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

MSDS No: M01986

SAFETY DATA SHEET

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

Product Name: Cadmium Complexing Solution A
Catalog Number: HCT154A

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: M01986

Chemical Name: Not applicable

Chemical Formula: Not applicable

Chemical Family: Not applicable

Use of the substance/preparation: Determination of cadmium

CAS No.: Not applicable

Hazard: Toxic. Causes irritation.

Date of MSDS Preparation:

Day: 13

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

Demineralized Water

EEC Number: 2317912

CAS No.: 7732185

Percent Range: >95,0

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: Not established

Potassium Hydroxide

EEC Number: 2151813

CAS No.: 1310583

Percent Range: 1,0 - 5,0

Percent Range Units: weight / volume

Ingredient EEC Symbol: C - CORROSIVE

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

TLV: 2 mg/m³ Ceiling

PEL: 2 mg/m³ Ceiling

EU Occupational Exposure Limits: 2 mg/m³

Potassium Cyanide

EEC Number: 2057923

CAS No.: 151-50-8

Percent Range: 1,0 - 5,0

Percent Range Units: weight / weight

Ingredient EEC Symbol: T - TOXIC N - Dangerous for the Environment
Ingredient R phrase(s) (R phrase details given in Heading 16): R 26/27/28 R 32 R 50/53
TLV: 5 mg/m³ (skin)
PEL: 5 mg/m³ (skin)
EU Occupational Exposure Limits: None found. Cyanides are on the Priority List for OELs.

3. HAZARDS IDENTIFICATION

Emergency Overview:

Appearance: Clear, colorless liquid

Odor: None

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

R PHRASES: R 23/24/25: Toxic by inhalation, in contact with skin and if swallowed. R 32: Contact with acids liberates very toxic gas. R 36/38: Irritating to eyes and skin. R 51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Antidote: Always have on hand a cyanide first aid kit. Break an amyl nitrite pearl in cloth and hold lightly under nose for 15 seconds. Repeat 5 times at 15 second intervals. Transport to hospital immediately. Note to Physician: If patient has not responded to amyl nitrite, inject intravenously 10 ml of a 3% solution of sodium nitrite at a rate not greater than 2,5 - 5 ml/min. Follow directly with 50 ml of a 25 % solution of sodium thiosulfate at the same rate by the same route. Keep patient under observation. If signs of poisoning persist or reappear, repeat nitrite and thiosulfate injections 1 hour later in one-half the original doses.

Protective Equipment:

Potential Health Effects:

Eye Contact (EC): Causes irritation

Skin Contact (EC): Causes irritation

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

Target Organs (SA E): Central nervous system

Ingestion (EC): Toxic May be rapidly fatal. Causes: cyanosis (a reduction of the blood's ability to carry oxygen, giving a bluish discoloration) burns of the mouth and esophagus May cause: anxiety headache confusion irregular heartbeat convulsions coma death

Target Organs (Ing E): Central nervous system Brain

Inhalation: Toxic Effects similar to those of ingestion.

Target Organs (Inh E): Central nervous system Brain

Medical Conditions Aggravated: Pre-existing: Skin conditions Eye conditions

Chronic Effects: Chronic overexposure may cause central nervous system effects

Cancer / Reproductive Toxicity Information:

This product does NOT contain any IARC listed chemicals.

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

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): Break an amyl nitrite pearl in cloth and hold lightly under nose for 15 seconds. Repeat every five minutes. Administer artificial respiration with 100% oxygen. Transport to hospital immediately.

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

5. FIRE FIGHTING MEASURES

Flammable Properties: During a fire, irritating and highly toxic gases may be generated by thermal decomposition.

Hazardous Combustion Products: Toxic fumes of: cyanide compounds sodium monoxide

Fire / Explosion Hazards: May react violently with: strong acids

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.

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. Absorb spilled liquid with non-reactive sorbent material.

