicates this information has changed since the previous revision.

#### **Abbreviations and acronyms**

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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

#### **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))



**Product Name** Tween 20  
**Print date** 23-Dec-2020

**(M)SDS Number**

HRLS00094

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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  
Australian 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)  
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications  
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme  
Organisation for Economic Co-operation and Development Screening Information Data Set  
RTECS (Registry of Toxic Effects of Chemical Substances)  
World Health Organization

**Disclaimer**

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**End of Safety Data Sheet**



# SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:  
GB/T 16483-2008, GB/T 17519-2013

**Product Name** Gelatin  
**Print date** 23-Dec-2020  
**Revision Number** 1

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

### Product identifier

**Product Name** Gelatin  
**Catalogue Number(s)** 1706537, 9701117

**English chemical name** Gelatin

### Other means of identification

**CAS No** 9000-70-8

**Pure substance/mixture** Substance

### 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 Laboratories, Life Science  
Group  
2000 Alfred Nobel Drive  
Hercules, California 94547  
USA

#### **Legal Entity / Contact Address**

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

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

### Emergency telephone number

**24 Hour Emergency Phone Number** CHEMTREC Hong Kong: 800-968-793

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

**Recommended use** Laboratory chemicals

## SECTION 2: Hazards identification

### **Emergency Overview**

No significant adverse health effects

**Appearance** Powder

**Physical state** Solid

**Odour** Sulphurous

### Classification of the substance or mixture

Not classified

### Label elements

### Hazard statements

**Product Name** Gelatin  
**Print date** 23-Dec-2020

**(M)SDS Number**

HRLS00095

Not classified

**Physical and chemical hazards**

Not applicable.

**Health hazards**

Immediate Health Effects: Not applicable.

Chronic effects: Not applicable.

**Environmental hazards**

Not applicable

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

Not applicable

### SECTION 3: Composition/information on ingredients

**Substance**

**CAS No** 9000-70-8

Not classified.

| Chemical name | Weight-% | CAS No    |
|---------------|----------|-----------|
| Gelatin***    | 50 - 100 | 9000-70-8 |

### SECTION 4: First aid measures

**Description of necessary first aid measures**

|   |  |
|---|--|
| <b>General advice</b>   | No hazards which require special first aid measures.   |
| <b>Inhalation</b>   | Remove to fresh air.   |
| <b>Eye contact</b>  | Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids.<br>Consult a doctor. |
| <b>Skin contact</b>   | Wash skin with soap and water.   |
| <b>Ingestion</b>  | Rinse mouth thoroughly with water.   |
| <b><u>Most important symptoms and effects, both acute and delayed</u></b> | No information available.  |
| <b><u>For emergency responders</u></b>                                    | No information available.  |
| <b><u>Note to doctors</u></b>   | Treat symptomatically.   |

### SECTION 5: Firefighting measures

**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** No information available.

**Special protective actions for fire-fighters** 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**

**Personal precautions** See section 8 for more information.

**For emergency responders** Use personal protection recommended in Section 8.

**Environmental precautions** See Section 12 for additional Ecological Information.

**Methods and material for containment and cleaning up** Prevent further leakage or spillage if safe to do so. Pick up and transfer to properly labelled containers.

**Precautions to prevent secondary hazards** Clean contaminated objects and areas thoroughly observing environmental regulations.

## SECTION 7: Handling and storage

**Precautions for safe handling** Handle in accordance with good industrial hygiene and safety practice. See Section 8 for information on appropriate personal protective equipment.

**Conditions for safe storage, including any incompatibilities** Store according to product and label instructions.

**Incompatible materials** None known based on information supplied.

## SECTION 8: Exposure controls/personal protection

### **Occupational exposure limits**

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

**Note** See section 16 for terms and abbreviations

### **Biological occupational exposure limits**

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

### **Monitoring and observation processes**

No applicable information was found.

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

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

**Eye/face protection** Wear safety glasses with side shields (or goggles).

**Skin and body protection** Wear suitable protective clothing.

Product Name Gelatin  
Print date 23-Dec-2020

(M)SDS Number

HRLS00095

**Hand protection** Wear suitable 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.

**General hygiene considerations** Handle in accordance with good industrial hygiene and safety practice.

## SECTION 9: Physical and chemical properties

### Information on basic physical and chemical properties

**Appearance** Powder  
**Colour** yellow  
**Physical state** Solid  
**Odour** Sulphurous  
**Odour threshold** No information available

| <u>Property</u>                        | <u>Values</u>            | <u>Remarks • Method</u> |
|--|--------------------------|-------------------------|
| pH                                     | No information available | None known              |
| Melting point / freezing point         | No data available        | None known              |
| Boiling point / boiling range          | No data available        | Not applicable          |
| Flash point                            | No data available        | Not applicable          |
| Evaporation rate                       | No data available        | None known              |
| Flammability (solid, gas)              | No data available        | None known              |
| Flammability Limit in Air              |                          | None known              |
| Upper flammability or explosive limits | No data available        |                         |
| Lower flammability or explosive limits | No data available        |                         |
| Vapour pressure                        | No data available        | None known              |
| Vapour density                         | No data available        | None known              |
| Relative density                       | No data available        | None known              |
| Water solubility                       | Soluble in water         |                         |
| Solubility(ies)                        | No data available        | None known              |
| Partition coefficient                  | No data available        | None known              |
| Autoignition temperature               | No data available        | None known              |
| Decomposition temperature              | No data available        | None known              |
| Kinematic viscosity                    | No data available        | None known              |
| Dynamic viscosity                      | No data available        | None known              |

### Additional information

**Explosive properties** Not applicable  
**Oxidising properties** Not applicable

## SECTION 10: Stability and reactivity

**Stability** Stable under normal conditions.

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

**Sensitivity to mechanical impact** None.

**Sensitivity to static discharge** None.

**Conditions to avoid** None known based on information supplied.

**Incompatible materials** None known based on information supplied.

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

## SECTION 11: Toxicological information

**Acute toxicity**

**Numerical measures of toxicity**

No information available

|   |   |
|---|---|
| <b>Skin corrosion/irritation</b>                          | Based on available data, the classification criteria are not met. |
| <b>Serious eye damage/eye irritation</b>                  | Based on available data, the classification criteria are not met. |
| <b>Respiratory or skin sensitisation</b>                  | Based on available data, the classification criteria are not met. |
| <b>Germ cell mutagenicity</b>                             | Based on available data, the classification criteria are not met. |
| <b>Carcinogenicity</b>                                    | Based on available data, the classification criteria are not met. |
| <b>Reproductive toxicity</b>                              | Based on available data, the classification criteria are not met. |
| <b>Specific target organ toxicity — single exposure</b>   | Based on available data, the classification criteria are not met. |
| <b>Specific target organ toxicity — repeated exposure</b> | Based on available data, the classification criteria are not met. |
| <b>Aspiration hazard</b>                                  | Based on available data, the classification criteria are not met. |

