World Headquarters
Hach Company
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MSDS No: M01203

SAFETY DATA SHEET

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

Product Name: Chloride Titrant
Catalog Number: 2349432

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: M01203
Chemical Name: Not applicable
Chemical Formula: Not applicable
Chemical Family: Not applicable
Use of the substanc e/preparation: Titrant solution
CAS No.: Not applicable
Hazard: Harmful if swallowed Oxidizer. 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 -02 66101029, Netherlands: +31 -(0)30 -2748888, Switzerland: +41 -(0)1 -2515151

2. COMPOSITION / INFORMATION ON I NGREDIENTS

Silver Nitrate
EEC Number: 2318539
CAS No.: 7761 88 8
Percent Range: 25,0 - 35,0
Percent Range Units: weight / weight
Ingredient EEC Symbol: C - CORROSIVE
Ingredient R phrase(s) (R phrase details given in Heading 16): R 34
TLV: 0,01 mg/m³ (as Ag)
PEL: 0,01 mg/m³ as Ag
EU Occupational Exposure Limits: 0,01 mg/m³

Demineralized Water
EEC Number: 2317912
CAS No.: 7732 18 5
Percent Range: 60,0 - 70,0
Percent Range Units: volume / volume
Ingredient EEC Symbol: Not appli cable
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

Isopropanol
EEC Number: 2006617
CAS No.: 67 63 0
Percent Range: 1,0- 10,0

Percent Range Units: volume / volume
Ingredient EEC Symbol: Not applicable
Ingredient R phrase(s) (R phrase details given in Heading 16): R 67
TLV: 400 ppm (500 ppm STEL)
PEL: 400 ppm
EU Occupational Exposure Limits: 200 ppm (500 mg/m ^{3})

3. HAZARDS IDENTIFICATION

Emergency Overview:
Appearance: Clear, colorless liquid
Odor: Alcoholic
EU Symbols: C - CORROSIVE N - DANGEROUS FOR THE ENVIRONMENT
R PHRASES: R 34: Causes burns. R 67: Vapours may cause drowsiness and dizziness. R 50/53: Very toxic to aquatic organisms, may cause long -term adverse effects in the aquatic environment.

Protective Equipment:
Potential Health Effects:
Eye Contact (EC): Causes burns
Skin Cont act (EC): Causes burns
Skin Absorption (EC): Causes a slate -gray to bluish discoloration.
Target Organs (SA E): None Reported
Ingestion (EC): May cause: abdominal pain nausea vomiting diarrhea drowsiness headache incoordination depression burns of the mouth and esophagus
Target Organs (Ing E): Central nervous system
Inhalation: May cause: respiratory tract irritation drowsiness incoordination headache
Target Organs (Inh E): Central nervous system
Medical Conditions Aggravated: Pre -existing: Skin conditions Respiratory conditions Eye conditions
Chronic Effects: Silver compounds may cause gray to black discolor ation of the eyes and skin.
Cancer / Reproductive Toxicity Information:
This product does NOT contain any IARC listed chemicals.

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. Ca ll physician.
Skin Contact (First Aid): Wash skin with plenty of water. Call physician if irritation develops.
Ingestion (First Aid): Give large quantities of water. Call physician immediately.
Inhalation: Remove to fresh air.

5. FIRE FIGHTING MEASURES

Flammable Properties: During a fire, this product decomposes to form toxic gases.
Hazardous Combustion Products: Toxic fumes of: silver oxides carbon monoxide, carbon dioxide.
Fire / Explosio n Hazards: Drying to completion may form explosive products. Strong Oxidizer: Contact with other material may cause fire.
Static Discharge: None reported.
Mechanical Impact: None reported
Extinguishing Media: Use media appropriate to surroundi ng 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. ACCIDENT AL 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. Absorb spilled liquid with non-reactive sorbent material. Releases of this material may contaminate the environment.
Clean-up Technique: Absorb spilled liquid with non-reactive sorbent material. Sweep up material. Dispose of material in 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: a gallon or more of liquid is spilled. If conditions warrant, increase the size of the evacuation.

