Material Safety Data Sheet

Sulfide Ion Calibration Solution 100 ppm S-2 June 2011

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1. Product Identification

Product Name:	100 ppm Sulfide Ion Calibration Solution
ECD Part #:	2010429
CAS No.	None
Molecular Weight:	none
Chemical Formula:	100 mg/l S-2in 0.5M Sodium Hydroxide with 0.05 M Ascorbic Acid and 0.05 M EDTA
Product Codes:	ECD Part # 2010429
Manufacture By:	Electro-Chemical Devices, Inc.
	1681 Kettering
	Irvine, CA 92614
Phone:	(800) 729-1333

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2. Hazards Identification

Emergency Overview: Toxic by inhalation and if swallowed. Causes severe burns and eye damage upon direct contact.

Vapor is irritating.

Signal word Danger

Hazard Pictograms

Hazard statement(s)

H290	May be corrosive to metals.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H402	Harmful to aquatic life.

Precautionary statement(s)

P234	Keep only in original container.
P260	Do not breathe dust or mist.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P312 + P330	IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P310	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
P305 + P351 + P338 + P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.
P363	Wash contaminated clothing before reuse.
P390	Absorb spillage to prevent material damage.
P405	Store locked up.
P406	Store in corrosive resistant stainless steel container with a resistant inner liner.
P501	Dispose of contents/ container to an approved waste disposal plant.

Potential Health Effects:

Eyes: Causes severe burns and eye damage upon direct contact. Vapor is irritating.

Skin: May cause severe irritation or chemical burns.

Ingestion: May severely irritate or damage digestive tract.

Inhalation: May severely irritate or damage mucous membranes and respiratory tract.

TARGET ORGANS: Skin, eyes, respiratory system

ACUTE TOXICITY: Inhalation: Mild to severe irritation. Large doses: Delayed pulmonary edema, small skin burns with deep ulceration, severe burns and disintegration of conjunctival and corneal epithelium. Corrosion of lips, mouth, tongue, and pharynx, vomiting of mucosa-asphyxia can occur from swelling of throat

CHRONIC TOXICITY: Bronchial irritant, coughing, pneumonia, gastrointestinal disturbances, dermatitis, conjunctivitis

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Lung conditions; irritated or sensitive skin

NFPA RATING:

Emergency Overview

Principal Hazardous Components: Sodium Hydroxide (CAS # 1310-73-2) 8%

TLV units: ACGIH-TLV 2 mg/m3 (Ceiling)

PEL units: OSHA-PEL 2 mg/m3 (TWA)

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3. Composition/Information on Ingredients

Ingredient	CAS No	Percent	LD 50 mg/kg
Sodium Hydroxide (NaOH)	1310-73-2	2 %	90 mg/kg (ORL-RAT)
Ethylenediaminetetraacetic Acid (EDTA)	139-33-3	<2 %	2000 mg/kg (ORL-RAT)
Ascorbic Acid	50-81-7	<1 %	11,900 mg/kg (ORL-RAT)
Sodium Sulfide	1313-84-4	.08%	200 mg/Kg (ORL-RAT)
Deionized Water (H2O)	7732-18-5	Balance	190,000 (IPR-MUS)

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4. First Aid Measures

Inhalation - In case of accident by inhalation: remove casualty to fresh air and keep at rest.

Eyes - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Skin - After contact with skin, wash immediately with plenty of ... (Water, unless specified as water-reactive).

Ingestion - If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

5. Fire Fighting Measures

Flash Point (Method Used): N/A

Extinguisher Media: Use media suitable to extinguish surrounding fire.

Flammable Limits in Air % by Volume: N/A

Auto ignition Temperature: N/A

Special Firefighting Procedures: Firefighters should wear full protective equipment and NIOSH approved self-contained breathing apparatus.

Unusual Fire and Explosion Hazards: Contact with combustible materials, flammable materials, or powdered metals can cause fire or explosion. Can react violently with reducing agents.

6. Accidental Release Measures

Steps to take in Case Material Is Released or Spilled: Ventilate area of spill. Remove all non-essential personnel from area. Clean-up personnel should wear proper protective equipment and clothing. Neutralize sulfide to sulfate with a dilute solution of household bleach (1% solution in water), then neutralize with a volume equal to the spill of 2% muriatic acid. Absorb material with suitable absorbent and containerize for disposal.

7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Isolate from incompatible substances. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:

Components	CAS No.	Value	Control Parameters	Basis
Potassium Hydroxide	1310-58-3	C	2 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Upper Respiratory Tract irritation Eye irritation Skin irritation		
		C	2 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants -1910.1000

		C	2 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants

Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, Industrial Ventilation, A Manual of

Recommended Practices, most recent edition, for details.

Personal Respirators (NIOSH Approved):

None needed under normal conditions of use with adequate ventilation. A NIOSH/MSHA chemical cartridge respirator should be worn if PEL or TLV is exceeded.

Skin Protection:

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact. Protective Gloves: Natural rubber, Neoprene, PVC or equivalent.

Eye Protection:

Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

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9. Physical and Chemical Properties

Appearance:	Clear amber to brown liquid
Odor:	Odorless.
Solubility:	Fully miscible
Specific Gravity:	1.2 (H2O = 1)
pH:	> 14 pH
% Volatiles by volume @ 21C (70F):	0
Boiling Point:	100°C
Melting Point:	0°C
Vapor Density (Air=1):	No information found.
Vapor Pressure (mm Hg):	No information found.
Evaporation Rate (BuAc=1):	No information found.

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10. Stability and Reactivity

Stability: Stable under ordinary conditions of use and storage.

Hazardous Decomposition Products: Sulfur oxides, hydrogen sulfide gas.

Hazardous Polymerization: Will not occur.

Incompatibilities: Acidic conditions, aluminum,

Conditions to Avoid: Acidic conditions

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11. Toxicological Information

Toxicity Data: dermal-rabbit LD50 1350 mg/kg

Effects of Overexposure:

Acute: See Section 2

Chronic: N/A

Conditions Aggravated by Overexposure: Respiratory disorders,

Target Organs: Respiratory system, Eyes,

Primary Route(s) of Entry: Inhalation and ingestion.

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12. Ecological Information

EPA Waste Numbers: D002

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13. Disposal Considerations

State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

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14. Transport Information

DOT (US)

UN Number: 1824 Class: 8 Pacing Group: II
Proper Shipping Name: Sodium Hydroxide solution

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15. Regulatory Information

EPA TSCA Status: On TSCA Inventory

Hazard Category for SARA Section 311/312 Reporting: Acute

Name List: Chemical Category: Sodium Hydroxide - Yes

Chemical Category: Sodium Hydroxide - No

CERCLA Section 103 RQ(lb.): Sodium Hydroxide - No

RCRA Section 261.33: Sodium Hydroxide - No

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16. Other Information

Label Hazard Warning:

WARNING! Corrosive causes burns to skin, eyes and respiratory tract. HARMFUL IF SWALLOWED.

Label Precautions:

Avoid contact with eyes, skin and clothing.

Keep container closed.

Use only with adequate ventilation.

Wash thoroughly after handling.

Label First Aid:

If swallowed: DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air.

If not breathing: Give artificial respiration. If breathing is difficult, give oxygen.

In case of contact: Immediately flush eyes or skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. In all cases, get medical attention.

Product Use:

Laboratory Reagent.

Revision Information:

MSDS 2010429 rev. B, Feb. 2015