**SECTION 12: Ecological information**

|   |   |
|---|---|
| <b><u>Ecotoxicity</u></b>                   | The environmental impact of this product has not been fully investigated. |
| <b><u>Persistence and degradability</u></b> | No information available.   |
| <b><u>Bioaccumulative potential</u></b>     | No information available.   |
| <b><u>Mobility in soil</u></b>              | No information available.   |

**SECTION 13: Disposal considerations**

|                                      |   |
|--------------------------------------|---|
| <b><u>Waste chemicals</u></b>        | Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation. |
| <b><u>Contaminated packaging</u></b> | Do not reuse empty containers.  |

**SECTION 14: Transport information**

|   |                          |
|---|--------------------------|
| <b><u>IMDG</u></b>  | Not regulated            |
| <b>Transport in bulk according to Annex II of MARPOL and the IBC Code</b> | No information available |
| <b><u>IATA</u></b>  | Not regulated            |
| <b><u>China</u></b>   | Not regulated            |

**Product Name** Gelatin  
**Print date** 23-Dec-2020

**(M)SDS Number**

HRLS00095

**Special precautions for user**

Please refer to the applicable dangerous goods regulations for additional information

## SECTION 15: Regulatory information

### Safety, health and environmental regulations/legislation specific for the substance or mixture

#### National regulations

##### **Law of the People's Republic of China on Prevention and Control of Occupational Diseases**

|   |                 |
|---|-----------------|
| Catalogue of occupational hazard factors: | Not applicable. |
| Catalogue of occupational diseases:       | Not applicable. |

##### **Regulations on the Control over Safety of Hazardous Chemicals**

|   |                 |
|---|-----------------|
| <u>Inventory of hazardous chemicals</u> | Not applicable. |
|---|-----------------|

|   |                |
|---|----------------|
| <u>GB 18218-2009 Identification of major hazard installations for dangerous chemicals</u> | Not applicable |
|---|----------------|

|  |                |
|--|----------------|
| <b>List of hazardous chemicals under priority management</b> | Not applicable |
|--|----------------|

##### **Regulations on Labour Protection in Workplaces Where Toxic Substances Are Used**

|                                 |                |
|---------------------------------|----------------|
| Inventory of highly toxic goods | Not applicable |
|---------------------------------|----------------|

##### **Regulations for Environmental Management on the First Import of Chemicals and the Import and Export of Toxic Chemicals**

|  |                |
|--|----------------|
| List of toxic chemicals severely restricted for import and export in China | Not applicable |
|--|----------------|

##### **Measures for the Environmental Management of New Chemical Substances**

|  |   |
|--|---|
| <b>IECSC - China Inventory of Existing Chemical Substances</b> | Contact supplier for inventory compliance status. |
|--|---|

#### International Regulations

|   |                |
|---|----------------|
| <b>The Montreal Protocol on Substances that Deplete the Ozone Layer</b> | Not applicable |
|---|----------------|

|  |                |
|--|----------------|
| <b>The Stockholm Convention on Persistent Organic Pollutants</b> | Not applicable |
|--|----------------|

|                                 |                |
|---------------------------------|----------------|
| <b>The Rotterdam Convention</b> | Not applicable |
|---------------------------------|----------------|

## SECTION 16: Other information

|                    |   |
|--------------------|---|
| <b>Prepared By</b> | Bio-Rad Laboratories, Environmental Health and Safety |
|--------------------|---|

|                   |             |
|-------------------|-------------|
| <b>Print date</b> | 23-Dec-2020 |
|-------------------|-------------|

|                      |   |
|----------------------|---|
| <b>Revision Note</b> | *** Indicates this information has changed since the previous revision. |
|----------------------|---|

#### **Abbreviations and acronyms**

##### Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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

#### **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

**Product Name** Gelatin  
**Print date** 23-Dec-2020

**(M)SDS Number**

HRLS00095

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Food Research Journal  
Hazardous Substance Database  
International Uniform Chemical Information Database (IUCLID)  
Japan GHS Classification  
Australian 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)  
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications  
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme  
Organisation for Economic Co-operation and Development Screening Information Data Set  
RTECS (Registry of Toxic Effects of Chemical Substances)  
World Health Organization

**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**





# SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:  
GB/T 16483-2008, GB/T 17519-2013

**Product Name** Goat Anti-Mouse IgG (H+L) AP Conjugate

**Print date** 09-Jan-2021

**Revision Number** 1

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

### Product identifier

**Product Name** Goat Anti-Mouse IgG (H+L) AP Conjugate

**Catalogue Number(s)** 1706520, 1706520EDU, 9701105, 9702902

### Other means of identification

**Pure substance/mixture** Mixture

### 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 Laboratories, Life Science  
Group  
2000 Alfred Nobel Drive  
Hercules, California 94547  
USA

#### Legal Entity / Contact Address

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

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

### Emergency telephone number

**24 Hour Emergency Phone Number** CHEMTREC Hong Kong: 800-968-793

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

**Recommended use** Laboratory chemicals

## SECTION 2: Hazards identification

### **Emergency Overview**

No significant adverse health effects

**Appearance** aqueous solution

**Physical state** Liquid

**Odour** Odourless

### Classification of the substance or mixture

Not classified

### Label elements

#### **Hazard statements**

Not classified

#### **Physical and chemical hazards**

Not applicable.

**Health hazards**

Immediate Health Effects: Not applicable.

Chronic effects: Not applicable.

**Environmental hazards**

Not applicable

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

Not applicable

### SECTION 3: Composition/information on ingredients

**Substance**

Not applicable.

**Mixture**

Not classified.

| Chemical name   | Weight-%    | CAS No     |
|-----------------|-------------|------------|
| Sodium azide*** | 0.1 - 0.299 | 26628-22-8 |

### SECTION 4: First aid measures

**Description of necessary first aid measures**

|   |  |
|---|--|
| <b>General advice</b>   | No hazards which require special first aid measures.   |
| <b>Inhalation</b>   | Remove to fresh air.   |
| <b>Eye contact</b>  | Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids.<br>Consult a doctor. |
| <b>Skin contact</b>   | Wash skin with soap and water.   |
| <b>Ingestion</b>  | Rinse mouth thoroughly with water.   |
| <b><u>Most important symptoms and effects, both acute and delayed</u></b> | No information available.  |
| <b><u>For emergency responders</u></b>                                    | No information available.  |
| <b><u>Note to doctors</u></b>   | Treat symptomatically.   |

### SECTION 5: Firefighting measures

**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.   |
| <b><u>Specific hazards arising from the chemical</u></b> | No information available.   |

**Special protective actions for fire-fighters** 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**

**Personal precautions** See section 8 for more information.

**For emergency responders** Use personal protection recommended in Section 8.

**Environmental precautions** See Section 12 for additional Ecological Information.

**Methods and material for containment and cleaning up** Prevent further leakage or spillage if safe to do so. Pick up and transfer to properly labelled containers.

