



# SAFETY DATA SHEET

This safety data sheet was created pursuant to the requirements of:  
REACH Regulation (EC) No 1907/2006, as retained in UK law by (SI 2019/758 as amended)

Revision date 25-Nov-2024

Version 1

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

### 1.1. Product identifier

Product name Monarch® Buffer B3

Product No T1113

Pure substance/mixture Mixture

Contains Guanidine Hydrochloride

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended use This product is for research and development only

Uses advised against

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

#### Supplier

New England BioLabs  
240 County Road  
Ipswich, MA 01938  
USA

For further information, please contact

Contact Point 978-927-5054, 800-632-5227 (toll free)

E-mail address info@neb.com

### 1.4. Emergency telephone number

Emergency Telephone Chemtrec +44 20 3885 0382

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

GB CLP (SI 2020/1567 as amended)

Acute toxicity - Oral	Category 4 - (H302)
Skin irritation	Category 2 - (H315)
Eye irritation	Category 2 - (H319)

**2.2. Label elements**

Contains Guanidine Hydrochloride

**Signal word**

Warning

**Hazard statements**

H302 - Harmful if swallowed.

H315 - Causes skin irritation.

H319 - Causes serious eye irritation.

**Precautionary statements**

P264 - Wash face, hands and any exposed skin thoroughly after handling.

P270 - Do not eat, drink or smoke when using this product.

P280 - Wear protective gloves, eye protection and face protection.

P321 - Specific treatment (see .? on this label).

P501 - Dispose of contents and container in accordance with local, regional, national, and international regulations as applicable.

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337 + P313 - If eye irritation persists: Get medical advice/attention.

**Unknown acute toxicity****Additional information**

This product requires tactile warnings if supplied to the general public.

**2.3. Other hazards****Other hazards**

No information available.

**SECTION 3: Composition/information on ingredients****3.1 Substances**

Not applicable

**3.2 Mixtures**

Chemical name	Weight-%	EC No (EU Index No)	UK REACH registration number	Classification according to GB CLP (SI 2020/1567 as amended)	Specific concentration limit (SCL)	M-Factor	M-Factor (long-term)	Notes
Guanidine Hydrochloride 50-01-1	50 - 60%	200-002-3 (607-148-00-0)	-	Acute Tox. 4 (H302) Skin Irrit. 2 (H315) Eye Irrit. 2 (H319)	-	-	-	-
Acetic acid 64-19-7	10 - 20%	200-580-7 (607-002-00-6)	-	Flam. Liq. 3 (H226) Skin Corr. 1A (H314)	Eye Irrit. 2 :: 10%≤C<25 % Skin Corr. 1A :: C≥90% Skin Corr. 1B :: 25%≤C<90 % Skin Irrit. 2 ::	-	-	B

					10%≤C<25 %			
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Note B - Some substances (acids, bases, etc.) are placed on the market in aqueous solutions at various concentrations and, therefore, these solutions require different classification and labelling since the hazards vary at different concentrations. In Part 3 entries with Note B have a general designation of the following type: 'nitric acid ... %'. In this case the supplier must state the percentage concentration of the solution on the label. Unless otherwise stated, it is assumed that the percentage concentration is calculated on a weight/weight basis.

**Full text of H- and EUH-phrases: see section 16**

Acute Toxicity Estimate

In the absence of LD50/LC50 data, the conversion value (converted acute toxicity point estimate) may be indicated here; please note that these values do not represent test results

Chemical name	Oral LD50 mg/kg	Dermal LD50 mg/kg	Inhalation LC50 - 4 hour - dust/mist - mg/L	Inhalation LC50 - 4 hour - vapor - mg/L	Inhalation LC50 - 4 hour - gas - ppm
Guanidine Hydrochloride 50-01-1	773.6 907.1	2000	No data available	No data available	No data available
Acetic acid 64-19-7	3310	1060	11.4	No data available	No data available

This product does not contain candidate substances of very high concern at a concentration  $\geq 0.1\%$  (UK REACH Article 59)

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

<b>General advice</b>	Show this safety data sheet to the doctor in attendance.
<b>Inhalation</b>	Remove to fresh air. Get medical attention immediately if symptoms occur.
<b>Eye contact</b>	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get medical attention if irritation develops and persists.
<b>Skin contact</b>	Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.
<b>Ingestion</b>	Do NOT induce vomiting. Rinse mouth. Never give anything by mouth to an unconscious person. Call a physician.
<b>Self-protection of the first aider</b>	Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).

### 4.2. Most important symptoms and effects, both acute and delayed

<b>Symptoms</b>	May cause redness and tearing of the eyes. Burning sensation.
<b>Effects of Exposure</b>	No information available.

