



Material Safety Data Sheet

Creation Date 15-Dec-2009

Revision Date 13-May-2013

Revision Number 2

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name	Buffer Solution, pH 2.00 (Certified)
Cat No.	SB96-1; SB96-20; SB96-500
Synonyms	None.
Recommended Use	Laboratory chemicals
Company	Emergency Telephone Number
Fisher Scientific	CHEMTREC®, Inside the USA: 800-424-9300
One Reagent Lane	CHEMTREC®, Outside the USA: 001-703-527-3887
Fair Lawn, NJ 07410	
Tel: (201) 796-7100	

2. HAZARDS IDENTIFICATION

CAUTION!

Emergency Overview

May cause skin, eye, and respiratory tract irritation. The toxicological properties have not been fully investigated. **WARNING!** This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

Appearance Clear

Physical State Liquid

Odor odorless

Target Organs None known.

Potential Health Effects

Acute Effects

Principle Routes of Exposure

Eyes

May cause irritation

Skin

May cause irritation

Inhalation

May cause irritation of respiratory tract

Ingestion

Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea

Chronic Effects

Contains a known or suspected carcinogen. Component substance is listed on California Proposition 65 as a developmental hazard.

See Section 11 for additional Toxicological information.

Aggravated Medical Conditions No information available.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Haz/Non-haz

Component	CAS-No	Weight %
Water	7732-18-5	99.43
Potassium chloride	7447-40-7	0.4
Hydrogen chloride	7647-01-0	0.10
Formaldehyde	50-00-0	0.05
Methyl alcohol	67-56-1	0.02

4. FIRST AID MEASURES

Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately if symptoms occur.
Inhalation	Move to fresh air. If breathing is difficult, give oxygen. Get medical attention immediately if symptoms occur.
Ingestion	Do not induce vomiting. Obtain medical attention.
Notes to Physician	Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Flash Point	No information available.
Method -	No information available.
Autoignition Temperature	No information available.
Explosion Limits	
Upper	No data available
Lower	No data available
Unsuitable Extinguishing Media	No information available.
Hazardous Combustion Products	No information available.
Sensitivity to mechanical impact	No information available.
Sensitivity to static discharge	No information available.

Specific Hazards Arising from the Chemical

Thermal decomposition can lead to release of irritating gases and vapors.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

NFPA **Health** 1 **Flammability** 0 **Instability** 0 **Physical hazards** N/A

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Use personal protective equipment. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing.
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Environmental Precautions Should not be released into the environment.

Methods for Containment and Clean Up Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Handling Wear personal protective equipment. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Do not breathe vapors or spray mist.

Storage Keep containers tightly closed in a dry, cool and well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Measures Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH
Hydrogen chloride	Ceiling: 2 ppm	Ceiling: 5 ppm Ceiling: 7 mg/m ³ (Vacated) Ceiling: 5 ppm (Vacated) Ceiling: 7 mg/m ³	IDLH: 50 ppm Ceiling: 5 ppm Ceiling: 7 mg/m ³
Formaldehyde	Ceiling: 0.3 ppm	(Vacated) TWA: 3 ppm (Vacated) STEL: 10 ppm (Vacated) Ceiling: 5 ppm TWA: 0.75 ppm STEL: 2 ppm	IDLH: 20 ppm TWA: 0.016 ppm Ceiling: 0.1 ppm
Methyl alcohol	TWA: 200 ppm STEL: 250 ppm Skin	(Vacated) TWA: 200 ppm (Vacated) TWA: 260 mg/m ³ (Vacated) STEL: 250 ppm (Vacated) STEL: 325 mg/m ³ Skin TWA: 200 ppm TWA: 260 mg/m ³	IDLH: 6000 ppm TWA: 200 ppm TWA: 260 mg/m ³ STEL: 250 ppm STEL: 325 mg/m ³

Component	Quebec	Mexico OEL (TWA)	Ontario TWAEV
Hydrogen chloride	Ceiling: 5 ppm Ceiling: 7.5 mg/m ³	Peak: 5 ppm Peak: 7 mg/m ³	CEV: 2 ppm
Formaldehyde	Ceiling: 2 ppm Ceiling: 3 mg/m ³	Peak: 2 ppm Peak: 3 mg/m ³	STEL: 1.0 ppm CEV: 1.5 ppm
Methyl alcohol	TWA: 200 ppm TWA: 262 mg/m ³ STEL: 250 ppm STEL: 328 mg/m ³ Skin	TWA: 200 ppm TWA: 260 mg/m ³ STEL: 250 ppm STEL: 310 mg/m ³	TWA: 200 ppm STEL: 250 ppm Skin

NIOSH IDLH: Immediately Dangerous to Life or Health

Personal Protective Equipment

Eye/face Protection

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166

Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure

Respiratory Protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid
Appearance	Clear
Odor	odorless
Odor Threshold	No information available.
pH	2.00
Vapor Pressure	No information available.
Vapor Density	0.7
Viscosity	No information available.
Boiling Point/Range	100°C / 212°F
Melting Point/Range	0°C / 32°F
Decomposition temperature	No information available.
Flash Point	No information available.
Evaporation Rate	1.0
Specific Gravity	1.0
Solubility	Soluble in water
log Pow	No data available

10. STABILITY AND REACTIVITY

Stability	Stable under normal conditions.
Conditions to Avoid	Excess heat.
Incompatible Materials	None known
Hazardous Decomposition Products	Carbon monoxide (CO), Carbon dioxide (CO ₂)
Hazardous Polymerization	Hazardous polymerization does not occur
Hazardous Reactions	None under normal processing.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Product Information No acute toxicity information is available for this product

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Potassium chloride	2600 mg/kg (Rat)	Not listed	Not listed
Hydrogen chloride	700 mg/kg (Rat)	5010 mg/kg (Rabbit)	3124 ppm (Rat) 1 h
Formaldehyde	500 mg/kg (Rat)	Not listed	0.578 mg/L (Rat) 4 h
Methyl alcohol	5628 mg/kg (Rat)	15800 mg/kg (Rabbit)	64000 ppm (Rat) 4 h 83.2 mg/L (Rat) 4 h

Irritation No information available.

