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**After Hours Emergency Nos.: (703) 447-9550**  
**(540) 272-3874**  
**Creation Date: 03/10/89 (1145-14)**  
**Revision Date: 08/06/09**

## MATERIAL SAFETY DATA SHEET

### I. CHEMICAL IDENTIFICATION

TRADE NAME: CHLORIDE Titrets® and ACTIVATOR SOLUTION  
 KIT CATALOG NOS.: K-2020, K-2050, K-2051, K-2055 and K-2070  
 COMPONENT CATALOG NO.: A-2000

DESCRIPTION: Reagent ampoules and activator solution for the titrimetric determination of chloride in water. Each ampoule contains approximately 1 mL of liquid reagent sealed under vacuum. The bottle of activator solution contains approximately 9 mL of accessory solution.

#### In the Ampoules:

NFPA RATINGS: HEALTH: 1 FLAMMABILITY: 0 REACTIVITY: 0

#### In the Activator Solution:

NFPA RATINGS: HEALTH: 1 FLAMMABILITY: 0 REACTIVITY: 0

### II. COMPOSITION/INFORMATION ON INGREDIENTS

#### In the Ampoules:

COMPONENT: Nitric Acid  
 CAS NO.: 7697-37-2 PERCENT: < 1.0

COMPONENT: Mercuric Nitrate, Monohydrate  
 CAS NO.: 7783-34-8 PERCENT: < 3.0

COMPONENT: Deionized Water  
 CAS NO.: 7732-18-5 PERCENT: >96.0

#### In the Activator Solution:

COMPONENT: Diphenylcarbazone  
 CAS NO.: 538-62-5 PERCENT: < 0.1

COMPONENT: 2,5-Dihydroxybenzoic Acid  
 CAS NO.: 490-79-9 PERCENT: < 6.5

COMPONENT: Diethylene Glycol  
 CAS NO.: 111-46-6 PERCENT: >93.5

### III. HAZARDS IDENTIFICATION

Toxic by inhalation, in contact with skin or if swallowed.  
 ACUTE TOXICITY: Irritation, cough, labored breathing, metallic taste, abdominal pain, nausea, diarrhea, delayed pulmonary edema  
 CHRONIC TOXICITY: Irritation, skin sensitization, liver and kidney lesions.  
 Mercury compounds affect the kidneys and nervous system.  
 MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Skin, eye and respiratory disorders, impaired kidney and liver function.

### IV. FIRST AID MEASURES

EYE AND SKIN CONTACT: Immediately flush eyes and skin with water for 15 minutes. Seek medical attention.  
 INGESTION: If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Induce vomiting if instructed by medical personnel. Seek medical attention.  
 INHALATION: Remove individual to fresh air. Seek medical attention.

### V. FIRE FIGHTING MEASURES

FLASH POINT: 124°C AUTOIGNITION POINT: 224°C  
 FLAMMABILITY LIMITS: UPPER: 10.8% LOWER: 1.6%  
 EXTINGUISHING MEDIA: Dry chemical, carbon dioxide, water spray or foam

### VI. ACCIDENTAL RELEASE MEASURES

Take up with absorbent material. Place in small containers for disposal.

### VII. HANDLING AND STORAGE

**Always wear eye protection when working with these ampoules.**

**WARNING:** Do not break the tip of the ampoule unless it is completely immersed in your sample. Breaking the tip in the air may cause the glass ampoule to shatter.

If this product is used as directed, the user will not come in contact with or be exposed to any of its chemical components.

Wash thoroughly after handling. Avoid contact with eyes.

Fragile. Liquid in glass. Handle with care.

Exposure of this product to temperatures up to 120°F (49°C) or even below 32°F (0°C) will not create a safety hazard. For optimum analytical accuracy, the product should be stored in the dark and at room temperature, and if applicable, product components should not be used beyond expiration date.