**Precautions to prevent secondary hazards** Clean contaminated objects and areas thoroughly observing environmental regulations.

## SECTION 7: Handling and storage

**Precautions for safe handling** Handle in accordance with good industrial hygiene and safety practice. See Section 8 for information on appropriate personal protective equipment.

**Conditions for safe storage, including any incompatibilities** Store according to product and label instructions.

**Incompatible materials** Metals.

## SECTION 8: Exposure controls/personal protection

### **Occupational exposure limits**

| Chemical name                | China                                  | ACGIH TLV  |
|------------------------------|--|--|
| Sodium azide*** - 26628-22-8 | Ceiling: 0.3 mg/m <sup>3</sup> Ceiling | Ceiling: 0.29 mg/m <sup>3</sup> Sodium azide<br>Ceiling: 0.11 ppm Hydrazoic acid vapor |

**Note** See section 16 for terms and abbreviations

### **Biological occupational exposure limits**

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

### **Monitoring and observation processes**

No applicable information was found.

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

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

**Eye/face protection** Wear safety glasses with side shields (or goggles).

|                                       |  |
|---------------------------------------|--|
| <b>Skin and body protection</b>       | Wear suitable protective clothing.   |
| <b>Hand protection</b>                | Wear suitable gloves.  |
| <b>Respiratory protection</b>         | No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required. |
| <b>General hygiene considerations</b> | Handle in accordance with good industrial hygiene and safety practice.   |

## SECTION 9: Physical and chemical properties

### Information on basic physical and chemical properties

|                        |                          |
|------------------------|--------------------------|
| <b>Appearance</b>      | aqueous solution         |
| <b>Colour</b>          | colourless               |
| <b>Physical state</b>  | Liquid                   |
| <b>Odour</b>           | Odourless                |
| <b>Odour threshold</b> | No information available |

| <u>Property</u>                               | <u>Values</u>            | <u>Remarks • Method</u> |
|---|--------------------------|-------------------------|
| <b>pH</b>                                     | No information available | None known              |
| <b>Melting point / freezing point</b>         | 0 °C                     |                         |
| <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>                       | Miscible 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>              | No data available        | None known              |
| <b>Kinematic viscosity</b>                    | No data available        | None known              |
| <b>Dynamic viscosity</b>                      | No data available        | None known              |

### Additional information

|                             |                |
|-----------------------------|----------------|
| <b>Explosive properties</b> | Not applicable |
| <b>Oxidising properties</b> | Not applicable |

## SECTION 10: Stability and reactivity

|                         |                                 |
|-------------------------|---------------------------------|
| <b><u>Stability</u></b> | Stable under normal conditions. |
|-------------------------|---------------------------------|

|  |   |
|--|---|
| <b><u>Possibility of hazardous reactions</u></b> | Avoid contact with metals. This product contains Sodium azide. Sodium azide can react with Copper, Brass, Lead, and solder in piping systems to form explosive compounds and toxic gases. |
|--|---|

|   |       |
|---|-------|
| <b>Sensitivity to mechanical impact</b> | None. |
| <b>Sensitivity to static discharge</b>  | None. |

|                                   |   |
|-----------------------------------|---|
| <b><u>Conditions to avoid</u></b> | None known based on information supplied. |
|-----------------------------------|---|

|                                      |         |
|--------------------------------------|---------|
| <b><u>Incompatible materials</u></b> | Metals. |
|--------------------------------------|---------|

|  |   |
|--|---|
| <b><u>Hazardous decomposition products</u></b> | None known based on information supplied. |
|--|---|

## SECTION 11: Toxicological information

### Acute toxicity

### Numerical measures of toxicity

#### Component Information

| Chemical name   | Oral LD50          | Dermal LD50                                 | Inhalation LC50 |
|-----------------|--------------------|---|-----------------|
| Sodium azide*** | = 27 mg/kg ( Rat ) | = 20 mg/kg ( Rabbit )<br>= 50 mg/kg ( Rat ) | -               |

**Skin corrosion/irritation** Based on available data, the classification criteria are not met.

**Serious eye damage/eye irritation** Based on available data, the classification criteria are not met.

**Respiratory or skin sensitisation** 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** Based on available data, the classification criteria are not met.

**Specific target organ toxicity — single exposure** Based on available data, the classification criteria are not met.

**Specific target organ toxicity — repeated exposure** Based on available data, the classification criteria are not met.

**Aspiration hazard** Based on available data, the classification criteria are not met.

## SECTION 12: Ecological information

### Ecotoxicity

**Unknown aquatic toxicity** 0 % of the mixture consists of component(s) of unknown hazards to the aquatic environment

| Chemical name   | Algae/aquatic plants | Fish   | Crustacea |
|-----------------|----------------------|--|-----------|
| Sodium azide*** | -                    | LC50: =0.7mg/L (96h, Lepomis macrochirus)<br>LC50: =0.8mg/L (96h, Oncorhynchus mykiss)<br>LC50: =5.46mg/L (96h, Pimephales promelas) | -         |

**Persistence and degradability** No information available.

**Bioaccumulative potential** No information available.

**Mobility in soil** No information available.

## SECTION 13: Disposal considerations

|                     |  |                      |             |
|---------------------|--|----------------------|-------------|
| <b>Product Name</b> | Goat Anti-Mouse IgG (H+L) AP Conjugate | <b>(M)SDS Number</b> | HRLS00096-2 |
| <b>Print date</b>   | 09-Jan-2021                            |                      |             |

**Waste chemicals** Flush pipes with water frequently if discarding solutions containing Sodium azide into metal piping systems. 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

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

**IATA** Not regulated

**China** Not regulated

**Special precautions for user**  
Please refer to the applicable dangerous goods regulations for additional information

## SECTION 15: Regulatory information

### **Safety, health and environmental regulations/legislation specific for the substance or mixture**

#### **National regulations**

##### **Law of the People's Republic of China on Prevention and Control of Occupational Diseases**

|   |                 |
|---|-----------------|
| Catalogue of occupational hazard factors: | Not applicable. |
| Catalogue of occupational diseases:       | Not applicable. |

