SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** Buffer Solution pH 4.01 ± 0.02  
**Catalog Number:** 2283456

Hach Company  
P.O. Box 389  
Loveland, CO USA 80539  
(970) 669-3050

Emergency Telephone Numbers:  
(Medical and Transportation)  
(303) 623-5716  
24 Hour Service  
(515) 232-2533  
8am - 4pm CST

**MSDS Number:** M00368  
**Chemical Name:** Not applicable  
**CAS Number:** Not applicable  
**Additional CAS No. (for hydrated forms):** Not applicable  
**Chemical Formula:** Not applicable  
**Chemical Family:** Mixture  
**Intended Use:** Laboratory Reagent Buffer

2. HAZARDS IDENTIFICATION

**GHS Classification:**  
**Hazard categories:** Serious Eye Damage/Eye Irritation: Eye Irrit. 2

**GHS Label Elements:** WARNING

**Hazard statements:** Causes serious eye irritation.  
**Precautionary statements:** Wear protective gloves / protective clothing / eye protection / face protection. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

**HMIS:**  
**Health:** 0  
**Flammability:** 0  
**Reactivity:** 0  
**Protective Equipment:** X - See protective equipment, Section 8.

**NFPA:**  
**Health:** 0  
**Flammability:** 0  
**Reactivity:** 0  
**Symbol:** Not applicable

**WHMIS Hazard Classification:** Not applicable  
**WHMIS Symbols:** Not applicable

3. COMPOSITION / INFORMATION ON INGREDIENTS

**Hazardous Components according to GHS:**  
Potassium Acid Phthalate
CAS Number: 877-24-7  
Chemical Formula: C₆H₇KO₄  
GHS Classification: Acute Tox 5, H303; Acute Tox. Derm. 4, H312; Eye Irrit. 2A, H319  
Percent Range: <1.5  
Percent Range Units: weight / weight  
PEL: 15 mg/m³ as total dust; 5 mg/m³ as respirable dust  
TLV: 10 mg/m³ as inhalable dust; 3 mg/m³ as respirable dust

WHMIS Symbols: Not applicable

Formaldehyde

CAS Number: 50-00-0  
Chemical Formula: CH₂O  
GHS Classification: Flam. Liq. 4, H227; Acute Tox. 3 -Orl, H301; Acute Tox. 3 -Derm, H311; Skin Corr. 1B, H314; Skin Sens. 1, H317; Acute Tox. 3-Inh, H331; Resp. Sens. 1, H334; Muta. 2, H341; Carc. 2, H351; Repr. 2, H361; STOT Single 1, H370; Aquatic Acute 2, H401  
Percent Range: < 0.1  
Percent Range Units: weight / weight  
PEL: 0.75 ppm  
TLV: 0.3 ppm

WHMIS Symbols: Acute PoisonOther Toxic Effects

Methyl Alcohol

CAS Number: 67-56-1  
Chemical Formula: CH₃OH  
GHS Classification: Flam. Liq. 2, H225; Acute Tox 3 -Orl, H301; Acute Tox 3 -Derm, H311; Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Acute Tox 3 -Inh, H331; Muta. 2, H341; Repr. 2, H361; STOT SE1, H370  
Percent Range: < 0.1  
Percent Range Units: weight / weight  
PEL: 200 ppm  
TLV: 200 ppm

WHMIS Symbols: Acute PoisonFlammable / CombustibleOther Toxic Effects

Hazardous Components according to GHS: No

Deminerlized Water

CAS Number: 7732-18-5  
Chemical Formula: H₂O  
GHS Classification: Not a dangerous substance according to GHS.  
Percent Range: >98  
Percent Range Units: weight / weight  
PEL: Not established  
TLV: Not established

