

World Headquarters
Hach Company
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MSDS No: M00087

SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Product Name: Ammonia Reagent 2

Catalog Number: 2071649

HACH LANGE GmbH
Willstätterstrasse 11
40549 Düsseldorf, Germany
+49-(0)211-52880

Emergency Telephone Numbers:
(Poison Information Center Main)
(+49 (0) 6131 19240) 24 HR

SDS Number: M00087

Chemical Name: Not applicable

Chemical Formula: Not applicable

Chemical Family: Not applicable

Use of the substance/preparation: Determination of ammonium nitrogen

CAS No.: Not applicable

Hazard: Causes severe burns. Highly toxic. Cumulative poison. Experimental teratogen.

Date of MSDS Preparation:

Day: 27

Month: January

Year: 2003

Additional Emergency Response Numbers: Austria: +49 (0)6131 19240, Belgium: +32-(0)70-245245, France: +33-(0)1-40370404, Italy: +39-02-66101029, Netherlands: +31-(0)30-2748888, Switzerland: +41-(0)1-2515151

2. COMPOSITION / INFORMATION ON INGREDIENTS

Potassium Tetraiodomercurate (II)

EEC Number: 2319904

CAS No.: 7783-33-7 Contains Mercury, Dispose Per Local, State or Federal Laws

Percent Range: 10,0 - 20,0

Percent Range Units: weight / weight

Ingredient EEC Symbol: T+ - VERY TOXIC N - Dangerous for the Environment

Ingredient R phrase(s) (R phrase details given in Heading 16): R 26/27/28 R 33 R 51/53

TLV: 0,1 mg/m³ (Hg)

PEL: 0,1 mg/m³ (Hg)

EU Occupational Exposure Limits: 0,1 mg/m³

Lithium Hydroxide

EEC Number: 2151834

CAS No.: 1310-65-2

Percent Range: 80,0 - 90,0

Percent Range Units: weight / weight

Ingredient EEC Symbol: C - CORROSIVE

Ingredient R phrase(s) (R phrase details given in Heading 16): R 35

TLV: STEL 2 mg/m³ (ceiling)

PEL: 2 mg/m³

EU Occupational Exposure Limits: 3 mg/m³, Inhalable dust

3. HAZARDS IDENTIFICATION

Emergency Overview:

Appearance: Yellow crystals

Odor: Not determined

EU Symbols: T+ - VERY TOXIC N - DANGEROUS FOR THE ENVIRONMENT

R PHRASES: R 26/27/28: Very toxic by inhalation, in contact with skin and if swallowed. R 33: Danger of cumulative effects. R 35: Causes severe burns. R 51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Protective Equipment:

Potential Health Effects:

Eye Contact (EC): Causes severe burns

Skin Contact (EC): Causes severe burns

Skin Absorption (EC): Very toxic Will be absorbed through the skin. Effects similar to those of ingestion

Target Organs (SA E): Central nervous system Kidneys

Ingestion (EC): Very Toxic Can cause: severe burns abdominal pain nausea vomiting dizziness diarrhea shock loosening of the teeth toxic nephritis (inflammation of the kidneys) central nervous system effects kidney damage liver damage coma death

Target Organs (Ing E): Kidneys Central nervous system Liver Bone marrow

Inhalation: Very Toxic Can cause: severe burns coughing shortness of breath mouth soreness abdominal pain headache muscular twitching central nervous system effects kidney damage liver damage loosening of the teeth

Target Organs (Inh E): Central nervous system Kidneys Liver

Medical Conditions Aggravated: Allergies or sensitivity to mercury. Pre-existing: Eye conditions Skin conditions Respiratory conditions Kidney conditions Liver conditions Central nervous system diseases

Chronic Effects: Mercury is a general protoplasmic poison; it circulates in the blood and is stored in the liver, kidneys, spleen and bones. Main symptoms are sore mouth, tremors and psychic disturbances. Mercury can cause personality changes such as: depression, despondency, fearfulness, restlessness, irritability, timidity, indecision and embarrassment. Lithium compounds have been implicated in development of aplastic anemia. Signs of lithium poisoning include dehydration, extreme weight loss, fine tremor of hands, nausea, vomiting and diarrhea, Chronic overexposure may cause central nervous system effects kidney damage liver damage brain damage

Cancer / Reproductive Toxicity Information:

This product does NOT contain any IARC listed chemicals.

