1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

<table>
<thead>
<tr>
<th>Product name</th>
<th>Gold(III) chloride trihydrate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Number</td>
<td>520918</td>
</tr>
<tr>
<td>Brand</td>
<td>Aldrich</td>
</tr>
<tr>
<td>REACH No.</td>
<td>A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>16961-25-4</td>
</tr>
</tbody>
</table>

1.2 Relevant identified uses of the substance or mixture and uses advised against

| Identified uses          | Laboratory chemicals, Manufacture of substances |

1.3 Details of the supplier of the safety data sheet

<table>
<thead>
<tr>
<th>Company</th>
<th>Sigma-Aldrich</th>
</tr>
</thead>
<tbody>
<tr>
<td>3050 Spruce Street</td>
<td></td>
</tr>
<tr>
<td>SAINT LOUIS MO 63103</td>
<td></td>
</tr>
<tr>
<td>USA</td>
<td></td>
</tr>
<tr>
<td>Telephone</td>
<td>+1 800-325-5832</td>
</tr>
<tr>
<td>Fax</td>
<td>+1 800-325-5052</td>
</tr>
</tbody>
</table>

1.4 Emergency telephone number

| Emergency Phone #     | (314) 776-6555 |

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

- **GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**
  - Skin corrosion (Category 1B), H314
  - Serious eye damage (Category 1), H318
  - Skin sensitisation (Category 1), H317

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

<table>
<thead>
<tr>
<th>Pictogram</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Signal word</th>
<th>Danger</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Hazard statement(s)</th>
<th>Causes severe skin burns and eye damage.</th>
</tr>
</thead>
<tbody>
<tr>
<td>H314</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Precautionary statement(s)</th>
<th>May cause an allergic skin reaction.</th>
</tr>
</thead>
<tbody>
<tr>
<td>P260</td>
<td>Do not breathe dust or mist.</td>
</tr>
<tr>
<td>P260</td>
<td>Wash skin thoroughly after handling.</td>
</tr>
<tr>
<td>P272</td>
<td>Contaminated work clothing should not be allowed out of the workplace.</td>
</tr>
<tr>
<td>P280</td>
<td>Wear protective gloves/ protective clothing/ eye protection/ face protection.</td>
</tr>
<tr>
<td>P301 + P330 + P331</td>
<td>IF SWALLOWED: rinse mouth. Do NOT induce vomiting.</td>
</tr>
</tbody>
</table>
P303 + P361 + P353  IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340  IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338  IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310  Immediately call a POISON CENTER or doctor/ physician.
P321  Specific treatment (see supplemental first aid instructions on this label).
P333 + P313  If skin irritation or rash occurs: Get medical advice/ attention.
P363  Wash contaminated clothing before reuse.
P405  Store locked up.
P501  Dispose of contents/ container to an approved waste disposal plant.

2.3  Hazards not otherwise classified (HNOC) or not covered by GHS - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1  Substances

| Synonyms | Tetrachloroauric(III) acid  
|          | Hydrogen tetrachloroaurate(III) |
| Formula  | HAuCl₄ · 3H₂O |
| Molecular Weight | 393.83 g/mol |
| CAS-No.  | 16961-25-4 |
| EC-No.   | 240-948-4 |

Hazardous components

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetrachloroauric acid trihydrate</td>
<td>Skin Corr. 1B; Eye Dam. 1;</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin Sens. 1; H314, H317</td>
<td></td>
</tr>
</tbody>
</table>

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1  Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2  Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3  Indication of any immediate medical attention and special treatment needed
no data available
5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

5.2 Special hazards arising from the substance or mixture
Decomposes on heating to chlorine gas, hydrogen chloride and metallic gold

5.3 Advice for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

5.4 Further information
The product itself does not burn.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
For personal protection see section 8.

6.2 Environmental precautions
Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Moisture sensitive. Light sensitive.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters
Contains no substances with occupational exposure limit values.

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
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. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Do not let product enter drains.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) Appearance
   Form: Crystals with lumps

b) Odour
   no data available

c) Odour Threshold
   no data available

d) pH
   no data available

e) Melting point/freezing point
   no data available

f) Initial boiling point and boiling range
   no data available

g) Flash point
   no data available

h) Evaporation rate
   no data available

i) Flammability (solid, gas)
   no data available

j) Upper/lower flammability or explosive limits
   no data available

k) Vapour pressure
   no data available

l) Vapour density
   no data available

m) Relative density
   no data available

n) Water solubility
   no data available
o) Partition coefficient: n-octanol/water  no data available
p) Auto-ignition temperature  no data available
q) Decomposition temperature  no data available
r) Viscosity  no data available
s) Explosive properties  no data available
t) Oxidizing properties  no data available

9.2 Other safety information  no data available

10. STABILITY AND REACTIVITY

10.1 Reactivity  no data available

10.2 Chemical stability
Light.
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions  no data available

10.4 Conditions to avoid
Exposure to moisture.

10.5 Incompatible materials
Reducing agents, Metals

10.6 Hazardous decomposition products
Other decomposition products - no data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity  no data available
Inhalation: no data available
Dermal: no data available
Skin corrosion/irritation  no data available
Serious eye damage/eye irritation  no data available
Respiratory or skin sensitisation
Germ cell mutagenicity  no data available
Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a
known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
no data available

Specific target organ toxicity - single exposure
no data available

Specific target organ toxicity - repeated exposure
no data available

Aspiration hazard
no data available

Additional Information
RTECS: MD5428000

12. ECOLOGICAL INFORMATION

12.1 Toxicity
no data available

12.2 Persistence and degradability
no data available

12.3 Bioaccumulative potential
no data available

12.4 Mobility in soil
no data available

12.5 Results of PBT and vPvB assessment
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects
no data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3260  Class: 8  Packing group: II
Proper shipping name: Corrosive solid, acidic, inorganic, n.o.s. (Tetrachloroauric acid trihydrate)  Marine pollutant: No  Poison Inhalation Hazard: No

IMDG
UN number: 3260  Class: 8  Packing group: II  EMS-No: F-A, S-B
Proper shipping name: CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S. (Tetrachloroauric acid trihydrate)  Marine pollutant: No

IATA
UN number: 3260  Class: 8  Packing group: II
Proper shipping name: Corrosive solid, acidic, inorganic, n.o.s. (Tetrachloroauroic acid trihydrate)

15. REGULATORY INFORMATION

REACH No.: A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components
No Components Listed

Pennsylvania Right To Know Components

<table>
<thead>
<tr>
<th>Chemical</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetrachloroauroic acid trihydrate</td>
<td>16961-25-4</td>
<td></td>
</tr>
</tbody>
</table>

New Jersey Right To Know Components

<table>
<thead>
<tr>
<th>Chemical</th>
<th>CAS-No.</th>
<th>Revision Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetrachloroauroic acid trihydrate</td>
<td>16961-25-4</td>
<td></td>
</tr>
</tbody>
</table>

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

- Eye Dam.  Serious eye damage
- H314  Causes severe skin burns and eye damage.
- H317  May cause an allergic skin reaction.
- H318  Causes serious eye damage.
- Skin Corr.  Skin corrosion
- Skin Sens.  Skin sensitisation

HMIS Rating
- Health hazard: 3
- Chronic Health Hazard:
- Flammability: 0
- Physical Hazard 0

NFPA Rating
- Health hazard: 3
- Fire Hazard: 0
- Reactivity Hazard: 0

Further information
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