##### **Regulations on the Control over Safety of Hazardous Chemicals**

|  |  |
|--|--|
| <b><u>Inventory of hazardous chemicals</u></b> | The table below indicates ingredients above the cut-off threshold considered as relevant which are listed.<br>Weight-% 0 |
|--|--|

| Chemical name   | Inventory of hazardous chemicals |
|-----------------|----------------------------------|
| Sodium azide*** | Listed, Highly toxic             |

|  |                |
|--|----------------|
| <b><u>GB 18218-2009 Identification of major hazard installations for dangerous chemicals</u></b> | Not applicable |
|--|----------------|

|  |                |
|--|----------------|
| <b>List of hazardous chemicals under priority management</b> | Not applicable |
|--|----------------|

|   |                |
|---|----------------|
| <b>Regulations on Labour Protection in Workplaces Where Toxic Substances Are Used</b> |                |
| Inventory of highly toxic goods   | Not applicable |

##### **Regulations for Environmental Management on the First Import of Chemicals and the Import and Export of Toxic Chemicals**

|  |                |
|--|----------------|
| List of toxic chemicals severely restricted for import and export in China | Not applicable |
|--|----------------|

##### **Measures for the Environmental Management of New Chemical Substances**

|  |   |
|--|---|
| <b>IECSC - China Inventory of Existing Chemical Substances</b> | Contact supplier for inventory compliance status. |
|--|---|

#### **International Regulations**

|   |                |
|---|----------------|
| <b>The Montreal Protocol on Substances that Deplete the Ozone Layer</b> | Not applicable |
|---|----------------|

|  |                |
|--|----------------|
| <b>The Stockholm Convention on Persistent Organic Pollutants</b> | Not applicable |
|--|----------------|

|                                 |                |
|---------------------------------|----------------|
| <b>The Rotterdam Convention</b> | Not applicable |
|---------------------------------|----------------|

## SECTION 16: Other information

**Prepared By** Bio-Rad Laboratories, Environmental Health and Safety

**Print date** 09-Jan-2021

**Revision Note** \*\*\* Indicates this information has changed since the previous revision.

### Abbreviations and acronyms

#### Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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

### 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) (AELG(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  
Australian 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)  
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications  
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme  
Organisation for Economic Co-operation and Development Screening Information Data Set  
RTECS (Registry of Toxic Effects of Chemical Substances)  
World Health Organization

### 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**



# SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:  
GB/T 16483-2008, GB/T 17519-2013

**Product Name** 25X AP Color Development Buffer

**Print date** 23-Dec-2020

**Revision Number** 1

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

### Product identifier

**Product Name** 25X AP Color Development Buffer

**Catalogue Number(s)** 9702818

### Other means of identification

**Pure substance/mixture** Mixture

### 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 Laboratories, Life Science  
Group  
2000 Alfred Nobel Drive  
Hercules, California 94547  
USA\*\*\*

#### Legal Entity / Contact Address

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

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

### Emergency telephone number

**24 Hour Emergency Phone Number** CHEMTREC Hong Kong: 800-968-793\*\*\*

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

**Recommended use** Laboratory chemicals\*\*\*

## SECTION 2: Hazards identification

### **Emergency Overview**

No significant adverse health effects

**Appearance** aqueous solution

**Physical state** Liquid

**Odour** Odourless

### Classification of the substance or mixture

Not classified\*\*\*

### Label elements

#### **Hazard statements**

Not classified\*\*\*

#### **Physical and chemical hazards**



**Product Name** 25X AP Color Development Buffer  
**Print date** 23-Dec-2020

**(M)SDS Number**

HRLS00111

Not applicable.

**Health hazards**

Immediate Health Effects: Not applicable.

Chronic effects: Not applicable.

**Environmental hazards**

Not applicable

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

Not applicable

### SECTION 3: Composition/information on ingredients

**Substance**

Not applicable.\*\*\*

**Mixture**

\*\*\*

Not classified.\*\*\*

### SECTION 4: First aid measures

**Description of necessary first aid measures**

**General advice**

No hazards which require special first aid measures.

**Inhalation**

Remove to fresh air.

**Eye contact**

Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids.  
Consult a doctor.

**Skin contact**

Wash skin with soap and water.

**Ingestion**

Rinse mouth thoroughly with water.

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

No information available.

**For emergency responders**

No information available.

**Note to doctors**

Treat symptomatically.

### SECTION 5: Firefighting measures

**Extinguishing media**

**Suitable Extinguishing Media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Unsuitable extinguishing media**

No information available.

**Specific hazards arising from the chemical**

No information available.

**Special protective actions for fire-fighters**

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>  | See section 8 for more information.   |
| <b>For emergency responders</b>                                    | Use personal protection recommended in Section 8.   |
| <b><u>Environmental precautions</u></b>                            | See Section 12 for additional Ecological Information.   |
| <b><u>Methods and material for containment and cleaning up</u></b> | Prevent further leakage or spillage if safe to do so. Pick up and transfer to properly labelled containers. |
| <b><u>Precautions to prevent secondary hazards</u></b>             | Clean contaminated objects and areas thoroughly observing environmental regulations.                        |

## SECTION 7: Handling and storage

|  |  |
|--|--|
| <b><u>Precautions for safe handling</u></b>                                | Handle in accordance with good industrial hygiene and safety practice. See Section 8 for information on appropriate personal protective equipment. |
| <b><u>Conditions for safe storage, including any incompatibilities</u></b> | Store according to product and label instructions.***  |
| <b>Incompatible materials</b>  | None known based on information supplied.  |

## SECTION 8: Exposure controls/personal protection

### Occupational exposure limits

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

**Note** See section 16 for terms and abbreviations

### Biological occupational exposure limits

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

### Monitoring and observation processes

No applicable information was found.

|                                    |   |
|------------------------------------|---|
| <b><u>Engineering controls</u></b> | Showers<br>Eyewash stations<br>Ventilation systems. |
|------------------------------------|---|

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

|                                 |  |
|---------------------------------|--|
| <b>Eye/face protection</b>      | Wear safety glasses with side shields (or goggles).  |
| <b>Skin and body protection</b> | Wear suitable protective clothing.   |
| <b>Hand protection</b>          | Wear suitable gloves.  |
| <b>Respiratory protection</b>   | No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required. |