Additional Cancer / Reproductive Toxicity Information: Contains: an experimental teratogen.

Toxicologically Synergistic Products: None reported

4. FIRST AID MEASURES

Eye Contact: Immediately flush eyes with water for 15 minutes. Call physician.

Skin Contact (First Aid): Wash skin with plenty of water for 15 minutes. Remove contaminated clothing. Call physician immediately.

Ingestion (First Aid): Do not induce vomiting. Give 1-2 glasses of water. Call physician immediately. Never give anything by mouth to an unconscious person.

Inhalation: Remove to fresh air. Give artificial respiration if necessary. Call physician.

5. FIRE FIGHTING MEASURES

Flammable Properties: During a fire, this product decomposes to form toxic gases.

Hazardous Combustion Products: Toxic fumes of: mercury iodine

Fire / Explosion Hazards: None reported

Static Discharge: None reported.

Mechanical Impact: None reported

Extinguishing Media: Use media appropriate to surrounding fire conditions

Extinguishing Media NOT To Be Used: Not applicable

Fire Fighting Instruction: As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear. Water runoff can cause environmental damage. Dike and collect water used to fight fire.

6. ACCIDENTAL RELEASE MEASURES

Spill Response Notice:

Only persons properly qualified to respond to an emergency involving hazardous substances should respond to a spill involving chemicals. See Section 13, Special Instructions for disposal assistance.

Containment Technique: Releases of this material may contaminate the environment. Stop spilled material from being released to the environment.

Clean-up Technique: Mercury and its compounds are extremely toxic! Avoid breathing spilled material. Avoid contact with spilled material. Sweep up material. Dispose of material in an E.P.A. approved hazardous waste facility. Decontaminate area with commercially available mercury absorbing compounds.

Evacuation Procedure: Evacuate general area (50 foot radius or as directed by your facility's emergency response plan) when: any quantity is spilled. If conditions warrant, increase the size of the evacuation.

7. HANDLING AND STORAGE

Handling: Avoid contact with eyes skin clothing Do not breathe dust. Wash thoroughly after handling. Maintain general industrial hygiene practices when using this product.

Storage: Protect from: heat Keep away from: acids metals oxidizers

Special Packaging Instructions: Not applicable

Use of the substance/preparation: Determination of ammonium nitrogen

8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

Engineering Controls: Have a safety shower nearby. Have an eyewash station nearby. Use a fume hood to avoid exposure to dust, mist or vapor. Maintain general industrial hygiene practices when using this product.

Personal Protective Equipment:

Eye Protection: safety glasses with top and side shields

Skin / Hand Protection: neoprene latex gloves lab coat

Inhalation Protection: laboratory fume hood

Precautionary Measures: Avoid contact with: eyes skin clothing Do not breathe: dust Wash thoroughly after handling. Protect from: heat Keep away from: oxidizers acids/acid fumes

TLV: Not established

PEL: Not established

EU Occupational Exposure Limits: 3 mg/m³, Inhalable dust

9. PHYSICAL / CHEMICAL PROPERTIES

Appearance: Yellow crystals

Physical State: Solid

Odor: Not determined

pH: 5% soln = 11,2

Vapor Pressure: Not applicable

Vapor Density (air = 1): Not applicable

Boiling Point: Not applicable

Melting Point: decomposes @ 185°C; 365°F

Flash Point: Not applicable

Method: Not applicable
Autoignition Temperature: Not applicable
Flammability Limits:
 Lower Explosion Limits: Not applicable
 Upper Explosion Limits: Not applicable
Specific Gravity (water = 1): 1,48
Evaporation Rate (water = 1): Not applicable
Volatile Organic Compounds Content: Not applicable
Partition Coefficient (n-octanol / water): Not applicable
Solubility:
 Water: Soluble
 Acid: Soluble
 Other: Alcohol
Metal Corrosivity:
 Steel: Not determined
 Aluminum: Not determined

