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MSDS No: M01989

SAFETY DATA SHEET

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

Product Name: Aluminium Buffer Solution A
Catalog Number: HCT150A

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: M01989

Chemical Name: Not applicable

Chemical Formula: Not applicable

Chemical Family: Not applicable

Use of the substance/preparation: Determination of aluminum

CAS No.: Not applicable

Hazard: Combustible. Harmful if absorbed through skin.

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: +39-026610102 9, Netherlands: +31-(0)30-2748888, Switzerland: +41-(0)1-2515151

2. COMPOSITION / INFORMATION ON INGREDIENTS

Sodium Acetate

EEC Number: 2048238

CAS No.: 127-09-3

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: 50,0 - 60,0

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 component

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

Methyl Alcohol

EEC Number: 2006596
CAS No.: 67561
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 10 R 20/21/22 R 39/23/24/25
TLV: 200 ppm
PEL: 200 ppm
EU Occupational Exposure Limits: 200 ppm (260 mg/m³)

Ammonium Acetate

EEC Number: 2111629
CAS No.: 631-61-8
Percent Range: 20,0 - 30,0
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: For ammonia, 20 ppm (14 mg/m³); STEL: 50 ppm (36 mg/m³) Recommended.3 mg/m³, Inhalable dust.

3. HAZARDS IDENTIFICATION

Emergency Overview:

Appearance: Clear, colorless liquid
Odor: Sweet
EU Symbols: T - TOXIC
R PHRASES: R 10: Flammable. R 20/21/22: Harmful by inhalation, in contact with skin and if swallowed. R 39/23/24/25: Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.

Protective Equipment:

Potential Health Effects:

Eye Contact (EC): May cause irritation
Skin Contact (EC): May cause irritation
Skin Absorption (EC): Harmful if absorbed through the skin
Target Organs (SA E): Central nervous system Optic nerve
Ingestion (EC): Harmful Methanol may cause irritation of the eyes, visual impairment or blindness. 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. May cause: headache weakness nausea vomiting death
Target Organs (Ing E): Optic nerve Central nervous system Cardiovascular system
Inhalation: Harmful 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: headache nausea vomiting
Target Organs (Inh E): Cardiovascular system Central nervous system
Medical Conditions Aggravated: Pre-existing: Skin conditions Eye conditions
Chronic Effects: Methanol is a cumulative poison. Methanol may cause visual impairment and possibly blindness by repeated or prolonged exposure.

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. Call physician if irritation develops.

Ingestion (First Aid): 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: Flammable liquid and vapors. Can burn in fire, releasing toxic vapors.

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

Fire / Explosion Hazards: Flammable Liquid. Do not expose to flames. Do not expose to sparks or other ignition sources. May react violently with: strong oxidizers

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: 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.

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 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: Keep away from: sparks, flames and other ignition sources. Protect from: heat

Special Packaging Instructions: Not applicable

Use of the substance/preparation: Determination of aluminum

8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

Engineering Controls: Have an eyewash station nearby. Use general ventilation to minimize exposure to mist, vapor or dust. Maintain general industrial hygiene practices when using this product.

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. Wash thoroughly after handling. Keep away from: sparks, flames and other ignition sources. Protect from: heat

TLV: Not established

PEL: Not established

EU Occupational Exposure Limits:

9. PHYSICAL / CHEMICAL PROPERTIES

Appearance: Clear, colorless liquid
Physical State: Liquid
Odor: Sweet
pH: 7.5
Vapor Pressure: 128 kPa
Vapor Density (air = 1): Not determined
Boiling Point: 65° C (149°F)
Melting Point: Not determined
Flash Point: 30° C (86° F)
Method: Closed cup
Autoignition Temperature: Not determined
Flammability Limits:
 Lower Explosion Limits: Not determined
 Upper Explosion Limits: Not determined
Specific Gravity (water = 1): 1.28
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: Contact with heat, sparks, open flames or other ignition sources.
Reactivity / Incompatibility: None reported
Hazardous Decomposition: Toxic fumes of: 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: Sodium Acetate: Skin rabbit 500 mg/24H MILD, Eye Rabbit 10 mg -MILD
Mutation Data: Methanol: DNA inhibition - Human - Lymphocytes - 300 mmol/l; DNA damage - oral rat - 10µg/kg
Reproductive Effects Data: Methanol: Inhalation mouse 1500 ppm/6H Specific development abnormalities - Central nervous system; Inhalation rat 10000 ppm/7H Embryo or Fetus - Fetotoxicity
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Ingredient Toxicological Data: Methanol: Oral Human LD_{Lo} = 143 mg/kg; Oral rat LD₅₀ = 5628 mg/kg; Inhalation rat LC₅₀ = 64000 ppm/4H; Inhalation mouse LC_{Lo} 50 gm/m³/2H; Sodium Acetate: Oral rat LD50 = 3530 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: Alcohol, N.O.S.
(<20% Methanol in Solution)

ICAO Hazard Class: 3

ICAO Subsidiary Risk: NA

ICAO UN/ID Number: UN1987

ICAO Packing Group: III

I.M.O.:

I.M.O. Proper Shipping Name: Alcohol, N.O.S.
(<20% Methanol in Solution)

I.M.O. Hazard Class: 3

I.M.O. Subsidiary Risk: NA

I.M.O. UN Number: UN1987

I.M.O. Packing Group: III

A.D.R.:

A.D.R. Proper Shipping Name: Alcohols, Flammable, N.O.S.
(<20% Methanol in Solution)

A.D.R Hazard Class: 3

A.D.R. Subsidiary Risk: NA

A.D.R. UN-Number: 1987

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: T - TOXIC

R PHRASES: R 10: Flammable. R 20/21/22: Harmful by inhalation, in contact with skin and if swallowed. R 39/23/24/25: Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.

S PHRASES: S 7: Keep container tightly closed. S 16: Keep away from sources of ignition - No smoking. S 36/37: Wear suitable protective clothing and gloves. 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. In-house information. Technical Judgment. 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. Sax, N. Irving. Dangerous Properties of Industrial Materials, 7th Ed. New York: Van Nostrand Reinhold Co., 1989.

R PHRASES: R 10: Flammable. R 20/21/22: Harmful by inhalation, in contact with skin and if swallowed. R 39/23/24/25: Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed.

Use of the substance/preparation: Determination of aluminum

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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MSDS No: M01990

SAFETY DATA SHEET

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

Product Name: Aluminium Complexing Agent B
Catalog Number: HCT150B

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: M01990

Chemical Name: Not applicable

Chemical Formula: Not applicable

Chemical Family: Not applicable

Use of the substance/preparation: Determination of aluminum

CAS No.: Not applicable

Hazard: May cause irritation.

Date of MSDS Preparation:

Day: 13

Month: 01

Year: 2006

Additional Emergency Response Numbers: Austria: +49 (0)6131 19240, Belgium: +32-(0)70-24525, France: +33 (0)1-40370404, Italy: +39-0266101029, Netherlands: +31 -(0)30-2748888, Switzerland: +41-(0)1-2515151

2. COMPOSITION / INFORMATION ON INGREDIENTS

Sodium Thiosulfate

EEC Number: 2318675

CAS No.: 10102-17-7

Percent Range: 45,0 - 55,0

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

Ascorbic Acid

EEC Number: 2000662

CAS No.: 50817

Percent Range: 45,0 - 55,0

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: Colorless 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): No effects are anticipated
Skin Absorption (EC): None Reported
Target Organs (SA E): None Reported
Ingestion (EC): Causes: gastrointestinal tract irritation
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: None reported
Cancer / Reproductive Toxicity Information:
This product does NOT contain any IARC listed chemicals.