Clean-up Technique: Cover spilled material with an alkali, such as soda ash or sodium bicarbonate. Carefully mist spill with bleach until saturated. Scoop up slurry into a large beaker. Oxidize spilled material with a 50% excess of bleach containing at least 5% sodium hypochlorite. Allow to react for 24 hours in a fume hood. Flush reacted material to the drain with a large excess of water. Decontaminate area with bleach solution.

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

7. HANDLING AND STORAGE

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

Storage: Keep away from: acids / acid fumes. Protect from: heat freezing

Special Packaging Instructions: Not applicable

Use of the substance/preparation: Determination of cadmium

8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

Engineering Controls: 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: chemical splash goggles

Skin / Hand Protection: neoprene latex gloves lab coat

Inhalation Protection: laboratory fume hood

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

TLV: Not established

PEL: Not established

EU Occupational Exposure Limits: Not established

9. PHYSICAL / CHEMICAL PROPERTIES

Appearance: Clear, colorless liquid

Physical State: Liquid

Odor: None

pH: 13

Vapor Pressure: Not determined

Vapor Density (air = 1): Not determined

Boiling Point: Not determined

Melting Point: Not determined

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): 1,04

Evaporation Rate (water = 1): Not determined

Volatile Organic Compounds Content: Not applicable

Partition Coefficient (n-octanol / water): Not applicable

Solubility:

Water: Miscible

Acid: Contact with acids generates toxic fumes

Other: Not determined

Metal Corrosivity:

Steel: Not determined

Aluminum: Not determined

10. STABILITY / REACTIVITY

Chemical Stability: Stable when stored under proper conditions.

Conditions to Avoid: Extreme temperatures

Reactivity / Incompatibility: Incompatible with: acids

Hazardous Decomposition: Contact with acids/acid fumes releases toxic cyanide gas.

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: Potassium Cyanide - DNA Inhibition in mouse lymphocytes @ 1 mmol/l; Cytogenic analysis in mouse mammary gland @ 1 mmol/l/48 hr

Reproductive Effects Data: Potassium Cyanide - Oral mammal - domestic animal TDLo = 1767 mg/kg; effects on newborn

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Ingredient Toxicological Data: Potassium cyanide: oral rat LD50 = 5 mg/kg; potassium hydroxide: oral rat LDLo = 273 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: Cyanide Solution, n.o.s.
(Potassium Cyanide)

ICAO Hazard Class: 6,1

ICAO Subsidiary Risk: NA

ICAO UN/ID Number: UN1935

ICAO Packing Group: II

I.M.O.:

I.M.O. Proper Shipping Name: Cyanide Solution, n.o.s.
(Potassium Cyanide)

I.M.O. Hazard Class: 6,1
I.M.O. Subsidiary Risk: NA
I.M.O. UN Number: UN1935
I.M.O. Packing Group: II

A.D.R.:

A.D.R. Proper Shipping Name: Cyanide Solution, n.o.s.
(Potassium Cyanide)

A.D.R Hazard Class: 6,1
A.D.R. Subsidiary Risk: NA
A.D.R. UN-Number:: 1935
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 - TOXIC N - DANGEROUS FOR THE ENVIRONMENT

R PHRASES: R 23/24/25: Toxic by inhalation, in contact with skin and if swallowed. R 32: Contact with acids liberates very toxic gas. R 36/38: Irritating to eyes and skin. R 51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S PHRASES: S 26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S 35: This material and its container must be disposed of in a safe way. S 37/39: Wear suitable 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. CCINFO RTECS. Canadian Centre for Occupational Health and Safety. Hamilton, Ontario Canada: 30 June 1993. Gosselin, R. E. et al. Clinical Toxicology of Commercial Products, 5th Ed. Baltimore: The Williams and Wilkins Co., 1984. Outside Testing. In-house information. Technical Judgment. List of Dangerous Substances Classified in Annex I of the EEC Directive (67/548) - Classification, Packaging and Labeling of Dangerous Substances, Amended July 1992.

