

01/11/2024

## Kit Components

Product code	Description
<b>S1000</b>	<b>AttoPhos® AP Fluorescent Substrate System</b>
Components:	
S101	Discontinued: AttoPhos® Substrate
S102	AttoPhos® Buffer Solution
S103	AttoPhos® Calibration Solution



**Safety Data Sheet**  
*acc. to OSHA HCS*

Printing date 01/11/2024

Reviewed on 01/10/2024

**1 Identification****Product identifier****Trade name:** Discontinued: AttoPhos® Substrate**Article number:** S101**CAS Number:**

129058-53-3

**Application of the substance / the mixture** For Laboratory Use**Details of the supplier of the safety data sheet****Manufacturer/Supplier:**

Promega Corporation

2800 Woods Hollow Road

Madison, WI 53711

U.S.A.

1-800-356-9526 or (608)-274-4330

**Information department:** SDS author: [chemicalregulatory@promega.com](mailto:chemicalregulatory@promega.com)**Emergency telephone number:**

For Chemical Emergency Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300

Outside USA and Canada: +1 703-527-3887 (collect calls accepted)

**2 Hazard(s) identification****Classification of the substance or mixture**

GHS07

Acute Toxicity - Oral 4 H302 Harmful if swallowed.

**Label elements****GHS label elements**

The substance is classified and labeled according to the Globally Harmonized System (GHS).

**Hazard pictograms**

GHS07

**Signal word** Warning**Hazard-determining components of labeling:**

AttoPhos(R) Substrate

**Hazard statements**

Harmful if swallowed.

**Precautionary statements**

Wash thoroughly after handling.

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Trade name: **Discontinued: AttoPhos® Substrate**

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*Do not eat, drink or smoke when using this product.**If swallowed: Call a poison center/doctor if you feel unwell.**Rinse mouth.**Dispose of contents/container in accordance with local/regional/national/international regulations.***Classification system:****NFPA ratings (scale 0 - 4)***Health = 2**Fire = 0**Reactivity = 0***HMIS-ratings (scale 0 - 4)***Health = 2**Fire = 0**Reactivity = 1***OSHA Hazard Overview (Criteria according to 29CFR1910.1200):** Not applicable**Primary route(s) of entry:** Oral**Target Organ(s):** Not applicable or unknown**Other hazards****Results of PBT and vPvB assessment****PBT:** Not applicable.**vPvB:** Not applicable.

## 3 Composition/information on ingredients

**Chemical characterization: Substances****CAS No. Description**

129058-53-3 AttoPhos(R) Substrate

## 4 First-aid measures

**Description of first aid measures****General information:***Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.****After inhalation:** If the patient feels unwell or is concerned, obtain medical advice.****After skin contact:** Generally the product does not irritate the skin.****After eye contact:** Rinse opened eye for several minutes under running water.****After swallowing:** Seek immediate medical advice.***Information for doctor:****Most important symptoms and effects, both acute and delayed***None**No further relevant information available.***Indication of any immediate medical attention and special treatment needed***No further relevant information available.*

## 5 Fire-fighting measures

**Extinguishing media****Suitable extinguishing agents:***CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.*

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**Special hazards arising from the substance or mixture**

None known

No further relevant information available.

**Advice for firefighters** No special advice.**6 Accidental release measures****Personal precautions, protective equipment and emergency procedures**

Remove persons from danger area.

Avoid formation of dust.

Wear protective clothing.

**Environmental precautions:** Do not allow to enter sewers/ surface or ground water.**Methods and material for containment and cleaning up:**

Dispose contaminated material as waste according to Section 13.

Pick up mechanically.

**Reference to other sections**

See Section 7 for information on safe handling.

See Section 13 for disposal information.

**7 Handling and storage****Handling:****Precautions for safe handling** No special precautions are necessary if used correctly.**Information about protection against explosions and fires:** The product is not flammable.**Conditions for safe storage, including any incompatibilities****Storage:****Requirements to be met by storerooms and receptacles:** Do not store below -20°C. Protected from light.**Information about storage in one common storage facility:** Not required.**Further information about storage conditions:** None.**Specific end use(s)** No further relevant information available.**8 Exposure controls/personal protection****Control parameters****Components with limit values that require monitoring at the workplace:** Not required.**Additional information:** The lists that were valid during the creation were used as basis.**Exposure controls****Personal protective equipment:****General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Wash hands before breaks and at the end of work.

**Breathing equipment:** Not required.**Protection of hands:** Not required.**Material of gloves**

Gloves impermeable to the specific chemical substance.

Please observe the instructions regarding permeability and breakthrough time which are provided by the manufacturer/supplier of the gloves. Ensure gloves are suitable for the task which includes, but is not limited to, chemical compatibility, dexterity, operational conditions, user susceptibility, e.g., sensitization effects. Consider specific local conditions under which the product is used such as the danger of cuts and abrasion. Remove gloves with care to avoid skin contamination.

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Eye protection: Use equipment for eye protection tested and approved under government NIOSH standards.

