

# KIT SAFETY DATA SHEET



**Kit Product Name** Transformation Temp. Sensitive Reagents Kit  
**Kit Catalogue Number(s)** 1665017, 1665017EDU

**Revision date** 25-Apr-2023

## Kit Contents

| Catalogue Number(s) | Product Name             |
|---------------------|--------------------------|
| 10012354            | C-Growth Medium          |
| 10012355            | Transformation Reagent A |
| 10012356            | Transformation Reagent B |
| 10013088            | IPTG Solution            |



# SAFETY DATA SHEET

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

**Product Name** C-Growth Medium  
**Revision date** 24-Aug-2021  
**Revision Number** 1.1

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

### Product identifier

**Product Name** C-Growth Medium

**Catalogue Number(s)** 10012354

**English chemical name** Water

### Other means of identification

**CAS No** 7732-18-5

**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** clear liquid

**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****CAS No** 7732-18-5

Not classified.

| Chemical name | Weight-% | CAS No    |
|---------------|----------|-----------|
| Water         | 50 - 100 | 7732-18-5 |

**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      | clear liquid             |
| Colour          | colourless               |
| Physical state  | Liquid                   |
| Odour           | Odourless                |
| Odour threshold | No information available |

| <u>Property</u>                        | <u>Values</u>     | <u>Remarks • Method</u> |
|--|-------------------|-------------------------|
| pH                                     |                   |                         |
| Melting point / freezing point         | 0 °C              |                         |
| Boiling point / boiling range          | 100 °C            |                         |
| 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 |

## 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 |
|---------------|--------------------|-------------|-----------------|
| Water         | > 90 mL/kg ( Rat ) | -           | -               |

|   |   |
|---|---|
| <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><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            |

**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**

Inventory of hazardous chemicals

Not applicable.

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

Not applicable

**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

**Revision date** 24-Aug-2021

**Revision Note** Reformatted and updated existing information.

**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** Transformation Reagent A

**Revision date** 29-Mar-2022

**Revision Number** 1

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

### Product identifier

**Product Name** Transformation Reagent A

**Catalogue Number(s)** 10012355

### 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     |
|---|----------|------------|
| Water   | 50 - 100 | 7732-18-5  |
| Manganese chloride (MnCl <sub>2</sub> ), tetrahydrate | 2.5 - 5  | 13446-34-9 |

**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.

| Chemical name   | China                       | ACGIH TLV  |
|---|-----------------------------|--|
| Manganese chloride (MnCl <sub>2</sub> ), tetrahydrate -<br>13446-34-9 | TWA: 0.15 mg/m <sup>3</sup> | TWA: 0.02 mg/m <sup>3</sup> Mn respirable<br>particulate matter<br>TWA: 0.1 mg/m <sup>3</sup> Mn inhalable<br>particulate matter |

**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>                                     |                   | None known              |
| <b>Melting point / freezing point</b>         | No data available | None known              |
| <b>Boiling point / boiling range</b>          | No data available | None known              |
| <b>Flash point</b>                            | No data available | None known              |
| <b>Evaporation rate</b>                       | No data available | None known              |
| <b>Flammability (solid, gas)</b>              | No data available | None known              |
| <b>Flammability Limit in Air</b>              |                   | None known              |
| <b>Upper flammability or explosive limits</b> | No data available |                         |
| <b>Lower flammability or explosive limits</b> | No data available |                         |
| <b>Vapour pressure</b>                        | No data available | None known              |
| <b>Vapour density</b>                         | No data available | None known              |
| <b>Relative density</b>                       | No data available | None known              |
| <b>Water solubility</b>                       | 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> | None under normal processing.             |
| <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>             | None known based on information supplied. |
| <b><u>Hazardous decomposition products</u></b>   | 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) 16,353.7395 mg/kg

**Component Information**

| Chemical name   | Oral LD50            | Dermal LD50 | Inhalation LC50 |
|---|----------------------|-------------|-----------------|
| Water   | > 90 mL/kg ( Rat )   | -           | -               |
| Manganese chloride (MnCl <sub>2</sub> ), tetrahydrate | = 1484 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.

**Target organ effects** Kidney. Respiratory system. Central nervous system. Blood.

**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.

**Unknown aquatic toxicity** 45.01 % of the mixture consists of component(s) of unknown hazards to the aquatic environment

**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** 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.

| Chemical name   | Category         |
|---|------------------|
| Manganese chloride (MnCl <sub>2</sub> ), tetrahydrate | Chemical hazards |

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

Inventory of hazardous chemicals

Not applicable.