R PHRASES: R 23/24/25: Toxic by inhalation, in contact with skin and if swallowed. R 32: Contact with acids liberates very toxic gas. R 36/38: Irritating to eyes and skin. R 51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Use of the substance/preparation: Determination of cadmium

Revision Summary: New MSDS

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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MSDS No: M01987

SAFETY DATA SHEET

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

Product Name: Cadmium Stabilizer B
Catalog Number: HCT154B

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: M01987

Chemical Name: Not applicable

Chemical Formula: Not applicable

Chemical Family: Not applicable

Use of the substance/preparation: Determination of cadmium

CAS No.: Not applicable

Hazard: Suspected carcinogen. Cannot be made non-toxic. Causes irritation. Sensitizer. Causes burns.

Date of MSDS Preparation:

Day: 13

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

Mannitol

EEC Number: 2007118

CAS No.: 69658

Percent Range: 1,0 - 10,0

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

Demineralized Water

EEC Number: 2317912

CAS No.: 7732185

Percent Range: 75,0 - 85,0

Percent Range Units: volume / volume

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: Not established

Other components, each

EEC Number: Not applicable

CAS No.: Not applicable

Percent Range: < 1,0

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: Not established

Formaldehyd

EEC Number: 2000018
CAS No.: 5000
Percent Range: 10,0 - 20,0
Percent Range Units: weight / weight
Ingredient EEC Symbol: T - TOXIC
Ingredient R phrase(s) (R phrase details given in Heading 16): R 23/24/25 R 34 R 40 R 43
TLV: C: 0,37mg/m³
PEL: 0.75 ppm. See the OSHA Standard at 29CFR1910.1048.
EU Occupational Exposure Limits: 0,5 ppm (0,62 mg/m³)

Methyl Alcohol

EEC Number: 2006596
CAS No.: 67561
Percent Range: 1,0 - 5,0
Percent Range Units: weight / weight
Ingredient EEC Symbol: F - HIGHLY FLAMMABLE
Ingredient R phrase(s) (R phrase details given in Heading 16): R 11 R 23/24/25 R 39
TLV: 200 ppm
PEL: 200 ppm
EU Occupational Exposure Limits: 200 ppm (260 mg/m³)

3. HAZARDS IDENTIFICATION

Emergency Overview:

Appearance: Clear, colorless
Odor: Pungent
EU Symbols: Xn - HARMFUL
R PHRASES: R 20/21/22: Harmful by inhalation, in contact with skin and if swallowed. R 36/37/38: Irritating to eyes, respiratory system and skin. R 40: Limited evidence of a carcinogenic effect. R 43: May cause sensitization by skin contact.

Protective Equipment:

Potential Health Effects:

Eye Contact (EC): Causes irritation
Skin Contact (EC): May cause: skin sensitization Causes irritation
Skin Absorption (EC): Effects similar to those of ingestion Effects similar to those of inhalation
Target Organs (SA E): Circulatory system Kidneys Liver Optic nerve Central nervous system
Ingestion (EC): Methanol causes cardiovascular effects such as cardiac depression and blood pressure changes. Methanol causes central nervous system depression, symptoms may include: drunkenness, drowsiness, dizziness, lightheadedness, unconsciousness and coma. Methanol may cause irritation of the eyes, visual impairment or blindness. May cause: vomiting kidney damage liver damage circulatory collapse
Target Organs (Ing E): Central nervous system Circulatory system Kidneys Liver Optic nerve
Inhalation: Methanol causes cardiovascular effects such as cardiac depression and blood pressure changes. Methanol causes central nervous system depression, symptoms may include: drunkenness, drowsiness, dizziness, lightheadedness, unconsciousness and coma. Methanol may cause irritation of the eyes, visual impairment or blindness. May cause: respiratory tract irritation allergic respiratory reaction shortness of breath Very large doses may cause: lung damage Effects similar to those of ingestion.
Target Organs (Inh E): Central nervous system Circulatory system Kidneys Liver Optic nerve Lungs
Medical Conditions Aggravated: Allergies or sensitivity to formaldehyde. Persons with eye, kidney, liver, or respiratory problems may be more susceptible to formaldehyde.
Chronic Effects: Chronic overexposure may cause cancer skin sensitization allergic respiratory reactions liver damage kidney damage
Cancer / Reproductive Toxicity Information:

An ingredient of this mixture is: IARC Group 1: Recognized Carcinogen
Formaldehyde

Additional Cancer / Reproductive Toxicity Information: Contains: an experimental mutagen. 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 soap and plenty of water for 15 minutes. Call physician immediately.

Ingestion (First Aid): Give large quantities of water. Call physician immediately.

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

5. FIRE FIGHTING MEASURES

Flammable Properties: Combustible Liquid Combustion generates toxic fumes. This material does NOT sustain combustion when tested according to the UN Recommendation's "Methods of Testing for Combustibility".

Hazardous Combustion Products: Toxic fumes of: formaldehyde carbon monoxide, carbon dioxide.

Fire / Explosion Hazards: Combustible liquid Do not expose to flames.

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. Containers can build up pressure if exposed to heat.

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. Remove all combustible material from spill area. Remove all ignition and spark-creating sources from the spill area. Cover spilled liquid with a commercially available flammable liquid sorbent such as vapor barrier blanket or activated carbon to avoid evolution of fumes. Vapors may travel to a source of ignition and flash back. May be ignited by: heat, sparks, or flames. Material will float on water creating a fire hazard. Dike the material to create a barrier to combustibles. Dike large spills to keep spilled material from entering sewage and drainage systems or bodies of water.

Clean-up Technique: Eliminate all sources of ignition. Do not breathe the fumes. Cover with an inert material, such as sand. Use only non-sparking tools. Sweep up material. Incinerate material at an E.P.A. approved hazardous waste facility. Decontaminate the area of the spill with a soap solution.

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 skin eyes clothing Do not breathe mist or vapors. Use with adequate ventilation. Wash thoroughly after handling. Maintain general industrial hygiene practices when using this product.

Storage: Keep container tightly closed when not in use. Protect from: heat sparks, flames and other ignition sources

Special Packaging Instructions: Not applicable

Use of the substance/preparation: Determination of cadmium

8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

Engineering Controls: 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. See 29CFR1910.1048 for additional requirements for formaldehyde.

Personal Protective Equipment:

Eye Protection: safety glasses with top and side shields

Skin / Hand Protection: disposable latex gloves lab coat

Inhalation Protection: laboratory fume hood

Precautionary Measures: Avoid contact with: eyes skin clothing Do not breathe: mist/vapor Use with adequate ventilation. Wash thoroughly after handling. Protect from: heat

TLV: Not established

PEL: Not established. See 29CFR1910.1048 Formaldehyde Standard

EU Occupational Exposure Limits: Not established

9. PHYSICAL / CHEMICAL PROPERTIES

Appearance: Clear, colorless

Physical State: Liquid

Odor: Pungent

pH: 4.5

Vapor Pressure: Not determined

Vapor Density (air = 1): Not determined

Boiling Point: Not determined

Melting Point: Not determined

Flash Point: 78° C (172° F)

Method: Closed cup

Autoignition Temperature: Not determined

Flammability Limits:

Lower Explosion Limits: Not determined

Upper Explosion Limits: Not determined

Specific Gravity (water = 1): 1.09

Evaporation Rate (water = 1): Not determined

Volatile Organic Compounds Content: Not determined

Partition Coefficient (n-octanol / water): Not applicable

Solubility:

Water: Miscible

Acid: Not determined

Other: Not determined

Metal Corrosivity:

Steel: Not determined

Aluminum: Not determined

10. STABILITY / REACTIVITY

Chemical Stability: Stable when stored under proper conditions.

