# SAFETY DATA SHEET

## Phosphatase,alkaline(AP),MB Grade(1U/µl)

| Version | Revision Date: | Date of last issue: 04-15-2019 |
|---|---|---|
| 1.7 | 09-19-2019 | Date of first issue: 09-17-2015 |

### SECTION 1. IDENTIFICATION

Product name : Phosphatase,alkaline(AP),MB Grade(1U/µl)

Product code : 10713023001

**Manufacturer or supplier's details**

Company name of supplier : Roche Diagnostics Deutschland GmbH

Address : Sandhoferstrasse 116
68305 Mannheim
Germany

Telephone : +496217590
Telefax : +496217592890
Emergency telephone
In case of emergencies: : CHEMTREC +1 703-741-5970 /
1-800-424-9300

**Recommended use of the chemical and restrictions on use**

Restrictions on use : For professional users only.

### SECTION 2. HAZARDS IDENTIFICATION

**GHS classification in accordance with 29 CFR 1910.1200**

The product is a kit consisting of individual ingredients. The classification of the ingredients can be obtained from section 3. Section GHS Label elements contains the resulting labelling for the kit

**GHS label elements**

Not a hazardous substance or mixture.

**Other hazards**

None known.

### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

## *Phosphatase, alkaline*

**GHS Classification**

Not a hazardous substance or mixture.

**Components**

| Chemical name | CAS-No. | Concentration (% w/w) |
|---|---|---|
| glycerol | 56-81-5 | >= 50 - < 70 |
| Alkaline phosphatase | 9001-78-9 | >= 1 - < 5 |
| Zinc chloride (ZnCl2) | 7646-85-7 | < 0.1 |

Actual concentration is withheld as a trade secret

## *Alkaline Phosphatase Buffer, 10x conc.*

**GHS Classification**

Not a hazardous substance or mixture.

**Components**

No hazardous ingredients

## SECTION 4. FIRST AID MEASURES

| | | |
|---|---|---|
| General advice | : | Do not leave the victim unattended. |
| If inhaled | : | Move to fresh air.<br>If unconscious, place in recovery position and seek medical advice.<br>If symptoms persist, call a physician. |
| In case of skin contact | : | If on skin, rinse well with water. |
| In case of eye contact | : | Immediately flush eye(s) with plenty of water.<br>Remove contact lenses.<br>Protect unharmed eye.<br>If eye irritation persists, consult a specialist. |
| If swallowed | : | Keep respiratory tract clear.<br>Do not give milk or alcoholic beverages.<br>Never give anything by mouth to an unconscious person.<br>If symptoms persist, call a physician.<br>Rinse mouth with water. |
| Most important symptoms and effects, both acute and delayed | : | No information available. |
| Notes to physician | : | The first aid procedure should be established in consultation with the doctor responsible for industrial medicine. |

## SECTION 5. FIRE-FIGHTING MEASURES

| | | |
|---|---|---|
| Suitable extinguishing media | : | Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| Specific hazards during fire fighting | : | No information available. |
| Further information | : | Standard procedure for chemical fires.<br>Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| Special protective equipment for fire-fighters | : | Wear self-contained breathing apparatus for firefighting if necessary. |

## SECTION 6. ACCIDENTAL RELEASE MEASURES

| | | |
|---|---|---|
| Personal precautions, protective equipment and emergency procedures | : | Refer to protective measures listed in sections 7 and 8. |
| Environmental precautions | : | Local authorities should be advised if significant spillages cannot be contained. |
| Methods and materials for containment and cleaning up | : | Wipe up with absorbent material (e.g. cloth, fleece).<br>Keep in suitable, closed containers for disposal. |