## 9 Physical and chemical properties

### Information on basic physical and chemical properties

#### General Information

#### Appearance:

Form:	Powder
Color:	Whitish
Odor:	Odorless
Odor threshold:	Not determined.

pH-value: Not applicable.

#### Change in condition

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	>250 °C (>482 °F)
Flash point:	Not applicable.

Flammability (solid, gaseous): Product is not flammable.

Decomposition temperature: Not determined.

Ignition temperature: Not determined.

Danger of explosion: Product does not present an explosion hazard.

#### Explosion limits:

Lower:	Not determined.
Upper:	Not determined.
Vapor pressure:	Not applicable.

Density: Not determined.

Relative density: Not determined.

Vapor density: Not applicable.

Evaporation rate: Not applicable.

#### Solubility in / Miscibility with

Water: Soluble.

Partition coefficient (n-octanol/water): Not determined.

#### Viscosity:

Dynamic: Not applicable.

Kinematic: Not applicable.

VOC content: 0.00 %

Solids content: 100.0 %

Other information: No further relevant information available.

## 10 Stability and reactivity

Reactivity: No further relevant information available.

#### Chemical stability

Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

Possibility of hazardous reactions: No dangerous reactions known.

Conditions to avoid: No further relevant information available.

Incompatible materials: No further relevant information available.

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Trade name: **Discontinued: AttoPhos® Substrate**

Hazardous decomposition products: No dangerous decomposition products known.

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## 11 Toxicological information

### Information on toxicological effects

#### Acute toxicity:

LD/LC50 values that are relevant for classification: No data available

#### Primary irritant effect:

on the skin: Causes skin irritation.

on the eye: No data available.

#### Sensitization:

In case of skin contact: not sensitising

In case of inhalation: not sensitising

Additional toxicological information: The substance is not subject to classification.

### Carcinogenic categories

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

Substance is not listed.

#### NTP (National Toxicology Program)

Substance is not listed.

#### OSHA-Ca (Occupational Safety & Health Administration)

Substance is not listed.

## 12 Ecological information

### Toxicity

Aquatic toxicity: Not harmful to the aquatic environment

### Persistence and degradability

Not available

No further relevant information available.

### Bioaccumulative potential

Not known

No further relevant information available.

Mobility in soil No further relevant information available.

### Ecotoxicological effects:

Remark: Not available

### Additional ecological information:

General notes: No data available.

### Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

Other adverse effects No further relevant information available.

## 13 Disposal considerations

### Waste treatment methods

#### Recommendation:

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: Handling and Storage and Section 8: Exposure Control/Personal Protection for additional handling information and protection of employees.

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**Uncleaned packagings:****Recommendation:** Disposal must be made according to official regulations.**Recommended cleansing agent:** Water, if necessary with cleansing agents.

### 14 Transport information

<b>UN-Number</b>	Not hazardous for transportation
<b>DOT, ADR, ADN, IMDG, IATA</b>	Not applicable
<b>UN proper shipping name</b>	None
<b>DOT, ADR, ADN, IMDG, IATA</b>	Not applicable
<b>Transport hazard class(es)</b>	None
<b>DOT, ADR, ADN, IMDG, IATA Class</b>	Not applicable
<b>Packing group</b>	None
<b>DOT, ADR, IMDG, IATA</b>	Not applicable
<b>Environmental hazards:</b>	
<b>Marine pollutant:</b>	No
<b>Special precautions for user</b>	Not applicable.
<b>Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</b>	Not applicable.
<b>UN "Model Regulation":</b>	Not applicable

### 15 Regulatory information

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

Sara

**Section 355 (extremely hazardous substances):**

Substance is not listed.

**Section 313 (Specific toxic chemical listings):**

Substance is not listed.

**TSCA (Toxic Substances Control Act) Inventory:**

Substance is not listed.

**Hazardous Air Pollutants**

Substance is not listed.

**Proposition 65****Chemicals known to cause cancer:**

Substance is not listed.

**Chemicals known to cause reproductive toxicity for females:**

Substance is not listed.

**Chemicals known to cause reproductive toxicity for males:**

Substance is not listed.

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Trade name: **Discontinued: AttoPhos® Substrate**

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**Chemicals known to cause developmental toxicity:**

Substance is not listed.

**New Jersey Right-to-Know List:**

Substance is not listed.

**Pennsylvania Right-to-Know List:**

Substance is not listed.

**Cancerogenity categories****EPA (Environmental Protection Agency)**

Substance is not listed.

**TLV (Threshold Limit Value)**

Substance is not listed.

**NIOSH-Ca (National Institute for Occupational Safety and Health)**

Substance is not listed.

**GHS label elements**

The substance is classified and labeled according to the Globally Harmonized System (GHS).

**Signal word** Warning**Hazard-determining components of labeling:**

AttoPhos(R) Substrate

**Hazard statements**

Harmful if swallowed.

**Precautionary statements**

Wash thoroughly after handling.

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

If swallowed: Call a poison center/doctor if you feel unwell.

