

MATERIAL SAFETY DATA SHEET

PRODUCT AND COMPANY INFORMATION

- **Product name:** NanOZ LNP Apparent pKa Assay Kit
- **Catalog number:** PKA2000
- **Chemical name or synonyms:** none
- **Kit Content**

Component	Quantity	Storage
TNS reagent	50 µl	-20°C
Buffer pH 4	2 mL	4°C
Buffer pH 4.5	2 mL	4°C
Buffer pH 5	2 mL	4°C
Buffer pH 5.5	2 mL	4°C
Buffer pH 6	2 mL	4°C
Buffer pH 6.4	2 mL	4°C
Buffer pH 6.6	2 mL	4°C
Buffer pH 7	2 mL	4°C
Buffer pH 7.5	2 mL	4°C
Buffer pH 8	2 mL	4°C
Buffer pH 8.5	2 mL	4°C
Buffer pH 9	2 mL	4°C

- **Contact:**

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SECTION 1-PRODUCT AND COMPANY INFORMATION

- **Product name:** TNS Reagent
- **Catalog number:** Component of PKA2000
- **Chemical name or synonyms:** none

SECTION 2 – HAZARDS IDENTIFICATION

- **GHS Classification**
Yes
- **GHS Label element**
- Signal Word:
- Hazard Statements:

Warning
H227 Combustible liquid.



- Pictograms:
- Hazard Statements:

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection. P370+P378 In case of fire: Use CO₂, powder or water spray to extinguish. P403 P501 Store in a well-ventilated place. Dispose of contents/container in accordance with local/regional/national/international regulations.

- This product contains hazardous ingredients (Yes; No; Not Applicable or no information): **Yes.**
- This product contains hazardous carcinogens (Yes; No; N/A): **No**
- This product contains hazardous ingredients to the environment. (Yes; No; N/A): **No**

SECTION 3 – COMPOSITION, INFORMATION ON INGREDIENTS

Description: Mixture of the substances listed below with nonhazardous additions.

<u>Ingredient name</u>	<u>CAS number</u>	<u>%</u>
2-p-Toluidinylnaphthylene-6-sulfonate (sodium salt)	NA	<1 %
Dimethyl sulfoxide	67-68-5	> 99 %

Ingredients are not hazardous or their concentrations do not exceed the limit specified according to 29 CFR 1910.1200 Hazard Communication Standard (USA) and Directive 1999/45/EC-2001/59/EC (EU).

SECTION 4 – FIRST AID MEASURES

- **Effects and symptoms:**
 - *Inhalation* May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.
 - *Ingestion* May be harmful in case of ingestion.
 - *Skin contact* May cause skin irritation, redness, itching.
 - *Eye contact* Slightly hazardous in case of eye contact.
 - *Aggravating conditions* Chronic exposure may develop allergic reactions in sensitive individuals.
- **First-Aid measures:**
 - *Inhalation* If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention immediately.
 - *Ingestion* If swallowed, wash out mouth with water provided person is conscious. Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.

Skin contact
Eye contact

In case of contact, immediately wash skin with soap and copious amounts of water.
In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.

○ Notes to physician Not available.
○ Protection of first-aiders Not available.

SECTION 5 – FIRE FIGHTING MEASURES

- **Extinguishing media:** Water spray, carbon dioxide, dry chemical powder or appropriate foam.
- **Flammability of the product:** Not available.
- **Flash Point:** Not available.
- **Fire hazards in presence of various substances:** Not considered to be flammable.
- **Fire fighting media and instructions:** Use an extinguish agent suitable for surrounding fires.
- **Protective clothing (fire):** Be sure to use an approved/certified respirator or equivalent.
- **Hazardous thermal decomposition products:** Not available.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

- **Personal precautions, protective equipment and emergency procedure** sNot required.
- **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). Dispose contaminated material as waste according to section 13.
- **Protective Action Criteria for Chemicals**
 - PAC-1 : Dimethyl sulfoxide-150 ppm
 - PAC-2 : Dimethyl sulfoxide-290 ppm
 - PAC-3 : Dimethyl sulfoxide-1800 ppm

SECTION 7 – HANDLING AND STORAGE

- **Handling:** Avoid contact with skin, eyes and clothing. Avoid prolonged or repeated exposure.
- **Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area. Store at - 20°.
- **Intended use:** Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific application.
- **Packaging materials Suitable:** Use original container.

SECTION 8 – EXPOSURE CONTROLS, PERSONAL PROTECTION

Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be carefully followed.

Engineering measures :

Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

- **Eyes:** Safety glasses.
- **Body:** Lab coat and gloves.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

- **Appearance**
 - **Physical State:** Liquid.
 - **Color:** According to product specification
 - **Odor:** Not available.
 - **Taste:** Not available.
- **Molecular weight:** Not available.
- **pH:** Between 4 and 11
- **Boiling point:** 189°C (212 F).
- **Decomposition temperature:** 100°C (212 F)
- **Melting point:** 18.5°C.
- **Flash point:** Not available.
- **Dispersion properties:** Not applicable.
- **Solubility:** Readily miscible in water.
- **Flammability:** Not applicable.
- **Explosion limits:** Lower: 2.6 Vol % · Upper: 42 Vol %
- **Flash point:** 87 °C (188.6 °F) · Auto igniting: 270 °C (518 °F)
- **Decomposition temperature:** Not determined. ·
- **pH-value:** Not determined.
- **Viscosity:** Kinematic: Not determined.
- **SOLUBILITY · Dynamic at 20 °C (68 °F): 198 mPas**
- **Miscibility with · Water at 25 °C (77 °F): 1000 g/l**
- **Partition coefficient (n-octanol/water):** Not determined. ·
- **Vapor pressure at 20 °C (68 °F): 0.56 hPa (0.4 mm Hg) ·**
- **Density at 20 °C (68 °F): 1.1 g/cm³ (9.1795 lbs/gal) ·**
- **Vapor density** Not determined. ·
- **Particle characteristics** Not applicable. ·
- **Other information · Appearance:** · **Form:** Liquid ·
- **Ignition temperature:** Product is not selfigniting. ·
- **Danger of explosion:** Not determined. ·
- **Solvent content: · Organic solvents:** 99.7 % ·
- **VOC content:** 99.66 % 996.6 g/l / 8.32 lb/gal ·
- **Solids content:** 0.3 %
- **Evaporation rate** Not determined.

SECTION 10 – STABILITY AND REACTIVITY

- **Stability and reactivity:** The product is stable under recommended storage conditions.
- **Conditions to avoid:** Exposure to light, air or moisture over prolonged periods.
- **Materials to avoid:** Strong acids, strong bases, strong oxidizing agents.
- **Hazardous polymerization:** Will not occur.
- **Hazardous decomposition products:** Will not occur.



SECTION 11 – TOXICOLOGICAL INFORMATION

Product/ingredient	ORAL LD50	Dermal LD50	Inhalation LC50
Dimethyl Sulfoxide	28,300 mg/kg (rat)	40,000 mg/kg (rat)	Not listed

- **Route of exposure:**
- **Primary irritant effect:**
 - on the skin:** No irritant effect.
 - on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Interactive effects:** No interactive effects between components are known.
- **Chronic effects on humans:** Carcinogenic effects: classified none. by NIOSH. By OSHA.
- **Other toxic effects on humans:** None.

SECTION 12 – ECOLOGICAL INFORMATION

Toxicity

Aquatic toxicity: No further relevant information available.

Persistence and degradability: No further relevant information available.

Bioaccumulative potential: No further relevant information available.

Mobility in soil: No further relevant information available.

Results of PBT and vPvB assessment · PBT: Not applicable. · vPvB: Not applicable.

Other adverse effects · Additional ecological information:

General notes: Water hazard class 1 (Self-assessment): slightly hazardous for water Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

SECTION 13 – DISPOSAL CONSIDERATIONS

- **Waste stream:** Not available.
- **Waste disposal method:** Contact a licensed professional waste disposal service to dispose of this material. Dispose in accordance with governmental environmental regulations. Observe all federal, state, and local environmental regulations.
- **European waste catalogue (EWC):** Not available.
- **Hazardous waste:** Will not occur.

SECTION 14 – TRANSPORT INFORMATION

UN-Number

DOT NA1993

IMDG, IATA not regulated

UN proper shipping name

Class 3 Combustible liquids

Label 3

ADN/R Class: not regulated

Packing group

DOT III

IMDG, IATA not regulated

Environmental hazards: Not applicable.

Transport in bulk according

to Annex II of MARPOL73/78 and the

IBC Code

Not applicable.

Transport/Additional information:

Quantity limitations On passenger aircraft/rail: 60 L On cargo aircraft only: 220 L

• **IATA • Remarks:** When sold in quantities of less than or equal to 1 mL, or 1 g, with an Excepted Quantity Code of E1, E2, E4, or E5, this item meets the De Minimis Quantities exemption, per IATA 2.6.10. Therefore packaging does not have to be labeled as Dangerous Goods/Excepted Quantity.

Special precautions for user Not applicable.

UN "Model Regulation": not regulated

SECTION 15 – REGULATORY INFORMATION

US Federal Regulations

RCRA (Lists of Hazardous Wastes, 40 CFR 261 Subpart D): Not applicable

CLEAN AIR ACT (SEC. 112. Hazardous Air Pollutants): Not applicable

CLEAN WATER ACT (RQ, 40 CFR): Not applicable

SARA Title III:

Section 302 -304, 40 CFR 355: Components present in this product at a level which could require reporting are: none.

Section 311 - 312: Components present in this product at a level which could require reporting are: none.

Section 313: Not applicable

TSCA Section 8(b) Inventory Status: All ingredients are listed on TSCA Inventory of Chemical Substances or exempt from TSCA Inventory requirements.

AICS Inventory Status: All ingredients are listed on the Australia Inventory of Chemical Substances.

State Lists

This product does not contain any Proposition 65 chemicals.

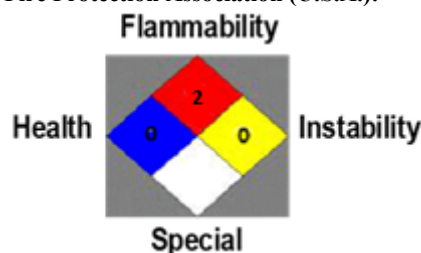
- This product is not classified according to the EU regulations.

SECTION 16 – OTHER INFORMATION

◆ **Hazardous Material Information System (U.S.A.):**

Health	0
Fire hazard	2
Reactivity	0
Personal protection	

◆ **National Fire Protection Association (U.S.A.):**



0 = not significant
1 = slight
2 = moderate

3 = high
4 = extreme
* = chronic

◆ **Revisions:**

Issue Date: 02/12/2025

Last Revision Date: New Issue

Revision note: N/A



Other Comments:

To the best of our knowledge, the information contain herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Restriction of use: for research use only.

SECTION 1-PRODUCT AND COMPANY INFORMATION

- **Product name:** Buffer pH 4
- **Catalog number:** Component of PKA2000
- **Chemical name or synonyms:** none

SECTION 2 – HAZARDS IDENTIFICATION

- **GHS Classification**
No
- **GHS Label element**
- Signal Word: None
- Hazard Statements: None
- Pictograms: None
- This product contains hazardous ingredients (Yes; No; Not Applicable or no information): **No**.
- This product contains hazardous carcinogens (Yes; No; N/A): **No**
- This product contains hazardous ingredients to the environment. (Yes; No; N/A): **No**

SECTION 3 – COMPOSITION, INFORMATION ON INGREDIENTS

Description: Aqueous solution buffered at pH=4

<u>Ingredient name</u>	<u>CAS number</u>	<u>%</u>
Water	7732-18-5	>80 %
4-Morpholineethanesulfonic acid, monohydrate	145224-94-8	<10%
Sodium Chloride	7647-14-5	<10%
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	7365-45-9	<10%
Ammonium Acetate	631-61-8	<10%

No components need to be disclosed according to the applicable regulations.

Ingredients are not hazardous or their concentrations do not exceed the limit specified according to 29 CFR 1910.1200 Hazard Communication Standard (USA) and Directive 1999/45/EC-2001/59/EC (EU).

SECTION 4 – FIRST AID MEASURES

- **Effects and symptoms:**
 - *Inhalation* May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.
 - *Ingestion* May be harmful in case of ingestion.
 - *Skin contact* May cause skin irritation, redness, itching.
 - *Eye contact* Slightly hazardous in case of eye contact.
 - *Aggravating conditions* Chronic exposure may develop allergic reactions in sensitive individuals.
- **First-Aid measures:**
 - *Inhalation* If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention immediately.
 - *Ingestion* If swallowed, wash out mouth with water provided person is conscious. Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.
 - *Skin contact* In case of contact, immediately wash skin with soap and copious amounts of water.
 - *Eye contact* In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.
 - *Notes to physician* Not available.
 - *Protection of first-aiders* Not available.

SECTION 5 – FIRE FIGHTING MEASURES

- **Extinguishing media:** Water spray, carbon dioxide, dry chemical powder or appropriate foam.
- **Flammability of the product:** Not available.
- **Flash Point:** Not available.
- **Fire hazards in presence of various substances:** Not considered to be flammable.
- **Fire fighting media and instructions:** Use an extinguish agent suitable for surrounding fires.
- **Protective clothing (fire):** Be sure to use an approved/certified respirator or equivalent.
- **Hazardous thermal decomposition products:** Not available.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

- **Personal precautions:** Safety glasses, lab coat and gloves.
- **Environmental precautions and clean-up methods:** Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning by spreading water on the contaminated surface and allow evacuating through the sanitary system.
- **Small spill and leak:** Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.
- **Additional information:** No dangerous substances are released.

SECTION 7 – HANDLING AND STORAGE

- **Handling:** Avoid contact with skin, eyes and clothing. Avoid prolonged or repeated exposure.
- **Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area. Store at +4°C.
- **Intended use:** Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific application.
- **Packaging materials Suitable:** Use original container.