## SECTION 7. HANDLING AND STORAGE

| | | |
|---|---|---|
| Advice on protection against fire and explosion | : | Normal measures for preventive fire protection. |
| Advice on safe handling | : | For personal protection see section 8.<br>Smoking, eating and drinking should be prohibited in the application area. |
| Conditions for safe storage | : | Electrical installations / working materials must comply with the technological safety standards. |
| Further information on storage conditions | : | See label, package insert or internal guidelines |
| Materials to avoid | : | No materials to be especially mentioned. |
| Further information on storage stability | : | No decomposition if stored and applied as directed. |

## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### *Phosphatase, alkaline*

**Ingredients with workplace control parameters**

| Components | CAS-No. | Value type (Form of exposure) | Control parameters / Permissible concentration | Basis |
|---|---|---|---|---|
| glycerol | 56-81-5 | TWA (mist, respirable fraction) | 5 mg/m3 | OSHA Z-1 |
| | | TWA (mist, total dust) | 15 mg/m3 | OSHA Z-1 |
| | | TWA (Mist - total dust) | 10 mg/m3 | OSHA P0 |
| | | TWA (Mist - respirable fraction) | 5 mg/m3 | OSHA P0 |
| Alkaline phosphatase | 9001-78-9 | IOEL | 0.00006 mg/m3 | Roche Industrial Hygiene Committee (RIHC) |

| | | | | |
|---|---|---|---|---|
| Zinc chloride (ZnCl2) | 7646-85-7 | TWA (Fumes) | 1 mg/m3 | OSHA Z-1 |
| | | TWA (Fumes) | 1 mg/m3 | ACGIH |
| | | STEL (Fumes) | 2 mg/m3 | ACGIH |
| | | TWA (Fumes) | 1 mg/m3 | NIOSH REL |
| | | ST (Fumes) | 2 mg/m3 | NIOSH REL |

### *Alkaline Phosphatase Buffer, 10x conc.*

**Ingredients with workplace control parameters**

Contains no substances with occupational exposure limit values.

**Engineering measures** : No data available

**Personal protective equipment**

Respiratory protection : No personal respiratory protective equipment normally required.

Hand protection

Material : Protective gloves

Remarks : Wear appropriate protective gloves to prevent skin contact. Replace torn or punctured gloves promptly.

Eye protection : Safety glasses

Skin and body protection : Protective suit

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.

## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

### *Phosphatase, alkaline*

Appearance : liquid

Color : clear, colorless

Odor : none

Odor Threshold : No data available

pH : 7.6 (4 °C / 4 °C) (undiluted)

Melting point/range : No data available

Boiling point/boiling range : No data available

| | | |
|---|---|---|
| Flash point | : | does not flash |
| Evaporation rate | : | No data available |
| Flammability (liquids) | : | Does not sustain combustion.<br>The product is not flammable. |
| Self-ignition | : | No data available |
| Upper explosion limit / Upper flammability limit | : | No data available |
| Lower explosion limit / Lower flammability limit | : | No data available |
| Vapor pressure | : | No data available |
| Relative vapor density | : | No data available |
| Relative density | : | No data available |
| Density | : | 1.2 g/cm3 (20 °C / 20 °C) |
| Solubility(ies) | | |
| Water solubility | : | completely miscible |
| Solubility in other solvents | : | No data available |
| Partition coefficient: n-octanol/water | : | No data available |
| Autoignition temperature | : | No data available |
| Decomposition temperature | : | No data available |
| Viscosity | | |
| Viscosity, dynamic | : | No data available |
| Viscosity, kinematic | : | No data available |
| Oxidizing properties | : | The substance or mixture is not classified as oxidizing. |