Rinse mouth.

Dispose of contents/container in accordance with local/regional/national/international regulations.

**Chemical safety assessment****Water hazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.**Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

\*

**16 Other information**

\*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

**Department issuing SDS:**

Promega Corporation

Chemical Regulatory Department

2800 Woods Hollow Road

Madison, WI

Ph: (608) 274-4330

chemicalregulatory@promega.com

**Contact:****Date of preparation / last revision** 01/11/2024**Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organization

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

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DOT: US Department of Transportation  
IATA: International Air Transport Association  
CAS: Chemical Abstracts Service (division of the American Chemical Society)  
NFPA: National Fire Protection Association (USA)  
HMIS: Hazardous Materials Identification System (USA)  
VOC: Volatile Organic Compounds (USA, EU)  
LC50: Lethal concentration, 50 percent  
LD50: Lethal dose, 50 percent  
PBT: Persistent, Bioaccumulative and Toxic  
vPvB: very Persistent and very Bioaccumulative  
NIOSH: National Institute for Occupational Safety  
OSHA: Occupational Safety & Health  
TLV: Threshold Limit Value  
PEL: Permissible Exposure Limit  
REL: Recommended Exposure Limit  
Acute Toxicity - Oral 4: Acute toxicity – Category 4

US



## Safety Data Sheet acc. to OSHA HCS

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### 1 Identification

**Product identifier****Trade name:** AttoPhos® Buffer Solution**Article number:** S102**Application of the substance / the mixture** For Laboratory Use**Details of the supplier of the safety data sheet****Manufacturer/Supplier:**

Promega Corporation

2800 Woods Hollow Road

Madison, WI 53711

U.S.A.

1-800-356-9526 or (608)-274-4330

**Information department:** SDS author: [chemicalregulatory@promega.com](mailto:chemicalregulatory@promega.com)**Emergency telephone number:**

For Chemical Emergency Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300

Outside USA and Canada: +1 703-527-3887 (collect calls accepted)

### 2 Hazard(s) identification

**Classification of the substance or mixture**

GHS08 Health hazard

Carcinogenicity 2

H351 Suspected of causing cancer.

Specific Target Organ Toxicity - Repeated Exposure 2 H373 May cause damage to organs through prolonged or repeated exposure.



GHS05 Corrosion

Eye Damage 1

H318 Causes serious eye damage.



GHS07

Skin Irritation 2

H315 Causes skin irritation.

**Label elements****GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

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Trade name: AttoPhos® Buffer Solution

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**Hazard pictograms**

GHS05 GHS08

**Signal word** *Danger***Hazard-determining components of labeling:***diethanolamine***Hazard statements***Causes skin irritation.**Causes serious eye damage.**Suspected of causing cancer.**May cause damage to organs through prolonged or repeated exposure.***Precautionary statements***Obtain special instructions before use.**Do not handle until all safety precautions have been read and understood.**Do not breathe dust/fume/gas/mist/vapors/spray.**Wash thoroughly after handling.**Wear protective gloves/protective clothing/eye protection/face protection.**If on skin: Wash with plenty of water.**Immediately call a poison center/doctor.**If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.**Continue rinsing.**If exposed or concerned: Get medical advice/attention.**Get medical advice/attention if you feel unwell.**Take off contaminated clothing and wash it before reuse.**If skin irritation occurs: Get medical advice/attention.**Store locked up.**Dispose of contents/container in accordance with local/regional/national/international regulations.***Classification system:****NFPA ratings (scale 0 - 4)***Health = 3**Fire = 1**Reactivity = 0***HMIS-ratings (scale 0 - 4)***Health = \*3**Fire = 1**Reactivity = 0***OSHA Hazard Overview (Criteria according to 29CFR1910.1200):***Toxic**Highly Toxic**Suspected Carcinogen**Cumulative Effects (Chronic hazard)***Primary route(s) of entry:***Dermal**Inhalation***Target Organ(s):***May cause Liver damage (Hepatotoxin)**May cause Kidney damage (Nephrotoxin)***Other hazards****Results of PBT and vPvB assessment****PBT:** *Not applicable.*

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Trade name: AttoPhos® Buffer Solution

vPvB: Not applicable.

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## 3 Composition/information on ingredients

**Chemical characterization: Mixtures****Description:**

The product is made up of a mixture of hazardous and non-hazardous components. The exact concentration percentages and components name may be withheld as a Promega Corp. trade secret.

**Dangerous components:**

111-42-2 diethanolamine

25-50%

**Additional information:** For the wording of the listed risk phrases refer to section 15.

## 4 First-aid measures

**Description of first aid measures****General information:**

Immediately remove any clothing soiled by the product.

Take affected persons out into the fresh air.

**After inhalation:** If the patient feels unwell or is concerned, obtain medical advice.

**After skin contact:**

Immediately wash with water and soap and rinse thoroughly.

If skin irritation continues, consult a doctor.

**After eye contact:** Rinse opened eye for several minutes under running water.

**After swallowing:** Immediately call a doctor.

**Information for doctor:**

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

None

No further relevant information available.

**Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

## 5 Fire-fighting measures

**Extinguishing media****Suitable extinguishing agents:**

CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

**Special hazards arising from the substance or mixture**

None known

No further relevant information available.

**Advice for firefighters** In the case of fire, wear respiratory protective equipment and chemical protective suit.

**Protective equipment:** Mouth respiratory protective device.

## 6 Accidental release measures

**Personal precautions, protective equipment and emergency procedures**

Mount respiratory protective device.

Remove persons from danger area.

Wear protective equipment. Keep unprotected persons away.

Wear protective clothing.

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Trade name: AttoPhos® Buffer Solution

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**Environmental precautions:**

Dilute with plenty of water.

Do not allow to enter sewers/ surface or ground water.

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

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose contaminated material as waste according to Section 13.

Ensure adequate ventilation.

**Reference to other sections**

See Section 7 for information on safe handling.

See Section 13 for disposal information.

## 7 Handling and storage

**Handling:****Precautions for safe handling**

Keep receptacles tightly sealed.

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

Prevent formation of aerosols.

**Information about protection against explosions and fires:** Keep respiratory protective device available.**Conditions for safe storage, including any incompatibilities****Storage:****Requirements to be met by storerooms and receptacles:** Do not store below -20°C. Protected from light.**Information about storage in one common storage facility:** Not required.**Further information about storage conditions:** Keep receptacle tightly sealed.**Specific end use(s)** No further relevant information available.

## 8 Exposure controls/personal protection

**Control parameters****Components with limit values that require monitoring at the workplace:**

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

**Additional information:** The lists that were valid during the creation were used as basis.**Exposure controls****Personal protective equipment:****General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the eyes.

Avoid contact with the eyes and skin.

Do not eat or drink while working.

**Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

**Protection of hands:** Not required.**Material of gloves**

Gloves impermeable to the specific chemical substance.

Please observe the instructions regarding permeability and breakthrough time which are provided by the

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**Trade name: AttoPhos® Buffer Solution**

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manufacturer/supplier of the gloves. Ensure gloves are suitable for the task which includes, but is not limited to, chemical compatibility, dexterity, operational conditions, user susceptibility, e.g., sensitization effects. Consider specific local conditions under which the product is used such as the danger of cuts and abrasion. Remove gloves with care to avoid skin contamination.

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

**Eye protection:**

Tightly sealed goggles

Use equipment for eye protection tested and approved under government NIOSH standards.

## 9 Physical and chemical properties

**Information on basic physical and chemical properties**
**General Information**
**Appearance:**

<b>Form:</b>	Fluid
<b>Color:</b>	Colorless
<b>Odor:</b>	Not determined
<b>Odor threshold:</b>	Not determined.

**pH-value at 20 °C (68 °F):** 10

**Change in condition**

<b>Melting point/Melting range:</b>	Undetermined.
<b>Boiling point/Boiling range:</b>	100 °C (212 °F)
<b>Flash point:</b>	176 °C (348.8 °F)

**Flammability (solid, gaseous):** Not applicable.

**Auto igniting:** 370 °C (698 °F)

**Decomposition temperature:** Not determined.

**Ignition temperature:** Product is not selfigniting.

**Danger of explosion:** Product does not present an explosion hazard.

**Explosion limits:**

<b>Lower:</b>	2.1 Vol %
<b>Upper:</b>	10.6 Vol %
<b>Vapor pressure at 10 °C (50 °F):</b>	2 hPa (1.5 mm Hg)

**Density at 20 °C (68 °F):** 1.02282 g/cm<sup>3</sup> (8.53543 lbs/gal)

**Relative density** Not determined.

**Vapor density** Not determined.

**Evaporation rate** Not determined.

**Solubility in / Miscibility with**

**Water:** Fully miscible.

**Partition coefficient (n-octanol/water):** Not determined.

**Viscosity:**

**Dynamic:** Not determined.

**Kinematic:** Not determined.

**Solvent separation test**

**Organic solvents:** 25.2 %

**Water:** 74.8 %

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<b>VOC content:</b>	25.23 %
<b>Solids content:</b>	25.2 %
<b>Other information</b>	No further relevant information available.

## 10 Stability and reactivity

**Reactivity** No further relevant information available.

**Chemical stability**

**Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

**Possibility of hazardous reactions**

Reacts with certain metals.

Reacts with strong oxidizing agents.

**Conditions to avoid** No further relevant information available.

**Incompatible materials:** Oxidizing agents

**Hazardous decomposition products:**

Carbon monoxide and carbon dioxide

Nitrogen oxides (NOx)

## 11 Toxicological information

**Information on toxicological effects**

**Acute toxicity:**

**LD/LC50 values that are relevant for classification:**

**111-42-2 diethanolamine**

Oral	LD50	2,200 mg/kg (Rat)
Dermal	LD50	12,200 mg/kg (Rabbit)
Irritation of eyes	acute	5,500 mg (Rabbit)
		Severe

**Primary irritant effect:**

**on the skin:** Causes skin irritation.

**on the eye:** Causes serious eye damage.

**Sensitization:**

In case of skin contact: not sensitising

In case of inhalation: not sensitising

**Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

OECD test guideline 471, Ames test.