10. STABILITY / REACTIVITY

Chemical Stability: Stable when stored under proper conditions.
Conditions to Avoid: Heat Exposure to light.
Reactivity / Incompatibility: Incompatible with: alkalis oxidizers
Hazardous Decomposition: Heating to decomposition releases toxic and/or corrosive fumes of: mercury iodine
Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Product Toxicological Data:
 LD50: None reported
 LC50: None reported
 Dermal Toxicity Data: Potassium Tetraiodomercurate (II): Skin guinea pig LDLo = 1 g/kg
 Skin and Eye Irritation Data: None reported
 Mutation Data: None reported
 Reproductive Effects Data: None reported
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Ingredient Toxicological Data: Lithium Hydroxide: Oral rat LD50 = 225 mg/kg

This product does NOT contain any IARC listed chemicals.

12. ECOLOGICAL INFORMATION

Product Ecological Information: --
No ecological data available for this product.
Ingredient Ecological Information: --
No ecological data available for the ingredients of this product.

13. DISPOSAL CONSIDERATIONS

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

I.C.A.O.:

I.C.A.O. Proper Shipping Name: Lithium Hydroxide Mixture

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ICAO Hazard Class: 8

ICAO Subsidiary Risk: NA

ICAO UN/ID Number: UN2680

ICAO Packing Group: II

I.M.O.:

I.M.O. Proper Shipping Name: Lithium Hydroxide Mixture

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I.M.O. Hazard Class: 8

I.M.O. Subsidiary Risk: NA

I.M.O. UN Number: UN2680

I.M.O. Packing Group: II

A.D.R.:

A.D.R. Proper Shipping Name: Lithium Hydroxide Mixture

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A.D.R Hazard Class: 8

A.D.R. Subsidiary Risk: NA

A.D.R. UN-Number:: 2680

A.D.R. Packing Group: II

Additional Information: This product may be shipped as part of a chemical kit composed of various compatible dangerous goods for analytical or testing purposes. This kit would have the following classification: Proper Shipping Name: Chemical Kit Hazard Class: 9 UN Number 3316

15. REGULATORY INFORMATION

National Inventories:

EEC Inventory Status: All ingredients used to make this product are listed on EINECS / ELINCS.

EEC Number: Not applicable

EEC LABEL COPY:

EU Symbols: T+ - VERY TOXIC N - DANGEROUS FOR THE ENVIRONMENT

R PHRASES: R 26/27/28: Very toxic by inhalation, in contact with skin and if swallowed. R 33: Danger of cumulative effects. R 35: Causes severe burns. R 51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S PHRASES: S 22: Do not breathe dust. S 28a: After contact with skin, wash immediately with plenty of water. S 35: This material and its container must be disposed of in a safe way. S 36/37/39: Wear suitable protective clothing, gloves and eye/face protection. S 45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

16. OTHER INFORMATION

References: 29 CFR 1900 - 1910 (Code of Federal Regulations - Labor). Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. TLV's Threshold Limit Values and Biological Exposure Indices for 1992-1993. American Conference of Governmental Industrial Hygienists, 1992. Gosselin, R. E. et al. Clinical Toxicology of Commercial Products, 5th Ed. Baltimore: The Williams and Wilkins Co., 1984. CCINFO RTECS. Canadian Centre for Occupational Health and Safety. Hamilton, Ontario Canada: 30 June 1993. Vendor Information. In -house information. Technical Judgment.