### *Alkaline Phosphatase Buffer, 10x conc.*

| | | |
|---|---|---|
| Appearance | : | liquid |
| Color | : | clear, colorless |
| Odor | : | none |
| Odor Threshold | : | No data available |
| pH | : | 8.5 (20 °C / 20 °C) |

| | | |
|---|---|---|
| Melting point/range | : | No data available |
| Boiling point/boiling range | : | No data available |
| Flash point | : | does not flash |
| Evaporation rate | : | No data available |
| Flammability (liquids) | : | Does not sustain combustion.<br>The product is not flammable. |
| Self-ignition | : | No data available |
| Upper explosion limit / Upper flammability limit | : | No data available |
| Lower explosion limit / Lower flammability limit | : | No data available |
| Vapor pressure | : | No data available |
| Relative vapor density | : | No data available |
| Relative density | : | No data available |
| Density | : | 1.016 g/cm3 |
| Solubility(ies) | | |
| Water solubility | : | completely miscible |
| Solubility in other solvents | : | No data available |
| Partition coefficient: n-octanol/water | : | No data available |
| Autoignition temperature | : | No data available |
| Decomposition temperature | : | No data available |
| Viscosity | | |
| Viscosity, dynamic | : | No data available |
| Viscosity, kinematic | : | No data available |
| Oxidizing properties | : | The substance or mixture is not classified as oxidizing. |

## SECTION 10. STABILITY AND REACTIVITY

| | | |
|---|---|---|
| Reactivity | : | No dangerous reaction known under conditions of normal use. |
| Chemical stability | : | Stable under normal conditions. |
| Possibility of hazardous reac- | : | No dangerous reaction known under conditions of normal use. |

| | | |
|---|---|---|
| tions | | Stable under recommended storage conditions.<br>No hazards to be specially mentioned. |
| Conditions to avoid | : | No data available |
| Incompatible materials | : | Strong oxidizing agents |
| Hazardous decomposition products | : | No decomposition if stored and applied as directed. |

## SECTION 11. TOXICOLOGICAL INFORMATION

### *Phosphatase, alkaline*

**Acute toxicity**

Not classified based on available information.

**Components:**

**glycerol:**

| | | |
|---|---|---|
| Acute oral toxicity | : | LD50 Oral (Rat): 12,600 mg/kg<br><br>LD50 Oral (Mouse): 4,090 mg/kg |
| Acute inhalation toxicity | : | Acute toxicity estimate: > 30 mg/l<br>Test atmosphere: vapor<br>Method: Expert judgment |
| Acute dermal toxicity | : | LD50 Dermal (Rabbit): 10,000 mg/kg |

**Alkaline phosphatase:**

| | | |
|---|---|---|
| Acute oral toxicity | : | Acute toxicity estimate: > 5,001 mg/kg<br>Method: Expert judgment |
| Acute inhalation toxicity | : | Acute toxicity estimate: > 30 mg/l<br>Test atmosphere: dust/mist<br>Method: Expert judgment |
| Acute dermal toxicity | : | Acute toxicity estimate: > 5,001 mg/kg<br>Method: Expert judgment |

**Zinc chloride (ZnCl2):**

| | | |
|---|---|---|
| Acute oral toxicity | : | LD50 Oral (Rat): 350 mg/kg<br><br>LD50 Oral (Mouse): 329 mg/kg |

**Skin corrosion/irritation**

Not classified based on available information.

**Components:**

**Zinc chloride (ZnCl2):**

| | | |
|---|---|---|
| Result | : | Causes burns. |

**Serious eye damage/eye irritation**

Not classified based on available information.

**Components:**

**Zinc chloride (ZnCl2):**

Result : Risk of serious damage to eyes.

**Respiratory or skin sensitization**

**Skin sensitization**

Not classified based on available information.

**Respiratory sensitization**

Not classified based on available information.

**Components:**

**glycerol:**

Assessment : Mild eye irritant, Mild respiratory irritant, No skin irritation

**Germ cell mutagenicity**

Not classified based on available information.

**Carcinogenicity**

Not classified based on available information.

**Components:**

**glycerol:**

Remarks : No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**Zinc chloride (ZnCl2):**

Remarks : No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**IARC** No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**OSHA** No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

**NTP** No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

**Reproductive toxicity**

Not classified based on available information.