7. HANDLING AND STORAGE

Handling: Avoid contact with eyes skin Do not breathe mist or vapors. Wash thoroughly after handling. Maintain general industrial hygiene practices when using this product.
Storage: Protect from: exposure to direct sunlight. Do not allow product to dry out.
Special Packaging Instructions: Not applicable
Use of the substance/preparation: Titrant solution

8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

Engineering Controls: Have an eyewash station nearby. Maintain adequate ventilation to keep vapor level below TWA for chemicals in this product.
Personal Protective Equipment:
Eye Protection: chemical splash goggles
Skin / Hand Protection: disposable latex gloves lab coat
Inhalation Protection: adequate ventilation
Precautionary Measures: Avoid contact with: eyes skin Do not breathe: mist/vapor Wash thoroughly after handling. Protect from: heat light
TLV: Not established
PEL: Not established
EU Occupational Exposure Limits: Not established

9. PHYSICAL / CHEMICAL PROPERTIES

Appearance: Clear, colorless liquid
Physical State: Liquid
Odor: Alcoholic
pH: 4,0
Vapor Pressure: Not available
Vapor Density (air = 1): Not available
Boiling Point: 98°C; 208°F
Melting Point: -9°C; 16°F
Flash Point: >99°C; 210°F
Method: Closed cup
Autoignition Temperature: Not determined
Flammability Limits:
Lower Explosion Limits: Not applicable
Upper Explosion Limits: Not applicable
Specific Gravity (water = 1): 1,252
Evaporation Rate (water = 1): 0,66
Volatile Organic Compounds Content: Not available
Partition Coefficient (n-octanol / water): Not applicable
Solubility:
Water: Miscible
Acid: Miscible
Other: Not determined
Metal Corrosivity:
Steel: 0,00 in/yr
Aluminum: 0,39 in/yr

10. STABILITY / REACTIVITY

Chemical Stability: Stable when stored under proper conditions.
Conditions to Avoid: Heat Evaporation Exposure to direct sunlight.
Reactivity / Incompatibility: Incompatible with: organic materials oxidizable material combustible materials
Hazardous Decomposition: Heating to decomposition releases toxic and/or corrosive fume s of: silver oxides carbon monoxide carbon dioxide
Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Product Toxicological Data:
LD50: None reported
LC50: None reported
Dermal To xicity Data: Isopropanol: Skin rabbit LD50 = 12800 mg/kg
Skin and Eye Irritation Data: This product is corrosive to skin. (Packing Group III for transportation)(OECD Number 404, Acute Dermal Irritation/Corrosion)
Mutation Data: Silver Nitrate: DNA inhi bition in human lymphocytes @ 76 µmol/l; Oncogenic transformation in hamster embryo @ 60 µmol/l; Isopropanol: Cytogenetic analysis rat inhalation 1030 µg/m³/16W (Intermittent)
Reproductive Effects Data: Isopropanol: Oral rat TDLo = 11340 mg/kg - maternal effects - menstrual cycle changes or disorders; Oral rat TDLo = 5040 mg/kg - Litter size; Oral rat TDLo = 20160 mg/kg - Pre -implantation mortality
Isopropanol: Inhalation rat TCLo = 3500 ppm/7H - Embryo or fetus death; Inhalation rat TCLo = 10000 ppm/7 H - Pre - implantation mortality, post -implantation mortality, embryo or fetus death
Ingredient Toxicological Data: Isopropanol: Oral rat LD50 = 5045 mg/kg, Inhalation rat LCLo = 12000 ppm/8H; Silver Nitrate: Oral rat LD50 = 50 mg/kg

This product do es NOT contain any IARC listed chemicals.

12. ECOLOGICAL INFORMATION

Product Ecological Information: --
No ecological data available for this product.
Ingredient Ecological Information: --
No ecol ogical 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. TR ANSPORT INFORMATION

I.C.A.O.:
I.C.A.O. Proper Shipping Name: Corrosive Liquid, N.O.S. (Silver Nitrate Solution)
ICAO Hazard Class: 8
ICAO Subsidiary Risk: NA
ICAO UN/ID Number: UN1760
ICAO Packing Group: III
I.M.O.:
I.M.O. Proper Shipping Name: Corrosive Liquid, N.O.S. (Silver Nitrate Solution)
I.M.O. Hazard Class: 8
I.M.O. Subsidiary Risk: NA
I.M.O. UN Number: UN1760
I.M.O. Packing Group: III
A.D.R.:
A.D.R. Proper Shipping Name: Corrosive Liquid, N.O.S.

(Silver Nitrate Sol ution)

A.D.R Hazard Class: 8

A.D.R. Subsidiary Risk: NA

A.D.R. UN -Number:: 1760

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: C - CORROSIVE N - DANGEROUS FOR THE EN VIRONMENT

R PHRASES: R 34: Causes burns. R 67: Vapours may cause drowsiness and dizziness. R 50/53: Very 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 45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). S 60: This material and / or its container must be disposed of as hazard ous waste.

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 T hreshold 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. Vendor Inf ormation. In -house information. Technical Judgment.

R PHRASES: R 34: Causes burns. R 67: Vapours may cause drowsiness and dizziness. R 50/53: Very toxic to aquatic organisms, may cause long -term adverse effects in the aquatic environment.

Use of the substance/preparation: Titrant solution

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 - vo lume/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.