WHMIS Symbols: Not applicable

SPADNS

CAS Number: 23647-14-5  
Chemical Formula: C₁₄H₂₇N₃O₇S₃Na  
GHS Classification: Non-hazardous  
Percent Range: < 0.01  
Percent Range Units: weight / weight  
PEL: 15 mg/m³ as inhalable dust; 5 mg/m³ as respirable dust  
TLV: 10 mg/m³ as inhalable dust; 3 mg/m³ as respirable dust

WHMIS Symbols: Not applicable

4. FIRST AID MEASURES
General Information: In the event of exposure, show this Material Safety Data Sheet and label (where possible) to a doctor.
Advice to doctor: Treat symptomatically.
Eye Contact: Immediately flush eyes with water for 15 minutes.
Skin Contact (First Aid): Wash skin with soap and plenty of water. Call physician if irritation develops. Remove contaminated clothing.
Inhalation: None required.
Ingestion (First Aid): Give large quantities of water. Never give anything by mouth to an unconscious person. Call physician immediately.

5. FIRE FIGHTING MEASURES

Flammable Properties: Material will not burn.
Fire Fighting Instruction: As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear.
Extinguishing Media: Use media appropriate to surrounding fire conditions
Extinguishing Media NOT To Be Used: Not applicable
Fire / Explosion Hazards: None reported
Hazardous Combustion Products: This material will not burn.

6. ACCIDENTAL RELEASE MEASURES

Spill Response Notice: Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance. Outside of the US, only persons properly qualified according to state or local regulations should respond to a spill involving chemicals.
Containment Technique: Stop spilled material from being released to the environment.
Clean-up Technique: If permitted by regulation, Cover spilled material with an alkali, such as soda ash or sodium bicarbonate. Scoop up slurry into a large beaker. Adjust to a pH between 6 and 9 with an alkali, such as soda ash or sodium bicarbonate. Flush reacted material to the drain with a large excess of water. Decontaminate the area of the spill with a soap solution. Otherwise, Pick up spill for disposal and place in a closed container Dispose of in accordance with local, state and federal regulations or laws.
Evacuation Procedure: Evacuate as needed to perform spill clean-up. If conditions warrant, increase the size of the evacuation.
DOT Emergency Response Guide Number: Not applicable

7. HANDLING AND STORAGE

Handling: Avoid contact with eyes. Wash thoroughly after handling.
Storage: Keep container tightly closed when not in use.
Flammability Class: Not applicable

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls: Maintain general industrial hygiene practices when using this product.
Personal Protective Equipment:
Eye Protection: safety glasses with top and side shields
Skin Protection: disposable latex gloves. In the EU, the selected gloves must satisfy the specifications of EU Directive 89/686/EEC and standard EN 374 derived from it.
Inhalation Protection: adequate ventilation
Precautionary Measures: Avoid contact with: eyes. Wash thoroughly after handling.
TLV: Not established
PEL: Not established
For Occupational Exposure Limits (OEL) for ingredients, see section 3 - Composition/Information on Ingredients:

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear, red liquid
Physical State: Liquid
Molecular Weight: Not applicable
Odor: None
Odor Threshold: Not applicable
pH: 4.01
Metal Corrosivity:
  Corrosivity Classification: Not classified as corrosive to metals according to GHS criteria.
  Steel: Not determined
  Aluminum: Not determined
Specific Gravity/Relative Density (water = 1; air =1): 1.002
Viscosity: ~1.0 mPa.s
Solubility:
  Water: Soluble
  Acid: Soluble
Other: Not determined
Partition Coefficient (n-octanol/water): Not applicable
Coefficient of Water/Oil: Not determined
Melting Point: ~0 °C (~32 °F)
Decomposition Temperature: Not applicable
Boiling Point: ~100 °C (~212 °F)
Vapor Pressure: 17 mm Hg at 20 °C (68 °F)
Vapor Density (air = 1): 0.62
Evaporation Rate (water = 1): 0.99
Volatile Organic Compounds Content: Not applicable
Flammable Properties: Material will not burn.
Flash Point: Not applicable
  Method: Not applicable
Flammability Limits:
  Lower Explosion Limits: Not applicable
  Upper Explosion Limits: Not applicable
Autoignition Temperature: Not applicable
Explosive Properties: Not classified according to GHS criteria.
Oxidizing Properties: Not classified according to GHS criteria.
Reactivity Properties: Not classified as self-reactive, pyrophoric, self-heating or emitting flammable gases in contact with water according to GHS criteria.
Gas under Pressure: Not applicable