**STOT-single exposure**

Not classified based on available information.

**Components:**

**Alkaline phosphatase:**

Assessment : The substance or mixture is not classified as specific target organ toxicant, single exposure.

**STOT-repeated exposure**

Not classified based on available information.

**Components:**

**Alkaline phosphatase:**

Assessment : The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

**Components:**

**glycerol:**

Repeated dose toxicity - Assessment : Mild eye irritant, Mild respiratory irritant, No skin irritation

**Aspiration toxicity**

Not classified based on available information.

**Components:**

**Alkaline phosphatase:**

No data available

**Further information**

**Components:**

**Alkaline phosphatase:**

Remarks : Health injuries are not known or expected under normal use.

## *Alkaline Phosphatase Buffer, 10x conc.*

**Acute toxicity**

Not classified based on available information.

**Skin corrosion/irritation**

Not classified based on available information.

**Serious eye damage/eye irritation**

Not classified based on available information.

**Respiratory or skin sensitization**

**Skin sensitization**

Not classified based on available information.

**Respiratory sensitization**

Not classified based on available information.

**Germ cell mutagenicity**

Not classified based on available information.

**Carcinogenicity**

Not classified based on available information.

**IARC** No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**OSHA** No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

**NTP** No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

**Reproductive toxicity**

Not classified based on available information.

**STOT-single exposure**

Not classified based on available information.

**STOT-repeated exposure**

Not classified based on available information.

**Aspiration toxicity**

Not classified based on available information.

## SECTION 12. ECOLOGICAL INFORMATION

### *Phosphatase, alkaline*

**Ecotoxicity**

**Components:**

**glycerol:**

| | | |
|---|---|---|
| Toxicity to fish | : | LC50: > 100 mg/l<br>Exposure time: 96 h |
| Toxicity to algae/aquatic plants | : | EC0 (Scenedesmus quadricauda (Green algae)): > 10,000 mg/l |
| Toxicity to fish (Chronic toxicity) | : | > 1 mg/l |
| Toxicity to microorganisms | : | EC0 (Pseudomonas putida): > 10,000 mg/l<br>Exposure time: 16 h |

**Ecotoxicology Assessment**

| | | |
|---|---|---|
| Acute aquatic toxicity | : | This product has no known ecotoxicological effects. |
| Chronic aquatic toxicity | : | This product has no known ecotoxicological effects. |
| Toxicity Data on Soil | : | Not expected to adsorb on soil. |

Other organisms relevant to the environment : No data available

**Alkaline phosphatase:**

Toxicity to fish : LC50: > 100 mg/l
Exposure time: 96 h

Toxicity to fish (Chronic toxicity) : > 1 mg/l

**Ecotoxicology Assessment**

Acute aquatic toxicity :

This product has no known ecotoxicological effects.

Chronic aquatic toxicity :

This product has no known ecotoxicological effects.

Toxicity Data on Soil : Not expected to adsorb on soil.

Other organisms relevant to the environment : No data available

**Zinc chloride (ZnCl2):**

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.33 mg/l
Exposure time: 48 h

**Ecotoxicology Assessment**

Acute aquatic toxicity : Very toxic to aquatic life.

Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

Toxicity Data on Soil : Not expected to adsorb on soil.

Other organisms relevant to the environment : No data available

**Persistence and degradability**

**Components:**

**glycerol:**

Biodegradability : Remarks: The product is miscible in water and readily biodegradable in both water and soil. Accumulation is not expected.

**Bioaccumulative potential**

**Components:**

**glycerol:**

Partition coefficient: n-octanol/water : log Pow: -2.66

**Alkaline phosphatase:**

Partition coefficient: n-octanol/water : Remarks: No data available

**Zinc chloride (ZnCl2):**

Partition coefficient: n-octanol/water : Remarks: No data available

**Mobility in soil**

No data available

**Other adverse effects**

### *Alkaline Phosphatase Buffer, 10x conc.*

**Ecotoxicity**

No data available

**Persistence and degradability**

No data available

**Bioaccumulative potential**

No data available

**Mobility in soil**

No data available

**Other adverse effects**

## SECTION 13. DISPOSAL CONSIDERATIONS

**Disposal methods**

Waste from residues : Can be disposed as waste water, when in compliance with local regulations.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.
Do not re-use empty containers.

