



SAFETY DATA SHEET

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

Revision date 25-Mar-2024

Revision Number 2.1

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

Product identifier

Product Name 40% Acrylamide/Bis Solution, 37.5:1

Other means of identification

Catalogue Number(s) 1610148, 1610149, 1610148EDU, 1610149EDU

UN proper shipping name ACRYLAMIDE SOLUTION

Description 3426, ACRYLAMIDE SOLUTION, 6.1, III

Pure substance/mixture Mixture

Contains Acrylamide, Methylene diacrylamide

Recommended use of the chemical and restrictions on use

Recommended use Laboratory chemicals

Uses advised against No information available

Details of the supplier of the safety data sheet

Corporate Headquarters

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

For further information, please contact

Manufacturer

Bio-Rad Laboratories, Life Science Group
2000 Alfred Nobel Drive
Hercules, California 94547
USA

Legal Entity / Contact Address

Bio-Rad Laboratories (Singapore) PTE LTD
3A International Business Park #11-10/16
ICON@IBP
Singapore 609935

Technical Service

6424 0262
ctssingapore@bio-rad.com

Emergency telephone number

24 Hour Emergency Phone Number CHEMTREC Singapore: 65-31581349

SECTION 2: Hazards identification

GHS Classification

| | |
|--|-------------|
| Acute toxicity - Oral | Category 4 |
| Acute toxicity - Inhalation (Dusts/Mists) | Category 4 |
| Skin corrosion/irritation | Category 2 |
| Serious eye damage/eye irritation | Category 2 |
| Skin sensitisation | Category 1 |
| Germ cell mutagenicity | Category 1B |
| Carcinogenicity | Category 1B |
| Reproductive toxicity | Category 1B |

| | |
|--|------------|
| Specific target organ toxicity — single exposure | Category 1 |
| Specific target organ toxicity — repeated exposure | Category 1 |

Label elements

Signal word
Danger

Hazard statements

H302 - Harmful if swallowed
H315 - Causes skin irritation
H317 - May cause an allergic skin reaction
H319 - Causes serious eye irritation
H332 - Harmful if inhaled
H340 - May cause genetic defects
H350 - May cause cancer
H360 - May damage fertility or the unborn child
H370 - Causes damage to organs
H372 - Causes damage to organs through prolonged or repeated exposure

Precautionary Statements - Prevention

Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Do not breathe dust/fume/gas/mist/vapours/spray
Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Contaminated work clothing should not be allowed out of the workplace

Precautionary Statements - Response

If skin irritation or rash occurs: Get medical advice/attention
Take off all contaminated clothing and wash it before reuse
IF ON SKIN: Wash with plenty of water and soap
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
If eye irritation persists: Get medical advice/attention
Call a POISON CENTRE or doctor if you feel unwell
IF INHALED: Remove person to fresh air and keep comfortable for breathing
Rinse mouth
IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell

Precautionary Statements - Storage

Store locked up

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Other hazards which do not result in classification**SECTION 3: Composition/information on ingredients****Substance**

Not applicable

Mixture

| Chemical name | EC No (EU Index No) | CAS No | Weight-% |
|------------------------|-----------------------------|----------|----------|
| Acrylamide | 201-173-7 (616-003-00-0) | 79-06-1 | 35 - 50 |
| Methylene diacrylamide | 203-750-9 | 110-26-9 | 1 - 2.5 |

Non-hazardous
ingredients

Proprietary

Balance

SECTION 4: First aid measures

Description of first aid measures

| | |
|-----------------------|---|
| General advice | Show this safety data sheet to the doctor in attendance. IF exposed or concerned: Get medical advice/attention. |
| Inhalation | Remove to fresh air. IF exposed or concerned: Get medical advice/attention. Get medical attention immediately if symptoms occur. 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. If symptoms persist, call a doctor. 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 | May cause an allergic skin reaction. If symptoms persist, call a doctor. Wash off immediately with soap and plenty of water for at least 15 minutes. |
| Ingestion | Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Get medical attention. |

Most important symptoms and effects, both acute and delayed

| | |
|-----------------|---|
| Symptoms | Itching. Rashes. Hives. May cause redness and tearing of the eyes. Burning sensation. Coughing and/ or wheezing. Difficulty in breathing. |
|-----------------|---|

For emergency responders

| | |
|---|--|
| Self-protection of the first aider | 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. |
|---|--|

Indication of any immediate medical attention and special treatment needed

| | |
|------------------------|--|
| Note to doctors | May cause sensitisation in susceptible persons. Treat symptomatically. |
|------------------------|--|

SECTION 5: Firefighting measures

Suitable 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

| | |
|---|---|
| Specific hazards arising from the chemical | Product is or contains a sensitiser. May cause sensitisation by skin contact. |
|---|---|

Special protective actions for fire-fighters

Special protective equipment and precautions 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 Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Avoid breathing vapours or mists.