### 4.3. Indication of any immediate medical attention and special treatment needed

<b>Note to physicians</b>	Treat symptomatically.
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## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

**Suitable Extinguishing Media** Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Large Fire** CAUTION: Use of water spray when fighting fire may be inefficient.

**Unsuitable extinguishing media** Do not scatter spilled material with high pressure water streams.

### 5.2. Special hazards arising from the substance or mixture

**Specific hazards arising from the chemical** No information available.

### 5.3. Advice for firefighters

**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

### 6.1. 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.

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

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

### 6.2. Environmental precautions

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

### 6.3. 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** Take up mechanically, placing in appropriate containers for disposal.

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

### 6.4. Reference to other sections

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

## SECTION 7: Handling and storage

### 7.1. 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. Take off contaminated clothing and wash before reuse.

**General hygiene considerations** Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this

product. Avoid contact with skin, eyes or clothing.

### 7.2. 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.

### 7.3. Specific end use(s)

**Risk management methods [RMM]** The information required is contained in this Safety Data Sheet.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Exposure Limits

Chemical name	United Kingdom
Acetic acid 64-19-7	TWA: 10 ppm TWA: 25 mg/m <sup>3</sup> STEL: 20 ppm STEL: 50 mg/m <sup>3</sup>

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

#### Derived No Effect Level (DNEL) - Workers

Chemical name	Oral	Dermal	Inhalation
Guanidine Hydrochloride 50-01-1		1 mg/kg bw/day [4] [6]	3.5 mg/m <sup>3</sup> [4] [6] 10.5 mg/m <sup>3</sup> [4] [7]
Acetic acid 64-19-7			25 mg/m <sup>3</sup> [5] [6] 25 mg/m <sup>3</sup> [5] [7]
Potassium Acetate 127-08-2		14.36 mg/kg bw/day [4] [6] 86.14 mg/kg bw/day [4] [7]	1265.65 mg/m <sup>3</sup> [4] [6] 1265.65 mg/m <sup>3</sup> [4] [7]

#### Notes

[4] Systemic health effects.  
[5] Local health effects.  
[6] Long term.  
[7] Short term.

#### Derived No Effect Level (DNEL) - General Public

Chemical name	Oral	Dermal	Inhalation
Guanidine Hydrochloride 50-01-1	0.5 mg/kg bw/day [4] [6]		0.87 mg/m <sup>3</sup> [4] [6]
Acetic acid 64-19-7			25 mg/m <sup>3</sup> [5] [6] 25 mg/m <sup>3</sup> [5] [7]
Potassium Acetate 127-08-2	6 mg/kg bw/day [4] [6] 43.07 mg/kg bw/day [4] [7]	43.07 mg/kg bw/day [4] [6] 43.07 mg/kg bw/day [4] [7]	624.2 mg/m <sup>3</sup> [4] [6] 624.2 mg/m <sup>3</sup> [4] [7]

#### Notes

[4] Systemic health effects.

[5]	Local health effects.
[6]	Long term.
[7]	Short term.

**Predicted No Effect Concentration (PNEC)**

Chemical name	Freshwater	Freshwater (intermittent release)	Marine water	Marine water (intermittent release)	Air
Acetic acid 64-19-7	3.058 mg/L	30.58 mg/L	0.3058 mg/L		
Potassium Acetate 127-08-2	0.46 mg/L		0.046 mg/L		

Chemical name	Freshwater sediment	Marine sediment	Sewage treatment	Soil	Food chain
Acetic acid 64-19-7	11.36 mg/kg sediment dw	1.136 mg/kg sediment dw	85 mg/L	0.47 mg/kg soil dw	
Potassium Acetate 127-08-2	0.00185 mg/kg sediment dw	0.000185 mg/kg sediment dw	0.862 g/L	0.00185 mg/kg soil dw	

**8.2. Exposure controls**

**Engineering controls** No information available.

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

**Eye/face protection** If splashes are likely to occur, wear safety glasses with side-shields.

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

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

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

**SECTION 9: Physical and chemical properties****9.1. Information on basic physical and chemical properties**

<b>Physical state</b>	Liquid
<b>Appearance</b>	Yellow
<b>Color</b>	No information available
<b>Odor</b>	None.
<b>Odor threshold</b>	No information available

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
Melting point / freezing point	No data available	None known
Initial boiling point and boiling range	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	
Flash point	No data available	None known
Autoignition temperature	No data available	None known
Decomposition temperature		None known
pH	4.2	None known
pH (as aqueous solution)	No data available	None known
Kinematic viscosity	No data available	None known
Dynamic viscosity	No data available	None known
Water solubility	No data available	None known
Solubility(ies)	No data available	None known
Partition coefficient	No data available	None known
Vapor pressure	No data available	None known
Relative density	No data available	None known
Bulk density	No data available	
Liquid Density	No data available	
Vapor density	No data available	None known
Particle characteristics		
Particle Size	No information available	
Particle Size Distribution	No information available	
Explosive properties	No information available	
Oxidizing properties	No information available	

## 9.2. Other information

# **SECTION 10: Stability and reactivity**

## 10.1. Reactivity

Reactivity No information available.