SECTION 8 – EXPOSURE CONTROLS, PERSONAL PROTECTION

Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be carefully followed.

Engineering measures :

Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

- **Eyes:** Safety glasses.
- **Body:** Lab coat and gloves.
- **Respiratory:** Respirator is not needed under normal and intended conditions of use, if exposures are kept below established limits.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance

- **Physical State:** Liquid.
 - **Color:** Colorless
 - **Odor:** Not available.
 - **Taste:** Not available.
- **Molecular weight:** Not available.
 - **pH:** 4
 - **Boiling point:** 100°C (212 F).
 - **Decomposition temperature:** 100°C (212 F)
 - **Melting point:** Not available.
 - **Flash point:** Not available.
 - **Dispersion properties:** Not applicable.
 - **Solubility:** Readily miscible in water.
 - **Percent volatile by volume:** N/A
 - **Evaporation Rate:** N/A

SECTION 10 – STABILITY AND REACTIVITY

- **Stability and reactivity:** The product is stable under recommended storage conditions.
- **Conditions to avoid:** Exposure to light, air or moisture over prolonged periods.
- **Materials to avoid:** Strong acids, strong bases, strong oxidizing agents.
- **Hazardous polymerization:** Will not occur.
- **Hazardous decomposition products:** Will not occur.

SECTION 11 – TOXICOLOGICAL INFORMATION

Product/ingredient	ORAL LD50	Dermal LD50	Inhalation LC50
Sodium Chloride	3g mg/kg (rat)	>10,000 mg/kg (rabbit)	LC50 > 42 mg/L (Rat) 1 h
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	>2000mg/kg (Rat)	>2000 mg/kg (Rat)	nd

- **Route of exposure:**
- **Primary irritant effect:**
 - on the skin:** No irritant effect.
 - on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Interactive effects:** No interactive effects between components are known.
- **Chronic effects on humans:** Carcinogenic effects: classified none. by NIOSH. By OSHA.
- **Other toxic effects on humans:** None.

SECTION 12 – ECOLOGICAL INFORMATION

Ecotoxicity:

Chemical Name	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates	Toxicity to fish	Microtox Data	Water Flea	log Pow
Sodium Chloride	N/A	N/A	Pimephals prome: LC50: 7650 mg/L/96h	N/A	EC50: 1000 mg/L/48h	N/A
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	N/A	N/A	LC50: > 100 mg/L, 96h static (Danio rerio)	N/A	N/A	-3.85

Persistence and Degradability
Bioaccumulation/ Accumulation
Mobility :

Miscible with water Persistence is unlikely based on information available.
No information available.
Will likely be mobile in the environment due to its water solubility.

SECTION 13 – DISPOSAL CONSIDERATIONS

- **Waste stream:** Not available.
- **Waste disposal method:** Contact a licensed professional waste disposal service to dispose of this material. Dispose in accordance with governmental environmental regulations. Observe all federal, state, and local environmental regulations.
- **European waste catalogue (EWC):** Not available.
- **Hazardous waste:** Will not occur.

SECTION 14 – TRANSPORT INFORMATION

Note Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances.

D.O.T.: Not regulated.

IATA.: Not regulated.

IMDG: Not regulated.

SECTION 15 – REGULATORY INFORMATION

US Federal Regulations

◆ **US Federal Regulations**

RCRA (Lists of Hazardous Wastes, 40 CFR 261 Subpart D): Not applicable

CLEAN AIR ACT (SEC. 112. Hazardous Air Pollutants): Not applicable

CLEAN WATER ACT (RQ, 40 CFR): Not applicable

SARA Title III:

Section 302 -304, 40 CFR 355: Components present in this product at a level which could require reporting are: none.

Section 311 - 312: Components present in this product at a level which could require reporting are: none.

Section 313:

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

TSCA Section 8(b) Inventory Status: All ingredients are listed on TSCA Inventory of Chemical Substances or exempt from TSCA Inventory requirements.

AICS Inventory Status: All ingredients are listed on the Australia Inventory of Chemical Substances.

US State Regulations : State Lists:

Components	Massachussets	New Jersey	Pennsylvania	Illinois	Rhode Island
Water			X		
4-Morpholineethanesulfonic acid, monohydrate			X		
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid			X		
Ammonium Acetate			X		

California Proposition 65 chemicals.

This product does not contain any Proposition 65 chemicals.

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

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

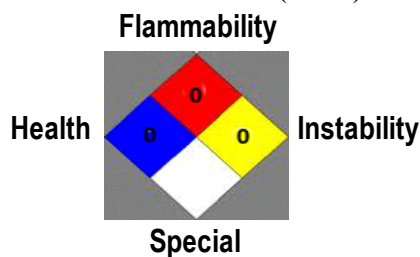
- This product is not classified according to the EU regulations.

SECTION 16 – OTHER INFORMATION

◆ Hazardous Material Information System (U.S.A.):

Health	0
Fire hazard	0
Reactivity	0
Personal protection	

◆ National Fire Protection Association (U.S.A.):



0 = not significant
1 = slight
2 = moderate

3 = high
4 = extreme
* = chronic

◆ Revisions:

Issue Date: 02/12/2025
Last Revision Date: New Issue
Revision note: N/A

◆ Other Comments:

To the best of our knowledge, the information contain herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Restriction of use: for research use only.

SECTION 1-PRODUCT AND COMPANY INFORMATION

- **Product name:** Buffer pH 4.5
- **Catalog number:** Component of PKA2000
- **Chemical name or synonyms:** none

SECTION 2 – HAZARDS IDENTIFICATION

- **GHS Classification**
No
- **GHS Label element**
- Signal Word: None
- Hazard Statements: None
- Pictograms: None
- This product contains hazardous ingredients (Yes; No; Not Applicable or no information): **No**.
- This product contains hazardous carcinogens (Yes; No; N/A): **No**
- This product contains hazardous ingredients to the environment. (Yes; No; N/A): **No**

SECTION 3 – COMPOSITION, INFORMATION ON INGREDIENTS

Description: Aqueous solution buffered at pH=4.5

<u>Ingredient name</u>	<u>CAS number</u>	<u>%</u>
Water	7732-18-5	>80 %
4-Morpholineethanesulfonic acid, monohydrate	145224-94-8	<10%
Sodium Chloride	7647-14-5	<10%
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	7365-45-9	<10%
Ammonium Acetate	631-61-8	<10%

No components need to be disclosed according to the applicable regulations.

Ingredients are not hazardous or their concentrations do not exceed the limit specified according to 29 CFR 1910.1200 Hazard Communication Standard (USA) and Directive 1999/45/EC-2001/59/EC (EU).

SECTION 4 – FIRST AID MEASURES

- **Effects and symptoms:**
 - *Inhalation* May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.
 - *Ingestion* May be harmful in case of ingestion.
 - *Skin contact* May cause skin irritation, redness, itching.
 - *Eye contact* Slightly hazardous in case of eye contact.
 - *Aggravating conditions* Chronic exposure may develop allergic reactions in sensitive individuals.
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 - *Inhalation* If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention immediately.
 - *Ingestion* If swallowed, wash out mouth with water provided person is conscious. Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.
 - *Skin contact* In case of contact, immediately wash skin with soap and copious amounts of water.
 - *Eye contact* In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.
 - *Notes to physician* Not available.
 - *Protection of first-aiders* Not available.

SECTION 5 – FIRE FIGHTING MEASURES

- **Extinguishing media:** Water spray, carbon dioxide, dry chemical powder or appropriate foam.
- **Flammability of the product:** Not available.
- **Flash Point:** Not available.
- **Fire hazards in presence of various substances:** Not considered to be flammable.
- **Fire fighting media and instructions:** Use an extinguish agent suitable for surrounding fires.
- **Protective clothing (fire):** Be sure to use an approved/certified respirator or equivalent.
- **Hazardous thermal decomposition products:** Not available.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

- **Personal precautions:** Safety glasses, lab coat and gloves.
- **Environmental precautions and clean-up methods:** Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning by spreading water on the contaminated surface and allow evacuating through the sanitary system.
- **Small spill and leak:** Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.
- **Additional information:** No dangerous substances are released.

SECTION 7 – HANDLING AND STORAGE

- **Handling:** Avoid contact with skin, eyes and clothing. Avoid prolonged or repeated exposure.
- **Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area. Store at +4°C.
- **Intended use:** Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific application.
- **Packaging materials Suitable:** Use original container.

SECTION 8 – EXPOSURE CONTROLS, PERSONAL PROTECTION

Recommended monitoring procedures

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Hygiene measures

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Personal protection

- **Eyes:** Safety glasses.
- **Body:** Lab coat and gloves.
- **Respiratory:** Respirator is not needed under normal and intended conditions of use, if exposures are kept below established limits.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

- **Appearance**
 - **Physical State:** Liquid.

- **Color:** Colorless
- **Odor:** Not available.
- **Taste:** Not available.

- **Molecular weight:** Not available.
- **pH:** 4.5
- **Boiling point:** 100°C (212 F).
- **Decomposition temperature:** 100°C (212 F)
- **Melting point:** Not available.
- **Flash point:** Not available.
- **Dispersion properties:** Not applicable.
- **Solubility:** Readily miscible in water.
- **Percent volatile by volume:** N/A
- **Evaporation Rate:** N/A

SECTION 10 – STABILITY AND REACTIVITY

- **Stability and reactivity:** The product is stable under recommended storage conditions.
- **Conditions to avoid:** Exposure to light, air or moisture over prolonged periods.
- **Materials to avoid:** Strong acids, strong bases, strong oxidizing agents.
- **Hazardous polymerization:** Will not occur.
- **Hazardous decomposition products:** Will not occur.

SECTION 11 – TOXICOLOGICAL INFORMATION

Product/ingredient	ORAL LD50	Dermal LD50	Inhalation LC50
Sodium Chloride	3g mg/kg (rat)	>10,000 mg/kg (rabbit)	LC50 > 42 mg/L (Rat) 1 h
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	>2000mg/kg (Rat)	>2000 mg/kg (Rat)	nd

- **Route of exposure:**
- **Primary irritant effect:**
 - on the skin:** No irritant effect.
 - on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Interactive effects:** No interactive effects between components are known.
- **Chronic effects on humans:** Carcinogenic effects: classified none. by NIOSH. By OSHA.
- **Other toxic effects on humans:** None.

SECTION 12 – ECOLOGICAL INFORMATION

Ecotoxicity:

Chemical Name	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates	Toxicity to fish	Microtox Data	Water Flea	log Pow
Sodium Chloride	N/A	N/A	Pimephals prome: LC50: 7650 mg/L/96h	N/A	EC50: 1000 mg/L/48h	N/A
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	N/A	N/A	LC50: > 100 mg/L, 96h static (Danio rerio)	N/A	N/A	-3.85

Persistence and Degradability
Bioaccumulation/ Accumulation
Mobility :

Miscible with water Persistence is unlikely based on information available.
No information available.
Will likely be mobile in the environment due to its water solubility.

SECTION 13 – DISPOSAL CONSIDERATIONS

Waste stream: Not available.

- **Waste disposal method:** Contact a licensed professional waste disposal service to dispose of this material. Dispose in accordance with governmental environmental regulations. Observe all federal, state, and local environmental regulations.
- **European waste catalogue (EWC):** Not available.
- **Hazardous waste:** Will not occur.

SECTION 14 – TRANSPORT INFORMATION

Note Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances.

D.O.T.: Not regulated.

IATA.: Not regulated.

IMDG: Not regulated.

SECTION 15 – REGULATORY INFORMATION

US Federal Regulations

◆ US Federal Regulations

RCRA (Lists of Hazardous Wastes, 40 CFR 261 Subpart D): Not applicable

CLEAN AIR ACT (SEC. 112. Hazardous Air Pollutants): Not applicable

CLEAN WATER ACT (RQ, 40 CFR): Not applicable

SARA Title III:

Section 302 -304, 40 CFR 355: Components present in this product at a level which could require reporting are:
none.

Section 311 - 312: Components present in this product at a level which could require reporting are:
none.

Section 313:

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

TSCA Section 8(b) Inventory Status: All ingredients are listed on TSCA Inventory of Chemical Substances or exempt from TSCA Inventory requirements.

AICS Inventory Status: All ingredients are listed on the Australia Inventory of Chemical Substances.

US State Regulations : State Lists:

Components	Massachussets	New Jersey	Pennsylvania	Illinois	Rhode Island
Water			X		
4-Morpholineethanesulfonic acid, monohydrate			X		
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid			X		
Ammonium Acetate			X		

California Proposition 65 chemicals.

This product does not contain any Proposition 65 chemicals.

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

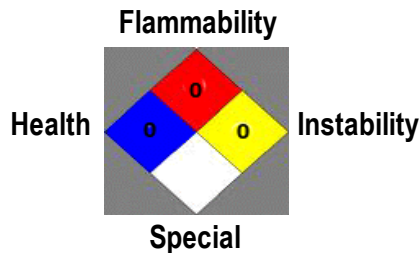
This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

- This product is not classified according to the EU regulations.

◆ **Hazardous Material Information System (U.S.A.):**

Health	0
Fire hazard	0
Reactivity	0
Personal protection	

◆ **National Fire Protection Association (U.S.A.):**



0 = not significant
1 = slight
2 = moderate

3 = high
4 = extreme
* = chronic

◆ **Revisions:**

Issue Date: 02/12/2025
Last Revision Date: New Issue
Revision note: N/A

◆ **Other Comments:**

To the best of our knowledge, the information contain herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Restriction of use: for research use only.