## SECTION 14. TRANSPORT INFORMATION

**International Regulations**

**UNRTDG**

Not regulated as a dangerous good

**IATA-DGR**
Not regulated as a dangerous good

**IMDG-Code**
Not regulated as a dangerous good

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**
Not applicable

**Domestic regulation**

**49 CFR**
Not regulated as a dangerous good

## SECTION 15. REGULATORY INFORMATION

### *Phosphatase, alkaline*

**EPCRA - Emergency Planning and Community Right-to-Know**

**CERCLA Reportable Quantity**

| Components | CAS-No. | Component RQ (lbs) | Calculated product RQ (lbs) |
|---|---|---|---|
| Zinc chloride (ZnCl2) | 7646-85-7 | 1000 | * |

*: Calculated RQ exceeds reasonably attainable upper limit.

**SARA 304 Extremely Hazardous Substances Reportable Quantity**
This material does not contain any components with a section 304 EHS RQ.

**SARA 302 Extremely Hazardous Substances Threshold Planning Quantity**

| Components | CAS-No. | Component TPQ (lbs) |
|---|---|---|

**SARA 311/312 Hazards** : No SARA Hazards

**Clean Air Act**
This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).
The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489):

| | | |
|---|---|---|
| glycerol | 56-81-5 | >= 50 - < 70 % |

**Clean Water Act**
The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

| | | |
|---|---|---|
| Zinc chloride (ZnCl2) | 7646-85-7 | >= 0 - < 0.1 % |

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

| | | |
|---|---|---|
| Zinc chloride (ZnCl2) | 7646-85-7 | >= 0 - < 0.1 % |

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

**US State Regulations**

**Massachusetts Right To Know**

| | |
|---|---|
| glycerol | 56-81-5 |

**Pennsylvania Right To Know**

| | |
|---|---|
| glycerol | 56-81-5 |
| Water | 7732-18-5 |

**Maine Chemicals of High Concern**

**Vermont Chemicals of High Concern**

**Washington Chemicals of High Concern**

**California Permissible Exposure Limits for Chemical Contaminants**

| | |
|---|---|
| glycerol | 56-81-5 |

**The ingredients of this product are reported in the following inventories:**

| | | |
|---|---|---|
| DSL | : | This product contains the following components listed on the Canadian NDSL. All other components are on the Canadian DSL.<br><br>Alkaline phosphatase |
| AICS | : | Not in compliance with the inventory |
| NZIoC | : | On the inventory, or in compliance with the inventory |
| ENCS | : | Not in compliance with the inventory |
| ISHL | : | Not in compliance with the inventory |
| KECI | : | On the inventory, or in compliance with the inventory |
| PICCS | : | Not in compliance with the inventory |
| IECSC | : | On the inventory, or in compliance with the inventory |
| TCSI | : | On the inventory, or in compliance with the inventory |
| TSCA | : | All substances listed as active on the TSCA inventory |

**TSCA list**

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

## *Alkaline Phosphatase Buffer, 10x conc.*

**EPCRA - Emergency Planning and Community Right-to-Know**

**CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

**SARA 304 Extremely Hazardous Substances Reportable Quantity**

This material does not contain any components with a section 304 EHS RQ.

**SARA 302 Extremely Hazardous Substances Threshold Planning Quantity**

| Components | CAS-No. | Component TPQ (lbs) |
|---|---|---|

**SARA 311/312 Hazards** : No SARA Hazards

**Clean Air Act**

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).
This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).
This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489).