R PHRASES: R 26/27/28: Very toxic by inhalation, in contact with skin and if swallowed. R 33: Danger of cumulative effects. R 35: Causes severe burns. R 51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Use of the substance/preparation: Determination of ammonium nitrogen

Revision Summary: Updates in Section(s) 14,

Legend:

NA - Not Applicable	w/w - weight/weight
ND - Not Determined	w/v - weight/volume
NV - Not Available	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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SAFETY DATA SHEET

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Product Name: Ammonia Reagent 1
Catalog Number: 2073549

HACH LANGE GmbH
Willstätterstrasse 11
40549 Düsseldorf, Germany
+49-(0)211-52880

Emergency Telephone Numbers:
(Poison Information Center Main)
(+49 (0) 6131 19240) 24 HR

SDS Number: M00088

Chemical Name: 2,3 - Dihydroxybutanedioic Acid, Monopotassium Monosodium Salt

Chemical Formula: C₄H₄O₆KNa

Chemical Family: Substituted organic acid

Use of the substance/preparation: Laboratory reagent

CAS No.: 6381-59-5

Hazard: May cause irritation.

Date of MSDS Preparation:

Day: 12

Month: 01

Year: 2006

Additional Emergency Response Numbers: Austria: +49 (0)6131 19240, Belgium: +32-(0)70-245245, France: +33 (0)1-40370404, Italy: +39-0266101029, Netherlands: +31 -(0)30-2748888, Switzerland: +41-(0)1-2515151

2. COMPOSITION / INFORMATION ON INGREDIENTS

Potassium Sodium Tartrate

EEC Number: 2061568

CAS No.: 6384595

Percent Range: 100,0

Percent Range Units: weight / weight

Ingredient EEC Symbol: Not applicable

Ingredient R phrase(s) (R phrase details given in Heading 16): Not applicable

TLV: Not established

PEL: Not established

EU Occupational Exposure Limits: 3 mg/m³, Inhalable dust

3. HAZARDS IDENTIFICATION

Emergency Overview:

Appearance: White crystals

Odor: None

EU Symbols: Not applicable

R PHRASES: Not applicable

Protective Equipment:

Potential Health Effects:

Eye Contact (EC): May cause irritation

Skin Contact (EC): May cause irritation

Skin Absorption (EC): No effects anticipated

Target Organs (SA E): Not applicable
Ingestion (EC): May cause: irritation of the mouth and esophagus abdominal pain
Target Organs (Ing E): None Reported
Inhalation: May cause: irritation of nose and throat
Target Organs (Inh E): None Reported
Medical Conditions Aggravated: None reported
Chronic Effects: No effects anticipated
Cancer / Reproductive Toxicity Information:
IARC Listed: No

Additional Cancer / Reproductive Toxicity Information: None reported
Toxicologically Synergistic Products: None reported

4. FIRST AID MEASURES

Eye Contact: Immediately flush eyes with water for 15 minutes. Call physician.
Skin Contact (First Aid): Wash skin with soap and plenty of water.
Ingestion (First Aid): Give large quantities of water. Call physician immediately.
Inhalation: Remove to fresh air.

5. FIRE FIGHTING MEASURES

Flammable Properties: Dusts at sufficient concentrations can form explosive mixtures with air.
Hazardous Combustion Products: May emit acrid smoke and fumes.
Fire / Explosion Hazards: High concentrations of dust may form an explosive mixture with air.
Static Discharge: None reported.
Mechanical Impact: None reported
Extinguishing Media: Water. Carbon dioxide Dry chemical.
Extinguishing Media NOT To Be Used: Not applicable Not applicable Not applicable
Fire Fighting Instruction: As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Spill Response Notice:
Only persons properly qualified to respond to an emergency involving hazardous substances should respond to a spill involving chemicals. See Section 13, Special Instructions for disposal assistance.
Containment Technique: Stop spilled material from being released to the environment.
Clean-up Technique: Scoop up spilled material into a large beaker and dissolve with water. Flush the spilled material to the drain with a large excess of water. Decontaminate the area of the spill with a soap solution.
Evacuation Procedure: Evacuate as needed to perform spill clean-up.