## 10.2. Chemical stability

Stability Stable under normal conditions.

### Explosion data

Sensitivity to mechanical impact None.  
Sensitivity to static discharge None.

## 10.3. Possibility of hazardous reactions

Possibility of hazardous reactions None under normal processing.

## 10.4. Conditions to avoid

Conditions to avoid None known based on information supplied.

## 10.5. Incompatible materials

Incompatible materials Strong acids. Strong bases. Strong oxidizing agents.

## 10.6. Hazardous decomposition products

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

## SECTION 11: Toxicological information

### 11.1. Toxicological information

#### Information on likely routes of exposure

##### Product Information

<b>Inhalation</b>	Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract.
<b>Eye contact</b>	Specific test data for the substance or mixture is not available. Causes serious eye irritation. (based on components). May cause redness, itching, and pain.
<b>Skin contact</b>	Specific test data for the substance or mixture is not available. Causes skin irritation. (based on components).
<b>Ingestion</b>	Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Harmful if swallowed. (based on components).

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

**Symptoms** Redness. May cause redness and tearing of the eyes.

**Acute toxicity** Harmful if swallowed.

#### **Numerical measures of toxicity**

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

ATEmix (oral)	1,216.00 mg/kg
ATEmix (dermal)	2,510.30 mg/kg
ATEmix (inhalation-gas)	99,999.00 ppm
ATEmix (inhalation-vapor)	99,999.00 mg/l
ATEmix (inhalation-dust/mist)	35.00 mg/l

#### **Unknown acute toxicity**

##### Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Guanidine Hydrochloride	= 773.6 mg/kg ( Rat ) = 907.1 mg/kg ( Rat )	> 2000 mg/kg ( Rabbit )	= 3.181 mg/L ( Rat ) 4 h = 7.655 mg/L ( Rat ) 4 h
Acetic acid	= 3310 mg/kg ( Rat )	= 1060 mg/kg ( Rabbit )	= 11.4 mg/L ( Rat ) 4 h

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

**Skin corrosion/irritation** Classification based on data available for ingredients. Causes skin irritation.

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

**Respiratory or skin sensitization** No information available.

**Germ cell mutagenicity** No information available.

**Carcinogenicity** No information available.



**Reproductive toxicity** No information available.

**STOT - single exposure** No information available.

**STOT - repeated exposure** No information available.

**Aspiration hazard** No information available.

**Other adverse effects** No information available.

## SECTION 12: Ecological information

### 12.1. Toxicity

#### Ecotoxicity

Chemical name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Acetic acid	-	LC50: =79mg/L (96h, Pimephales promelas) LC50: =75mg/L (96h, Lepomis macrochirus)	-	EC50: =65mg/L (48h, Daphnia magna)

### 12.2. Persistence and degradability

**Persistence and degradability** No information available.

### 12.3. Bioaccumulative potential

#### Bioaccumulation

#### Component Information

Chemical name	Partition coefficient
Guanidine Hydrochloride	-1.7
Acetic acid	-0.17

### 12.4. Mobility in soil

**Mobility in soil** No information available.

### 12.5. Results of PBT and vPvB assessment

**PBT and vPvB assessment** The product does not contain any substance(s) classified as PBT or vPvB above the threshold of declaration.

Chemical name	PBT and vPvB assessment
Guanidine Hydrochloride	The substance is not PBT / vPvB
Acetic acid	The substance is not PBT / vPvB

### 12.6. Other adverse effects

No information available.

## SECTION 13: Disposal considerations

### 13.1. 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

### IATA

14.1 UN number or ID number	Not regulated
14.2	
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazard	Not applicable
14.6 Special precautions for user	
Special Provisions	None

### IMDG

14.1 UN number or ID number	Not regulated
14.2	
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazard	Not applicable
14.6 Special precautions for user	
Special Provisions	None
14.7 Maritime transport in bulk according to IMO instruments	No information available

### RID

14.1 UN number or ID number	Not regulated
14.2	
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazard	Not applicable
14.6 Special precautions for user	
Special Provisions	None

### ADR

14.1 UN number or ID number	Not regulated
14.2	
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazard	Not applicable
14.6 Special precautions for user	
Special Provisions	None

## SECTION 15: Regulatory information

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

#### National regulations

##### **Authorizations and/or restrictions on use:**

This product does not contain substances subject to authorization (UK REACH - Annex XIV). This product does not contain substances subject to restriction (UK REACH - Annex XVII).