SECTION 1-PRODUCT AND COMPANY INFORMATION

- **Product name:** Buffer pH 5
- **Catalog number:** Component of PKA2000
- **Chemical name or synonyms:** none

SECTION 2 – HAZARDS IDENTIFICATION

- **GHS Classification**
No
- **GHS Label element**
- Signal Word: None
- Hazard Statements: None
- Pictograms: None
- This product contains hazardous ingredients (Yes; No; Not Applicable or no information): **No**.
- This product contains hazardous carcinogens (Yes; No; N/A): **No**
- This product contains hazardous ingredients to the environment. (Yes; No; N/A): **No**

SECTION 3 – COMPOSITION, INFORMATION ON INGREDIENTS

Description: Aqueous solution buffered at pH=5

<u>Ingredient name</u>	<u>CAS number</u>	<u>%</u>
Water	7732-18-5	>80 %
4-Morpholineethanesulfonic acid, monohydrate	145224-94-8	<10%
Sodium Chloride	7647-14-5	<10%
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	7365-45-9	<10%
Ammonium Acetate	631-61-8	<10%

No components need to be disclosed according to the applicable regulations.

Ingredients are not hazardous or their concentrations do not exceed the limit specified according to 29 CFR 1910.1200 Hazard Communication Standard (USA) and Directive 1999/45/EC-2001/59/EC (EU).

SECTION 4 – FIRST AID MEASURES

- **Effects and symptoms:**
 - *Inhalation* May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.
 - *Ingestion* May be harmful in case of ingestion.
 - *Skin contact* May cause skin irritation, redness, itching.
 - *Eye contact* Slightly hazardous in case of eye contact.
 - *Aggravating conditions* Chronic exposure may develop allergic reactions in sensitive individuals.
- **First-Aid measures:**
 - *Inhalation* If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention immediately.
 - *Ingestion* If swallowed, wash out mouth with water provided person is conscious. Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.
 - *Skin contact* In case of contact, immediately wash skin with soap and copious amounts of water.
 - *Eye contact* In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.
 - *Notes to physician* Not available.
 - *Protection of first-aiders* Not available.

SECTION 5 – FIRE FIGHTING MEASURES

- **Extinguishing media:** Water spray, carbon dioxide, dry chemical powder or appropriate foam.
- **Flammability of the product:** Not available.
- **Flash Point:** Not available.
- **Fire hazards in presence of various substances:** Not considered to be flammable.
- **Fire fighting media and instructions:** Use an extinguish agent suitable for surrounding fires.
- **Protective clothing (fire):** Be sure to use an approved/certified respirator or equivalent.
- **Hazardous thermal decomposition products:** Not available.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

- **Personal precautions:** Safety glasses, lab coat and gloves.
- **Environmental precautions and clean-up methods:** Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning by spreading water on the contaminated surface and allow evacuating through the sanitary system.
- **Small spill and leak:** Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.
- **Additional information:** No dangerous substances are released.

SECTION 7 – HANDLING AND STORAGE

- **Handling:** Avoid contact with skin, eyes and clothing. Avoid prolonged or repeated exposure.
- **Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area. Store at +4°C.
- **Intended use:** Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific application.
- **Packaging materials Suitable:** Use original container.

SECTION 8 – EXPOSURE CONTROLS, PERSONAL PROTECTION

Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be carefully followed.

Engineering measures :

Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

- **Eyes:** Safety glasses.
- **Body:** Lab coat and gloves.
- **Respiratory:** Respirator is not needed under normal and intended conditions of use, if exposures are kept below established limits.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

- **Appearance**
 - **Physical State:** Liquid.

- **Color:** Colorless
- **Odor:** Not available.
- **Taste:** Not available.

- **Molecular weight:** Not available.
- **pH:** 5
- **Boiling point:** 100°C (212 F).
- **Decomposition temperature:** 100°C (212 F)
- **Melting point:** Not available.
- **Flash point:** Not available.
- **Dispersion properties:** Not applicable.
- **Solubility:** Readily miscible in water.
- **Percent volatile by volume:** N/A
- **Evaporation Rate:** N/A

SECTION 10 – STABILITY AND REACTIVITY

- **Stability and reactivity:** The product is stable under recommended storage conditions.
- **Conditions to avoid:** Exposure to light, air or moisture over prolonged periods.
- **Materials to avoid:** Strong acids, strong bases, strong oxidizing agents.
- **Hazardous polymerization:** Will not occur.
- **Hazardous decomposition products:** Will not occur.

SECTION 11 – TOXICOLOGICAL INFORMATION

Product/ingredient	ORAL LD50	Dermal LD50	Inhalation LC50
Sodium Chloride	3g mg/kg (rat)	>10,000 mg/kg (rabbit)	LC50 > 42 mg/L (Rat) 1 h
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	>2000mg/kg (Rat)	>2000 mg/kg (Rat)	nd

- **Route of exposure:**
- **Primary irritant effect:**
 - on the skin:** No irritant effect.
 - on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Interactive effects:** No interactive effects between components are known.
- **Chronic effects on humans:** Carcinogenic effects: classified none. by NIOSH. By OSHA.
- **Other toxic effects on humans:** None.

SECTION 12 – ECOLOGICAL INFORMATION

Ecotoxicity:

Chemical Name	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates	Toxicity to fish	Microtox Data	Water Flea	log Pow
Sodium Chloride	N/A	N/A	Pimephals prome: LC50: 7650 mg/L/96h	N/A	EC50: 1000 mg/L/48h	N/A
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	N/A	N/A	LC50: > 100 mg/L, 96h static (Danio rerio)	N/A	N/A	-3.85

Persistence and Degradability
Bioaccumulation/ Accumulation
Mobility :

Miscible with water Persistence is unlikely based on information available.
No information available.
Will likely be mobile in the environment due to its water solubility.

SECTION 13 – DISPOSAL CONSIDERATIONS

Waste stream: Not available.

- **Waste disposal method:** Contact a licensed professional waste disposal service to dispose of this material. Dispose in accordance with governmental environmental regulations. Observe all federal, state, and local environmental regulations.
- **European waste catalogue (EWC):** Not available.
- **Hazardous waste:** Will not occur.

SECTION 14 – TRANSPORT INFORMATION

Note Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances.

D.O.T.: Not regulated.

IATA.: Not regulated.

IMDG: Not regulated.

SECTION 15 – REGULATORY INFORMATION

US Federal Regulations

◆ US Federal Regulations

RCRA (Lists of Hazardous Wastes, 40 CFR 261 Subpart D): Not applicable

CLEAN AIR ACT (SEC. 112. Hazardous Air Pollutants): Not applicable

CLEAN WATER ACT (RQ, 40 CFR): Not applicable

SARA Title III:

Section 302 -304, 40 CFR 355: Components present in this product at a level which could require reporting are:
none.

Section 311 - 312: Components present in this product at a level which could require reporting are:
none.

Section 313:

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

TSCA Section 8(b) Inventory Status: All ingredients are listed on TSCA Inventory of Chemical Substances or exempt from TSCA Inventory requirements.

AICS Inventory Status: All ingredients are listed on the Australia Inventory of Chemical Substances.

US State Regulations : State Lists:

Components	Massachussets	New Jersey	Pennsylvania	Illinois	Rhode Island
Water			X		
4-Morpholineethanesulfonic acid, monohydrate			X		
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid			X		
Ammonium Acetate			X		

California Proposition 65 chemicals.

This product does not contain any Proposition 65 chemicals.

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

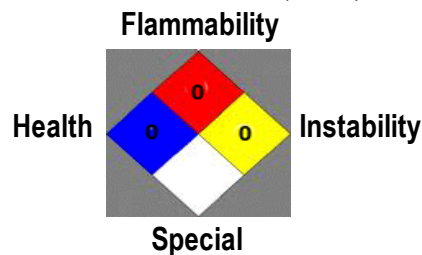
This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

- This product is not classified according to the EU regulations.

◆ **Hazardous Material Information System (U.S.A.):**

Health	0
Fire hazard	0
Reactivity	0
Personal protection	

◆ **National Fire Protection Association (U.S.A.):**



0 = not significant
1 = slight
2 = moderate

3 = high
4 = extreme
* = chronic

◆ **Revisions:**

Issue Date: 02/12/2025
Last Revision Date: New Issue
Revision note: N/A

◆ **Other Comments:**

To the best of our knowledge, the information contain herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Restriction of use: for research use only.

SECTION 1-PRODUCT AND COMPANY INFORMATION

- **Product name:** Buffer pH 5.5
- **Catalog number:** Component of PKA2000
- **Chemical name or synonyms:** none

SECTION 2 – HAZARDS IDENTIFICATION

- **GHS Classification**
No
- **GHS Label element**
- Signal Word: None
- Hazard Statements: None
- Pictograms: None
- This product contains hazardous ingredients (Yes; No; Not Applicable or no information): **No**.
- This product contains hazardous carcinogens (Yes; No; N/A): **No**
- This product contains hazardous ingredients to the environment. (Yes; No; N/A): **No**

SECTION 3 – COMPOSITION, INFORMATION ON INGREDIENTS

Description: Aqueous solution buffered at pH=5.5

<u>Ingredient name</u>	<u>CAS number</u>	<u>%</u>
Water	7732-18-5	>80 %
4-Morpholineethanesulfonic acid, monohydrate	145224-94-8	<10%
Sodium Chloride	7647-14-5	<10%
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	7365-45-9	<10%
Ammonium Acetate	631-61-8	<10%

No components need to be disclosed according to the applicable regulations.

Ingredients are not hazardous or their concentrations do not exceed the limit specified according to 29 CFR 1910.1200 Hazard Communication Standard (USA) and Directive 1999/45/EC-2001/59/EC (EU).

SECTION 4 – FIRST AID MEASURES

- **Effects and symptoms:**
 - *Inhalation* May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.
 - *Ingestion* May be harmful in case of ingestion.
 - *Skin contact* May cause skin irritation, redness, itching.
 - *Eye contact* Slightly hazardous in case of eye contact.
 - *Aggravating conditions* Chronic exposure may develop allergic reactions in sensitive individuals.
- **First-Aid measures:**
 - *Inhalation* If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention immediately.
 - *Ingestion* If swallowed, wash out mouth with water provided person is conscious. Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.
 - *Skin contact* In case of contact, immediately wash skin with soap and copious amounts of water.
 - *Eye contact* In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.
 - *Notes to physician* Not available.
 - *Protection of first-aiders* Not available.

SECTION 5 – FIRE FIGHTING MEASURES

- **Extinguishing media:** Water spray, carbon dioxide, dry chemical powder or appropriate foam.
- **Flammability of the product:** Not available.
- **Flash Point:** Not available.
- **Fire hazards in presence of various substances:** Not considered to be flammable.
- **Fire fighting media and instructions:** Use an extinguish agent suitable for surrounding fires.
- **Protective clothing (fire):** Be sure to use an approved/certified respirator or equivalent.
- **Hazardous thermal decomposition products:** Not available.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

- **Personal precautions:** Safety glasses, lab coat and gloves.
- **Environmental precautions and clean-up methods:** Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning by spreading water on the contaminated surface and allow evacuating through the sanitary system.
- **Small spill and leak:** Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.
- **Additional information:** No dangerous substances are released.

SECTION 7 – HANDLING AND STORAGE

- **Handling:** Avoid contact with skin, eyes and clothing. Avoid prolonged or repeated exposure.
- **Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area. Store at +4°C.
- **Intended use:** Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific application.
- **Packaging materials Suitable:** Use original container.

SECTION 8 – EXPOSURE CONTROLS, PERSONAL PROTECTION

Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be carefully followed.

Engineering measures :

Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

- **Eyes:** Safety glasses.
- **Body:** Lab coat and gloves.
- **Respiratory:** Respirator is not needed under normal and intended conditions of use, if exposures are kept below established limits.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

- **Appearance**
 - **Physical State:** Liquid.

- **Color:** Colorless
- **Odor:** Not available.
- **Taste:** Not available.

- **Molecular weight:** Not available.
- **pH:** 5.5
- **Boiling point:** 100°C (212 F).
- **Decomposition temperature:** 100°C (212 F)
- **Melting point:** Not available.
- **Flash point:** Not available.
- **Dispersion properties:** Not applicable.
- **Solubility:** Readily miscible in water.
- **Percent volatile by volume:** N/A
- **Evaporation Rate:** N/A

SECTION 10 – STABILITY AND REACTIVITY

- **Stability and reactivity:** The product is stable under recommended storage conditions.
- **Conditions to avoid:** Exposure to light, air or moisture over prolonged periods.
- **Materials to avoid:** Strong acids, strong bases, strong oxidizing agents.
- **Hazardous polymerization:** Will not occur.
- **Hazardous decomposition products:** Will not occur.

SECTION 11 – TOXICOLOGICAL INFORMATION

Product/ingredient	ORAL LD50	Dermal LD50	Inhalation LC50
Sodium Chloride	3g mg/kg (rat)	>10,000 mg/kg (rabbit)	LC50 > 42 mg/L (Rat) 1 h
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	>2000mg/kg (Rat)	>2000 mg/kg (Rat)	nd

- **Route of exposure:**
- **Primary irritant effect:**
 - on the skin:** No irritant effect.
 - on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Interactive effects:** No interactive effects between components are known.
- **Chronic effects on humans:** Carcinogenic effects: classified none. by NIOSH. By OSHA.
- **Other toxic effects on humans:** None.

SECTION 12 – ECOLOGICAL INFORMATION

Ecotoxicity:

Chemical Name	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates	Toxicity to fish	Microtox Data	Water Flea	log Pow
Sodium Chloride	N/A	N/A	Pimephals prome: LC50: 7650 mg/L/96h	N/A	EC50: 1000 mg/L/48h	N/A
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	N/A	N/A	LC50: > 100 mg/L, 96h static (Danio rerio)	N/A	N/A	-3.85

Persistence and Degradability
Bioaccumulation/ Accumulation
Mobility :

Miscible with water Persistence is unlikely based on information available.
No information available.
Will likely be mobile in the environment due to its water solubility.