**General hygiene considerations** Handle in accordance with good industrial hygiene and safety practice.

## SECTION 9: Physical and chemical properties

### Information on basic physical and chemical properties

|                 |                          |
|-----------------|--------------------------|
| Appearance      | aqueous solution         |
| Colour          | colourless               |
| Physical state  | Liquid                   |
| Odour           | Odourless                |
| Odour threshold | No information available |

| <u>Property</u>                        | <u>Values</u>     | <u>Remarks • Method</u> |
|--|-------------------|-------------------------|
| pH                                     | 9-10              | ***                     |
| Melting point / freezing point         | No data available | None known              |
| Boiling point / boiling range          | No data available | None known              |
| Flash point                            | No data available | Not applicable          |
| Evaporation rate                       | No data available | None known              |
| Flammability (solid, gas)              | No data available | None known              |
| Flammability Limit in Air              |                   | None known              |
| Upper flammability or explosive limits | No data available |                         |
| Lower flammability or explosive limits | No data available |                         |
| Vapour pressure                        | No data available | None known              |
| Vapour density                         | No data available | None known              |
| Relative density                       | No data available | None known              |
| Water solubility                       | Miscible in water | ***                     |
| Solubility(ies)                        | No data available | None known              |
| Partition coefficient                  | No data available | None known              |
| Autoignition temperature               | No data available | None known              |
| Decomposition temperature              | No data available | None known              |
| Kinematic viscosity                    | No data available | None known              |
| Dynamic viscosity                      | No data available | None known              |

### Additional information

|                      |                |
|----------------------|----------------|
| Explosive properties | Not applicable |
| Oxidising properties | Not applicable |

## SECTION 10: Stability and reactivity

**Stability** Stable under normal conditions.

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

**Sensitivity to mechanical impact** None.

**Sensitivity to static discharge** None.

**Conditions to avoid** None known based on information supplied.

**Incompatible materials** None known based on information supplied.

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

## SECTION 11: Toxicological information

### Acute toxicity

### Numerical measures of toxicity

\*\*\*

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

ATEmix (oral) 19,471.90\*\*\* mg/kg\*\*\*

|   |   |
|---|---|
| <b>Skin corrosion/irritation</b>                          | Based on available data, the classification criteria are not met. |
| <b>Serious eye damage/eye irritation</b>                  | Based on available data, the classification criteria are not met. |
| <b>Respiratory or skin sensitisation</b>                  | Based on available data, the classification criteria are not met. |
| <b>Germ cell mutagenicity</b>                             | Based on available data, the classification criteria are not met. |
| <b>Carcinogenicity</b>                                    | Based on available data, the classification criteria are not met. |
| <b>Reproductive toxicity</b>                              | Based on available data, the classification criteria are not met. |
| <b>Specific target organ toxicity — single exposure</b>   | Based on available data, the classification criteria are not met. |
| <b>Specific target organ toxicity — repeated exposure</b> | Based on available data, the classification criteria are not met. |
| <b>Aspiration hazard</b>                                  | Based on available data, the classification criteria are not met. |

## SECTION 12: Ecological information

|   |  |
|---|--|
| <b><u>Ecotoxicity</u></b>                   | The environmental impact of this product has not been fully investigated.                    |
| <b><u>Unknown aquatic toxicity</u></b>      | 0 % of the mixture consists of component(s) of unknown hazards to the aquatic environment*** |
| <b><u>Persistence and degradability</u></b> | No information available.  |
| <b><u>Bioaccumulative potential</u></b>     | No information available.  |
| <b><u>Mobility in soil</u></b>              | No information available.  |

## SECTION 13: Disposal considerations

|                                      |  |
|--------------------------------------|--|
| <b><u>Waste chemicals</u></b>        | Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.*** |
| <b><u>Contaminated packaging</u></b> | Do not reuse empty containers.   |

## SECTION 14: Transport information

|  |                          |
|--|--------------------------|
| <b><u>IMDG</u></b>   | Not regulated            |
| <b><u>Transport in bulk according to Annex II of MARPOL and the IBC Code</u></b> | No information available |
| <b><u>IATA</u></b>   | Not regulated            |
| <b><u>China</u></b>  | Not regulated            |

**Product Name** 25X AP Color Development Buffer  
**Print date** 23-Dec-2020

**(M)SDS Number**

HRLS00111

**Special precautions for user**

Please refer to the applicable dangerous goods regulations for additional information

## SECTION 15: Regulatory information

### Safety, health and environmental regulations/legislation specific for the substance or mixture

#### National regulations

##### **Law of the People's Republic of China on Prevention and Control of Occupational Diseases**

|   |                 |
|---|-----------------|
| Catalogue of occupational hazard factors: | Not applicable. |
| Catalogue of occupational diseases:       | Not applicable. |

##### **Regulations on the Control over Safety of Hazardous Chemicals**

|   |                 |
|---|-----------------|
| <u>Inventory of hazardous chemicals</u> | Not applicable. |
|---|-----------------|

|   |                |
|---|----------------|
| <u>GB 18218-2009 Identification of major hazard installations for dangerous chemicals</u> | Not applicable |
|---|----------------|

|  |                |
|--|----------------|
| <b>List of hazardous chemicals under priority management</b> | Not applicable |
|--|----------------|

##### **Regulations on Labour Protection in Workplaces Where Toxic Substances Are Used**

|                                 |                |
|---------------------------------|----------------|
| Inventory of highly toxic goods | Not applicable |
|---------------------------------|----------------|

##### **Regulations for Environmental Management on the First Import of Chemicals and the Import and Export of Toxic Chemicals**

|  |                |
|--|----------------|
| List of toxic chemicals severely restricted for import and export in China | Not applicable |
|--|----------------|

##### **Measures for the Environmental Management of New Chemical Substances**

|  |   |
|--|---|
| <b>IECSC - China Inventory of Existing Chemical Substances</b> | Contact supplier for inventory compliance status. |
|--|---|

#### International Regulations

|   |                |
|---|----------------|
| <b>The Montreal Protocol on Substances that Deplete the Ozone Layer</b> | Not applicable |
|---|----------------|

|  |                |
|--|----------------|
| <b>The Stockholm Convention on Persistent Organic Pollutants</b> | Not applicable |
|--|----------------|

|                                 |                |
|---------------------------------|----------------|
| <b>The Rotterdam Convention</b> | Not applicable |
|---------------------------------|----------------|

## SECTION 16: Other information

|                    |   |
|--------------------|---|
| <b>Prepared By</b> | Bio-Rad Laboratories, Environmental Health and Safety |
|--------------------|---|

|                   |             |
|-------------------|-------------|
| <b>Print date</b> | 23-Dec-2020 |
|-------------------|-------------|

|                      |   |
|----------------------|---|
| <b>Revision Note</b> | *** Indicates this information has changed since the previous revision. |
|----------------------|---|

#### **Abbreviations and acronyms**

##### Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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