Irritant

**Carcinogenic categories**

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

111-42-2	diethanolamine	2B
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**NTP (National Toxicology Program)**

None of the ingredients are listed.

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OSHA-Ca (Occupational Safety &amp; Health Administration)

None of the ingredients are listed.

## 12 Ecological information

### Toxicity

**Aquatic toxicity:** Not harmful to the aquatic environment

### Persistence and degradability

Not available

No further relevant information available.

### Bioaccumulative potential

Not known

No further relevant information available.

**Mobility in soil** No further relevant information available.

### Ecotoxicological effects:

**Remark:** Not available

### Additional ecological information:

**General notes:** Must not reach bodies of water or drainage ditch undiluted or unneutralized.

### Results of PBT and vPvB assessment

**PBT:** Not applicable.

**vPvB:** Not applicable.

**Other adverse effects** No further relevant information available.

## 13 Disposal considerations

### Waste treatment methods

#### Recommendation:

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: Handling and Storage and Section 8: Exposure Control/Personal Protection for additional handling information and protection of employees.

### Uncleaned packagings:

**Recommendation:** Disposal must be made according to official regulations.

**Recommended cleansing agent:** Water, if necessary with cleansing agents.

## 14 Transport information

**UN-Number**

Not hazardous for transportation

**DOT, ADR, ADN, IMDG, IATA**

Not applicable

**UN proper shipping name**

**DOT, ADR, ADN, IMDG, IATA**

Not applicable

**Transport hazard class(es)**

**DOT, ADR, ADN, IMDG, IATA**

**Class**

Not applicable

**Packing group**

**DOT, ADR, IMDG, IATA**

Not applicable

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Trade name: AttoPhos® Buffer Solution

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**Environmental hazards:****Marine pollutant:** No**Special precautions for user** Not applicable.**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not applicable.**UN "Model Regulation":** Not applicable

## 15 Regulatory information

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

**Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

**Section 313 (Specific toxic chemical listings):**

111-42-2 diethanolamine

**TSCA (Toxic Substances Control Act) Inventory:**

All components have the value ACTIVE.

**Hazardous Air Pollutants**

111-42-2 diethanolamine

**Proposition 65****Chemicals known to cause cancer:**

111-42-2 diethanolamine

**Chemicals known to cause reproductive toxicity for females:**

None of the ingredients are listed.

**Chemicals known to cause reproductive toxicity for males:**

None of the ingredients are listed.

**Chemicals known to cause developmental toxicity:**

None of the ingredients are listed.

**New Jersey Right-to-Know List:**

111-42-2 diethanolamine

26628-22-8 sodium azide

**Pennsylvania Right-to-Know List:**

111-42-2 diethanolamine

26628-22-8 sodium azide

**Carcinogenicity categories****EPA (Environmental Protection Agency)**

None of the ingredients are listed.

**TLV (Threshold Limit Value)**

111-42-2 diethanolamine A3

26628-22-8 sodium azide A4: Not classifiable as human carcinogen

**NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients are listed.

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# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/11/2024

Reviewed on 01/10/2024

Trade name: AttoPhos® Buffer Solution

(Contd. of page 8)

**GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).**Signal word** Danger**Hazard-determining components of labeling:**

diethanolamine

**Hazard statements**

Causes skin irritation.

Causes serious eye damage.

Suspected of causing cancer.

May cause damage to organs through prolonged or repeated exposure.

**Precautionary statements**

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Do not breathe dust/fume/gas/mist/vapors/spray.

Wash thoroughly after handling.

Wear protective gloves/protective clothing/eye protection/face protection.

If on skin: Wash with plenty of water.

Immediately call a poison center/doctor.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

If exposed or concerned: Get medical advice/attention.

Get medical advice/attention if you feel unwell.

Take off contaminated clothing and wash it before reuse.

If skin irritation occurs: Get medical advice/attention.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

**Chemical safety assessment****Additional classification according to Decree on Hazardous Materials:** Can cause cancer.**Water hazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.**Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## 16 Other information

\*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

**Department issuing SDS:**

Promega Corporation

Chemical Regulatory Department

2800 Woods Hollow Road

Madison, WI

Ph: (608) 274-4330

chemicalregulatory@promega.com

**Contact:****Date of preparation / last revision** 01/11/2024**Abbreviations and acronyms:**

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organization

ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

(Contd. on page 10)

**Safety Data Sheet**  
**acc. to OSHA HCS**

Printing date 01/11/2024

Reviewed on 01/10/2024

**Trade name: AttoPhos® Buffer Solution**

(Contd. of page 9)