SECTION 13 – DISPOSAL CONSIDERATIONS

Waste stream: Not available.

- **Waste disposal method:** Contact a licensed professional waste disposal service to dispose of this material. Dispose in accordance with governmental environmental regulations. Observe all federal, state, and local environmental regulations.
- **European waste catalogue (EWC):** Not available.
- **Hazardous waste:** Will not occur.

SECTION 14 – TRANSPORT INFORMATION

Note Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances.

D.O.T.: Not regulated.

IATA.: Not regulated.

IMDG: Not regulated.

SECTION 15 – REGULATORY INFORMATION

US Federal Regulations

◆ **US Federal Regulations**

RCRA (Lists of Hazardous Wastes, 40 CFR 261 Subpart D): Not applicable

CLEAN AIR ACT (SEC. 112. Hazardous Air Pollutants): Not applicable

CLEAN WATER ACT (RQ, 40 CFR): Not applicable

SARA Title III:

Section 302 -304, 40 CFR 355: Components present in this product at a level which could require reporting are: none.

Section 311 - 312: Components present in this product at a level which could require reporting are: none.

Section 313:

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

TSCA Section 8(b) Inventory Status: All ingredients are listed on TSCA Inventory of Chemical Substances or exempt from TSCA Inventory requirements.

AICS Inventory Status: All ingredients are listed on the Australia Inventory of Chemical Substances.

US State Regulations : State Lists:

Components	Massachussets	New Jersey	Pennsylvania	Illinois	Rhode Island
Water			X		
4-Morpholineethanesulfonic acid, monohydrate			X		
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid			X		
Ammonium Acetate			X		

California Proposition 65 chemicals.

This product does not contain any Proposition 65 chemicals.

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

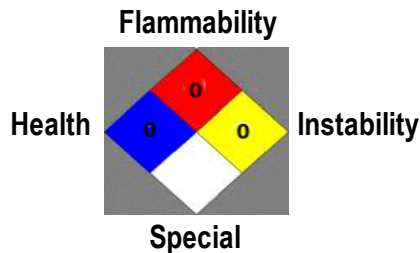
This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

- This product is not classified according to the EU regulations.

◆ **Hazardous Material Information System (U.S.A.):**

Health	0
Fire hazard	0
Reactivity	0
Personal protection	

◆ **National Fire Protection Association (U.S.A.):**



0 = not significant
1 = slight
2 = moderate

3 = high
4 = extreme
* = chronic

◆ **Revisions:**

Issue Date: 02/12/2025
Last Revision Date: New Issue
Revision note: N/A

◆ **Other Comments:**

To the best of our knowledge, the information contain herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Restriction of use: for research use only.

SECTION 1-PRODUCT AND COMPANY INFORMATION

- **Product name:** Buffer pH 6
- **Catalog number:** Component of PKA2000
- **Chemical name or synonyms:** none

SECTION 2 – HAZARDS IDENTIFICATION

- **GHS Classification**
No
- **GHS Label element**
- Signal Word: None
- Hazard Statements: None
- Pictograms: None
- This product contains hazardous ingredients (Yes; No; Not Applicable or no information): **No**.
- This product contains hazardous carcinogens (Yes; No; N/A): **No**
- This product contains hazardous ingredients to the environment. (Yes; No; N/A): **No**

SECTION 3 – COMPOSITION, INFORMATION ON INGREDIENTS

Description: Aqueous solution buffered at pH=6

<u>Ingredient name</u>	<u>CAS number</u>	<u>%</u>
Water	7732-18-5	>80 %
4-Morpholineethanesulfonic acid, monohydrate	145224-94-8	<10%
Sodium Chloride	7647-14-5	<10%
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	7365-45-9	<10%
Ammonium Acetate	631-61-8	<10%

No components need to be disclosed according to the applicable regulations.

Ingredients are not hazardous or their concentrations do not exceed the limit specified according to 29 CFR 1910.1200 Hazard Communication Standard (USA) and Directive 1999/45/EC-2001/59/EC (EU).

SECTION 4 – FIRST AID MEASURES

- **Effects and symptoms:**
 - *Inhalation* May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.
 - *Ingestion* May be harmful in case of ingestion.
 - *Skin contact* May cause skin irritation, redness, itching.
 - *Eye contact* Slightly hazardous in case of eye contact.
 - *Aggravating conditions* Chronic exposure may develop allergic reactions in sensitive individuals.
- **First-Aid measures:**
 - *Inhalation* If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention immediately.
 - *Ingestion* If swallowed, wash out mouth with water provided person is conscious. Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.
 - *Skin contact* In case of contact, immediately wash skin with soap and copious amounts of water.
 - *Eye contact* In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.
 - *Notes to physician* Not available.
 - *Protection of first-aiders* Not available.

SECTION 5 – FIRE FIGHTING MEASURES

- **Extinguishing media:** Water spray, carbon dioxide, dry chemical powder or appropriate foam.
- **Flammability of the product:** Not available.
- **Flash Point:** Not available.
- **Fire hazards in presence of various substances:** Not considered to be flammable.
- **Fire fighting media and instructions:** Use an extinguish agent suitable for surrounding fires.
- **Protective clothing (fire):** Be sure to use an approved/certified respirator or equivalent.
- **Hazardous thermal decomposition products:** Not available.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

- **Personal precautions:** Safety glasses, lab coat and gloves.
- **Environmental precautions and clean-up methods:** Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning by spreading water on the contaminated surface and allow evacuating through the sanitary system.
- **Small spill and leak:** Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.
- **Additional information:** No dangerous substances are released.

SECTION 7 – HANDLING AND STORAGE

- **Handling:** Avoid contact with skin, eyes and clothing. Avoid prolonged or repeated exposure.
- **Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area. Store at +4°C.
- **Intended use:** Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific application.
- **Packaging materials Suitable:** Use original container.

SECTION 8 – EXPOSURE CONTROLS, PERSONAL PROTECTION

Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be carefully followed.

Engineering measures :

Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

- **Eyes:** Safety glasses.
- **Body:** Lab coat and gloves.
- **Respiratory:** Respirator is not needed under normal and intended conditions of use, if exposures are kept below established limits.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

- **Appearance**
 - **Physical State:** Liquid.

- **Color:** Colorless
- **Odor:** Not available.
- **Taste:** Not available.

- **Molecular weight:** Not available.
- **pH:** 6
- **Boiling point:** 100°C (212 F).
- **Decomposition temperature:** 100°C (212 F)
- **Melting point:** Not available.
- **Flash point:** Not available.
- **Dispersion properties:** Not applicable.
- **Solubility:** Readily miscible in water.
- **Percent volatile by volume:** N/A
- **Evaporation Rate:** N/A

SECTION 10 – STABILITY AND REACTIVITY

- **Stability and reactivity:** The product is stable under recommended storage conditions.
- **Conditions to avoid:** Exposure to light, air or moisture over prolonged periods.
- **Materials to avoid:** Strong acids, strong bases, strong oxidizing agents.
- **Hazardous polymerization:** Will not occur.
- **Hazardous decomposition products:** Will not occur.

SECTION 11 – TOXICOLOGICAL INFORMATION

Product/ingredient	ORAL LD50	Dermal LD50	Inhalation LC50
Sodium Chloride	3g mg/kg (rat)	>10,000 mg/kg (rabbit)	LC50 > 42 mg/L (Rat) 1 h
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	>2000mg/kg (Rat)	>2000 mg/kg (Rat)	nd

- **Route of exposure:**
- **Primary irritant effect:**
 - on the skin:** No irritant effect.
 - on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Interactive effects:** No interactive effects between components are known.
- **Chronic effects on humans:** Carcinogenic effects: classified none. by NIOSH. By OSHA.
- **Other toxic effects on humans:** None.

SECTION 12 – ECOLOGICAL INFORMATION

Ecotoxicity:

Chemical Name	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates	Toxicity to fish	Microtox Data	Water Flea	log Pow
Sodium Chloride	N/A	N/A	Pimephals prome: LC50: 7650 mg/L/96h	N/A	EC50: 1000 mg/L/48h	N/A
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	N/A	N/A	LC50: > 100 mg/L, 96h static (Danio rerio)	N/A	N/A	-3.85

Persistence and Degradability
Bioaccumulation/ Accumulation
Mobility :

Miscible with water Persistence is unlikely based on information available.
No information available.
Will likely be mobile in the environment due to its water solubility.

SECTION 13 – DISPOSAL CONSIDERATIONS

Waste stream: Not available.

- **Waste disposal method:** Contact a licensed professional waste disposal service to dispose of this material. Dispose in accordance with governmental environmental regulations. Observe all federal, state, and local environmental regulations.
- **European waste catalogue (EWC):** Not available.
- **Hazardous waste:** Will not occur.

SECTION 14 – TRANSPORT INFORMATION

Note Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances.

D.O.T.: Not regulated.

IATA.: Not regulated.

IMDG: Not regulated.

SECTION 15 – REGULATORY INFORMATION

US Federal Regulations

◆ US Federal Regulations

RCRA (Lists of Hazardous Wastes, 40 CFR 261 Subpart D): Not applicable

CLEAN AIR ACT (SEC. 112. Hazardous Air Pollutants): Not applicable

CLEAN WATER ACT (RQ, 40 CFR): Not applicable

SARA Title III:

Section 302 -304, 40 CFR 355: Components present in this product at a level which could require reporting are:
none.

Section 311 - 312: Components present in this product at a level which could require reporting are:
none.

Section 313:

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

TSCA Section 8(b) Inventory Status: All ingredients are listed on TSCA Inventory of Chemical Substances or exempt from TSCA Inventory requirements.

AICS Inventory Status: All ingredients are listed on the Australia Inventory of Chemical Substances.

US State Regulations : State Lists:

Components	Massachussets	New Jersey	Pennsylvania	Illinois	Rhode Island
Water			X		
4-Morpholineethanesulfonic acid, monohydrate			X		
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid			X		
Ammonium Acetate			X		

California Proposition 65 chemicals.

This product does not contain any Proposition 65 chemicals.

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

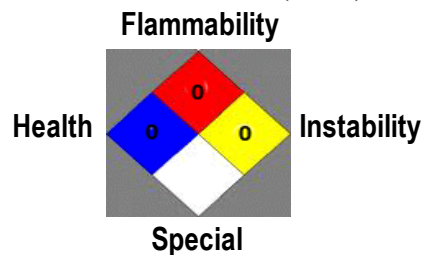
This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

- This product is not classified according to the EU regulations.

◆ **Hazardous Material Information System (U.S.A.):**

Health	0
Fire hazard	0
Reactivity	0
Personal protection	

◆ **National Fire Protection Association (U.S.A.):**



0 = not significant
1 = slight
2 = moderate

3 = high
4 = extreme
* = chronic

◆ **Revisions:**

Issue Date: 02/12/2025
Last Revision Date: New Issue
Revision note: N/A

◆ **Other Comments:**

To the best of our knowledge, the information contain herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Restriction of use: for research use only.

SECTION 1-PRODUCT AND COMPANY INFORMATION

- **Product name:** Buffer pH 6.4
- **Catalog number:** Component of PKA2000
- **Chemical name or synonyms:** none

SECTION 2 – HAZARDS IDENTIFICATION

- **GHS Classification**
No
- **GHS Label element**
- Signal Word: None
- Hazard Statements: None
- Pictograms: None
- This product contains hazardous ingredients (Yes; No; Not Applicable or no information): **No**.
- This product contains hazardous carcinogens (Yes; No; N/A): **No**
- This product contains hazardous ingredients to the environment. (Yes; No; N/A): **No**

SECTION 3 – COMPOSITION, INFORMATION ON INGREDIENTS

Description: Aqueous solution buffered at pH=6.4

<u>Ingredient name</u>	<u>CAS number</u>	<u>%</u>
Water	7732-18-5	>80 %
4-Morpholineethanesulfonic acid, monohydrate	145224-94-8	<10%
Sodium Chloride	7647-14-5	<10%
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	7365-45-9	<10%
Ammonium Acetate	631-61-8	<10%

No components need to be disclosed according to the applicable regulations.

Ingredients are not hazardous or their concentrations do not exceed the limit specified according to 29 CFR 1910.1200 Hazard Communication Standard (USA) and Directive 1999/45/EC-2001/59/EC (EU).

SECTION 4 – FIRST AID MEASURES

- **Effects and symptoms:**
 - *Inhalation* May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.
 - *Ingestion* May be harmful in case of ingestion.
 - *Skin contact* May cause skin irritation, redness, itching.
 - *Eye contact* Slightly hazardous in case of eye contact.
 - *Aggravating conditions* Chronic exposure may develop allergic reactions in sensitive individuals.
- **First-Aid measures:**
 - *Inhalation* If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention immediately.
 - *Ingestion* If swallowed, wash out mouth with water provided person is conscious. Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.
 - *Skin contact* In case of contact, immediately wash skin with soap and copious amounts of water.
 - *Eye contact* In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.
 - *Notes to physician* Not available.
 - *Protection of first-aiders* Not available.

SECTION 5 – FIRE FIGHTING MEASURES

- **Extinguishing media:** Water spray, carbon dioxide, dry chemical powder or appropriate foam.
- **Flammability of the product:** Not available.
- **Flash Point:** Not available.
- **Fire hazards in presence of various substances:** Not considered to be flammable.
- **Fire fighting media and instructions:** Use an extinguish agent suitable for surrounding fires.
- **Protective clothing (fire):** Be sure to use an approved/certified respirator or equivalent.
- **Hazardous thermal decomposition products:** Not available.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

- **Personal precautions:** Safety glasses, lab coat and gloves.
- **Environmental precautions and clean-up methods:** Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning by spreading water on the contaminated surface and allow evacuating through the sanitary system.
- **Small spill and leak:** Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.
- **Additional information:** No dangerous substances are released.