Other information Refer to protective measures listed in Sections 7 and 8.

For emergency responders Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions Prevent further leakage or spillage if safe to do so.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labelled containers.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

Reference to other sections See section 8 for more information. See section 13 for more information.

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

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash it before reuse. Remove contaminated clothing and shoes. Avoid breathing vapours or mists.

General hygiene considerations Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product. Wear suitable gloves and eye/face protection. Avoid contact with skin, eyes or clothing.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children. Store locked up.

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

| Chemical name | Singapore | ACGIH TLV |
|-----------------------|-----------------------------|---|
| Acrylamide 79-06-1 | PEL: 0.03 mg/m ³ | dermal sensitizer TWA: 0.03 mg/m ³ inhalable fraction |

| | | |
|--|--|-----------------|
| | | and vapor S* |
|--|--|-----------------|

Biological occupational exposure limits

| Chemical name | Singapore | ACGIH |
|-----------------------|-------------------|--|
| Acrylamide 79-06-1 | No data available | 500 pmol/g globin - blood (N-(2-Carbamoylethyl)valine) - not critical 800 µg/g creatinine - urine (S-(2-Carbamoylethyl)mercapturic acid) - end of shift |

Appropriate engineering controls

| | |
|-----------------------------|---|
| 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. Long sleeved clothing. |
| Hand protection | Wear suitable gloves. Impervious gloves. |
| Respiratory protection | No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required. |
| Environmental exposure controls | No information available. |

SECTION 9: Physical and chemical properties**Information on basic physical and chemical properties**

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

| Property | Values | Remarks • Method |
|--|-------------------|-------------------------|
| pH | | None known |
| Melting point / freezing point | No data available | None known |
| Initial boiling point and boiling range | > 100 °C | |
| Flash point | No data available | None known |
| Evaporation rate | No data available | None known |
| Flammability | 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 |
| Relative 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 | 424 °C | |
| Decomposition temperature | | None known |

| | | |
|--------------------------|--------------------------|------------|
| Kinematic viscosity | No data available | None known |
| Dynamic viscosity | No data available | None known |
| <u>Other information</u> | No information available | |

SECTION 10: Stability and reactivity

Reactivity

Reactivity No information available.

Chemical stability

Stability Stable under normal conditions.

Explosion data

Sensitivity to mechanical impact None.

Sensitivity to static discharge None.

Possibility of hazardous reactions None under normal processing.

Conditions to avoid

Conditions to avoid Excessive heat.

Incompatible materials

Incompatible materials Strong acids. Strong bases. Strong oxidising agents.

Hazardous decomposition products

Hazardous decomposition products None known based on information supplied.

SECTION 11: Toxicological information

Information on likely routes of exposure

Product Information

| | |
|--------------|--|
| Inhalation | Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract. Harmful by inhalation (based on components). |
| Eye contact | Specific test data for the substance or mixture is not available. Causes serious eye irritation (based on components). May cause redness, itching, and pain. |
| Skin contact | May cause sensitisation by skin contact. Specific test data for the substance or mixture is not available. Repeated or prolonged skin contact may cause allergic reactions with susceptible persons (based on components). Causes skin irritation. |
| Ingestion | Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. Harmful if swallowed (based on components). |

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Itching. Rashes. Hives. Redness. May cause redness and tearing of the eyes. Coughing and/ or wheezing.

Acute toxicity

Numerical measures of toxicity

No information available

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

| | |
|-------------------------------|----------------|
| ATEmix (oral) | 308.20 mg/kg |
| ATEmix (dermal) | 2,752.50 mg/kg |
| ATEmix (inhalation-dust/mist) | 3.85 mg/l |

1 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist).

Component Information

| Chemical name | Oral LD50 | Dermal LD50 | Inhalation LC50 |
|------------------------|---------------------|-------------------------|-----------------|
| Water | > 90 mL/kg (Rat) | | |
| Acrylamide | = 124 mg/kg (Rat) | = 1148 mg/kg (Rabbit) | |
| Methylene diacrylamide | = 390 mg/kg (Rat) | | |

Delayed and immediate effects as well as chronic effects from short and long-term exposure**Skin corrosion/irritation** Classification based on data available for ingredients. Causes skin irritation.**Serious eye damage/eye irritation** Classification based on data available for ingredients. Causes serious eye irritation.**Respiratory or skin sensitisation** May cause an allergic skin reaction.**Germ cell mutagenicity** Contains a known or suspected mutagen. Classification based on data available for ingredients. May cause genetic defects.