Conditions to Avoid: Contact with heat, sparks, open flames or other ignition sources. Exposure to air.

Reactivity / Incompatibility: Incompatible with: oxidizers alkalies

Hazardous Decomposition: Heating to decomposition releases toxic and/or corrosive fumes of: formaldehyde carbon dioxide carbon monoxide

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

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Ingredient Toxicological Data: Formaldehyde: Oral rat LD50 = 100mg/kg, Skin rabbit LD50 = 270mg/kg, Inhal. rat LC50 = 203mg/m³; Methanol: Oral rat LD50 = 5628mg/kg, Skin rabbit LD50 = 15800mg/kg, Inhal. rat LC50 = 6400ppm/4Hours; Mannitol Oral rat LD50 = 13500 mg/kg

An ingredient of this mixture is: IARC Group 1: Recognized Carcinogen
Formaldehyde

12. ECOLOGICAL INFORMATION

Product Ecological Information: --

No ecological data available for this product.

Ingredient Ecological Information: Bluegill LC50 = 100µg/l/96H; Catfish (fresh water) TLm = 32 ppm/24H; Fathead minnow LC50 = 10-100 µl/l/96H; Rainbow trout LC50 = 168 mg/l/48H

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

--

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

EEC Number: Not applicable

EEC LABEL COPY:

EU Symbols: Xn - HARMFUL

R PHRASES: R 20/21/22: Harmful by inhalation, in contact with skin and if swallowed. R 36/37/38: Irritating to eyes, respiratory system and skin. R 40: Limited evidence of a carcinogenic effect. R 43: May cause sensitization by skin contact.

S PHRASES: S 26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S 37/39: Wear suitable gloves and eye / face protection.

16. OTHER INFORMATION

References: TLV's Threshold Limit Values and Biological Exposure Indices for 1992-1993. American Conference of Governmental Industrial Hygienists, 1992. Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. The Merck Index, 11th Ed. Rahway, New Jersey: Merck and Co., Inc., 1989. Sax, N. Irving.

Dangerous Properties of Industrial Materials, 7th Ed. New York: Van Nostrand Reinhold Co., 1989. Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Association, 1991. NIOSH Pocket Guide to Chemical Hazards. Publ. No. 85-114. Cincinnati: Department of Health and Human Services, 1985. Gosselin, R. E. et al. Clinical Toxicology of Commercial Products, 5th Ed. Baltimore: The Williams and Wilkins Co., 1984. IARC Monographs on the Evaluation of the Carcinogenic Risks to Humans. World Health Organization (Volumes 1-42) Supplement 7. France: 1987. Technical Judgment. Vendor Information. CCINFO RTECS. Canadian Centre for Occupational Health and Safety. Hamilton, Ontario Canada: 30 June 1993. In-house information. Patty, Frank A. Industrial Hygiene and Toxicology, 3rd Revised Edition. Volume 2. New York: A Wiley-Interscience Publication, 1981.

R PHRASES: R 20/21/22: Harmful by inhalation, in contact with skin and if swallowed. R 36/37/38: Irritating to eyes, respiratory system and skin. R 40: Limited evidence of a carcinogenic effect. R 43: May cause sensitization by skin contact.

Use of the substance/preparation: Determination of cadmium

Revision Summary: New MSDS

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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MSDS No: M01988

SAFETY DATA SHEET

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

Product Name: Cadmium Vial Reagent
Catalog Number: HCT154R

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: M01988

Chemical Name: Not applicable

Chemical Formula: Not applicable

Chemical Family: Not applicable

Use of the substance/preparation: Determination of cadmium

CAS No.: Not applicable

Hazard: Causes severe eye irritation.