SECTION 7 – HANDLING AND STORAGE

- **Handling:** Avoid contact with skin, eyes and clothing. Avoid prolonged or repeated exposure.
- **Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area. Store at +4°C.
- **Intended use:** Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific application.
- **Packaging materials Suitable:** Use original container.

SECTION 8 – EXPOSURE CONTROLS, PERSONAL PROTECTION

Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be carefully followed.

Engineering measures :

Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

- **Eyes:** Safety glasses.
- **Body:** Lab coat and gloves.
- **Respiratory:** Respirator is not needed under normal and intended conditions of use, if exposures are kept below established limits.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

- **Appearance**
 - **Physical State:** Liquid.

- **Color:** Colorless
- **Odor:** Not available.
- **Taste:** Not available.

- **Molecular weight:** Not available.
- **pH:** 6.4
- **Boiling point:** 100°C (212 F).
- **Decomposition temperature:** 100°C (212 F)
- **Melting point:** Not available.
- **Flash point:** Not available.
- **Dispersion properties:** Not applicable.
- **Solubility:** Readily miscible in water.
- **Percent volatile by volume:** N/A
- **Evaporation Rate:** N/A

SECTION 10 – STABILITY AND REACTIVITY

- **Stability and reactivity:** The product is stable under recommended storage conditions.
- **Conditions to avoid:** Exposure to light, air or moisture over prolonged periods.
- **Materials to avoid:** Strong acids, strong bases, strong oxidizing agents.
- **Hazardous polymerization:** Will not occur.
- **Hazardous decomposition products:** Will not occur.

SECTION 11 – TOXICOLOGICAL INFORMATION

Product/ingredient	ORAL LD50	Dermal LD50	Inhalation LC50
Sodium Chloride	3g mg/kg (rat)	>10,000 mg/kg (rabbit)	LC50 > 42 mg/L (Rat) 1 h
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	>2000mg/kg (Rat)	>2000 mg/kg (Rat)	nd

- **Route of exposure:**
- **Primary irritant effect:**
 - on the skin:** No irritant effect.
 - on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Interactive effects:** No interactive effects between components are known.
- **Chronic effects on humans:** Carcinogenic effects: classified none. by NIOSH. By OSHA.
- **Other toxic effects on humans:** None.

SECTION 12 – ECOLOGICAL INFORMATION

Ecotoxicity:

Chemical Name	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates	Toxicity to fish	Microtox Data	Water Flea	log Pow
Sodium Chloride	N/A	N/A	Pimephals prome: LC50: 7650 mg/L/96h	N/A	EC50: 1000 mg/L/48h	N/A
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	N/A	N/A	LC50: > 100 mg/L, 96h static (Danio rerio)	N/A	N/A	-3.85

Persistence and Degradability
Bioaccumulation/ Accumulation
Mobility :

Miscible with water Persistence is unlikely based on information available.
No information available.
Will likely be mobile in the environment due to its water solubility.

SECTION 13 – DISPOSAL CONSIDERATIONS

Waste stream: Not available.

- **Waste disposal method:** Contact a licensed professional waste disposal service to dispose of this material. Dispose in accordance with governmental environmental regulations. Observe all federal, state, and local environmental regulations.
- **European waste catalogue (EWC):** Not available.
- **Hazardous waste:** Will not occur.

SECTION 14 – TRANSPORT INFORMATION

Note Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances.

D.O.T.: Not regulated.

IATA.: Not regulated.

IMDG: Not regulated.

SECTION 15 – REGULATORY INFORMATION

US Federal Regulations

◆ US Federal Regulations

RCRA (Lists of Hazardous Wastes, 40 CFR 261 Subpart D): Not applicable

CLEAN AIR ACT (SEC. 112. Hazardous Air Pollutants): Not applicable

CLEAN WATER ACT (RQ, 40 CFR): Not applicable

SARA Title III:

Section 302 -304, 40 CFR 355: Components present in this product at a level which could require reporting are:
none.

Section 311 - 312: Components present in this product at a level which could require reporting are:
none.

Section 313:

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

TSCA Section 8(b) Inventory Status: All ingredients are listed on TSCA Inventory of Chemical Substances or exempt from TSCA Inventory requirements.

AICS Inventory Status: All ingredients are listed on the Australia Inventory of Chemical Substances.

US State Regulations : State Lists:

Components	Massachussets	New Jersey	Pennsylvania	Illinois	Rhode Island
Water			X		
4-Morpholineethanesulfonic acid, monohydrate			X		
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid			X		
Ammonium Acetate			X		

California Proposition 65 chemicals.

This product does not contain any Proposition 65 chemicals.

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

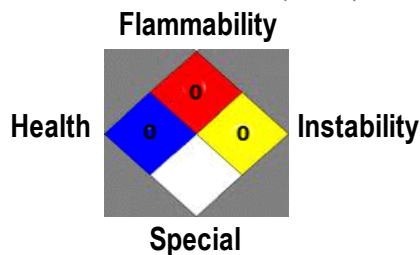
This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

- This product is not classified according to the EU regulations.

◆ **Hazardous Material Information System (U.S.A.):**

Health	0
Fire hazard	0
Reactivity	0
Personal protection	

◆ **National Fire Protection Association (U.S.A.):**



0 = not significant
1 = slight
2 = moderate

3 = high
4 = extreme
* = chronic

◆ **Revisions:**

Issue Date: 02/12/2025
Last Revision Date: New Issue
Revision note: N/A

◆ **Other Comments:**

To the best of our knowledge, the information contain herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Restriction of use: for research use only.

SECTION 1-PRODUCT AND COMPANY INFORMATION

- **Product name:** Buffer pH 6.6
- **Catalog number:** Component of PKA2000
- **Chemical name or synonyms:** none

SECTION 2 – HAZARDS IDENTIFICATION

- **GHS Classification**
No
- **GHS Label element**
- Signal Word: None
- Hazard Statements: None
- Pictograms: None
- This product contains hazardous ingredients (Yes; No; Not Applicable or no information): **No**.
- This product contains hazardous carcinogens (Yes; No; N/A): **No**
- This product contains hazardous ingredients to the environment. (Yes; No; N/A): **No**

SECTION 3 – COMPOSITION, INFORMATION ON INGREDIENTS

Description: Aqueous solution buffered at pH=6.6

<u>Ingredient name</u>	<u>CAS number</u>	<u>%</u>
Water	7732-18-5	>80 %
4-Morpholineethanesulfonic acid, monohydrate	145224-94-8	<10%
Sodium Chloride	7647-14-5	<10%
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	7365-45-9	<10%
Ammonium Acetate	631-61-8	<10%

No components need to be disclosed according to the applicable regulations.

Ingredients are not hazardous or their concentrations do not exceed the limit specified according to 29 CFR 1910.1200 Hazard Communication Standard (USA) and Directive 1999/45/EC-2001/59/EC (EU).

SECTION 4 – FIRST AID MEASURES

- **Effects and symptoms:**
 - *Inhalation* May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.
 - *Ingestion* May be harmful in case of ingestion.
 - *Skin contact* May cause skin irritation, redness, itching.
 - *Eye contact* Slightly hazardous in case of eye contact.
 - *Aggravating conditions* Chronic exposure may develop allergic reactions in sensitive individuals.
- **First-Aid measures:**
 - *Inhalation* If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention immediately.
 - *Ingestion* If swallowed, wash out mouth with water provided person is conscious. Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.
 - *Skin contact* In case of contact, immediately wash skin with soap and copious amounts of water.
 - *Eye contact* In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.
 - *Notes to physician* Not available.
 - *Protection of first-aiders* Not available.

SECTION 5 – FIRE FIGHTING MEASURES

- **Extinguishing media:** Water spray, carbon dioxide, dry chemical powder or appropriate foam.
- **Flammability of the product:** Not available.
- **Flash Point:** Not available.
- **Fire hazards in presence of various substances:** Not considered to be flammable.
- **Fire fighting media and instructions:** Use an extinguish agent suitable for surrounding fires.
- **Protective clothing (fire):** Be sure to use an approved/certified respirator or equivalent.
- **Hazardous thermal decomposition products:** Not available.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

- **Personal precautions:** Safety glasses, lab coat and gloves.
- **Environmental precautions and clean-up methods:** Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning by spreading water on the contaminated surface and allow evacuating through the sanitary system.
- **Small spill and leak:** Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.
- **Additional information:** No dangerous substances are released.

SECTION 7 – HANDLING AND STORAGE

- **Handling:** Avoid contact with skin, eyes and clothing. Avoid prolonged or repeated exposure.
- **Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area. Store at +4°C.
- **Intended use:** Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific application.
- **Packaging materials Suitable:** Use original container.

SECTION 8 – EXPOSURE CONTROLS, PERSONAL PROTECTION

Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be carefully followed.

Engineering measures :

Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

- **Eyes:** Safety glasses.
- **Body:** Lab coat and gloves.
- **Respiratory:** Respirator is not needed under normal and intended conditions of use, if exposures are kept below established limits.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

- **Appearance**
 - **Physical State:** Liquid.

- **Color:** Colorless
- **Odor:** Not available.
- **Taste:** Not available.

- **Molecular weight:** Not available.
- **pH:** 6.6
- **Boiling point:** 100°C (212 F).
- **Decomposition temperature:** 100°C (212 F)
- **Melting point:** Not available.
- **Flash point:** Not available.
- **Dispersion properties:** Not applicable.
- **Solubility:** Readily miscible in water.
- **Percent volatile by volume:** N/A
- **Evaporation Rate:** N/A

SECTION 10 – STABILITY AND REACTIVITY

- **Stability and reactivity:** The product is stable under recommended storage conditions.
- **Conditions to avoid:** Exposure to light, air or moisture over prolonged periods.
- **Materials to avoid:** Strong acids, strong bases, strong oxidizing agents.
- **Hazardous polymerization:** Will not occur.
- **Hazardous decomposition products:** Will not occur.

SECTION 11 – TOXICOLOGICAL INFORMATION

Product/ingredient	ORAL LD50	Dermal LD50	Inhalation LC50
Sodium Chloride	3g mg/kg (rat)	>10,000 mg/kg (rabbit)	LC50 > 42 mg/L (Rat) 1 h
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	>2000mg/kg (Rat)	>2000 mg/kg (Rat)	nd

- **Route of exposure:**
- **Primary irritant effect:**
 - on the skin:** No irritant effect.
 - on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Interactive effects:** No interactive effects between components are known.
- **Chronic effects on humans:** Carcinogenic effects: classified none. by NIOSH. By OSHA.
- **Other toxic effects on humans:** None.

SECTION 12 – ECOLOGICAL INFORMATION

Ecotoxicity:

Chemical Name	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates	Toxicity to fish	Microtox Data	Water Flea	log Pow
Sodium Chloride	N/A	N/A	Pimephals prome: LC50: 7650 mg/L/96h	N/A	EC50: 1000 mg/L/48h	N/A
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	N/A	N/A	LC50: > 100 mg/L, 96h static (Danio rerio)	N/A	N/A	-3.85

Persistence and Degradability
Bioaccumulation/ Accumulation
Mobility :

Miscible with water Persistence is unlikely based on information available.
No information available.
Will likely be mobile in the environment due to its water solubility.

SECTION 13 – DISPOSAL CONSIDERATIONS

Waste stream: Not available.

- **Waste disposal method:** Contact a licensed professional waste disposal service to dispose of this material. Dispose in accordance with governmental environmental regulations. Observe all federal, state, and local environmental regulations.
- **European waste catalogue (EWC):** Not available.
- **Hazardous waste:** Will not occur.

SECTION 14 – TRANSPORT INFORMATION

Note Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances.

D.O.T.: Not regulated.

IATA.: Not regulated.

IMDG: Not regulated.

SECTION 15 – REGULATORY INFORMATION

US Federal Regulations

◆ US Federal Regulations

RCRA (Lists of Hazardous Wastes, 40 CFR 261 Subpart D): Not applicable

CLEAN AIR ACT (SEC. 112. Hazardous Air Pollutants): Not applicable

CLEAN WATER ACT (RQ, 40 CFR): Not applicable

SARA Title III:

Section 302 -304, 40 CFR 355: Components present in this product at a level which could require reporting are:
none.

Section 311 - 312: Components present in this product at a level which could require reporting are:
none.

Section 313:

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

TSCA Section 8(b) Inventory Status: All ingredients are listed on TSCA Inventory of Chemical Substances or exempt from TSCA Inventory requirements.

AICS Inventory Status: All ingredients are listed on the Australia Inventory of Chemical Substances.

US State Regulations : State Lists:

Components	Massachussets	New Jersey	Pennsylvania	Illinois	Rhode Island
Water			X		
4-Morpholineethanesulfonic acid, monohydrate			X		
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid			X		
Ammonium Acetate			X		

California Proposition 65 chemicals.

This product does not contain any Proposition 65 chemicals.

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

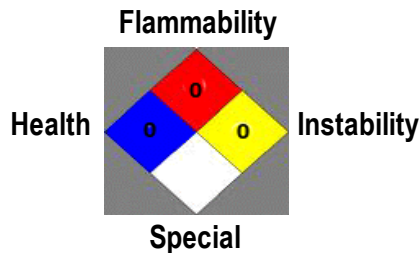
This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

- This product is not classified according to the EU regulations.

◆ **Hazardous Material Information System (U.S.A.):**

Health	0
Fire hazard	0
Reactivity	0
Personal protection	

◆ **National Fire Protection Association (U.S.A.):**



0 = not significant
1 = slight
2 = moderate

3 = high
4 = extreme
* = chronic

◆ **Revisions:**

Issue Date: 02/12/2025
Last Revision Date: New Issue
Revision note: N/A

◆ **Other Comments:**

To the best of our knowledge, the information contain herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Restriction of use: for research use only.

