SAFETY DATA SHEET

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

Product Name: Silver Nitrate Titrant 0,0493 N
Catalog Number: 2349832

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: M00639

Chemical Name: Not applicable
Chemical Formula: Not applicable
Chemical Family: Not applicable
Use of the substance/preparation: Determination of chloride
CAS No.: Not applicable
Hazard: May cause eye irritation.
Date of MSDS Preparation:
Day: 12
Month: 01
Year: 2006

Additional Emergency Response Numbers: Austria: +49 (0)6131 19240, Belgium: +32 -(0)70 -245245, France: +33 (0)1-40370404, Italy: +39 -026101029, Netherlands: +31 -(0)30 -2748888, Switzerland: +41 -(0)1 -2515151

2. COMPOSITION / INFORMATION ON INGREDIENTS

Silver Nitrate
EEC Number: 2318539
CAS No.: 7761 -88 -8
Percent Range: < 1,0
Percent Range Units: volume / volume
Ingredient EEC Symbol: Not applicable
Ingredient R phrase(s) (R phrase details given in Heading 16): R 52/53
TLV: 0,01 mg/m³ as Ag
PEL: 0,01 mg/m³ as Ag
EU Occupational Exposure Limits: 0,01 mg/m³

Deminerlized Water
EEC Number: 2317912
CAS No.: 7732-18-5
Percent Range: >95,0
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

Isopropanol
EEC Number: 2006617
CAS No.: 67-63-0
Percent Range: < 5,0
3. HAZARDS IDENTIFICATION

Emergency Overview:
Appearance: Clear, colorless liquid
Odor: None
EU Symbols: Not applicable
R PHRASES: R 52/53: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Potential Health Effects:
Eye Contact (EC): May cause irritation
Skin Contact (EC): None reported
Skin Absorption (EC): Will be absorbed through the skin. May cause slate-gray to bluish discoloration.
Target Organs (SAE): None reported
Ingestion (EC): May cause: abdominal cramps nausea
Target Organs (Ing E): None reported
Inhalation: No effect anticipated
Target Organs (Inh E): Not applicable
Medical Conditions Aggravated: Pre-existing: Skin conditions Eye conditions
Chronic Effects: Chronic overexposure may cause accumulation of silver in body tissues which causes a slate-gray to bluish discoloration. Silver compounds may cause gray to black discoloration of the eyes and skin.

Cancer / Reproductive Toxicity Information:
An ingredient of this mixture is: IARC Group 3: Non-classifiable Isopropanol

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

5. FIRE FIGHTING MEASURES

Flammable Properties: Can burn in fire, releasing toxic vapors.
Hazardous Combustion Products: May emit acrid smoke and fumes.
Fire / Explosion Hazards: None reported
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. Absorb spilled liquid with non-reactive sorbent material. Stop spilled material from being released to the environment. Dike the spill to contain material for later disposal.

**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 with an alkali, such as soda ash or sodium bicarbonate. 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 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 skin Wash thoroughly after handling. Maintain general industrial hygiene practices when using this product.

**Storage:** Protect from: light Keep container tightly closed when not in use.

**Special Packaging Instructions:** Not applicable

**Use of the substance/preparation:** Determination of chloride

### 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 Wash thoroughly after handling.

**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:** 3.5

**Vapor Pressure:** Not determined

**Vapor Density (air = 1):** Not determined

**Boiling Point:** 95°C

**Melting Point:** Not determined

**Flash Point:** >94,4°C (202°F)

**Method:** Closed cup

**Autoignition Temperature:** Not determined

**Flammability Limits:**
- **Lower Explosion Limits:** Not determined
- **Upper Explosion Limits:** Not determined

**Specific Gravity (water = 1):** 1.00

**Evaporation Rate (water = 1):** Not determined

**Volatile Organic Compounds Content:** Not determined

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

**Solubility:**
- **Water:** Soluble
- **Acid:** Soluble
- **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: Exposure to light. Extreme temperatures
Reactivity / Incompatibility: None reported
Hazardous Decomposition: Heating to decomposition releases: carbon monoxide, carbon dioxide, silver oxides
Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Product Toxicological Data:
LD50: None reported
LC50: None reported
Dermal Toxicity Data: Isopropanol: Skin rabbit LD50 = 12800 mg/kg
Skin and Eye Irritation Data: Isopropanol: Skin rabbit 500 mg - MILD, Eye rabbit 100 mg/24H - MODERATE; Silver Nitrate Eye rabbit 10 mg - MODERATE
Mutation Data: Silver Nitrate: DNA inhibition in human lymphocytes @ 76 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/7H - Pre-implantation mortality, post-implantation mortality, embryo or fetus death
Ingredient Toxicological Data: Isopropyl Alcohol: Oral rat LD50 = 5045 mg/kg, Oral human LD50 = 2770 mg/kg, Inhalation rat LC50 = 12000 ppm/8H; Silver Nitrate: Oral mouse LD50 = 50 mg/kg

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

12. ECOLOGICAL INFORMATION

Product Ecological Information: --
No ecological data available for this product.
Ingredient Ecological Information: Isopropanol: Goldfish LD50 = 5000 mg/L/24 hr, Brown Shrimp LC50 = 1400 mg/L/48 hr, Fathead Minnows LC50 = 11160 mg/L/24 hr; Silver Nitrate: Rainbow Trout LC50 = 10 µg/L/28 days; Largemouth Bass LC50 = 110 µg/L/8 days

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: R 52/53: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S PHRASES: Not applicable

16. OTHER INFORMATION

R PHRASES: R 52/53: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Use of the substance/preparation: Determination of chloride
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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