#### **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

**Product Name** 25X AP Color Development Buffer  
**Print date** 23-Dec-2020

**(M)SDS Number**

HRLS00111

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Food Research Journal  
Hazardous Substance Database  
International Uniform Chemical Information Database (IUCLID)  
Japan GHS Classification  
Australian 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)  
Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications  
Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme  
Organisation for Economic Co-operation and Development Screening Information Data Set  
RTECS (Registry of Toxic Effects of Chemical Substances)  
World Health Organization

**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**



# SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:  
GB/T 16483-2008, GB/T 17519-2013

**Product Name** AP Color Reagent A

**Print date** 23-Dec-2020

**Revision Number** 1

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

### Product identifier

**Product Name** AP Color Reagent A

**Catalogue Number(s)** 9701067

### Other means of identification

**UN/ID no** UN2265\*\*\*

**Pure substance/mixture** Mixture

### 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 Laboratories, Life Science  
Group  
2000 Alfred Nobel Drive  
Hercules, California 94547  
USA\*\*\*

#### Legal Entity / Contact Address

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

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

### Emergency telephone number

**24 Hour Emergency Phone Number** CHEMTREC Hong Kong: 800-968-793\*\*\*

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

**Recommended use** Laboratory chemicals\*\*\*

## SECTION 2: Hazards identification

### **Emergency Overview**

Irritating to eyes  
HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames\*\*\*

**Appearance** Liquid **Physical state** Liquid **Odour** Amine

### Classification of the substance or mixture

|                              |               |
|------------------------------|---------------|
| <b>Flammable liquids***</b>  | Category 3*** |
| <b>Flammable liquids***</b>  | Category 3*** |
| <b>Acute toxicity - Oral</b> | Category 5*** |

**Print date** 23-Dec-2020

**Product Name** AP Color Reagent A  
**Print date** 23-Dec-2020

**(M)SDS Number**

HRLS00485

|  |                |
|--|----------------|
| <b>Acute toxicity - Dermal</b>                   | Category 4***  |
| <b>Acute toxicity - Inhalation (Gases)</b>       | Category 4***  |
| <b>Acute toxicity - Inhalation (Dusts/Mists)</b> | Category 4***  |
| <b>Serious eye damage/eye irritation</b>         | Category 2A*** |
| <b>Reproductive toxicity</b>                     | Category 1B*** |

#### Label elements



#### **Signal word**

Danger\*\*\*

#### **Hazard statements**

Flammable liquid and vapour\*\*\*  
Flammable liquid and vapour\*\*\*  
May be harmful if swallowed  
Harmful in contact with skin  
Harmful if inhaled  
Causes serious eye irritation  
May damage fertility or the unborn child\*\*\*

#### **Precautionary statements**

##### **Prevention**

Do not handle until all safety precautions have been read and understood  
Wear protective gloves/protective clothing/eye protection/face protection  
Avoid breathing dust/fume/gas/mist/vapours/spray  
Use only outdoors or in a well-ventilated area  
Wash face, hands and any exposed skin thoroughly after handling  
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking  
Keep container tightly closed  
Ground/bond container and receiving equipment  
Use only non-sparking tools  
Take precautionary measures against static discharge\*\*\*

##### **Response**

Call a POISON CENTRE or doctor if you feel unwell\*\*\*  
IF INHALED: Remove person to fresh air and keep comfortable for breathing  
Call a POISON CENTRE or doctor if you feel unwell\*\*\*  
Call a POISON CENTRE or doctor if you feel unwell  
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower  
Wash contaminated clothing before reuse\*\*\*  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing  
If eye irritation persists: Get medical advice/attention\*\*\*  
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish\*\*\*

##### **Storage**

Store in a well-ventilated place. Keep cool\*\*\*

##### **Disposal**

Dispose of contents/container to an approved waste disposal plant\*\*\*

#### **Physical and chemical hazards**

Flammable; may be ignited by heat, sparks or flames. Vapours may form explosive mixtures with air. Vapours can travel considerable distances to a source of ignition where they can ignite, flash back, or explode. Runoff to sewer may create fire or explosion hazard. Containers may explode when heated.\*\*\*

#### **Health hazards**

Immediate Health Effects: If large quantities of this material are swallowed, call a doctor immediately. If symptoms persist, call a doctor. Harmful. Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed. Causes severe irritation (tears, blurred vision and redness). Irritating, but will not permanently injure eye tissue.\*\*\*



**Product Name** AP Color Reagent A  
**Print date** 23-Dec-2020

**(M)SDS Number**

HRLS00485

Chronic effects: Contains a known or suspected reproductive toxin.\*\*\*

**Environmental hazards**

Not applicable

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

Not applicable

## SECTION 3: Composition/information on ingredients

**Substance**

Not applicable.\*\*\*

**Mixture**

\*\*\*

| Chemical name            | Weight-% | CAS No  |
|--------------------------|----------|---------|
| N,N-Dimethylformamide*** | 50 - 100 | 68-12-2 |

## SECTION 4: First aid measures

**Description of necessary first aid measures**

**General advice**

Show this safety data sheet to the doctor in attendance.\*\*\*

**Inhalation**

Remove to fresh air. If symptoms persist, call a doctor. If breathing has stopped, give artificial respiration. Get medical attention immediately.\*\*\*

**Eye contact**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get medical attention if irritation develops and persists.\*\*\*

**Skin contact**

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. If symptoms persist, call a doctor.\*\*\*

**Ingestion**

Do NOT induce vomiting. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Get medical attention.\*\*\*

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

May cause redness and tearing of the eyes. Burning sensation. Coughing and/ or wheezing. Difficulty in breathing.\*\*\*

**For emergency responders**

Remove all sources of ignition. Avoid contact with skin, eyes or clothing. Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid breathing vapours or mists. Use personal protective equipment as required. See section 8 for more information.\*\*\*

**Note to doctors**

Treat symptomatically.

## SECTION 5: Firefighting measures

**Extinguishing media**

**Suitable Extinguishing Media**

Dry chemical. Carbon dioxide (CO2). Water spray. Alcohol resistant foam.\*\*\*

**Unsuitable extinguishing media**

No information available.

**Specific hazards arising from the**

Risk of ignition. Keep product and empty container away from heat and sources of ignition.

**chemical**

In the event of fire, cool tanks with water spray. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.\*\*\*

**Special protective actions for fire-fighters**

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**

**Personal precautions**

Evacuate personnel to safe areas. See section 8 for more information. Keep people away from and upwind of spill/leak. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Pay attention to flashback. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Avoid breathing vapours or mists. Use personal protective equipment as required.\*\*\*

**Other information**

Ventilate the area. Refer to protective measures listed in Sections 7 and 8.\*\*\*

**For emergency responders**

Use personal protection recommended in Section 8.