SECTION 1-PRODUCT AND COMPANY INFORMATION

- **Product name:** Buffer pH 7
- **Catalog number:** Component of PKA2000
- **Chemical name or synonyms:** none

SECTION 2 – HAZARDS IDENTIFICATION

- **GHS Classification**
No
- **GHS Label element**
- Signal Word: None
- Hazard Statements: None
- Pictograms: None
- This product contains hazardous ingredients (Yes; No; Not Applicable or no information): **No**.
- This product contains hazardous carcinogens (Yes; No; N/A): **No**
- This product contains hazardous ingredients to the environment. (Yes; No; N/A): **No**

SECTION 3 – COMPOSITION, INFORMATION ON INGREDIENTS

Description: Aqueous solution buffered at pH=7

<u>Ingredient name</u>	<u>CAS number</u>	<u>%</u>
Water	7732-18-5	>80 %
4-Morpholineethanesulfonic acid, monohydrate	145224-94-8	<10%
Sodium Chloride	7647-14-5	<10%
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	7365-45-9	<10%
Ammonium Acetate	631-61-8	<10%

No components need to be disclosed according to the applicable regulations.

Ingredients are not hazardous or their concentrations do not exceed the limit specified according to 29 CFR 1910.1200 Hazard Communication Standard (USA) and Directive 1999/45/EC-2001/59/EC (EU).

SECTION 4 – FIRST AID MEASURES

- **Effects and symptoms:**
 - *Inhalation* May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.
 - *Ingestion* May be harmful in case of ingestion.
 - *Skin contact* May cause skin irritation, redness, itching.
 - *Eye contact* Slightly hazardous in case of eye contact.
 - *Aggravating conditions* Chronic exposure may develop allergic reactions in sensitive individuals.
- **First-Aid measures:**
 - *Inhalation* If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention immediately.
 - *Ingestion* If swallowed, wash out mouth with water provided person is conscious. Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.
 - *Skin contact* In case of contact, immediately wash skin with soap and copious amounts of water.
 - *Eye contact* In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.
 - *Notes to physician* Not available.
 - *Protection of first-aiders* Not available.

SECTION 5 – FIRE FIGHTING MEASURES

- **Extinguishing media:** Water spray, carbon dioxide, dry chemical powder or appropriate foam.
- **Flammability of the product:** Not available.
- **Flash Point:** Not available.
- **Fire hazards in presence of various substances:** Not considered to be flammable.
- **Fire fighting media and instructions:** Use an extinguish agent suitable for surrounding fires.
- **Protective clothing (fire):** Be sure to use an approved/certified respirator or equivalent.
- **Hazardous thermal decomposition products:** Not available.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

- **Personal precautions:** Safety glasses, lab coat and gloves.
- **Environmental precautions and clean-up methods:** Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning by spreading water on the contaminated surface and allow evacuating through the sanitary system.
- **Small spill and leak:** Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.
- **Additional information:** No dangerous substances are released.

SECTION 7 – HANDLING AND STORAGE

- **Handling:** Avoid contact with skin, eyes and clothing. Avoid prolonged or repeated exposure.
- **Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area. Store at +4°C.
- **Intended use:** Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific application.
- **Packaging materials Suitable:** Use original container.

SECTION 8 – EXPOSURE CONTROLS, PERSONAL PROTECTION

Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be carefully followed.

Engineering measures :

Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

- **Eyes:** Safety glasses.
- **Body:** Lab coat and gloves.
- **Respiratory:** Respirator is not needed under normal and intended conditions of use, if exposures are kept below established limits.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

- **Appearance**
 - **Physical State:** Liquid.

- **Color:** Colorless
- **Odor:** Not available.
- **Taste:** Not available.

- **Molecular weight:** Not available.
- **pH:** 7
- **Boiling point:** 100°C (212 F).
- **Decomposition temperature:** 100°C (212 F)
- **Melting point:** Not available.
- **Flash point:** Not available.
- **Dispersion properties:** Not applicable.
- **Solubility:** Readily miscible in water.
- **Percent volatile by volume:** N/A
- **Evaporation Rate:** N/A

SECTION 10 – STABILITY AND REACTIVITY

- **Stability and reactivity:** The product is stable under recommended storage conditions.
- **Conditions to avoid:** Exposure to light, air or moisture over prolonged periods.
- **Materials to avoid:** Strong acids, strong bases, strong oxidizing agents.
- **Hazardous polymerization:** Will not occur.
- **Hazardous decomposition products:** Will not occur.

SECTION 11 – TOXICOLOGICAL INFORMATION

Product/ingredient	ORAL LD50	Dermal LD50	Inhalation LC50
Sodium Chloride	3g mg/kg (rat)	>10,000 mg/kg (rabbit)	LC50 > 42 mg/L (Rat) 1 h
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	>2000mg/kg (Rat)	>2000 mg/kg (Rat)	nd

- **Route of exposure:**
- **Primary irritant effect:**
 - on the skin:** No irritant effect.
 - on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Interactive effects:** No interactive effects between components are known.
- **Chronic effects on humans:** Carcinogenic effects: classified none. by NIOSH. By OSHA.
- **Other toxic effects on humans:** None.

SECTION 12 – ECOLOGICAL INFORMATION

Ecotoxicity:

Chemical Name	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates	Toxicity to fish	Microtox Data	Water Flea	log Pow
Sodium Chloride	N/A	N/A	Pimephals prome: LC50: 7650 mg/L/96h	N/A	EC50: 1000 mg/L/48h	N/A
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	N/A	N/A	LC50: > 100 mg/L, 96h static (Danio rerio)	N/A	N/A	-3.85

Persistence and Degradability
Bioaccumulation/ Accumulation
Mobility :

Miscible with water Persistence is unlikely based on information available.
No information available.
Will likely be mobile in the environment due to its water solubility.

SECTION 13 – DISPOSAL CONSIDERATIONS

Waste stream: Not available.

- **Waste disposal method:** Contact a licensed professional waste disposal service to dispose of this material. Dispose in accordance with governmental environmental regulations. Observe all federal, state, and local environmental regulations.
- **European waste catalogue (EWC):** Not available.
- **Hazardous waste:** Will not occur.

SECTION 14 – TRANSPORT INFORMATION

Note Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances.

D.O.T.: Not regulated.

IATA.: Not regulated.

IMDG: Not regulated.

SECTION 15 – REGULATORY INFORMATION

US Federal Regulations

◆ US Federal Regulations

RCRA (Lists of Hazardous Wastes, 40 CFR 261 Subpart D): Not applicable

CLEAN AIR ACT (SEC. 112. Hazardous Air Pollutants): Not applicable

CLEAN WATER ACT (RQ, 40 CFR): Not applicable

SARA Title III:

Section 302 -304, 40 CFR 355: Components present in this product at a level which could require reporting are:
none.

Section 311 - 312: Components present in this product at a level which could require reporting are:
none.

Section 313:

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

TSCA Section 8(b) Inventory Status: All ingredients are listed on TSCA Inventory of Chemical Substances or exempt from TSCA Inventory requirements.

AICS Inventory Status: All ingredients are listed on the Australia Inventory of Chemical Substances.

US State Regulations : State Lists:

Components	Massachussets	New Jersey	Pennsylvania	Illinois	Rhode Island
Water			X		
4-Morpholineethanesulfonic acid, monohydrate			X		
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid			X		
Ammonium Acetate			X		

California Proposition 65 chemicals.

This product does not contain any Proposition 65 chemicals.

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

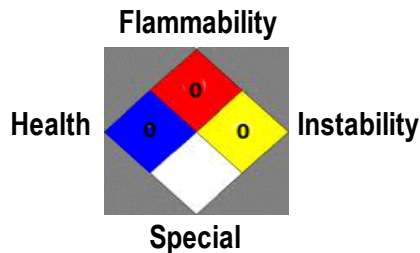
This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

- This product is not classified according to the EU regulations.

◆ **Hazardous Material Information System (U.S.A.):**

Health	0
Fire hazard	0
Reactivity	0
Personal protection	

◆ **National Fire Protection Association (U.S.A.):**



0 = not significant
1 = slight
2 = moderate

3 = high
4 = extreme
* = chronic

◆ **Revisions:**

Issue Date: 02/12/2025
Last Revision Date: New Issue
Revision note: N/A

◆ **Other Comments:**

To the best of our knowledge, the information contain herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Restriction of use: for research use only.

SECTION 1-PRODUCT AND COMPANY INFORMATION

- **Product name:** Buffer pH 7.5
- **Catalog number:** Component of PKA2000
- **Chemical name or synonyms:** none

SECTION 2 – HAZARDS IDENTIFICATION

- **GHS Classification**
No
- **GHS Label element**
- Signal Word: None
- Hazard Statements: None
- Pictograms: None
- This product contains hazardous ingredients (Yes; No; Not Applicable or no information): **No**.
- This product contains hazardous carcinogens (Yes; No; N/A): **No**
- This product contains hazardous ingredients to the environment. (Yes; No; N/A): **No**

SECTION 3 – COMPOSITION, INFORMATION ON INGREDIENTS

Description: Aqueous solution buffered at pH=7.5

<u>Ingredient name</u>	<u>CAS number</u>	<u>%</u>
Water	7732-18-5	>80 %
4-Morpholineethanesulfonic acid, monohydrate	145224-94-8	<10%
Sodium Chloride	7647-14-5	<10%
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	7365-45-9	<10%
Ammonium Acetate	631-61-8	<10%

No components need to be disclosed according to the applicable regulations.

Ingredients are not hazardous or their concentrations do not exceed the limit specified according to 29 CFR 1910.1200 Hazard Communication Standard (USA) and Directive 1999/45/EC-2001/59/EC (EU).

SECTION 4 – FIRST AID MEASURES

- **Effects and symptoms:**
 - *Inhalation* May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.
 - *Ingestion* May be harmful in case of ingestion.
 - *Skin contact* May cause skin irritation, redness, itching.
 - *Eye contact* Slightly hazardous in case of eye contact.
 - *Aggravating conditions* Chronic exposure may develop allergic reactions in sensitive individuals.
- **First-Aid measures:**
 - *Inhalation* If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention immediately.
 - *Ingestion* If swallowed, wash out mouth with water provided person is conscious. Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.
 - *Skin contact* In case of contact, immediately wash skin with soap and copious amounts of water.
 - *Eye contact* In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.
 - *Notes to physician* Not available.
 - *Protection of first-aiders* Not available.

SECTION 5 – FIRE FIGHTING MEASURES

- **Extinguishing media:** Water spray, carbon dioxide, dry chemical powder or appropriate foam.
- **Flammability of the product:** Not available.
- **Flash Point:** Not available.
- **Fire hazards in presence of various substances:** Not considered to be flammable.
- **Fire fighting media and instructions:** Use an extinguish agent suitable for surrounding fires.
- **Protective clothing (fire):** Be sure to use an approved/certified respirator or equivalent.
- **Hazardous thermal decomposition products:** Not available.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

- **Personal precautions:** Safety glasses, lab coat and gloves.
- **Environmental precautions and clean-up methods:** Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning by spreading water on the contaminated surface and allow evacuating through the sanitary system.
- **Small spill and leak:** Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.
- **Additional information:** No dangerous substances are released.

SECTION 7 – HANDLING AND STORAGE

- **Handling:** Avoid contact with skin, eyes and clothing. Avoid prolonged or repeated exposure.
- **Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area. Store at +4°C.
- **Intended use:** Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific application.
- **Packaging materials Suitable:** Use original container.

SECTION 8 – EXPOSURE CONTROLS, PERSONAL PROTECTION

Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be carefully followed.

Engineering measures :

Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

- **Eyes:** Safety glasses.
- **Body:** Lab coat and gloves.
- **Respiratory:** Respirator is not needed under normal and intended conditions of use, if exposures are kept below established limits.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance

- **Physical State:** Liquid.
 - **Color:** Colorless
 - **Odor:** Not available.
 - **Taste:** Not available.
- **Molecular weight:** Not available.
 - **pH:** 7.5
 - **Boiling point:** 100°C (212 F).
 - **Decomposition temperature:** 100°C (212 F)
 - **Melting point:** Not available.
 - **Flash point:** Not available.
 - **Dispersion properties:** Not applicable.
 - **Solubility:** Readily miscible in water.
 - **Percent volatile by volume:** N/A
 - **Evaporation Rate:** N/A

SECTION 10 – STABILITY AND REACTIVITY

- **Stability and reactivity:** The product is stable under recommended storage conditions.
- **Conditions to avoid:** Exposure to light, air or moisture over prolonged periods.
- **Materials to avoid:** Strong acids, strong bases, strong oxidizing agents.
- **Hazardous polymerization:** Will not occur.
- **Hazardous decomposition products:** Will not occur.

SECTION 11 – TOXICOLOGICAL INFORMATION

Product/ingredient	ORAL LD50	Dermal LD50	Inhalation LC50
Sodium Chloride	3g mg/kg (rat)	>10,000 mg/kg (rabbit)	LC50 > 42 mg/L (Rat) 1 h
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	>2000mg/kg (Rat)	>2000 mg/kg (Rat)	nd

- **Route of exposure:**
- **Primary irritant effect:**
 - on the skin:** No irritant effect.
 - on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Interactive effects:** No interactive effects between components are known.
- **Chronic effects on humans:** Carcinogenic effects: classified none. by NIOSH. By OSHA.
- **Other toxic effects on humans:** None.

SECTION 12 – ECOLOGICAL INFORMATION

Ecotoxicity:

Chemical Name	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates	Toxicity to fish	Microtox Data	Water Flea	log Pow
Sodium Chloride	N/A	N/A	Pimephals prome: LC50: 7650 mg/L/96h	N/A	EC50: 1000 mg/L/48h	N/A
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	N/A	N/A	LC50: > 100 mg/L, 96h static (Danio rerio)	N/A	N/A	-3.85

Persistence and Degradability
Bioaccumulation/ Accumulation
Mobility :

Miscible with water Persistence is unlikely based on information available.
No information available.
Will likely be mobile in the environment due to its water solubility.