### VIII. EXPOSURE CONTROLS/PERSONAL PROTECTION

ACGIH TLV: 0.025 mg/m<sup>3</sup> TWA (skin) as mercury, 2 ppm TWA nitric acid  
 OSHA PEL: 0.1 mg/m<sup>3</sup> C as mercury, 2 ppm TWA nitric acid  
 PROTECTIVE EQUIPMENT: Safety glasses

### IX. PHYSICAL AND CHEMICAL PROPERTIES

#### In the Ampoules:

STATE: Liquid APPEARANCE: Colorless ODOR: None  
 SOLUBILITY IN WATER: Miscible pH: <1 SPECIFIC GRAVITY: 1.03  
 BOILING POINT: 110°C MELTING POINT: 0°C  
 VAPOR PRESSURE: N/A VAPOR DENSITY: N/A

#### In the Activator Solution:

STATE: Liquid APPEARANCE: Burnt orange ODOR: None  
 SOLUBILITY IN WATER: Miscible pH: 1.85  
 BOILING POINT: 244°C MELTING POINT: -10°C  
 VAPOR PRESSURE: 1.12 mm Hg @ 15°C (Diethylene Glycol)  
 SPECIFIC GRAVITY: 1.12 VAPOR DENSITY: 3.6 (Diethylene Glycol)

### X. STABILITY AND REACTIVITY

INCOMPATIBILITIES: strong oxidizing and reducing agents, metals  
 HAZARDOUS DECOMPOSITION PRODUCTS: oxides of mercury, carbon and nitrogen  
 Stable under normal conditions.

### XI. TOXICOLOGICAL INFORMATION

CARCINOGENIC STATUS: Inorganic mercury compounds: ACGIH - Group A4, not classifiable as a human carcinogen; IARC - Group 3, not classifiable as to its carcinogenicity to humans.  
 TOXICOLOGICAL STATUS: Mercury compounds: California Proposition 65 – reproductive toxicant (developmental)  
 No other data available at this time.

### XII. ECOLOGICAL INFORMATION

Mercuric nitrate is toxic to aquatic organisms and may cause long term adverse effects in the aquatic environment. Diethylene Glycol has a low potential to bioconcentrate and is practically non-toxic to aquatic organisms.  
 No other data available at this time.

### XIII. DISPOSAL CONSIDERATIONS

Dispose of in a manner consistent with Federal, State, and Local Regulations.

### XIV. TRANSPORT INFORMATION

U.S. DOT, IATA, and IMDG: Dangerous Goods in Excepted Quantities  
 Hazard Class: 8 UN No.: 1760 Packing Group: II

### XV. REGULATORY INFORMATION

#### EUROPEAN INFORMATION:

EU Symbols: T - TOXIC, N - DANGEROUS FOR THE ENVIRONMENT  
 Risk Phrases: Toxic by inhalation, in contact with skin and if swallowed. Danger of cumulative effects. Toxic to aquatic organisms; may cause long-term adverse effects in the aquatic environment.

Safety Phrases: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). After contact with skin, wash immediately with plenty of water. This material and its container must be disposed of as hazardous waste. Keep away from food, drink and animal feeding stuffs.

#### CANADIAN INFORMATION:

WHMIS Classification: D1A, D2A, D2B, E  
 All chemical components of this product are listed on Canada's DSL or are exempt.

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## **XV. REGULATORY INFORMATION (continued)**

### **U.S. INFORMATION:**

RCRA: Contains RCRA regulated substances. EPA Waste ID Nos.:

Ampoules: D002, D009; Activator Solution: D002

OSHA: This product meets the criteria for a hazardous substance as defined in the Hazard Communication Standard (29 CFR 1910.1200).

SARA Section 313: This product contains nitric acid and a mercury compound which are subject to the reporting requirements of Section 313 of SARA Title III.

CALIFORNIA PROPOSITION 65: This product contains a chemical known to the State of California as a reproductive toxicant.

All chemical components of this product are listed on the TSCA Inventory.

## **XVI. OTHER INFORMATION**

THE ABOVE INFORMATION IS BELIEVED TO BE ACCURATE AND REPRESENTS THE BEST INFORMATION CURRENTLY AVAILABLE TO US. ALL PRODUCTS ARE OFFERED IN ACCORDANCE WITH THE MANUFACTURER'S CURRENT PRODUCTION SPECIFICATIONS AND ARE INTENDED SOLELY FOR USE IN ANALYTICAL TESTING. THE MANUFACTURER SHALL IN NO EVENT BE LIABLE FOR ANY INJURY, LOSS OR DAMAGE RESULTING FROM THE HANDLING, USE OR MISUSE OF THESE PRODUCTS.

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