*NFPA: National Fire Protection Association (USA)**HMIS: Hazardous Materials Identification System (USA)**VOC: Volatile Organic Compounds (USA, EU)**LC50: Lethal concentration, 50 percent**LD50: Lethal dose, 50 percent**PBT: Persistent, Bioaccumulative and Toxic**vPvB: very Persistent and very Bioaccumulative**NIOSH: National Institute for Occupational Safety**OSHA: Occupational Safety & Health**TLV: Threshold Limit Value**PEL: Permissible Exposure Limit**REL: Recommended Exposure Limit**Skin Irritation 2: Skin corrosion/irritation – Category 2**Eye Damage 1: Serious eye damage/eye irritation – Category 1**Carcinogenicity 2: Carcinogenicity – Category 2**Specific Target Organ Toxicity - Repeated Exposure 2: Specific target organ toxicity (repeated exposure) – Category 2*

US

## Safety Data Sheet acc. to OSHA HCS

Printing date 01/11/2024

Reviewed on 12/28/2023

### 1 Identification

**Product identifier**
**Trade name:** AttoPhos® Calibration Solution
**Article number:** S103

**Application of the substance / the mixture** For Laboratory Use

**Details of the supplier of the safety data sheet**
**Manufacturer/Supplier:**

Promega Corporation

2800 Woods Hollow Road

Madison, WI 53711

U.S.A.

1-800-356-9526 or (608)-274-4330

**Information department:** SDS author: [chemicalregulatory@promega.com](mailto:chemicalregulatory@promega.com)
**Emergency telephone number:**

For Chemical Emergency Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300

Outside USA and Canada: +1 703-527-3887 (collect calls accepted)

### 2 Hazard(s) identification

**Classification of the substance or mixture**


GHS08 Health hazard

Carcinogenicity 2

H351 Suspected of causing cancer.

Specific Target Organ Toxicity - Repeated Exposure 2 H373 May cause damage to organs through prolonged or repeated exposure.



GHS05 Corrosion

Eye Damage 1

H318 Causes serious eye damage.



GHS07

Skin Irritation 2

H315 Causes skin irritation.

**Label elements**
**GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

(Contd. on page 2)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/11/2024

Reviewed on 12/28/2023

Trade name: AttoPhos® Calibration Solution

(Contd. of page 1)

**Hazard pictograms**

GHS05 GHS08

**Signal word** *Danger***Hazard-determining components of labeling:***diethanolamine***Hazard statements***Causes skin irritation.**Causes serious eye damage.**Suspected of causing cancer.**May cause damage to organs through prolonged or repeated exposure.***Precautionary statements***Obtain special instructions before use.**Do not handle until all safety precautions have been read and understood.**Do not breathe dust/fume/gas/mist/vapors/spray.**Wash thoroughly after handling.**Wear protective gloves/protective clothing/eye protection/face protection.**If on skin: Wash with plenty of water.**Immediately call a poison center/doctor.**If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.**Continue rinsing.**If exposed or concerned: Get medical advice/attention.**Get medical advice/attention if you feel unwell.**Take off contaminated clothing and wash it before reuse.**If skin irritation occurs: Get medical advice/attention.**Store locked up.**Dispose of contents/container in accordance with local/regional/national/international regulations.***Classification system:****NFPA ratings (scale 0 - 4)***Health = 3**Fire = 0**Reactivity = 0***HMIS-ratings (scale 0 - 4)***Health = \*3**Fire = 0**Reactivity = 0***OSHA Hazard Overview (Criteria according to 29CFR1910.1200):***Toxic**Highly Toxic**Suspected Carcinogen**Cumulative Effects (Chronic hazard)***Primary route(s) of entry:***Dermal**Inhalation***Target Organ(s):***May cause Liver damage (Hepatotoxin)**May cause Kidney damage (Nephrotoxin)***Other hazards****Results of PBT and vPvB assessment****PBT:** *Not applicable.*

(Contd. on page 3)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/11/2024

Reviewed on 12/28/2023

Trade name: AttoPhos® Calibration Solution

vPvB: Not applicable.

(Contd. of page 2)

## 3 Composition/information on ingredients

### Chemical characterization: Mixtures

#### Description:

The product is made up of a mixture of hazardous and non-hazardous components. The exact concentration percentages and components name may be withheld as a Promega Corp. trade secret.

#### Dangerous components:

111-42-2 diethanolamine

25-50%

**Additional information:** For the wording of the listed risk phrases refer to section 15.

## 4 First-aid measures

### Description of first aid measures

#### General information:

Immediately remove any clothing soiled by the product.

Take affected persons out into the fresh air.

**After inhalation:** If the patient feels unwell or is concerned, obtain medical advice.

#### After skin contact:

Immediately wash with water and soap and rinse thoroughly.

If skin irritation continues, consult a doctor.

**After eye contact:** Rinse opened eye for several minutes under running water.

**After swallowing:** Immediately call a doctor.

#### Information for doctor:

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

None

No further relevant information available.

**Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

## 5 Fire-fighting measures

### Extinguishing media

#### Suitable extinguishing agents:

CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

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

None known

No further relevant information available.