The table below indicates ingredients above the cut-off threshold considered as relevant which are listed as mutagenic.

| Chemical name | European Union |
|---------------|----------------|
| Acrylamide | Muta. 1B |

Carcinogenicity Contains a known or suspected carcinogen. Classification based on data available for ingredients. May cause cancer.

| Chemical name | European Union |
|---------------|----------------|
| Acrylamide | Carc. 1B |

Reproductive toxicity Classification based on data available for ingredients. May damage fertility or the unborn child.

| Chemical name | European Union |
|---------------|----------------|
| Acrylamide | Repr. 2 |

STOT - single exposure Based on the classification criteria of the Globally Harmonized System as adopted in the country or region with which this safety data sheet complies, this product has been determined to cause systemic target organ toxicity from acute exposure. (STOT SE). Causes damage to organs if swallowed.**STOT - repeated exposure** Causes damage to organs through prolonged or repeated exposure.**Aspiration hazard** Classification not possible.**SECTION 12: Ecological information****Ecotoxicity****Ecotoxicity** Harmful to aquatic life with long lasting effects.

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

| Chemical name | Algae/aquatic plants | Fish | Crustacea |
|---------------|----------------------|---|------------------------------------|
| Acrylamide | - | LC50: 103 - 115mg/L (96h, Pimephales promelas) LC50: =124mg/L (96h, Pimephales promelas) LC50: 81 - 150mg/L (96h, Lepomis macrochirus) LC50: 137 - 191mg/L (96h, Oncorhynchus mykiss) LC50: 74 - 150mg/L (96h, Oncorhynchus mykiss) | EC50: =98mg/L (48h, Daphnia magna) |

Persistence and degradability

Persistence and degradability No information available.

Bioaccumulative potential

Bioaccumulation There is no data for this product.

| Chemical name | Partition coefficient |
|------------------------|-----------------------|
| Acrylamide | -0.9 |
| Methylene diacrylamide | -0.08 |

Mobility

Mobility in soil No information available.

PBT and vPvB assessment No information available

| Chemical name | PBT and vPvB assessment |
|------------------------|---------------------------------|
| Acrylamide | The substance is not PBT / vPvB |
| Methylene diacrylamide | The substance is not PBT / vPvB |

Other adverse effects

Other adverse effects No information available

SECTION 13: Disposal considerations

Disposal methods

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

Contaminated packaging Do not reuse empty containers.

SECTION 14: Transport information

ADR

UN number or ID number 3426
 UN proper shipping name ACRYLAMIDE SOLUTION
 Transport hazard class(es) 6.1
 Labels 6.1
 Packing group III
 Classification code T1

| | |
|-------------------------|-------------------------------------|
| Tunnel restriction code | (E) |
| Description | 3426, ACRYLAMIDE SOLUTION, 6.1, III |

IMDG

| | |
|--|---------------------------------------|
| UN number or ID number | UN3426 |
| UN proper shipping name | ACRYLAMIDE SOLUTION |
| Description | UN3426, ACRYLAMIDE SOLUTION, 6.1, III |
| Transport hazard class(es) | 6.1 |
| Packing group | III |
| Marine pollutant | NP |
| Special Provisions | 223 |
| EmS-No | F-A, S-A |
| Transport in bulk according to Annex II of MARPOL and the IBC Code | No information available |

IATA

| | |
|----------------------------|---------------------------------------|
| UN number or ID number | UN3426 |
| UN proper shipping name | Acrylamide solution |
| Description | UN3426, Acrylamide solution, 6.1, III |
| Transport hazard class(es) | 6.1 |
| Packing group | III |
| Special Provisions | A3 |
| ERG Code | 6L |

SECTION 15: Regulatory information**Safety, health and environmental regulations/legislation specific for the substance or mixture****Singapore****Environmental Public Health Act**

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

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

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

Maritime and Port Authority of Singapore (Dangerous Goods, Petroleum and Explosives) Regulations

Regulated. See section 14 for more information.

Poison

None Listed

Workplace Safety and Health Act

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

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

International Inventories

Contact supplier for inventory compliance status

SECTION 16: Other information

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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

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

Agency for Toxic Substances and Disease Registry (ATSDR)
 U.S. Environmental Protection Agency ChemView Database
 European Food Safety Authority (EFSA)
 EPA (Environmental Protection Agency)
 Acute Exposure Guideline Level(s) (AEGL(s))
 U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
 U.S. Environmental Protection Agency High Production Volume Chemicals
 Food Research Journal
 Hazardous Substance Database
 International Uniform Chemical Information Database (IUCLID)
 Japan GHS Classification
 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

Label elements

P260 - Do not breathe dust/fume/gas/mist/vapours/spray
 P264 - Wash face, hands and any exposed skin thoroughly after handling
 P280 - Wear protective gloves/protective clothing/eye protection/face protection
 P308 + P311 - IF exposed or concerned: Call a POISON CENTER or doctor
 P273 - Avoid release to the environment
 P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
 P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations as applicable

Issuing Date Bio-Rad Laboratories, Environmental Health and Safety

Revision date 25-Mar-2024

Revision Note Reformatted and updated existing information.

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

Disclaimer

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

End of Safety Data Sheet