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 plenty of water. Call physician if irritation develops.
Ingestion (First Aid): If you feel unwell, contact a physician.
Inhalation: None required.

5. FIRE FIGHTING MEASURES

Flammable Properties: During a fire, this product decomposes to form toxic gases.
Hazardous Combustion Products: Toxic fumes of: sulfur oxides.
Fire / Explosion Hazards: May react violently with: strong oxidizers
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. If conditions warrant, increase the size of the evacuation.

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: Keep away from: oxidizers Protect from: moisture
Special Packaging Instructions: Not applicable
Use of the substance/preparation: Determination of aluminum

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: disposable latex gloves

Inhalation Protection: adequate ventilation

Precautionary Measures: Avoid contact with: eyes Do not breathe: dust Wash thoroughly after handling. Keep away from: oxidizers

TLV: Not established

PEL: Not established

EU Occupational Exposure Limits:

9. PHYSICAL / CHEMICAL PROPERTIES

Appearance: Colorless crystals

Physical State: Solid

Odor: None

pH: 2,0

Vapor Pressure: Not applicable

Vapor Density (air = 1): Not applicable

Boiling Point: Not applicable

Melting Point: Not determined

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): Not determined

Evaporation Rate (water = 1): Not applicable

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: Heating to decomposition. Excess moisture

Reactivity / Incompatibility: May react violently in contact with: sodium nitrite oxidizers

Hazardous Decomposition: Toxic fumes of sulfur oxides.

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: Ascorbic Acid: DNA damage Human fibroblast 200 µmol/l, DNA damage Human cell types 200µmol/L, DNA inhibition Human HeLa cell 2500µmol/L, DNA inhibition Human cell types 200 mg/L, DNA damage mammal lymphocyte 500 µmol/L

Reproductive Effects Data: Ascorbic Acid: Oral guinea pig TDLo = 19500 mg/kg - Effects on newborn -bio chemical and metabolic, Oral guinea pig TDLo 5800 mg/kg - Effects on newborn -stillbirth, Oral guinea pig TDLo = 2471 mg/kg - Effects on newborn - growthstatistics

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Ingredient Toxicological Data: Ascorbic Acid: Oral rat LD50 = 11900 mg/kg; Sodium Thiosulfate: Oral rat LD50 > 8g/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: Sodium Thiosulfate: Aquatic toxicity TLm mosquito fish - 24000 mg/L/96H (turbid water @ 22-24° C)

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: Not applicable

R PHRASES: Not applicable

S PHRASES: Not applicable

16. OTHER INFORMATION

References: TLV's Threshold Limit Values and Biological Exposure Indices for 1992-1993. American Conference of Governmental Industrial Hygienists, 1992. The Merck Index, 11th Ed. Rahway, New Jersey: Merck and Co., Inc., 1989. Technical Judgment. Sax, N. Irving. Dangerous Properties of Industrial Materials, 7th Ed. New York: Van Nostrand Reinhold Co., 1989. In-house information. List of Dangerous Substances Classified in Annex I of the EEC Directive (67/548) - Classification, Packaging and Labeling of Dangerous Substances, Amended July 1992. CCINFO RTECS. Canadian Centre for Occupational Health and Safety. Hamilton, Ontario Canada: 30 June 1993. CCINFO MSDS/FTSS. Canadian Centre for Occupational Health and Safety. Hamilton, Ontario Canada: 30 June 1993. Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. 29 CFR 1900 - 1910 (Code of Federal Regulations - Labor).

R PHRASES: Not applicable

Use of the substance/preparation: Determination of aluminum

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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MSDS No: M01991

SAFETY DATA SHEET

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

Product Name: Aluminium Vial Reagent
Catalog Number: HCT150R

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: M01991

Chemical Name: Not applicable

Chemical Formula: Not applicable

Chemical Family: Not applicable

Use of the substance/preparation: Determination of aluminum

CAS No.: Not applicable

Hazard: No effects anticipated.