##### **Persistent Organic Pollutants**

Not applicable

##### **Export Notification requirements**

Not applicable

**Named dangerous substances per COMAH (SI 2015/483 as amended)**

Not applicable

**The Ozone-Depleting Substances Regulations 2015**

Not applicable

**The Biocidal Products Regulations 2001 (as amended)**

Chemical name	The Biocidal Products Regulations 2001 (as amended)
Acetic acid - 64-19-7	Simplified procedure - Category A

**The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (as amended)**

Not applicable

**Poisons and Explosive Precursors**

Not applicable

**International Inventories**

<b>TSCA</b>	Contact supplier for inventory compliance status
<b>DSL/NDSL</b>	Contact supplier for inventory compliance status
<b>EINECS/ELINCS</b>	Contact supplier for inventory compliance status
<b>ENCS</b>	Contact supplier for inventory compliance status
<b>IECSC</b>	Contact supplier for inventory compliance status
<b>KECL</b>	Contact supplier for inventory compliance status
<b>PICCS</b>	Contact supplier for inventory compliance status
<b>AIC</b>	Contact supplier for inventory compliance status
<b>NZIoC</b>	Contact supplier for inventory compliance status
<b>TCSI</b>	Contact supplier for inventory compliance status

**Legend:**

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory  
**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List  
**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances  
**ENCS** - Japan Existing and New Chemical Substances  
**IECSC** - China Inventory of Existing Chemical Substances  
**KECL** - Korean Existing Chemicals Inventory  
**PICCS** - Philippines Inventory of Chemicals and Chemical Substances  
**AICS** - Australian Inventory of Chemical Substances  
**NZIoC** - New Zealand Inventory of Chemicals  
**TCSI** - Taiwan Chemical Substance Inventory

**15.2. Chemical safety assessment****Chemical Safety Report** No information available**SECTION 16: Other information****Key or legend to abbreviations and acronyms used in the safety data sheet****Full text of any hazard and/or precautionary statements referred to under Sections 2-15**

H226 - Flammable liquid and vapor  
H302 - Harmful if swallowed  
H314 - Causes severe skin burns and eye damage  
H315 - Causes skin irritation  
H319 - Causes serious eye irritation

**Legend**

SVHC: Substances of Very High Concern for Authorization:  
PBT: Persistent, Bioaccumulative, and Toxic (PBT) Substances  
vPvB: Very Persistent and very Bioaccumulative (vPvB) Substances

STOT: Specific Target Organ Toxicity  
 ATE: Acute Toxicity Estimate  
 LC50: 50% Lethal Concentration  
 LD50: 50% Lethal Dose

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

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

**Classification procedure**

Classification according to GB CLP (SI 2020/1567 as amended)	Method Used
Acute oral toxicity	Calculation method
Acute dermal toxicity	Calculation method
Acute inhalation toxicity - gas	Calculation method
Acute inhalation toxicity - vapor	Calculation method
Acute inhalation toxicity - dust/mist	Calculation method
Skin corrosion/irritation	Calculation method
Serious eye damage/eye irritation	Calculation method
Respiratory sensitization	Calculation method
Skin sensitization	Calculation method
Mutagenicity	Calculation method
Carcinogenicity	Calculation method
Reproductive toxicity	Calculation method
STOT - single exposure	Calculation method
STOT - repeated exposure	Calculation method
Acute aquatic toxicity	Calculation method
Chronic aquatic toxicity	Calculation method
Aspiration hazard	Calculation method
Ozone	Calculation method

**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)  
 European Chemicals Agency (ECHA) Committee for Risk Assessment (ECHA\_RAC)  
 European Chemicals Agency (ECHA) (ECHA\_API)  
 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)  
 National Institute of Technology and Evaluation (NITE)  
 Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)  
 NIOSH (National Institute for Occupational Safety and Health)  
 National Library of Medicine's ChemID Plus (NLM CIP)  
 National Library of Medicine's PubMed database (NLM PUBMED)  
 U.S. National Toxicology Program (NTP)  
 New Zealand's Chemical Classification and Information Database (CCID)  
 Organization for Economic Co-operation and Development Environment, Health, and Safety Publications  
 Organization for Economic Co-operation and Development High Production Volume Chemicals Program  
 Organization for Economic Co-operation and Development Screening Information Data Set  
 World Health Organization

**Revision date** 25-Nov-2024

**Further information** SDS is valid 3 years from revision date. Contact info@neb.com for latest revision

**This SDS complies with the requirements of UK REACH Regulations SI 2019/758 (as amended)**

**Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work**

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge and belief at the date of publication. This information is intended only as a guide for safe handling, use, processing, storage, transportation, disposal and release and should not be taken as a warranty or quality specification. The information relates only to the specific material and may not be valid for such material used in combination with any other materials or in any process unless expressly specified in the text. New England Biolabs will not be liable for any damages resulting from handling or contact with the product.

**End of Safety Data Sheet**