**Environmental precautions**

Refer to protective measures listed in Sections 7 and 8. Prevent product from entering drains. Prevent further leakage or spillage if safe to do so.\*\*\*

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

Stop leak if you can do it without risk. Do not touch or walk through spilled material. A vapour suppressing foam may be used to reduce vapours. Dyke far ahead of spill to collect run-off water. Keep out of drains, sewers, ditches and waterways. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.\*\*\* Take precautionary measures against static discharges. Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labelled containers.\*\*\*

**Precautions to prevent secondary hazards**

Clean contaminated objects and areas thoroughly observing environmental regulations.

## **SECTION 7: Handling and storage**

**Precautions for safe handling**

Use personal protection equipment. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use grounding and bonding connection when transferring this material to prevent static discharge, fire or explosion. Use with local exhaust ventilation. Use spark-proof tools and explosion-proof equipment. Keep in an area equipped with sprinklers. Use according to package label instructions. Remove contaminated clothing and shoes. Avoid contact with skin, eyes or clothing. Handle in accordance with good industrial hygiene and safety practice. Avoid breathing vapours or mists. In case of insufficient ventilation, wear suitable respiratory equipment. Do not eat, drink or smoke when using this product.\*\*\* 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. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product.\*\*\* See Section 8 for information on appropriate personal protective equipment.

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

Keep away from heat, sparks, flame and other sources of ignition (i.e., pilot lights, electric motors and static electricity). Keep in properly labelled containers. Do not store near combustible materials. Keep in an area equipped with sprinklers. Store in accordance with the particular national regulations. Store in accordance with local regulations. Store locked up. Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Store according to product and label instructions.\*\*\*

**Product Name** AP Color Reagent A  
**Print date** 23-Dec-2020

**(M)SDS Number**

HRLS00485

**Incompatible materials**

None known based on information supplied.

## SECTION 8: Exposure controls/personal protection

### Occupational exposure limits

\*\*\*

| Chemical name                      | China  | ACGIH TLV        |
|------------------------------------|--|------------------|
| N,N-Dimethylformamide*** - 68-12-2 | TWA: 20 mg/m <sup>3</sup><br>STEL: 40 mg/m <sup>3</sup><br>Skin* | TWA: 5 ppm<br>S* |

**Note**

See section 16 for terms and abbreviations

### Biological occupational exposure limits

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

| Chemical name                      | Biological standards | Monitoring and observation processes | ACGIH  |
|------------------------------------|----------------------|--------------------------------------|--|
| N,N-Dimethylformamide*** - 68-12-2 |                      |                                      | 30 mg/L - urine (Total N-methylformamide) - end of shift<br>30 mg/L - urine (N-Acetyl-S-(N-methylcarbamoyl)cysteine) - end of shift at end of workweek |

### Monitoring and observation processes

No applicable information was found.

### Engineering controls

Showers  
Eyewash stations  
Ventilation systems.

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

**Eye/face protection**

Tight sealing safety goggles.\*\*\*

**Skin and body protection**

Chemical resistant apron. Antistatic boots. Long sleeved clothing. Wear suitable protective clothing.\*\*\*

**Hand protection**

Impervious gloves. Wear suitable 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.

**General hygiene considerations**

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. Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product.\*\*\*

## SECTION 9: Physical and chemical properties

### Information on basic physical and chemical properties

|                        |                          |
|------------------------|--------------------------|
| <b>Appearance</b>      | Liquid                   |
| <b>Colour</b>          | colourless               |
| <b>Physical state</b>  | Liquid                   |
| <b>Odour</b>           | Amine                    |
| <b>Odour threshold</b> | No information available |

Product Name AP Color Reagent A  
Print date 23-Dec-2020

(M)SDS Number

HRLS00485

| <u>Property</u>                        | <u>Values</u>     | <u>Remarks • Method</u> |
|--|-------------------|-------------------------|
| pH                                     | 7***              | ***                     |
| Melting point / freezing point         | -61 °C***         | ***                     |
| Boiling point / boiling range          | 152.5-153.5 °C*** | ***                     |
| Flash point                            | 58 °C***          | ***                     |
| Evaporation rate                       | No data available | None known              |
| Flammability (solid, gas)              | No data available | None known              |
| Flammability Limit in Air              |                   | None known              |
| Upper flammability or explosive limits | No data available |                         |
| Lower flammability or explosive limits | No data available |                         |
| Vapour pressure                        | No data available | None known              |
| Vapour density                         | No data available | None known              |
| Relative density                       | No data available | None known              |
| Water solubility                       | Miscible in water | ***                     |
| Solubility(ies)                        | No data available | None known              |
| Partition coefficient                  | No data available | None known              |
| Autoignition temperature               | No data available | None known              |
| Decomposition temperature              | No data available | None known              |
| Kinematic viscosity                    | No data available | None known              |
| Dynamic viscosity                      | No data available | None known              |
| <u>Additional information</u>          |                   |                         |
| Explosive properties                   | Not applicable    |                         |
| Oxidising properties                   | Not applicable    |                         |

## SECTION 10: Stability and reactivity

|   |   |
|---|---|
| <u>Stability</u>                          | Stable under normal conditions.             |
| <u>Possibility of hazardous reactions</u> | None under normal processing.               |
| Sensitivity to mechanical impact          | None.                                       |
| Sensitivity to static discharge           | Yes.***                                     |
| <u>Conditions to avoid</u>                | Heat, flames and sparks. Excessive heat.*** |
| <u>Incompatible materials</u>             | None known based on information supplied.   |
| <u>Hazardous decomposition products</u>   | None known based on information supplied.   |

## SECTION 11: Toxicological information

### Acute toxicity

#### Numerical measures of toxicity

\*\*\*

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

|                               |                      |
|-------------------------------|----------------------|
| ATEmix (oral)                 | 2,886.60*** mg/kg*** |
| ATEmix (dermal)               | 1,134.00*** mg/kg*** |
| ATEmix (inhalation-gas)       | 3,103.10*** mg/l***  |
| ATEmix (inhalation-dust/mist) | 1.55*** mg/l***      |

#### Unknown acute toxicity

\*\*\*

- 3 % of the mixture consists of ingredient(s) of unknown acute oral toxicity\*\*\*
- 3 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity\*\*\*
- 3 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)\*\*\*
- 3 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)\*\*\*

**Product Name** AP Color Reagent A  
**Print date** 23-Dec-2020

**(M)SDS Number**

HRLS00485

**Component Information**

\*\*\*

| Chemical name            | Oral LD50                                    | Dermal LD50                                | Inhalation LC50 |
|--------------------------|--|--|-----------------|
| N,N-Dimethylformamide*** | = 2800 mg/kg ( Rat )<br>= 2000 mg/kg ( Rat ) | = 1100 mg/kg ( Rat )<br>> 3.2 g/kg ( Rat ) | -               |