10. STABILITY AND REACTIVITY

Chemical Stability: Stable when stored under proper conditions.
Mechanical Impact: None reported
Static Discharge: None reported.
Reactivity/Incompatibility: None reported
Hazardous Decomposition: None reported
Conditions to Avoid: Extreme temperatures

11. TOXICOLOGICAL INFORMATION

Toxicokinetics, Metabolism and Distribution: No information available for mixture.
Toxicologically Synergistic Products: None reported
Acute Toxicity: Acute Toxicity Estimate (ATE) - Calculated from Ingredient Toxicity Data Practically Non-toxic Based on classification principles, the classification criteria are not met.
Specific Target Organ Toxicity - Single Exposure (STOT-SE): Based on classification principles, the classification criteria are not met.
Specific Target Organ Toxicity - Repeat Exposure (STOT-RE): Based on classification principles, the classification criteria are not met.
Skin Corrosion/Irritation: Based on classification principles, the classification criteria are not met.
Eye Damage: Irritating to eyes.
Sensitization: Based on classification principles, the classification criteria are not met.

CMR Effects/Properties (carcinogenic, mutagenic or toxic to reproduction): Data supporting mutagenicity was found. Data insufficient for classification.

Potassium Acid Phthalate has been listed as a mutagen and reproductive toxin on the Danish Advisory List (QSAR).

There is no mammalian data to support classification.

An ingredient of this mixture is: IARC Group 1: Recognized Carcinogen
Formaldehyde
An ingredient of this mixture is: NTP Listed Group 1: Recognized Carcinogen
Formaldehyde
An ingredient of this product is an OSHA listed carcinogen.
Formaldehyde

Symptoms/Effects:
Ingestion: No Effects Anticipated
Inhalation: No effects anticipated
Skin Absorption: No effects anticipated
Chronic Effects: No effects anticipated
Medical Conditions Aggravated: None reported

12. ECOLOGICAL INFORMATION

Product Ecological Information: --
No ecological data available for this product. No bioaccumulation potential. Mobility in soil: Highly mobile. Based on classification principles, not classified as hazardous to the environment.

Ingredient Ecological Information: --
Ecological data for ingredients is not indicative of likely ecological harm.

13. DISPOSAL CONSIDERATIONS

EPA Waste ID Number: Not applicable
Special Instructions (Disposal): Adjust to a pH between 6 and 9 with an alkali, such as soda ash or sodium bicarbonate. If permitted by regulation, open cold water tap completely, slowly pour the reacted material to the drain. Otherwise, check with local municipal and state authorities and waste contractors for pertinent local information regarding the proper disposal of chemicals.

Empty Containers: Rinse three times with an appropriate solvent. Collect rinsate and dispose of according to local, state or federal regulations. Dispose of empty container as normal trash. In the US, rinsate from empty containers is classified as hazardous waste and should be disposed of at an E.P.A. approved facility. Rinsate from empty containers may contain sufficient product to require disposal as hazardous waste.

NOTICE (Disposal): These disposal guidelines are based on federal regulations and may be superseded by more stringent state or local requirements. Please consult your local environmental regulators for more information. In Europe: Chemical and analysis solutions must be disposed of in compliance with the respective national regulations. Product packaging must be disposed of in compliance with the country-specific regulations or must be passed to a packaging return system.