7. HANDLING AND STORAGE

Handling: Avoid contact with eyes Do not breathe dust. Wash thoroughly after handling. Maintain general industrial hygiene practices when using this product.
Storage: Protect from: moisture heat
Special Packaging Instructions: Not applicable
Use of the substance/preparation: Laboratory reagent

8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

Engineering Controls: Maintain general industrial hygiene practices when using this product.
Personal Protective Equipment:
Eye Protection: safety glasses with top and side shields
Skin / Hand Protection: lab coat
Inhalation Protection: adequate ventilation
Precautionary Measures: Avoid contact with: eyes Do not breathe: dust Protect from: moisture heat Keep away from: acids/acid fumes
TLV: Not established

PEL: Not established
EU Occupational Exposure Limits: 3 mg/m³, Inhalable dust

9. PHYSICAL / CHEMICAL PROPERTIES

Appearance: White crystals
Physical State: Solid
Odor: None
pH: of 5% solution = 6,0 - 8,5
Vapor Pressure: Not applicable
Vapor Density (air = 1): Not applicable
Boiling Point: 220°C (428°F)
Melting Point: 70-80°C (158-176°F)
Flash Point: Not applicable
Method: Not applicable
Autoignition Temperature: Not determined
Flammability Limits:
Lower Explosion Limits: Not applicable
Upper Explosion Limits: Not applicable
Specific Gravity (water = 1): 1,79
Evaporation Rate (water = 1): Not applicable
Volatile Organic Compounds Content: Not applicable
Partition Coefficient (n-octanol / water): Not determined
Solubility:
Water: Soluble
Acid: Not determined
Other: Insoluble in alcohol
Metal Corrosivity:
Steel: Not determined
Aluminum: Not determined

10. STABILITY / REACTIVITY

Chemical Stability: Stable when stored under proper conditions.
Conditions to Avoid: Heating to decomposition. Excess moisture
Reactivity / Incompatibility: Incompatible with: acids silver nitrate calcium salts magnesium sulfate lead salts
Hazardous Decomposition: Toxic fumes of: sodium oxides potassium oxide carbon monoxide carbon dioxide
Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Product Toxicological Data:
LD50: None reported
LC50: None reported
Dermal Toxicity Data: None reported
Skin and Eye Irritation Data: None reported
Mutation Data: None reported
Reproductive Effects Data: None reported
--
Ingredient Toxicological Data: --
Not applicable
IARC Listed: No

12. ECOLOGICAL INFORMATION

Product Ecological Information: --
No ecological data available for this product.
Ingredient Ecological Information: --
Not applicable

13. DISPOSAL CONSIDERATIONS

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

I.C.A.O.:

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

--

ICAO Hazard Class: NA

ICAO Subsidiary Risk: NA

ICAO UN/ID Number: NA

ICAO Packing Group: NA

I.M.O.:

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

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I.M.O. Hazard Class: NA

I.M.O. Subsidiary Risk: NA

I.M.O. UN Number: NA

I.M.O. Packing Group: NA

A.D.R.:

A.D.R. Proper Shipping Name: Not Currently Regulated

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A.D.R. Hazard Class: NA

A.D.R. Subsidiary Risk: NA

A.D.R. UN-Number: NA

A.D.R. Packing Group: NA

Additional Information: This product may be shipped as part of a chemical kit composed of various compatible dangerous goods for analytical or testing purposes. This kit would have the following classification: Proper Shipping Name: Chemical Kit Hazard Class: 9 UN Number 3316

15. REGULATORY INFORMATION

National Inventories:

EEC Inventory Status: EINECS Listed: Yes

EEC Number: 2061568

EEC LABEL COPY:

EU Symbols: Not applicable

R PHRASES: Not applicable

S PHRASES: Not applicable

16. OTHER INFORMATION

References: 29 CFR 1900 - 1910 (Code of Federal Regulations - Labor). Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. TLV's Threshold Limit Values and Biological Exposure Indices for 1992-1993. American Conference of Governmental Industrial Hygienists, 1992. Technical Judgment. The Merck Index, 11th Ed. Rahway, New Jersey: Merck and Co., Inc., 1989. Vendor Information. Gosselin, R. E. et al. Clinical Toxicology of Commercial Products, 5th Ed. Baltimore: The Williams and Wilkins Co., 1984.

R PHRASES: Not applicable

Use of the substance/preparation: Laboratory reagent

Revision Summary: Updates in Section(s) 14,

Legend:

NA - Not Applicable

ND - Not Determined

w/w - weight/weight

w/v - weight/volume

NV - Not Available

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.

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