Date of MSDS Preparation:

Day: 13

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 Hydroxide

EEC Number: 2151813

CAS No.: 1310588

Percent Range: 0,1 - 1,0

Percent Range Units: weight / weight

Ingredient EEC Symbol: Xi - IRRITATING

Ingredient R phrase(s) (R phrase details given in Heading 16): R 36/38

TLV: 2 mg/m³ Ceiling

PEL: 2 mg/m³ Ceiling

EU Occupational Exposure Limits: 2 mg/m³

Ethanol

EEC Number: 2005786

CAS No.: 64175

Percent Range: 10,0 - 20,0

Percent Range Units: volume / volume

Ingredient EEC Symbol: Xi - IRRITATING

Ingredient R phrase(s) (R phrase details given in Heading 16): R 10 R 36

TLV: 1000 ppm

PEL: 1000 ppm

EU Occupational Exposure Limits: 1000 ppm (1900 mg/m³)

Demineralized Water

EEC Number: 2317912

CAS No.: 7732185

Percent Range: 80,0 - 90,0

Percent Range Units: volume / volume
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: Not established

Other components, each

EEC Number: Not applicable
CAS No.: Not applicable
Percent Range: < 1,0
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: Not established

3. HAZARDS IDENTIFICATION

Emergency Overview:

Appearance: Violet liquid
Odor: Sweet
EU Symbols: Xi - IRRITATING
R PHRASES: R 10: Flammable. R 36/38: Irritating to eyes and skin.

Protective Equipment:

Potential Health Effects:

Eye Contact (EC): Causes irritation
Skin Contact (EC): Causes irritation
Skin Absorption (EC): None Reported
Target Organs (SA E): None Reported
Ingestion (EC): May cause: abdominal pain nausea vomiting drunkenness headache drowsiness lightheadedness blurred vision convulsions coma central nervous system effects irritation of the mouth and esophagus
Target Organs (Ing E): Liver Central nervous system
Inhalation: May cause: coughing difficult breathing
Target Organs (Inh E): None Reported
Medical Conditions Aggravated: Pre-existing: Eye conditions Skin conditions Respiratory conditions Liver conditions
Chronic Effects: Chronic overexposure may cause central nervous system effects cirrhosis of the liver pulmonary changes cancer
Cancer / Reproductive Toxicity Information:
This product does NOT contain any IARC listed chemicals.

Additional Cancer / Reproductive Toxicity Information: Contains: an experimental carcinogen. a suspected 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.

5. FIRE FIGHTING MEASURES

Flammable Properties: Flammable Liquid

Hazardous Combustion Products: Toxic fumes of: carbon monoxide, carbon dioxide.

Fire / Explosion Hazards: None reported

Static Discharge: None reported.

Mechanical Impact: None reported

Extinguishing Media: Water.

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.

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: Absorb spilled liquid with non-reactive sorbent material. Stop spilled material from being released to the environment.

Clean-up Technique: Cover spilled material with a dry acid, such as citric or boric. Scoop up slurry into a large beaker. Dilute with a large excess of water. Adjust to a pH between 6 and 9 with an acid, such as sulfuric or citric. Flush reacted material to the drain with a large excess of water. Decontaminate the area of the spill with a soap solution.

Evacuation Procedure: Evacuate local area (15 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 mist or vapors. Wash thoroughly after handling. Maintain general industrial hygiene practices when using this product.

Storage: Protect from: heat

Special Packaging Instructions: Not applicable

Use of the substance/preparation: Determination of cadmium

8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

Engineering Controls: Have an eyewash station nearby. 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 disposable latex gloves

Inhalation Protection: adequate ventilation

Precautionary Measures: Avoid contact with: eyes skin clothing Do not breathe: mist/vapor Wash thoroughly after handling. Protect from: heat

TLV: Not established

PEL: Not established

EU Occupational Exposure Limits:

9. PHYSICAL / CHEMICAL PROPERTIES

Appearance: Violet liquid

Physical State: Liquid

Odor: Sweet

pH: Not determined

Vapor Pressure: Not determined

Vapor Density (air = 1): Not determined

Boiling Point: Not determined

Melting Point: Not determined

Flash Point: 28° C (82° F)

