SAFETY DATA SHEET

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

Revision date 27-Aug-2021 **Revision Number** 2.1

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

Product identifier

Product Name UCAT by HPLC Mobile Phase

Other means of identification

Catalogue Number(s) 1956073

Pure substance/mixture Mixture

Contains Boric acid (H3BO3)

Recommended use of the chemical and restrictions on use

Recommended use In-vitro laboratory reagent or component

Uses advised against No information available

Details of the supplier of the safety data sheet

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

Manufacturer
Bio-Rad Laboratories, Diagnostic Group
4000 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

For further information, please contact

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

Emergency telephone number

24 Hour Emergency Phone Number CHEMTREC Singapore: 65-31581349

SECTION 2: Hazards identification

GHS Classification

Reproductive toxicity	Category 1B

Label elements

Signal word
Danger

Hazard statements
H360 - May damage fertility or the unborn child

Precautionary Statements - Prevention
Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Wear protective gloves/protective clothing/eye protection/face protection
Precautionary Statements - Response
IF exposed or concerned: Get medical advice/attention
Precautionary Statements - Storage
Store locked up
Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

Other hazards which do not result in classification

SECTION 3: Composition/information on ingredients

Substance

Not applicable

Mixture

Chemical name	EC No	CAS No	Weight-%
Water	231-791-2	7732-18-5	50 - 100
Isopropyl alcohol	200-661-7	67-63-0	5 - 10
Diammonium phosphate	231-987-8	7783-28-0	0.3 - 0.999
Citric acid	201-069-1	77-92-9	0.1 - 0.299
Boric acid (H3BO3)	233-139-2	10043-35-3	0.1 - 0.299
Phosphoric acid	231-633-2	7664-38-2	0.01 - 0.099
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.

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 physician.

Skin contact Wash skin with soap and water. In the case of skin irritation or allergic reactions see a physician.

Ingestion Rinse mouth thoroughly with water.

Most important symptoms and effects, both acute and delayed

Symptoms No information available.

For emergency responders

Self-protection of the first aider No information available.

Indication of any immediate medical attention and special treatment needed

Note to physicians 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 None known.

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 Ensure adequate ventilation.

For emergency responders Use personal protection recommended in Section 8.

Environmental precautions

Environmental precautions See Section 12 for additional Ecological Information.

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 labeled 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. Do not eat, drink or smoke when using this product. Remove contaminated clothing and shoes.

General hygiene considerations Do not eat, drink or smoke when using this product. Wash hands before breaks and

immediately after handling the product.

Conditions for safe storage, including any incompatibilities

Storage Conditions Store locked up.

SECTION 8: Exposure controls/personal protection

Control parameters

Occupational exposure limits

Chemical name	Singapore	ACGIH TLV
Isopropyl alcohol 67-63-0	PEL: 400 ppm PEL: 983 mg/m³ STEL: 500 ppm STEL: 1230 mg/m³	STEL: 400 ppm TWA: 200 ppm
Boric acid (H3BO3) 10043-35-3		STEL: 6 mg/m³ inhalable particulate matter TWA: 2 mg/m³ inhalable particulate matter
Phosphoric acid 7664-38-2	PEL: 1 mg/m³ STEL: 3 mg/m³	STEL: 3 mg/m³ TWA: 1 mg/m³

Biological occupational exposure limits

Chemical name	Singapore	ACGIH
Isopropyl alcohol 67-63-0	No data available	40 mg/L - urine (Acetone) - end of shift at end of workweek

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.

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.

Environmental exposure controls No information available.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Physical state Liquid
Appearance No information available
Colour No information available
Odour Odourless.
Odour threshold No information available

Property	Values	Remarks • Method
pH	5-6	
Melting point / freezing point	No data available	None known
Boiling point / boiling range	97 °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		None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known

Other information 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 None known based on information supplied.

Incompatible materials

Incompatible materials None known based on information supplied.

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.

Eye contact Specific test data for the substance or mixture is not available.

Skin contact Specific test data for the substance or mixture is not available.

Ingestion Specific test data for the substance or mixture is not available.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms No information available.

Acute toxicity

Numerical measures of toxicity

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

ATEmix (oral) 33,693.70 mg/kg
ATEmix (dermal) 73,135.10 mg/kg
ATEmix (inhalation-dust/mist) 1,308.10 mg/l

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Water	> 90 mL/kg (Rat)		
Isopropyl alcohol	= 1870 mg/kg (Rat)	= 4059 mg/kg (Rabbit)	= 72600 mg/m³ (Rat) 4 h
Diammonium phosphate	> 2000 mg/kg (Rat)	> 5000 mg/kg (Rabbit)	
Citric acid	= 3 g/kg (Rat) = 3000 mg/kg (Rat)	> 2000 mg/kg (Rat)	
Boric acid (H3BO3)	= 2660 mg/kg (Rat)	> 2000 mg/kg (Rabbit)	> 0.16 mg/L (Rat) 4 h
Phosphoric acid	= 1530 mg/kg (Rat)	= 2740 mg/kg (Rabbit)	> 850 mg/m³ (Rat) 1 h

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

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 sensitization Based on available data, the classification criteria are not met.