**Skin corrosion/irritation** May cause skin irritation.\*\*\*

**Serious eye damage/eye irritation** Classification based on data available for ingredients. Causes serious eye irritation.\*\*\*

**Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.

**Germ cell mutagenicity** Based on available data, the classification criteria are not met.

**Carcinogenicity** .\*\*\*

The table below indicates whether each agency has listed any ingredient as a carcinogen.\*\*\*

| Chemical name            | China | IARC     |
|--------------------------|-------|----------|
| N,N-Dimethylformamide*** | -     | Group 2A |

**Legend**

\*\*\*

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

Group 2A - Probably Carcinogenic to Humans

**Reproductive toxicity** Contains a known or suspected reproductive toxin. Classification based on data available for ingredients. May damage fertility or the unborn child.\*\*\*

**Specific target organ toxicity — single exposure** Based on available data, the classification criteria are not met.

**Specific target organ toxicity — repeated exposure** Based on available data, the classification criteria are not met.

**Target organ effects** Liver. Kidney. Respiratory system. Eyes. Skin. Central Vascular System (CVS).\*\*\*

**Aspiration hazard** Based on available data, the classification criteria are not met.

**SECTION 12: Ecological information**

**Ecotoxicity** .\*\*\*

**Unknown aquatic toxicity** 0 % of the mixture consists of component(s) of unknown hazards to the aquatic environment\*\*\*

| Chemical name            | Algae/aquatic plants                             | Fish   | Crustacea  |
|--------------------------|--|--|--|
| N,N-Dimethylformamide*** | EC50: >500mg/L (96h,<br>Desmodesmus subspicatus) | LC50: =10410mg/L (96h,<br>Pimephales promelas)<br>LC50: =6300mg/L (96h,<br>Lepomis macrochirus)<br>LC50: =9800mg/L (96h,<br>Oncorhynchus mykiss) | EC50: 6800 - 13900mg/L (48h,<br>Daphnia magna)<br>EC50: =7500mg/L (48h,<br>Daphnia magna)<br>EC50: =8485mg/L (48h,<br>Daphnia magna) |

**Persistence and degradability** No information available.

**Bioaccumulative potential** There is no data for this product.

**Component Information**

\*\*\*

| Chemical name            | Partition coefficient |
|--------------------------|-----------------------|
| N,N-Dimethylformamide*** | -1.028                |

Product Name AP Color Reagent A  
Print date 23-Dec-2020

(M)SDS Number

HRLS00485

**Mobility in soil** No information available.

**Other adverse effects** .\*\*\*

## SECTION 13: Disposal considerations

**Waste chemicals** Should not be released into the environment. Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.\*\*\*

**Contaminated packaging** Empty containers pose a potential fire and explosion hazard. Do not cut, puncture or weld containers.\*\*\*

## SECTION 14: Transport information

**IMDG** \*\*\*  
**UN number** UN2265\*\*\*  
**UN proper shipping name** N,N-DIMETHYLFORMAMIDE\*\*\*  
**Description** UN2265, N,N-DIMETHYLFORMAMIDE, 3, III, (58°C C.C.)\*\*\*  
**Transport hazard class(es)** 3\*\*\*  
**Packing group** III\*\*\*  
**Marine pollutant** NP\*\*\*  
**EmS-No** F-E, S-D\*\*\*  
**Transport in bulk according to Annex II of MARPOL and the IBC Code** No information available

**IATA** \*\*\*  
**UN number** UN2265\*\*\*  
**UN proper shipping name** N,N-Dimethylformamide\*\*\*  
**Description** UN2265, N,N-Dimethylformamide, 3, III\*\*\*  
**Transport hazard class(es)** 3\*\*\*  
**Packing group** III\*\*\*  
**ERG Code** 3L\*\*\*

**China** \*\*\*  
**UN proper shipping name** N,N-DIMETHYL-FORMAMIDE\*\*\*  
**Description** .?1 N,N-DIMETHYL-FORMAMIDE.?2\*\*\*

**Special precautions for user**  
Please refer to the applicable dangerous goods regulations for additional information

## SECTION 15: Regulatory information

**Safety, health and environmental regulations/legislation specific for the substance or mixture**

**National regulations**

**Law of the People's Republic of China on Prevention and Control of Occupational Diseases**

Catalogue of occupational hazard factors: Listed. Chemical hazards.\*\*\*  
Catalogue of occupational diseases: Listed. Occupational poisoning.\*\*\*

| Chemical name            | Category         |
|--------------------------|------------------|
| N,N-Dimethylformamide*** | Chemical hazards |

**Regulations on the Control over Safety of Hazardous Chemicals**

Inventory of hazardous chemicals

The table below indicates ingredients above the cut-off threshold considered as relevant which are listed. Verify that licence requirements are met.\*\*\*

Flammable liquid - Category 3\*\*\* Weight-% 97\*\*\*

**Product Name** AP Color Reagent A  
**Print date** 23-Dec-2020

**(M)SDS Number**

HRLS00485

| Chemical name            | Inventory of hazardous chemicals |
|--------------------------|----------------------------------|
| N,N-Dimethylformamide*** | Listed                           |

GB 18218-2009 Identification of major hazard installations for dangerous chemicals

\*\*\*

Category

Threshold quantity (T)\*\*\*

Flammable liquids

5000\*\*\*

**List of hazardous chemicals under priority management**

Not applicable

**Regulations on Labour Protection in Workplaces Where Toxic Substances Are Used**

Inventory of highly toxic goods

Not applicable

**Regulations for Environmental Management on the First Import of Chemicals and the Import and Export of Toxic Chemicals**

List of toxic chemicals severely restricted for import and export in China

Not applicable

**Measures for the Environmental Management of New Chemical Substances**

**IECSC - China Inventory of Existing Chemical Substances** Contact supplier for inventory compliance status.

### 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

## **SECTION 16: Other information**

**Prepared By** Bio-Rad Laboratories, Environmental Health and Safety

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**Revision Note** \*\*\* Indicates this information has changed since the previous revision.

### **Abbreviations and acronyms**

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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

### **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

Australian 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)

Organisation for Economic Co-operation and Development Environment, Health, and Safety Publications

Organisation for Economic Co-operation and Development High Production Volume Chemicals Programme

Organisation for Economic Co-operation and Development Screening Information Data Set

**Product Name** AP Color Reagent A  
**Print date** 23-Dec-2020

**(M)SDS Number**

HRLS00485

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RTECS (Registry of Toxic Effects of Chemical Substances)  
World Health Organization

**Disclaimer**

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**End of Safety Data Sheet**