**Advice for firefighters** In the case of fire, wear respiratory protective equipment and chemical protective suit.

**Protective equipment:** Mouth respiratory protective device.

## 6 Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation

Mount respiratory protective device.

Remove persons from danger area.

Wear protective equipment. Keep unprotected persons away.

Wear protective clothing.

(Contd. on page 4)

US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 01/11/2024

Reviewed on 12/28/2023

Trade name: AttoPhos® Calibration Solution

(Contd. of page 3)

**Environmental precautions:**

Dilute with plenty of water.

Do not allow to enter sewers/ surface or ground water.

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

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

Use neutralizing agent.

Dispose contaminated material as waste according to Section 13.

Ensure adequate ventilation.

**Reference to other sections**

See Section 7 for information on safe handling.

See Section 13 for disposal information.

## 7 Handling and storage

**Handling:****Precautions for safe handling**

Keep receptacles tightly sealed.

Ensure good ventilation/exhaustion at the workplace.

Open and handle receptacle with care.

Prevent formation of aerosols.

**Information about protection against explosions and fires:**

Keep respiratory protective device available.

The product is not flammable.

**Conditions for safe storage, including any incompatibilities****Storage:****Requirements to be met by storerooms and receptacles:** Do not store below -20°C. Protected from light.**Information about storage in one common storage facility:** Not required.**Further information about storage conditions:** Keep receptacle tightly sealed.**Specific end use(s)** No further relevant information available.

## 8 Exposure controls/personal protection

**Control parameters****Components with limit values that require monitoring at the workplace:**

The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

**Additional information:** The lists that were valid during the creation were used as basis.**Exposure controls****Personal protective equipment:****General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the eyes.

Avoid contact with the eyes and skin.

Do not eat or drink while working.

**Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

**Protection of hands:** Not required.

(Contd. on page 5)



# Safety Data Sheet

## acc. to OSHA HCS

Printing date 01/11/2024

Reviewed on 12/28/2023

Trade name: AttoPhos® Calibration Solution

(Contd. of page 4)

**Material of gloves**

Gloves impermeable to the specific chemical substance.

Please observe the instructions regarding permeability and breakthrough time which are provided by the manufacturer/supplier of the gloves. Ensure gloves are suitable for the task which includes, but is not limited to, chemical compatibility, dexterity, operational conditions, user susceptibility, e.g., sensitization effects. Consider specific local conditions under which the product is used such as the danger of cuts and abrasion. Remove gloves with care to avoid skin contamination.

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

**Eye protection:**

Tightly sealed goggles

Use equipment for eye protection tested and approved under government NIOSH standards.

## 9 Physical and chemical properties

**Information on basic physical and chemical properties****General Information****Appearance:**

<b>Form:</b>	Fluid
<b>Color:</b>	Colorless
<b>Odor:</b>	Not determined
<b>Odor threshold:</b>	Not determined.

<b>pH-value at 20 °C (68 °F):</b>	10
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**Change in condition**

<b>Melting point/Melting range:</b>	Undetermined.
<b>Boiling point/Boiling range:</b>	100 °C (212 °F)
<b>Flash point:</b>	Not applicable.

<b>Flammability (solid, gaseous):</b>	Not applicable.
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<b>Auto igniting:</b>	370 °C (698 °F)
<b>Decomposition temperature:</b>	Not determined.

<b>Ignition temperature:</b>	Product is not selfigniting.
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<b>Danger of explosion:</b>	Product does not present an explosion hazard.
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**Explosion limits:**

<b>Lower:</b>	2.1 Vol %
<b>Upper:</b>	10.6 Vol %

<b>Vapor pressure at 10 °C (50 °F):</b>	2 hPa (1.5 mm Hg)
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<b>Density at 20 °C (68 °F):</b>	1.02248 g/cm <sup>3</sup> (8.5326 lbs/gal)
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<b>Relative density</b>	Not determined.
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<b>Vapor density</b>	Not determined.
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<b>Evaporation rate</b>	Not determined.
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**Solubility in / Miscibility with**

<b>Water:</b>	Fully miscible.
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<b>Partition coefficient (n-octanol/water):</b>	Not determined.
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**Viscosity:**

<b>Dynamic:</b>	Not determined.
<b>Kinematic:</b>	Not determined.

(Contd. on page 6)

US

# Safety Data Sheet

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Printing date 01/11/2024

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Trade name: AttoPhos® Calibration Solution

(Contd. of page 5)

**Solvent separation test**

<b>Organic solvents:</b>	25.2 %
<b>Water:</b>	74.8 %
<b>VOC content:</b>	25.23 %

<b>Solids content:</b>	25.2 %
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<b>Other information</b>	No further relevant information available.
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## 10 Stability and reactivity

**Reactivity** No further relevant information available.**Chemical stability****Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.**Possibility of hazardous reactions**

Reacts with oxidizing agents.

Reacts with various metals.