Date of MSDS Preparation:

Day: 13

Month: 01

Year: 2006

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

2. COMPOSITION / INFORMATION ON INGREDIENTS

Mannitol

EEC Number: 2007118

CAS No.: 69658

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: 3 mg/m³, Inhalable dust

Other components, each

EEC Number: Not applicable

CAS No.: Not applicable

Percent Range: < 0,1

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 powder
Odor: Floral
EU Symbols: Not applicable
R PHRASES: Not applicable

Protective Equipment:

Potential Health Effects:

Eye Contact (EC): No effects are anticipated
Skin Contact (EC): No effects are anticipated
Skin Absorption (EC): No effects anticipated
Target Organs (SA E): Not applicable
Ingestion (EC): No Effects Anticipated
Target Organs (Ing E): Not applicable
Inhalation: No effects anticipated
Target Organs (Inh E): Not applicable
Medical Conditions Aggravated: None reported
Chronic Effects: No effects anticipated
Cancer / Reproductive Toxicity Information:
An ingredient of this mixture is: IARC Group 3: Non-classifiable
Polyvinyl Alcohol
Additional Cancer / Reproductive Toxicity Information: None reported
Toxicologically Synergistic Products: None reported

4. FIRST AID MEASURES

Eye Contact: Flush eyes with water. Call physician.
Skin Contact (First Aid): Wash skin with plenty of water.
Ingestion (First Aid): If you feel unwell, contact a physician.
Inhalation: None required.

5. FIRE FIGHTING MEASURES

Flammable Properties:
Hazardous Combustion Products: May emit acrid smoke and fumes.
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.

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: Sweep up material. Dilute with a large excess of 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. If conditions warrant, increase the size of the evacuation.

7. HANDLING AND STORAGE

Handling: Avoid contact with eyes Wash thoroughly after handling.
Storage: Keep container tightly closed when not in use. Protect from: heat
Special Packaging Instructions: Not applicable
Use of the substance/preparation: Determination of aluminum

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: disposable latex gloves

Inhalation Protection: adequate ventilation

Precautionary Measures: Avoid contact with: eyes Wash thoroughly after handling.

TLV: Not established

PEL: Not established

EU Occupational Exposure Limits: Not established

9. PHYSICAL / CHEMICAL PROPERTIES

Appearance: Violet powder

Physical State: Solid

Odor: Floral

pH: 6.0

Vapor Pressure: Not applicable

Vapor Density (air = 1): Not applicable

Boiling Point: Not applicable

Melting Point: 165° C (329° 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): Not determined

Evaporation Rate (water = 1): Not applicable

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: Heating to decomposition.

Reactivity / Incompatibility: Incompatible with: oxides

Hazardous Decomposition: Heating to decomposition releases: 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: Mannitol: DNA inhibition Human lymphocyte 50 mmol/L

Reproductive Effects Data: None reported

--

Ingredient Toxicological Data: Mannitol: Oral rat LD50 = 13500 mg/kg

An ingredient of this mixture is: IARC Group 3: Non-classifiable

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: 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

--

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: Not applicable

R PHRASES: Not applicable

S PHRASES: Not applicable

16. OTHER INFORMATION

References: Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. CCINFO RTECS. Canadian Centre for Occupational Health and Safety. Hamilton, Ontario Canada: 30 June 1993. In-house information. Sax, N. Irving. Dangerous Properties of Industrial Materials, 7th Ed. New York: Van Nostrand Reinhold Co., 1989. Technical Judgment. Vendor Information.

R PHRASES: Not applicable

Use of the substance/preparation: Determination of aluminum
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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(970) 669-3050

MSDS No: M01992

SAFETY DATA SHEET

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

Product Name: Aluminium Zero Solution
Catalog Number: HCT150Z

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: M01992

Chemical Name: Not applicable

Chemical Formula: Not applicable

Chemical Family: Not applicable

Use of the substance/preparation: Determination of aluminum

CAS No.: Not applicable

Hazard: May cause eye irritation. Practically non-toxic.