Toxicologically Synergistic Products No information available.

Chronic Toxicity

Carcinogenicity The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	ACGIH	IARC	NTP	OSHA	Mexico
Hydrogen chloride	Not listed	group 3	Not listed	Not listed	Not listed
Formaldehyde	A2	Group 1	Reasonably Anticipated	X	A2

ACGIH: (American Conference of Governmental Industrial Hygienists)

- A1 - Known Human Carcinogen
- A2 - Suspected Human Carcinogen
- A3 - Animal Carcinogen

ACGIH: (American Conference of Governmental Industrial Hygienists)

IARC: (International Agency for Research on Cancer)

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- Group 1 - Carcinogenic to Humans
- Group 2A - Probably Carcinogenic to Humans
- Group 2B - Possibly Carcinogenic to Humans

NTP: (National Toxicity Program)

NTP: (National Toxicity Program)

- Known - Known Carcinogen
- Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

Sensitization	No information available.
Mutagenic Effects	No information available.
Reproductive Effects	No information available.
Developmental Effects	No information available.
Teratogenicity	No information available.
Other Adverse Effects	The toxicological properties have not been fully investigated.. See actual entry in RTECS for complete information.
Endocrine Disruptor Information	No information available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Potassium chloride	EC50: 2500 mg/L/72h	750-1020 mg/L LC50 96 h 1060 mg/L LC50 96 h	Not listed	EC50: 825 mg/L/48h
Formaldehyde	Not listed	Leuciscus idus: LC50 = 15 mg/L 96h	Not listed	EC50 = 20 mg/L 96h EC50 = 2 mg/L 48h
Methyl alcohol	Not listed	Pimephales promelas: LC50 > 10000 mg/L 96h	EC50 = 39000 mg/L 25 min EC50 = 40000 mg/L 15 min EC50 = 43000 mg/L 5 min	EC50 > 10000 mg/L 24h

Persistence and Degradability No information available

Bioaccumulation/ Accumulation No information available

Mobility

Component	log Pow
Formaldehyde	-0.35
Methyl alcohol	-0.74

13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification

Component	RCRA - U Series Wastes	RCRA - P Series Wastes
Formaldehyde - 50-00-0	U122	-
Methyl alcohol - 67-56-1	U154	-

14. TRANSPORT INFORMATION

DOT Not regulated

TDG Not regulated

IATA Not regulated

IMDG/IMO Not regulated

15. REGULATORY INFORMATION

International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	CHINA	KECL
Water	X	X	-	231-791-2	-		X	-	X	X	X
Potassium chloride	X	X	-	231-211-8	-		X	X	X	X	X
Hydrogen chloride	T	X	-	231-595-7	-		X	X	X	X	X
Formaldehyde	X	X	-	200-001-8	-		X	X	X	X	X
Methyl alcohol	X	X	-	200-659-6	-		X	X	X	X	X

Legend:

X - Listed

E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.

F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.

N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.

P - Indicates a commenced PMN substance

R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

S - Indicates a substance that is identified in a proposed or final Significant New Use Rule

T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.

XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.

Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Hydrogen chloride	7647-01-0	0.10	1.0
Formaldehyde	50-00-0	0.05	0.1
Methyl alcohol	67-56-1	0.02	1.0

SARA 311/312 Hazardous Categorization

Acute Health Hazard	No
Chronic Health Hazard	No
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Water	-	1 LB	-	-
Hydrogen chloride	X	5000 lb	-	-
Formaldehyde	X	100 lb	-	-

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Hydrogen chloride	X		-
Formaldehyde	X		-
Methyl alcohol	X		-

OSHA

Component	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Hydrogen chloride	-	TQ: 5000 lb
Formaldehyde	2 ppm STEL 0.5 ppm Action Level 0.75 ppm TWA	TQ: 1000 lb

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Component	Hazardous Substances RQs	CERCLA EHS RQs
Hydrogen chloride	5000 lb	5000 lb
Formaldehyde	100 lb	100 lb
Methyl alcohol	5000 lb	-

California Proposition 65

This product contains the following Proposition 65 chemicals:

Component	CAS-No	California Prop. 65	Prop 65 NSRL
Formaldehyde	50-00-0	Carcinogen	40 µg/day
Methyl alcohol	67-56-1	Methanol	-

State Right-to-Know

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Hydrogen chloride	X	X	X	X	X
Formaldehyde	X	X	X	X	X
Methyl alcohol	X	X	X	X	X

U.S. Department of Transportation

Reportable Quantity (RQ): Y
 DOT Marine Pollutant N
 DOT Severe Marine Pollutant N

U.S. Department of Homeland Security

This product contains the following DHS chemicals:

Component	DHS Chemical Facility Anti-Terrorism Standard
Hydrogen chloride	0 lb STQ (anhydrous); 11250 lb STQ (37% concentration or greater)
Formaldehyde	11250 lb STQ (solution)

Other International Regulations

Mexico - Grade No information available

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class

Non-controlled

16. OTHER INFORMATION

Prepared By Regulatory Affairs
 Thermo Fisher Scientific
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Revision Summary

****, and red text indicates revision

Disclaimer

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

End of MSDS