**Conditions to avoid** No further relevant information available.**Incompatible materials:** Oxidizing agents**Hazardous decomposition products:**

Carbon monoxide and carbon dioxide

Nitrogen oxides (NO<sub>x</sub>)

## 11 Toxicological information

**Information on toxicological effects****Acute toxicity:****LD/LC50 values that are relevant for classification:****111-42-2 diethanolamine**

Oral	LD50	2,200 mg/kg (Rat)
Dermal	LD50	12,200 mg/kg (Rabbit)
Irritation of eyes	acute	5,500 mg (Rabbit)
		Severe

**Primary irritant effect:****on the skin:** Causes skin irritation.**on the eye:** Causes serious eye damage.**Sensitization:**

In case of skin contact: not sensitising

In case of inhalation: not sensitising

**Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

OECD test guideline 471, Ames test.

Irritant

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

111-42-2	diethanolamine	2B
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**NTP (National Toxicology Program)**

None of the ingredients are listed.

(Contd. on page 7)

# Safety Data Sheet

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Reviewed on 12/28/2023

Trade name: AttoPhos® Calibration Solution

(Contd. of page 6)

OSHA-Ca (Occupational Safety &amp; Health Administration)

None of the ingredients are listed.

## 12 Ecological information

### Toxicity

**Aquatic toxicity:** Not harmful to the aquatic environment

### Persistence and degradability

Not available

No further relevant information available.

### Bioaccumulative potential

Not known

No further relevant information available.

**Mobility in soil** No further relevant information available.

### Ecotoxicological effects:

**Remark:** Not available

### Additional ecological information:

**General notes:** Must not reach bodies of water or drainage ditch undiluted or unneutralized.

### Results of PBT and vPvB assessment

**PBT:** Not applicable.

**vPvB:** Not applicable.

**Other adverse effects** No further relevant information available.

## 13 Disposal considerations

### Waste treatment methods

#### Recommendation:

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: Handling and Storage and Section 8: Exposure Control/Personal Protection for additional handling information and protection of employees.

### Uncleaned packagings:

**Recommendation:** Disposal must be made according to official regulations.

**Recommended cleansing agent:** Water, if necessary with cleansing agents.

## 14 Transport information

**UN-Number**

Not hazardous for transportation

**DOT, ADR, ADN, IMDG, IATA**

Not applicable

**UN proper shipping name**

**DOT, ADR, ADN, IMDG, IATA**

Not applicable

**Transport hazard class(es)**

**DOT, ADR, ADN, IMDG, IATA**

**Class**

Not applicable

**Packing group**

**DOT, ADR, IMDG, IATA**

Not applicable

(Contd. on page 8)

# Safety Data Sheet

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Trade name: AttoPhos® Calibration Solution

(Contd. of page 7)

**Environmental hazards:****Marine pollutant:** No**Special precautions for user** Not applicable.**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not applicable.**UN "Model Regulation":** Not applicable

## 15 Regulatory information

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

**Section 355 (extremely hazardous substances):**

None of the ingredients are listed.

**Section 313 (Specific toxic chemical listings):**

111-42-2 diethanolamine

**TSCA (Toxic Substances Control Act) Inventory:**

111-42-2 diethanolamine

ACTIVE

**Hazardous Air Pollutants**

111-42-2 diethanolamine

**Proposition 65****Chemicals known to cause cancer:**

111-42-2 diethanolamine

**Chemicals known to cause reproductive toxicity for females:**

None of the ingredients are listed.

**Chemicals known to cause reproductive toxicity for males:**

None of the ingredients are listed.

**Chemicals known to cause developmental toxicity:**

None of the ingredients are listed.

**New Jersey Right-to-Know List:**

111-42-2 diethanolamine

**Pennsylvania Right-to-Know List:**

111-42-2 diethanolamine

**Carcinogenicity categories****EPA (Environmental Protection Agency)**

None of the ingredients are listed.

**TLV (Threshold Limit Value)**

111-42-2 diethanolamine

A3

**NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients are listed.

**GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).**Signal word** Danger

(Contd. on page 9)

# Safety Data Sheet

acc. to OSHA HCS

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Trade name: AttoPhos® Calibration Solution

(Contd. of page 8)

**Hazard-determining components of labeling:**

diethanolamine

**Hazard statements**

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Causes serious eye damage.

Suspected of causing cancer.

May cause damage to organs through prolonged or repeated exposure.

**Precautionary statements**

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Immediately call a poison center/doctor.

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Continue rinsing.

If exposed or concerned: Get medical advice/attention.

Get medical advice/attention if you feel unwell.

Take off contaminated clothing and wash it before reuse.

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Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

**Chemical safety assessment****Additional classification according to Decree on Hazardous Materials:** Can cause cancer.**Water hazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.**Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## 16 Other information

\*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

**Department issuing SDS:**

Promega Corporation

Chemical Regulatory Department

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**Contact:****Date of preparation / last revision** 01/11/2024**Abbreviations and acronyms:**

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(Contd. on page 10)

**Safety Data Sheet**  
**acc. to OSHA HCS**

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(Contd. of page 9)

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US