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

Copper Sulfate

EEC Number: 2318476

CAS No.: 7758998

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: 1 mg/m³ (Cu)

PEL: 1 mg/m³ (Cu)

EU Occupational Exposure Limits: 1 mg/m³

Demineralized Water

EEC Number: 2317912

CAS No.: 7732185

Percent Range: > 99,0

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

Sulfuric Acid

EEC Number: 2316395

CAS No.: 7664939

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: 1 mg/m³ (TWA); 3 mg/m³ (STEL)
PEL: 1 mg/m³
EU Occupational Exposure Limits: 0,1 mg/m³

3. HAZARDS IDENTIFICATION

Emergency Overview:

Appearance: Colorless to light blue liquid
Odor: None
EU Symbols: Not applicable
R PHRASES: Not applicable

Protective Equipment:

Potential Health Effects:

Eye Contact (EC): May cause irritation
Skin Contact (EC): No effects are anticipated
Skin Absorption (EC): No effects anticipated
Target Organs (SA E): Not applicable
Ingestion (EC): No Effects Anticipated
Target Organs (Ing E): Not applicable
Inhalation: No effects anticipated
Target Organs (Inh E): Not applicable
Medical Conditions Aggravated: None reported
Chronic Effects: Chronic overexposure may cause eye irritation
Cancer / Reproductive Toxicity Information:
An ingredient of this mixture is: IARC Group 1: Recognized Carcinogen
Sulfuric Acid - The IARC evaluation was based on exposure to the mist or vapor of concentrated sulfuric acid generated during chemical processes.
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 plenty of water.
Ingestion (First Aid): If you feel unwell, contact a physician.
Inhalation: None required.

5. FIRE FIGHTING MEASURES

Flammable Properties: Material will not burn.
Hazardous Combustion Products: This material will not burn.
Fire / Explosion Hazards: This product will not burn or explode.
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: Absorb spilled liquid with non-reactive sorbent material. Stop spilled material from being released to the environment.

Clean-up Technique: 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. Use sulfuric or citric acid to lower pH. Use soda ash or sodium bicarbonate to increase pH. 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 as needed to perform spill clean-up. If conditions warrant, increase the size of the evacuation.

7. HANDLING AND STORAGE

Handling: Avoid contact with eyes Wash thoroughly after handling. Maintain general industrial hygiene practices when using this product.

Storage: Keep container tightly closed when not in use. Store in a cool, dry place.

Special Packaging Instructions: Not applicable

Use of the substance/preparation: Determination of aluminum

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: disposable latex gloves

Inhalation Protection: adequate ventilation

Precautionary Measures: Avoid contact with: eyes Wash thoroughly after handling.

TLV: Not established

PEL: Not established

EU Occupational Exposure Limits:

9. PHYSICAL / CHEMICAL PROPERTIES

Appearance: Colorless to light blue liquid

Physical State: Liquid

Odor: None

pH: Not determined

Vapor Pressure: Not determined

Vapor Density (air = 1): Not determined

Boiling Point: 100° C (212° F)

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): 0.994

Evaporation Rate (water = 1): 1

Volatile Organic Compounds Content: Not applicable

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

Solubility:

Water: Miscible

Acid: Miscible

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 Evaporation
Reactivity / Incompatibility: None reported
Hazardous Decomposition: No hazardous decomposition products known.
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: --

No toxicological data available for the ingredients of this product.

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

Sulfuric Acid - The IARC evaluation was based on exposure to the mist or vapor of concentrated sulfuric acid generated during chemical processes.

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: 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

--

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: 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. Technical Judgment. In-house information. TLV's Threshold Limit Values and Biological Exposure Indices for 1992-1993. American Conference of Governmental Industrial Hygienists, 1992.

R PHRASES: Not applicable

Use of the substance/preparation: Determination of aluminum

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

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