14. TRANSPORT INFORMATION

D.O.T.:
D.O.T. Proper Shipping Name: Not Currently Regulated

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Hazard Class: NA
Subsidiary Risk: NA
ID Number: NA
Packing Group: NA

T.D.G.:
Proper Shipping Name: Not Currently Regulated

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Hazard Class: NA
Subsidiary Risk: NA
UN Number/PIN: NA
Packing Group: NA

I.C.A.O.:
I.C.A.O. Proper Shipping Name: Not Currently Regulated

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Hazard Class: NA
Subsidiary Risk: NA
ID Number: NA
Packing Group: NA

I.M.O.:
   Proper Shipping Name: Not Currently Regulated

Hazard Class: NA
Subsidiary Risk: NA
ID Number: NA
Packing Group: NA

Additional Information: There is a possibility that this product could be contained in a reagent set or kit composed of various compatible dangerous goods. If the item is NOT in a set or kit, the classification given above applies. If the item IS part of a set or kit, the classification would change to the following: UN3316 Chemical Kit, Class 9, PG II or III. If the item is not regulated, the Chemical Kit classification does not apply.

15. REGULATORY INFORMATION

U.S. Federal Regulations:
O.S.H.A.: This product does not meet the criteria for a hazardous substance as defined in the Hazard Communication Standard. (29 CFR 1910.1200)
E.P.A.:
   S.A.R.A. Title III Section 311/312 Categorization (40 CFR 370): This product is not hazardous under 29 CFR 1910.1200 and therefore is not covered by Title III under SARA.
   S.A.R.A. Title III Section 313 (40 CFR 372): This product does NOT contain any chemical subject to the reporting requirements of Section 313 of Title III of SARA.
   302 (EHS) TPQ (40 CFR 355): Not applicable
   304 CERCLA RQ (40 CFR 302.4): Not applicable
   304 EHS RQ (40 CFR 355): Not applicable
   Clean Water Act (40 CFR 116.4): Not applicable
   RCRA: Contains no RCRA regulated substances.

State Regulations:
California Prop. 65: No Prop. 65 listed chemicals are present in this product.
Identification of Prop. 65 Ingredient(s): None
California Perchlorate Rule CCR Title 22 Chap 33: Not applicable
Trade Secret Registry: Not applicable

National Inventories:
   U.S. Inventory Status: All ingredients in this product are listed on the TSCA 8(b) Inventory (40 CFR 710).
   CAS Number: Not applicable
   Canadian Inventory Status: All ingredients of this product are DSL Listed.
   EEC Inventory Status: All ingredients used to make this product are listed on EINECS / ELINCS.
   Australian Inventory (AICS) Status: All ingredients are listed.
   New Zealand Inventory (NZIoC) Status: All components either listed or exempt.
   Korean Inventory (KECI) Status: All components of this product are either listed, listed as the anhydrous compound or exempt.
   Japan (ENCS) Inventory Status: All components either listed or exempt.
   China (PRC) Inventory (MEP) Status: All components either listed or exempt.

16. OTHER INFORMATION


**Revision Summary:** Substantial revision to comply with EU Reg 1272/2008, Reg 1907/2006 and UN GHS (ST/SG/AC.10/36/Add.3).

**Date of MSDS Preparation:**
- **Day:** 13
- **Month:** March
- **Year:** 2014

**MSDS Prepared:** MSDS prepared by Product Compliance Department extension 3350

**CCOHS Evaluation Note:** It is offered under exemption from WHMIS labeling as specified in the Controlled Products Regulation (CPR) Section 17. It is offered under the interim policy that was established by Health Canada permitting use of GHS-formatted safety data sheets in Canada prior to revision of CPR to GHS. This product has been classified and labeled in accordance with the requirements of GHS (ST/SG/AC.10/36/Add.3). This SDS has been prepared in accordance with the requirements of GHS (ST/SG/AC.10/36/Add.3).

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**Legend:**
- NA - Not Applicable
- ND - Not Determined
- NV - Not Available
- w/w - weight/weight
- w/v - weight/volume
- v/v - volume/volume

**USER RESPONSIBILITY:** Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

**THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.**

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