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

Not applicable

**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

**Revision date** 29-Mar-2022

**Revision Note** Reformatted and updated existing information.

**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**

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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** Transformation Reagent B

**Revision date** 29-Mar-2022

**Revision Number** 1

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

### Product identifier

**Product Name** Transformation Reagent B

**Catalogue Number(s)** 10012356

### 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     |
|---|----------|------------|
| Water   | 50 - 100 | 7732-18-5  |
| Manganese chloride (MnCl <sub>2</sub> ), tetrahydrate | 2.5 - 5  | 13446-34-9 |

**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.

| Chemical name   | China                       | ACGIH TLV  |
|---|-----------------------------|--|
| Manganese chloride (MnCl <sub>2</sub> ), tetrahydrate -<br>13446-34-9 | TWA: 0.15 mg/m <sup>3</sup> | TWA: 0.02 mg/m <sup>3</sup> Mn respirable<br>particulate matter<br>TWA: 0.1 mg/m <sup>3</sup> Mn inhalable<br>particulate matter |

**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>                                     |                   | None known              |
| <b>Melting point / freezing point</b>         | No data available | None known              |
| <b>Boiling point / boiling range</b>          | No data available | None known              |
| <b>Flash point</b>                            | No data available | None known              |
| <b>Evaporation rate</b>                       | No data available | None known              |
| <b>Flammability (solid, gas)</b>              | No data available | None known              |
| <b>Flammability Limit in Air</b>              |                   | None known              |
| <b>Upper flammability or explosive limits</b> | No data available |                         |
| <b>Lower flammability or explosive limits</b> | No data available |                         |
| <b>Vapour pressure</b>                        | No data available | None known              |
| <b>Vapour density</b>                         | No data available | None known              |
| <b>Relative density</b>                       | No data available | None known              |
| <b>Water solubility</b>                       | 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> | None under normal processing.             |
| <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>             | None known based on information supplied. |
| <b><u>Hazardous decomposition products</u></b>   | 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) 16,353.7395 mg/kg

**Component Information**

| Chemical name   | Oral LD50            | Dermal LD50 | Inhalation LC50 |
|---|----------------------|-------------|-----------------|
| Water   | > 90 mL/kg ( Rat )   | -           | -               |
| Manganese chloride (MnCl <sub>2</sub> ), tetrahydrate | = 1484 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.

**Target organ effects** Kidney. Respiratory system. Central nervous system. Blood.

**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.

**Unknown aquatic toxicity** 45.01 % of the mixture consists of component(s) of unknown hazards to the aquatic environment

**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** 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.

| Chemical name   | Category         |
|---|------------------|
| Manganese chloride (MnCl <sub>2</sub> ), tetrahydrate | Chemical hazards |

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

Inventory of hazardous chemicals

Not applicable.

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

Not applicable

**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

**Revision date** 29-Mar-2022

**Revision Note** Reformatted and updated existing information.

**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** IPTG Solution  
**Revision date** 30-Dec-2021  
**Revision Number** 1

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

### Product identifier

**Product Name** IPTG Solution  
**Catalogue Number(s)** 10013088

### 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

|                                |            |
|--------------------------------|------------|
| <b>Acute toxicity - Oral</b>   | Category 5 |
| <b>Acute toxicity - Dermal</b> | Category 5 |

### Label elements

**Signal word** Warning

**Hazard statements**

May be harmful if swallowed

May be harmful in contact with skin

**Precautionary statements****Physical and chemical hazards**

Not applicable.

**Health hazards**

Immediate Health Effects: If large quantities of this material are swallowed, call a doctor immediately. If symptoms persist, call a doctor.

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**

| Chemical name                                     | Weight-% | CAS No    |
|---|----------|-----------|
| Water   | 50 - 100 | 7732-18-5 |
| .beta.-D-Galactopyranoside, 1-methylethyl 1-thio- | 20 - 35  | 367-93-1  |

**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.  |
| <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.<br>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.

### **Engineering controls**

Showers  
Eyewash stations  
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. |
| <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>                                     |                   | None known              |
| <b>Melting point / freezing point</b>         | No data available | None known              |
| <b>Boiling point / boiling range</b>          | No data available | None known              |
| <b>Flash point</b>                            | No data available | None known              |
| <b>Evaporation rate</b>                       | No data available | None known              |
| <b>Flammability (solid, gas)</b>              | No data available | None known              |
| <b>Flammability Limit in Air</b>              |                   | None known              |
| <b>Upper flammability or explosive limits</b> | No data available |                         |
| <b>Lower flammability or explosive limits</b> | No data available |                         |
| <b>Vapour pressure</b>                        | No data available | None known              |
| <b>Vapour density</b>                         | No data available | None known              |
| <b>Relative density</b>                       | No data available | None known              |
| <b>Water solubility</b>                       | 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> | None under normal processing.             |
| <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>             | None known based on information supplied. |
| <b><u>Hazardous decomposition products</u></b>   | 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)                 | 2,100.8403 mg/kg |
| ATEmix (dermal)               | 4,621.80 mg/kg   |
| ATEmix (inhalation-dust/mist) | 6.30 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

| Chemical name | Oral LD50          | Dermal LD50 | Inhalation LC50 |
|---------------|--------------------|-------------|-----------------|
| Water         | > 90 mL/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.

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

**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

**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**

Inventory of hazardous chemicals Not applicable.

GB 18218-2009 Identification of major hazard installations for dangerous chemicals Not applicable

**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

**Revision date** 30-Dec-2021

**Revision Note** Reformatted and updated existing information.

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

**Disclaimer**

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**End of Safety Data Sheet**