1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers
Product name : Potassium hexacyanoferrate(II) trihydrate
Product Number : 60279
Brand : Sigma
CAS-No. : 14459-95-1

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified uses : Laboratory chemicals, Synthesis of substances
Uses advised against :

1.3 Details of the supplier of the safety data sheet
Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO  63103
USA
Telephone : +1 800-325-5832
Fax : +1 800-325-5052

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)
Acute aquatic toxicity (Category 3), H402
Chronic aquatic toxicity (Category 3), H412
For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements
Pictogram : none
Signal word : none
Hazard statement(s) : H412 Harmful to aquatic life with long lasting effects.
Precautionary statement(s) : P273 Avoid release to the environment.
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS
Contact with acids liberates very toxic gas.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances
Synonyms : Yellow prussiate
            Potassium ferrocyanide
Formula: $C_6FeK_4N_6 \cdot 3H_2O$
Molecular weight: 422.39 g/mol
CAS-No.: 14459-95-1
EC-No.: 237-722-2

**Hazardous components**

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tetrapotassium hexacyanoferrate</td>
<td>Aquatic Acute 3; Aquatic Chronic 3; H412</td>
<td>&lt;= 100 %</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**
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.

**If swallowed**
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**
Dry powder

#### 5.2 Special hazards arising from the substance or mixture
No data available

#### 5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

#### 5.4 Further information
No data available

### 6. ACCIDENTAL RELEASE MEASURES

#### 6.1 Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Avoid breathing dust.

For personal protection see section 8.

#### 6.2 Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

#### 6.3 Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Do not flush with water. 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.
Never allow product to get in contact with water during storage. Do not store near acids.

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

8. EXPOSURE CONTROLS/PERSOAL 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
Safety glasses with side-shields conforming to EN166 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
Impervious clothing, 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**
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

#### 9.1 Information on basic physical and chemical properties

- **a) Appearance**
  - Form: crystalline
  - Colour: light yellow

- **b) Odour**
  - No data available

- **c) Odour Threshold**
  - No data available

- **d) pH**
  - 8.0 - 10 at 211 g/l at 25 °C (77 °F)

- **e) Melting point/freezing point**
  - Melting point/range: 70 °C (158 °F)

- **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**
  - 1.850 g/cm³

- **n) Water solubility**
  - 211 g/l at 20 °C (68 °F)

- **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

- **Bulk density**
  - 1,200 kg/m³

### 10. STABILITY AND REACTIVITY

#### 10.1 Reactivity

- No data available

#### 10.2 Chemical stability

Stable under recommended storage conditions.

#### 10.3 Possibility of hazardous reactions

- No data available
10.4 **Conditions to avoid**
Avoid temperatures above 60°C, direct sunlight and contact with sources of heat. Contact with acids liberates very toxic gas.

10.5 **Incompatible materials**
Acids, Strong oxidizing agents

10.6 **Hazardous decomposition products**
Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NOx), Potassium oxides, Iron oxides, Hydrogen cyanide (hydrocyanic acid)
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**
- LD50 Oral - Rat - 3,613 mg/kg
- Inhalation: No data available
- Dermal: No data available
- No data available

**Skin corrosion/irritation**
- Skin - Rabbit
  - Result: No skin irritation
  - (OECD Test Guideline 404)

**Serious eye damage/eye irritation**
- Eyes - Rabbit
  - Result: Mild eye irritation
  - (OECD Test Guideline 405)

**Respiratory or skin sensitisation**
- Guinea pig
  - Result: Did not cause sensitisation on laboratory animals.

**Germ cell mutagenicity**
- No data available

**Carcinogenicity**
- Did not show carcinogenic effects in animal experiments.

**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
- 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: Not available

May cause cyanosis.

Stomach - Irregularities - Based on Human Evidence
Stomach - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION

12.1 Toxicity
No data available

Toxicity to daphnia and other aquatic invertebrates
EC50 - Daphnia (water flea) - 32 mg/l - 48 h
Remarks: anhydrous

12.2 Persistence and degradability
Biodegradability Result: - Not readily biodegradable.
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
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic life with long lasting effects.
No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

15. REGULATORY INFORMATION

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

SARA 313 Components
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
Chronic Health Hazard

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

<table>
<thead>
<tr>
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<tr>
<td>14459-95-1</td>
<td>1990-01-01</td>
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New Jersey Right To Know Components

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<tr>
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<td>1990-01-01</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.

Audacious Acute: Acute aquatic toxicity
Audacious Chronic: Chronic aquatic toxicity
H402: Harmful to aquatic life.
H412: Harmful to aquatic life with long lasting effects.

HMIS Rating
Health hazard: 1
Chronic Health Hazard: *
Flammability: 0
Physical Hazard: 0

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

Further Information
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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 Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

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