SECTION 13 – DISPOSAL CONSIDERATIONS

- **Waste stream:** Not available.
- **Waste disposal method:** Contact a licensed professional waste disposal service to dispose of this material. Dispose in accordance with governmental environmental regulations. Observe all federal, state, and local environmental regulations.
- **European waste catalogue (EWC):** Not available.
- **Hazardous waste:** Will not occur.

SECTION 14 – TRANSPORT INFORMATION

Note Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances.

D.O.T.: Not regulated.

IATA.: Not regulated.

IMDG: Not regulated.

SECTION 15 – REGULATORY INFORMATION

US Federal Regulations

◆ **US Federal Regulations**

RCRA (Lists of Hazardous Wastes, 40 CFR 261 Subpart D): Not applicable

CLEAN AIR ACT (SEC. 112. Hazardous Air Pollutants): Not applicable

CLEAN WATER ACT (RQ, 40 CFR): Not applicable

SARA Title III:

Section 302 -304, 40 CFR 355: Components present in this product at a level which could require reporting are: none.

Section 311 - 312: Components present in this product at a level which could require reporting are: none.

Section 313:

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

TSCA Section 8(b) Inventory Status: All ingredients are listed on TSCA Inventory of Chemical Substances or exempt from TSCA Inventory requirements.

AICS Inventory Status: All ingredients are listed on the Australia Inventory of Chemical Substances.

US State Regulations : State Lists:

Components	Massachussets	New Jersey	Pennsylvania	Illinois	Rhode Island
Water			X		
4-Morpholineethanesulfonic acid, monohydrate			X		
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid			X		
Ammonium Acetate			X		

California Proposition 65 chemicals.

This product does not contain any Proposition 65 chemicals.

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

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

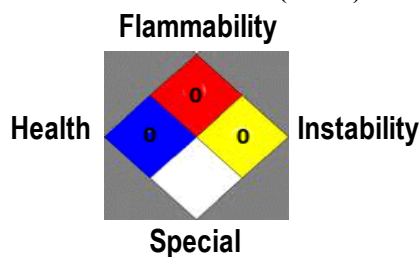
- This product is not classified according to the EU regulations.

SECTION 16 – OTHER INFORMATION

◆ **Hazardous Material Information System (U.S.A.):**

Health	0
Fire hazard	0
Reactivity	0
Personal protection	

◆ **National Fire Protection Association (U.S.A.):**



0 = not significant
1 = slight
2 = moderate

3 = high
4 = extreme
* = chronic

◆ **Revisions:**

Issue Date: 02/12/2025
Last Revision Date: New Issue
Revision note: N/A

◆ **Other Comments:**

To the best of our knowledge, the information contain herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Restriction of use: for research use only.

SECTION 1-PRODUCT AND COMPANY INFORMATION

- **Product name:** Buffer pH 8
- **Catalog number:** Component of PKA2000
- **Chemical name or synonyms:** none

SECTION 2 – HAZARDS IDENTIFICATION

- **GHS Classification**
No
- **GHS Label element**
- Signal Word: None
- Hazard Statements: None
- Pictograms: None
- This product contains hazardous ingredients (Yes; No; Not Applicable or no information): **No**.
- This product contains hazardous carcinogens (Yes; No; N/A): **No**
- This product contains hazardous ingredients to the environment. (Yes; No; N/A): **No**

SECTION 3 – COMPOSITION, INFORMATION ON INGREDIENTS

Description: Aqueous solution buffered at pH=8

<u>Ingredient name</u>	<u>CAS number</u>	<u>%</u>
Water	7732-18-5	>80 %
4-Morpholineethanesulfonic acid, monohydrate	145224-94-8	<10%
Sodium Chloride	7647-14-5	<10%
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	7365-45-9	<10%
Ammonium Acetate	631-61-8	<10%

No components need to be disclosed according to the applicable regulations.

Ingredients are not hazardous or their concentrations do not exceed the limit specified according to 29 CFR 1910.1200 Hazard Communication Standard (USA) and Directive 1999/45/EC-2001/59/EC (EU).

SECTION 4 – FIRST AID MEASURES

- **Effects and symptoms:**
 - *Inhalation* May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.
 - *Ingestion* May be harmful in case of ingestion.
 - *Skin contact* May cause skin irritation, redness, itching.
 - *Eye contact* Slightly hazardous in case of eye contact.
 - *Aggravating conditions* Chronic exposure may develop allergic reactions in sensitive individuals.
- **First-Aid measures:**
 - *Inhalation* If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention immediately.
 - *Ingestion* If swallowed, wash out mouth with water provided person is conscious. Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.
 - *Skin contact* In case of contact, immediately wash skin with soap and copious amounts of water.
 - *Eye contact* In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.
 - *Notes to physician* Not available.
 - *Protection of first-aiders* Not available.

SECTION 5 – FIRE FIGHTING MEASURES

- **Extinguishing media:** Water spray, carbon dioxide, dry chemical powder or appropriate foam.
- **Flammability of the product:** Not available.
- **Flash Point:** Not available.
- **Fire hazards in presence of various substances:** Not considered to be flammable.
- **Fire fighting media and instructions:** Use an extinguish agent suitable for surrounding fires.
- **Protective clothing (fire):** Be sure to use an approved/certified respirator or equivalent.
- **Hazardous thermal decomposition products:** Not available.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

- **Personal precautions:** Safety glasses, lab coat and gloves.
- **Environmental precautions and clean-up methods:** Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning by spreading water on the contaminated surface and allow evacuating through the sanitary system.
- **Small spill and leak:** Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.
- **Additional information:** No dangerous substances are released.

SECTION 7 – HANDLING AND STORAGE

- **Handling:** Avoid contact with skin, eyes and clothing. Avoid prolonged or repeated exposure.
- **Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area. Store at +4°C.
- **Intended use:** Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific application.
- **Packaging materials Suitable:** Use original container.

SECTION 8 – EXPOSURE CONTROLS, PERSONAL PROTECTION

Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be carefully followed.

Engineering measures :

Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

- **Eyes:** Safety glasses.
- **Body:** Lab coat and gloves.
- **Respiratory:** Respirator is not needed under normal and intended conditions of use, if exposures are kept below established limits.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

- **Appearance**
 - **Physical State:** Liquid.

- **Color:** Colorless
- **Odor:** Not available.
- **Taste:** Not available.

- **Molecular weight:** Not available.
- **pH:** 8
- **Boiling point:** 100°C (212 F).
- **Decomposition temperature:** 100°C (212 F)
- **Melting point:** Not available.
- **Flash point:** Not available.
- **Dispersion properties:** Not applicable.
- **Solubility:** Readily miscible in water.
- **Percent volatile by volume:** N/A
- **Evaporation Rate:** N/A

SECTION 10 – STABILITY AND REACTIVITY

- **Stability and reactivity:** The product is stable under recommended storage conditions.
- **Conditions to avoid:** Exposure to light, air or moisture over prolonged periods.
- **Materials to avoid:** Strong acids, strong bases, strong oxidizing agents.
- **Hazardous polymerization:** Will not occur.
- **Hazardous decomposition products:** Will not occur.

SECTION 11 – TOXICOLOGICAL INFORMATION

Product/ingredient	ORAL LD50	Dermal LD50	Inhalation LC50
Sodium Chloride	3g mg/kg (rat)	>10,000 mg/kg (rabbit)	LC50 > 42 mg/L (Rat) 1 h
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	>2000mg/kg (Rat)	>2000 mg/kg (Rat)	nd

- **Route of exposure:**
- **Primary irritant effect:**
 - on the skin:** No irritant effect.
 - on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Interactive effects:** No interactive effects between components are known.
- **Chronic effects on humans:** Carcinogenic effects: classified none. by NIOSH. By OSHA.
- **Other toxic effects on humans:** None.

SECTION 12 – ECOLOGICAL INFORMATION

Ecotoxicity:

Chemical Name	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates	Toxicity to fish	Microtox Data	Water Flea	log Pow
Sodium Chloride	N/A	N/A	Pimephals prome: LC50: 7650 mg/L/96h	N/A	EC50: 1000 mg/L/48h	N/A
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	N/A	N/A	LC50: > 100 mg/L, 96h static (Danio rerio)	N/A	N/A	-3.85

Persistence and Degradability
Bioaccumulation/ Accumulation
Mobility :

Miscible with water Persistence is unlikely based on information available.
No information available.
Will likely be mobile in the environment due to its water solubility.

SECTION 13 – DISPOSAL CONSIDERATIONS

Waste stream: Not available.

- **Waste disposal method:** Contact a licensed professional waste disposal service to dispose of this material. Dispose in accordance with governmental environmental regulations. Observe all federal, state, and local environmental regulations.
- **European waste catalogue (EWC):** Not available.
- **Hazardous waste:** Will not occur.

SECTION 14 – TRANSPORT INFORMATION

Note Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances.

D.O.T.: Not regulated.

IATA.: Not regulated.

IMDG: Not regulated.

SECTION 15 – REGULATORY INFORMATION

US Federal Regulations

◆ US Federal Regulations

RCRA (Lists of Hazardous Wastes, 40 CFR 261 Subpart D): Not applicable

CLEAN AIR ACT (SEC. 112. Hazardous Air Pollutants): Not applicable

CLEAN WATER ACT (RQ, 40 CFR): Not applicable

SARA Title III:

Section 302 -304, 40 CFR 355: Components present in this product at a level which could require reporting are:
none.

Section 311 - 312: Components present in this product at a level which could require reporting are:
none.

Section 313:

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

TSCA Section 8(b) Inventory Status: All ingredients are listed on TSCA Inventory of Chemical Substances or exempt from TSCA Inventory requirements.

AICS Inventory Status: All ingredients are listed on the Australia Inventory of Chemical Substances.

US State Regulations : State Lists:

Components	Massachussets	New Jersey	Pennsylvania	Illinois	Rhode Island
Water			X		
4-Morpholineethanesulfonic acid, monohydrate			X		
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid			X		
Ammonium Acetate			X		

California Proposition 65 chemicals.

This product does not contain any Proposition 65 chemicals.

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

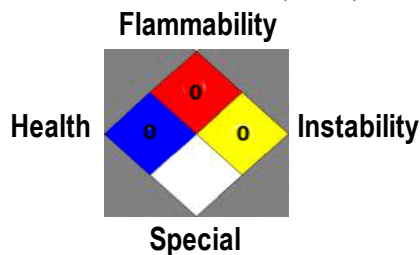
This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

- This product is not classified according to the EU regulations.

◆ **Hazardous Material Information System (U.S.A.):**

Health	0
Fire hazard	0
Reactivity	0
Personal protection	

◆ **National Fire Protection Association (U.S.A.):**



0 = not significant
1 = slight
2 = moderate

3 = high
4 = extreme
* = chronic

◆ **Revisions:**

Issue Date: 02/12/2025
Last Revision Date: New Issue
Revision note: N/A

◆ **Other Comments:**

To the best of our knowledge, the information contain herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Restriction of use: for research use only.

SECTION 1-PRODUCT AND COMPANY INFORMATION

- **Product name:** Buffer pH 8.5
- **Catalog number:** Component of PKA2000
- **Chemical name or synonyms:** none

SECTION 2 – HAZARDS IDENTIFICATION

- **GHS Classification**
No
- **GHS Label element**
- Signal Word: None
- Hazard Statements: None
- Pictograms: None
- This product contains hazardous ingredients (Yes; No; Not Applicable or no information): **No**.
- This product contains hazardous carcinogens (Yes; No; N/A): **No**
- This product contains hazardous ingredients to the environment. (Yes; No; N/A): **No**

SECTION 3 – COMPOSITION, INFORMATION ON INGREDIENTS

Description: Aqueous solution buffered at pH=8.5

<u>Ingredient name</u>	<u>CAS number</u>	<u>%</u>
Water	7732-18-5	>80 %
4-Morpholineethanesulfonic acid, monohydrate	145224-94-8	<10%
Sodium Chloride	7647-14-5	<10%
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	7365-45-9	<10%
Ammonium Acetate	631-61-8	<10%

No components need to be disclosed according to the applicable regulations.

Ingredients are not hazardous or their concentrations do not exceed the limit specified according to 29 CFR 1910.1200 Hazard Communication Standard (USA) and Directive 1999/45/EC-2001/59/EC (EU).

SECTION 4 – FIRST AID MEASURES

- **Effects and symptoms:**
 - *Inhalation* May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.
 - *Ingestion* May be harmful in case of ingestion.
 - *Skin contact* May cause skin irritation, redness, itching.
 - *Eye contact* Slightly hazardous in case of eye contact.
 - *Aggravating conditions* Chronic exposure may develop allergic reactions in sensitive individuals.
- **First-Aid measures:**
 - *Inhalation* If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention immediately.
 - *Ingestion* If swallowed, wash out mouth with water provided person is conscious. Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.
 - *Skin contact* In case of contact, immediately wash skin with soap and copious amounts of water.
 - *Eye contact* In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.
 - *Notes to physician* Not available.
 - *Protection of first-aiders* Not available.

SECTION 5 – FIRE FIGHTING MEASURES

- **Extinguishing media:** Water spray, carbon dioxide, dry chemical powder or appropriate foam.
- **Flammability of the product:** Not available.
- **Flash Point:** Not available.
- **Fire hazards in presence of various substances:** Not considered to be flammable.
- **Fire fighting media and instructions:** Use an extinguish agent suitable for surrounding fires.
- **Protective clothing (fire):** Be sure to use an approved/certified respirator or equivalent.
- **Hazardous thermal decomposition products:** Not available.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

- **Personal precautions:** Safety glasses, lab coat and gloves.
- **Environmental precautions and clean-up methods:** Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning by spreading water on the contaminated surface and allow evacuating through the sanitary system.
- **Small spill and leak:** Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.
- **Additional information:** No dangerous substances are released.

