Section 1 - Product and Company Information

Product Name                 GOLD(III) CHLORIDE HYDRATE, 99.999%
                               METALS BASIS
Product Number               254169
Brand                        ALDRICH
Company                      Sigma-Aldrich
Address                      3050 Spruce Street
                               SAINT LOUIS MO 63103 US
Technical Phone:             800-325-5832
Fax:                         800-325-5052
Emergency Phone:             314-776-6555

Section 2 - Composition/Information on Ingredient

Substance Name                          CAS #                 SARA 313
GOLD (III) CHLORIDE HYDRATE             27988-77-8            No

Formula         HAuCl₄ · xH₂O
Synonyms        Brown gold chloride * Chloroauric acid

Section 3 - Hazards Identification

EMERGENCY OVERVIEW
Corrosive.
Causes burns. May cause sensitization by skin contact.

HMIS RATING
HEALTH: 3
FLAMMABILITY: 0
REACTIVITY: 1

NFPA RATING
HEALTH: 3
FLAMMABILITY: 0
REACTIVITY: 1

For additional information on toxicity, please refer to Section 11.

Section 4 - First Aid Measures

ORAL EXPOSURE
If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately.

INHALATION EXPOSURE
If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

DERMAL EXPOSURE
In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes.
Call a physician.

EYE EXPOSURE
In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

Section 5 - Fire Fighting Measures

FLASH POINT
N/A

AUTOIGNITION TEMP
N/A

FLAMMABILITY
N/A

EXTINGUISHING MEDIA
Suitable: Dry chemical powder.

FIREFIGHTING
Protective Equipment: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Specific Hazard(s): Emits toxic fumes under fire conditions.

Section 6 - Accidental Release Measures

PROCEDURE TO BE FOLLOWED IN CASE OF LEAK OR SPILL
Evacuate area.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)
Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP
Sweep up, place in a bag and hold for waste disposal. Ventilate area and wash spill site after material pickup is complete.

Section 7 - Handling and Storage

HANDLING
User Exposure: Do not breathe dust. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE
Suitable: Keep tightly closed.

SPECIAL REQUIREMENTS
Light sensitive. Very hygroscopic.

Section 8 - Exposure Controls / PPE

ENGINEERING CONTROLS
Safety shower and eye bath. Use only in a chemical fume hood.

PERSONAL PROTECTIVE EQUIPMENT
Respiratory: Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering
controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Hand: Compatible chemical-resistant gloves. Eye: Chemical safety goggles.

GENERAL HYGIENE MEASURES
Wash contaminated clothing before reuse. Discard contaminated shoes. Wash thoroughly after handling.

Section 9 - Physical/Chemical Properties

<table>
<thead>
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<th>Property</th>
<th>Value</th>
<th>At Temperature or Pressure</th>
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<td>Molecular Weight</td>
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<td>pH</td>
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<td>MP/MP Range</td>
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<td>Solubility</td>
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</table>

N/A = not available

Section 10 - Stability and Reactivity

STABILITY
Stable: Stable.
Conditions to Avoid: Light. Moisture.
Materials to Avoid: Reducing agents.

HAZARDOUS DECOMPOSITION PRODUCTS
Hazardous Decomposition Products: Decomposes on heating to chlorine gas, hydrogen chloride and metallic gold.

HAZARDOUS POLYMERIZATION
Hazardous Polymerization: Will not occur
ROUTE OF EXPOSURE
Skin Contact: Causes burns.
Skin Absorption: May be harmful if absorbed through the skin.
Eye Contact: Causes burns.
Inhalation: May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Ingestion: May be harmful if swallowed.

SENSITIZATION
Skin: May cause allergic skin reaction.

SIGNS AND SYMPTOMS OF EXPOSURE
Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Exposure can cause stomatitis, metallic taste, itching, erythema, eczema, erythema multiforme, exfoliative dermatitis, thrombocytopenia, leucopenia, agranulocytosis, and aplastic anemia. Exposure can also cause a gray-to-blue pigmentation (chrysiasis) in the skin and mucous membranes, especially in areas exposed to light. Gold deposits may occur in the eyes causing keratitis and corneal ulceration.

TOXICITY DATA
Oral
Rat
> 464 mg/kg
LD50

Section 12 - Ecological Information
No data available.

Section 13 - Disposal Considerations
APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION
Catalysts and expensive metals should be recovered for reuse or recycling. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information
DOT
Proper Shipping Name: Corrosive solid, acidic, inorganic, n.o.s.
UN#: 3260
Class: 8
Packing Group: Packing Group III
Hazard Label: Corrosive
PIH: Not PIH

IATA
Proper Shipping Name: Corrosive solid, acidic, inorganic, n.o.s.
IATA UN Number: 3260
Hazard Class: 8
Packing Group: III
Section 15 - Regulatory Information

EU ADDITIONAL CLASSIFICATION
Symbol of Danger: C
Indication of Danger: Corrosive.
R: 34-43
Risk Statements: Causes burns. May cause sensitization by skin contact.
S: 26-36/37/39-45
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

US CLASSIFICATION AND LABEL TEXT
Indication of Danger: Corrosive.
Risk Statements: Causes burns. May cause sensitization by skin contact.
Safety Statements: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

UNITED STATES REGULATORY INFORMATION
SARA LISTED: No

CANADA REGULATORY INFORMATION
WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.
DSL: No
NDSL: No

Section 16 - Other Information

DISCLAIMER
For R&D use only. Not for drug, household or other uses.

WARRANTY
The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Inc., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.
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