**Clean Water Act**

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.
This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.
This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

**US State Regulations**

**Massachusetts Right To Know**

**Pennsylvania Right To Know**

| | |
|---|---|
| Water | 7732-18-5 |
| 1,3-Propanediol, 2-amino-2-(hydroxymethyl)-, hydrochloride (1:1) | 1185-53-1 |

**Maine Chemicals of High Concern**

**Vermont Chemicals of High Concern**

**Washington Chemicals of High Concern**

**The ingredients of this product are reported in the following inventories:**

| | | |
|---|---|---|
| DSL | : | All components of this product are on the Canadian DSL |
| AICS | : | On the inventory, or in compliance with the inventory |
| NZIoC | : | On the inventory, or in compliance with the inventory |
| ENCS | : | Not in compliance with the inventory |
| ISHL | : | Not in compliance with the inventory |
| KECI | : | On the inventory, or in compliance with the inventory |
| PICCS | : | On the inventory, or in compliance with the inventory |
| IECSC | : | On the inventory, or in compliance with the inventory |

| | | |
|---|---|---|
| TCSI | : | On the inventory, or in compliance with the inventory |
| TSCA | : | All substances listed as active on the TSCA inventory |

**TSCA list**

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

### *Phosphatase, alkaline*

**GHS label elements**

Not a hazardous substance or mixture.

### *Alkaline Phosphatase Buffer, 10x conc.*

**GHS label elements**

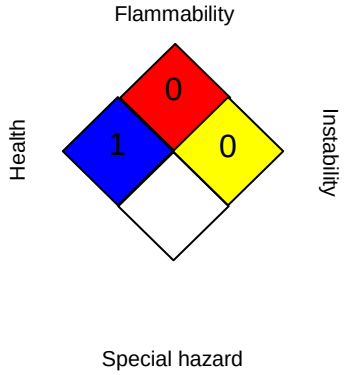
Not a hazardous substance or mixture.

## SECTION 16. OTHER INFORMATION

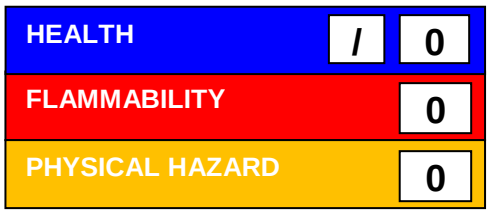
**Further information**

### *Phosphatase, alkaline*

**NFPA:**




**HMIS® IV:**



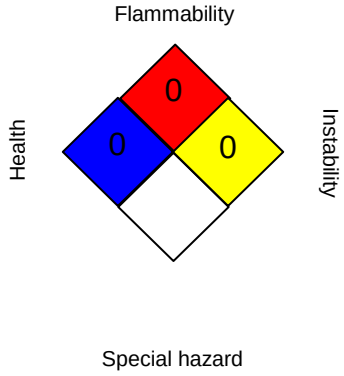

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

### *Alkaline Phosphatase Buffer, 10x conc.*

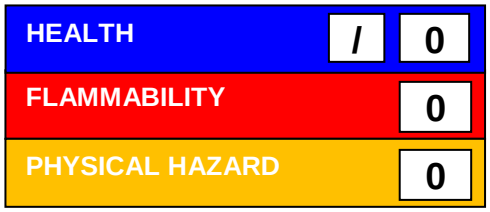
## Phosphatase,alkaline(AP),MB Grade(1U/µl)

| Version | Revision Date: | Date of last issue: 04-15-2019 |
|---|---|---|
| 1.7 | 09-19-2019 | Date of first issue: 09-17-2015 |

**NFPA:**




**HMIS® IV:**




HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

**Distributor**

MilliporeSigma
3050 Spruce Street
SAINT LOUIS
MO 63103 USA

**Full text of other abbreviations**

AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG -

United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Revision Date : 09-19-2019

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

US / Z8 / 1810