SECTION 7 – HANDLING AND STORAGE

- **Handling:** Avoid contact with skin, eyes and clothing. Avoid prolonged or repeated exposure.
- **Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area. Store at +4°C.
- **Intended use:** Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific application.
- **Packaging materials Suitable:** Use original container.

SECTION 8 – EXPOSURE CONTROLS, PERSONAL PROTECTION

Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be carefully followed.

Engineering measures :

Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

- **Eyes:** Safety glasses.
- **Body:** Lab coat and gloves.
- **Respiratory:** Respirator is not needed under normal and intended conditions of use, if exposures are kept below established limits.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

- **Appearance**
 - **Physical State:** Liquid.

- **Color:** Colorless
- **Odor:** Not available.
- **Taste:** Not available.

- **Molecular weight:** Not available.
- **pH:** 8.5
- **Boiling point:** 100°C (212 F).
- **Decomposition temperature:** 100°C (212 F)
- **Melting point:** Not available.
- **Flash point:** Not available.
- **Dispersion properties:** Not applicable.
- **Solubility:** Readily miscible in water.
- **Percent volatile by volume:** N/A
- **Evaporation Rate:** N/A

SECTION 10 – STABILITY AND REACTIVITY

- **Stability and reactivity:** The product is stable under recommended storage conditions.
- **Conditions to avoid:** Exposure to light, air or moisture over prolonged periods.
- **Materials to avoid:** Strong acids, strong bases, strong oxidizing agents.
- **Hazardous polymerization:** Will not occur.
- **Hazardous decomposition products:** Will not occur.

SECTION 11 – TOXICOLOGICAL INFORMATION

Product/ingredient	ORAL LD50	Dermal LD50	Inhalation LC50
Sodium Chloride	3g mg/kg (rat)	>10,000 mg/kg (rabbit)	LC50 > 42 mg/L (Rat) 1 h
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	>2000mg/kg (Rat)	>2000 mg/kg (Rat)	nd

- **Route of exposure:**
- **Primary irritant effect:**
 - on the skin:** No irritant effect.
 - on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Interactive effects:** No interactive effects between components are known.
- **Chronic effects on humans:** Carcinogenic effects: classified none. by NIOSH. By OSHA.
- **Other toxic effects on humans:** None.

SECTION 12 – ECOLOGICAL INFORMATION

Ecotoxicity:

Chemical Name	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates	Toxicity to fish	Microtox Data	Water Flea	log Pow
Sodium Chloride	N/A	N/A	Pimephals prome: LC50: 7650 mg/L/96h	N/A	EC50: 1000 mg/L/48h	N/A
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	N/A	N/A	LC50: > 100 mg/L, 96h static (Danio rerio)	N/A	N/A	-3.85

Persistence and Degradability
Bioaccumulation/ Accumulation
Mobility :

Miscible with water Persistence is unlikely based on information available.
No information available.
Will likely be mobile in the environment due to its water solubility.

SECTION 13 – DISPOSAL CONSIDERATIONS

Waste stream: Not available.

- **Waste disposal method:** Contact a licensed professional waste disposal service to dispose of this material. Dispose in accordance with governmental environmental regulations. Observe all federal, state, and local environmental regulations.
- **European waste catalogue (EWC):** Not available.
- **Hazardous waste:** Will not occur.

SECTION 14 – TRANSPORT INFORMATION

Note Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances.

D.O.T.: Not regulated.

IATA.: Not regulated.

IMDG: Not regulated.

SECTION 15 – REGULATORY INFORMATION

US Federal Regulations

◆ US Federal Regulations

RCRA (Lists of Hazardous Wastes, 40 CFR 261 Subpart D): Not applicable

CLEAN AIR ACT (SEC. 112. Hazardous Air Pollutants): Not applicable

CLEAN WATER ACT (RQ, 40 CFR): Not applicable

SARA Title III:

Section 302 -304, 40 CFR 355: Components present in this product at a level which could require reporting are:
none.

Section 311 - 312: Components present in this product at a level which could require reporting are:
none.

Section 313:

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

TSCA Section 8(b) Inventory Status: All ingredients are listed on TSCA Inventory of Chemical Substances or exempt from TSCA Inventory requirements.

AICS Inventory Status: All ingredients are listed on the Australia Inventory of Chemical Substances.

US State Regulations : State Lists:

Components	Massachussets	New Jersey	Pennsylvania	Illinois	Rhode Island
Water			X		
4-Morpholineethanesulfonic acid, monohydrate			X		
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid			X		
Ammonium Acetate			X		

California Proposition 65 chemicals.

This product does not contain any Proposition 65 chemicals.

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

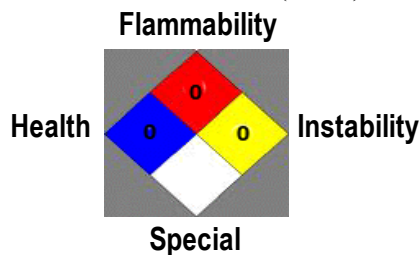
This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

- This product is not classified according to the EU regulations.

◆ **Hazardous Material Information System (U.S.A.):**

Health	0
Fire hazard	0
Reactivity	0
Personal protection	

◆ **National Fire Protection Association (U.S.A.):**



0 = not significant
1 = slight
2 = moderate

3 = high
4 = extreme
* = chronic

◆ **Revisions:**

Issue Date: 02/12/2025
Last Revision Date: New Issue
Revision note: N/A

◆ **Other Comments:**

To the best of our knowledge, the information contain herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Restriction of use: for research use only.

SECTION 1-PRODUCT AND COMPANY INFORMATION

- **Product name:** Buffer pH 9
- **Catalog number:** Component of PKA2000
- **Chemical name or synonyms:** none

SECTION 2 – HAZARDS IDENTIFICATION

- **GHS Classification**
No
- **GHS Label element**
- Signal Word: None
- Hazard Statements: None
- Pictograms: None
- This product contains hazardous ingredients (Yes; No; Not Applicable or no information): **No**.
- This product contains hazardous carcinogens (Yes; No; N/A): **No**
- This product contains hazardous ingredients to the environment. (Yes; No; N/A): **No**

SECTION 3 – COMPOSITION, INFORMATION ON INGREDIENTS

Description: Aqueous solution buffered at pH=9

<u>Ingredient name</u>	<u>CAS number</u>	<u>%</u>
Water	7732-18-5	>80 %
4-Morpholineethanesulfonic acid, monohydrate	145224-94-8	<10%
Sodium Chloride	7647-14-5	<10%
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	7365-45-9	<10%
Ammonium Acetate	631-61-8	<10%

No components need to be disclosed according to the applicable regulations.

Ingredients are not hazardous or their concentrations do not exceed the limit specified according to 29 CFR 1910.1200 Hazard Communication Standard (USA) and Directive 1999/45/EC-2001/59/EC (EU).

SECTION 4 – FIRST AID MEASURES

- **Effects and symptoms:**
 - *Inhalation* May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.
 - *Ingestion* May be harmful in case of ingestion.
 - *Skin contact* May cause skin irritation, redness, itching.
 - *Eye contact* Slightly hazardous in case of eye contact.
 - *Aggravating conditions* Chronic exposure may develop allergic reactions in sensitive individuals.
- **First-Aid measures:**
 - *Inhalation* If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention immediately.
 - *Ingestion* If swallowed, wash out mouth with water provided person is conscious. Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.
 - *Skin contact* In case of contact, immediately wash skin with soap and copious amounts of water.
 - *Eye contact* In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention immediately.
 - *Notes to physician* Not available.
 - *Protection of first-aiders* Not available.

SECTION 5 – FIRE FIGHTING MEASURES

- **Extinguishing media:** Water spray, carbon dioxide, dry chemical powder or appropriate foam.
- **Flammability of the product:** Not available.
- **Flash Point:** Not available.
- **Fire hazards in presence of various substances:** Not considered to be flammable.
- **Fire fighting media and instructions:** Use an extinguish agent suitable for surrounding fires.
- **Protective clothing (fire):** Be sure to use an approved/certified respirator or equivalent.
- **Hazardous thermal decomposition products:** Not available.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

- **Personal precautions:** Safety glasses, lab coat and gloves.
- **Environmental precautions and clean-up methods:** Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning by spreading water on the contaminated surface and allow evacuating through the sanitary system.
- **Small spill and leak:** Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.
- **Additional information:** No dangerous substances are released.

SECTION 7 – HANDLING AND STORAGE

- **Handling:** Avoid contact with skin, eyes and clothing. Avoid prolonged or repeated exposure.
- **Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area. Store at +4°C.
- **Intended use:** Refer to the instruction booklet for proper and intended use. Otherwise, contact supplier for specific application.
- **Packaging materials Suitable:** Use original container.

SECTION 8 – EXPOSURE CONTROLS, PERSONAL PROTECTION

Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be carefully followed.

Engineering measures :

Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

- **Eyes:** Safety glasses.
- **Body:** Lab coat and gloves.
- **Respiratory:** Respirator is not needed under normal and intended conditions of use, if exposures are kept below established limits.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

- **Appearance**
 - **Physical State:** Liquid.

- **Color:** Colorless
- **Odor:** Not available.
- **Taste:** Not available.

- **Molecular weight:** Not available.
- **pH:** 9
- **Boiling point:** 100°C (212 F).
- **Decomposition temperature:** 100°C (212 F)
- **Melting point:** Not available.
- **Flash point:** Not available.
- **Dispersion properties:** Not applicable.
- **Solubility:** Readily miscible in water.
- **Percent volatile by volume:** N/A
- **Evaporation Rate:** N/A

SECTION 10 – STABILITY AND REACTIVITY

- **Stability and reactivity:** The product is stable under recommended storage conditions.
- **Conditions to avoid:** Exposure to light, air or moisture over prolonged periods.
- **Materials to avoid:** Strong acids, strong bases, strong oxidizing agents.
- **Hazardous polymerization:** Will not occur.
- **Hazardous decomposition products:** Will not occur.

SECTION 11 – TOXICOLOGICAL INFORMATION

Product/ingredient	ORAL LD50	Dermal LD50	Inhalation LC50
Sodium Chloride	3g mg/kg (rat)	>10,000 mg/kg (rabbit)	LC50 > 42 mg/L (Rat) 1 h
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	>2000mg/kg (Rat)	>2000 mg/kg (Rat)	nd

- **Route of exposure:**
- **Primary irritant effect:**
 - on the skin:** No irritant effect.
 - on the eye:** No irritating effect.
- Sensitization:** No sensitizing effects known.
- Interactive effects:** No interactive effects between components are known.
- **Chronic effects on humans:** Carcinogenic effects: classified none. by NIOSH. By OSHA.
- **Other toxic effects on humans:** None.

SECTION 12 – ECOLOGICAL INFORMATION

Ecotoxicity:

Chemical Name	Toxicity to algae	Toxicity to daphnia and other aquatic invertebrates	Toxicity to fish	Microtox Data	Water Flea	log Pow
Sodium Chloride	N/A	N/A	Pimephals prome: LC50: 7650 mg/L/96h	N/A	EC50: 1000 mg/L/48h	N/A
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid	N/A	N/A	LC50: > 100 mg/L, 96h static (Danio rerio)	N/A	N/A	-3.85

Persistence and Degradability
Bioaccumulation/ Accumulation
Mobility :

Miscible with water Persistence is unlikely based on information available.
No information available.
Will likely be mobile in the environment due to its water solubility.

SECTION 13 – DISPOSAL CONSIDERATIONS

Waste stream: Not available.

- **Waste disposal method:** Contact a licensed professional waste disposal service to dispose of this material. Dispose in accordance with governmental environmental regulations. Observe all federal, state, and local environmental regulations.
- **European waste catalogue (EWC):** Not available.
- **Hazardous waste:** Will not occur.

SECTION 14 – TRANSPORT INFORMATION

Note Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances.

D.O.T.: Not regulated.

IATA.: Not regulated.

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SECTION 15 – REGULATORY INFORMATION

US Federal Regulations

◆ US Federal Regulations

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SARA Title III:

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none.

Section 311 - 312: Components present in this product at a level which could require reporting are:
none.

Section 313:

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

TSCA Section 8(b) Inventory Status: All ingredients are listed on TSCA Inventory of Chemical Substances or exempt from TSCA Inventory requirements.

AICS Inventory Status: All ingredients are listed on the Australia Inventory of Chemical Substances.

US State Regulations : State Lists:

Components	Massachussets	New Jersey	Pennsylvania	Illinois	Rhode Island
Water			X		
4-Morpholineethanesulfonic acid, monohydrate			X		
2-[4-(2-hydroxyethyl)piperazin-1-yl]ethanesulfonic acid			X		
Ammonium Acetate			X		

California Proposition 65 chemicals.

This product does not contain any Proposition 65 chemicals.

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

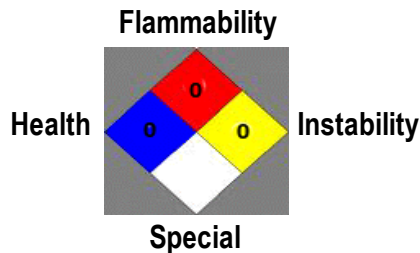
This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

- This product is not classified according to the EU regulations.

◆ **Hazardous Material Information System (U.S.A.):**

Health	0
Fire hazard	0
Reactivity	0
Personal protection	

◆ **National Fire Protection Association (U.S.A.):**



0 = not significant
1 = slight
2 = moderate

3 = high
4 = extreme
* = chronic

◆ **Revisions:**

Issue Date: 02/12/2025
Last Revision Date: New Issue
Revision note: N/A

◆ **Other Comments:**

To the best of our knowledge, the information contain herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Restriction of use: for research use only.