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

Carcinogenicity Based on available data, the classification criteria are not met.

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

Chemical name	European Union
Boric acid (H3BO3)	Repr. 1B

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

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

Aspiration hazard Classification not possible.

SECTION 12: Ecological information

Ecotoxicity

Ecotoxicity

Unknown aquatic toxicity Contains 0.01 % of components with unknown hazards to the aquatic environment

Chemical name	Algae/aquatic plants	Fish	Crustacea
Isopropyl alcohol	EC50: >1000mg/L (72h, Desmodesmus subspicatus) EC50: >1000mg/L (96h, Desmodesmus subspicatus)	LC50: =11130mg/L (96h, Pimephales promelas) LC50: =9640mg/L (96h, Pimephales promelas) LC50: >1400000µg/L (96h, Lepomis macrochirus)	EC50: =13299mg/L (48h, Daphnia magna)
Diammonium phosphate	-	LC50: 24.8 - 29.4mg/L (96h, Oncorhynchus mykiss) LC50: =26.5mg/L (96h, Oncorhynchus mykiss) LC50: =3.3mg/L (96h, Pimephales promelas) LC50: =33mg/L (96h, Pimephales promelas)	-
Citric acid	-	LC50: =1516mg/L (96h, Lepomis macrochirus)	EC50: =120mg/L (72h, Daphnia magna)
Boric acid (H3BO3)	-	LC50: =1020mg/L (72h, Carassius auratus)	EC50: 115 - 153mg/L (48h, Daphnia magna)
Phosphoric acid	-	LC50: 3 - 3.5mg/L (96h, Gambusia affinis)	EC50: =4.6mg/L (12h, 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
Isopropyl alcohol	0.05
Citric acid	-1.72
Boric acid (H3BO3)	-0.757

Mobility

Mobility in soil No information available.

PBT and vPvB assessment

Chemical name	PBT and vPvB assessment
Isopropyl alcohol	The substance is not PBT / vPvB PBT assessment does not apply
Diammonium phosphate	The substance is not PBT / vPvB PBT assessment does not apply
Citric acid	The substance is not PBT / vPvB
Boric acid (H3BO3)	The substance is not PBT / vPvB PBT assessment does not apply
Phosphoric acid	The substance is not PBT / vPvB PBT assessment does not apply

Other adverse effects

Other adverse effects No information available

SECTION 13: Disposal considerations

Waste treatment methods

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

Contaminated packaging Do not reuse empty containers.

SECTION 14: Transport information

ADR Not regulated

IMDG Not regulated

Transport in bulk according to Annex II of MARPOL and the IBC Code No information available

IATA Not regulated

SECTION 15: Regulatory information

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

Singapore

Environmental Protection and Management (Hazardous Substances) Regulations
Verify that licence requirements are met.

Chemical name	Hazardous Substances	transport
Boric acid (H3BO3)	Exclusions: 1. Boric acid or Sodium borate in medicinal preparations, cosmetics, toilet preparations and substances being preparations intended for human consumption. 2. Preparations containing Boric acid or Sodium borate or a combination of both where water or solvent is not the only other part of the composition	5000kg Boric acid and Sodium borate, total
Phosphoric acid	Exclusions: Substances containing <=50%, weight in weight, of Phosphoric acid	

Environmental Public Health Act
Dispose of waste product or used containers according to local regulations.

Fire Safety (Petroleum and Flammable Materials) Regulations
Verify that licence requirements are met.

Chemical name	Regulated	Hazard class
Isopropyl alcohol	SCDIPA1219L2	3

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

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

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

Chemical name	Poison	Poison Schedule Number
Boric acid (H3BO3)	X	First schedule Second schedule Third schedule

Strategic Goods (Control) Act
Verify that requirements related to using, handling, and storing substances subject to prohibition, authorisation or restriction are met.

Chemical name	Strategic Goods (Control) Act
Boric acid (H3BO3)	1C225

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

International Regulations

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

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

International Inventories
Contact supplier for inventory compliance status

SECTION 16: Other information

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

Legend Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

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

Key literature references and sources for data used to compile the SDS
Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
EPA (Environmental Protection Agency)
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
Japan GHS Classification
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
P202 - Do not handle until all safety precautions have been read and understood
P280 - Wear protective gloves/protective clothing/eye protection/face protection
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
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Revision Note	Significant changes throughout SDS. Review all sections.

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

Disclaimer
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End of Safety Data Sheet