Method: Closed cup

Autoignition Temperature: Not determined

Flammability Limits:

Lower Explosion Limits: Not determined

Upper Explosion Limits: Not determined

Specific Gravity (water = 1): Not determined
Evaporation Rate (water = 1): Not determined
Volatile Organic Compounds Content: Not determined
Partition Coefficient (n-octanol / water): Not applicable
Solubility:
Water: Soluble
Acid: Not determined
Other: Not determined
Metal Corrosivity:
Steel: Not determined
Aluminum: Not determined

10. STABILITY / REACTIVITY

Chemical Stability: Stable when stored under proper conditions.
Conditions to Avoid: Extreme temperatures Calcium contamination
Reactivity / Incompatibility: Incompatible with: acids oxidizers
Hazardous Decomposition: Heating to decomposition releases toxic and/or corrosive fumes of: nitrogen oxides carbon dioxide carbon monoxide
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: Ethanol: Skin-rabbit, adult 20 mg/24H-MODERATE; Skin-rabbit, adult 500 mg/24H MILD; Eye-rabbit 100 mg/24H-MODERATE; KOH: Skin Human 50mg/24H SEVERE; Skin rabbit 50mg/24H SEVERE; Eye rabbit 1mg/24H SEVERE

Mutation Data: EtOH: DNA Inhib. Human: lymphocyte 220 mmol/L; Cytogenetic-Mouse-Oral 40 g/kg; Oral mouse TDLo: 320 mg/kg/50W-I- Equivocal tumorgen; KOH: Cytogenetic-rat-Ascites tumor - 1800mg/kg; Cytogenetic analysis - hamster - Ovary - 12mmol/l

Reproductive Effects Data: Ethanol: Oral-Woman TDLo: 41g/kg (41W preg): reproductive effects; Oral rat TDLo: 4g/kg (13D preg): teratogenic effects

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Ingredient Toxicological Data: Ethanol: Oral rat LD50 = 7060 mg/kg, Oral mouse LD50 = 3450 mg/kg, Inhalation rat LC50 = 20000 ppm/10H, Inhalation mouse LC50 = 39 g/m³/4H; Potassium Hydroxide: Oral rat LD50 = 273 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: Ethanol: Palaemonetes LC50 = 250 mg/l/96H, Rainbow trout LC50 = 13000 mg/l/96H, Fathead minnows LC50 = 15.3 g/l/96H, Fathead minnows EC50 = 12.9 g/l/96H, Green algae toxicity threshold = 5000 mg/l

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: Ethanol Solution

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ICAO Hazard Class: 3

ICAO Subsidiary Risk: NA

ICAO UN/ID Number: UN1170

ICAO Packing Group: III

I.M.O.:

I.M.O. Proper Shipping Name: Ethanol Solution

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I.M.O. Hazard Class: 3

I.M.O. Subsidiary Risk: NA

I.M.O. UN Number: UN1170

I.M.O. Packing Group: III

A.D.R.:

A.D.R. Proper Shipping Name: Ethanol Solution

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A.D.R Hazard Class: 3

A.D.R. Subsidiary Risk: NA

A.D.R. UN-Number:: 1170

A.D.R. Packing Group: III

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: Xi - IRRITATING

R PHRASES: R 10: Flammable. R 36/38: Irritating to eyes and skin.

S PHRASES: S 26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S 37/39: Wear suitable gloves and eye / face protection.

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. In-house information. Sax, N. Irving. Dangerous Properties of Industrial Materials, 7th Ed. New York: Van Nostrand Reinhold Co., 1989. CCINFO RTECS. Canadian Centre for Occupational Health and Safety. Hamilton, Ontario Canada: 30 June 1993. Technical Judgment.

R PHRASES: R 10: Flammable. R 36/38: Irritating to eyes and skin.

Use of the substance/preparation: Determination of cadmium

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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