1. Identification

Product Name: Potassium ferrocyanide trihydrate
Cat No.: AC211090000; AC211090025; AC211095000
Synonyms: Potassium hexacyanoferrate(II)
Recommended Use: Laboratory chemicals.
Uses advised against: No Information available

2. Hazard(s) identification

Classification:
Label Elements:
None required

Hazards not otherwise classified (HNOC):
Harmful to aquatic life with long lasting effects

Other hazards:
WARNING! This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.
WARNING! This product contains a chemical known in the State of California to cause cancer.

3. Composition / information on ingredients

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium ferrocyanide</td>
<td>14459-95-1</td>
<td>&gt;95</td>
</tr>
<tr>
<td>Ferrate(4-), hexakis(cyano-C)-, tetrapotassium, (OC-6-11)-</td>
<td>13943-58-3</td>
<td>-</td>
</tr>
</tbody>
</table>

4. First-aid measures
Potassium ferrocyanide trihydrate

Revision Date 16-Oct-2014

Eye Contact
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.

Skin Contact
Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately if symptoms occur.

Inhalation
Move to fresh air. If breathing is difficult, give oxygen. Get medical attention immediately if symptoms occur.

Ingestion
Do not induce vomiting. Obtain medical attention.

Most important symptoms/effects
No information available.

Notes to Physician
Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media
Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.

Unsuitable Extinguishing Media
No information available

Flash Point
No information available

Method -
No information available

Autoignition Temperature
No information available

Explosion Limits
Lower
No data available

Sensitivity to Mechanical Impact
No information available

Sensitivity to Static Discharge
No information available

Specific Hazards Arising from the Chemical
Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products
Nitrogen oxides (NOx) Carbon monoxide (CO) Carbon dioxide (CO₂) Hydrogen cyanide (hydrocyanic acid) Heavy metal oxides

Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

<table>
<thead>
<tr>
<th>Health</th>
<th>Flammability</th>
<th>Instability</th>
<th>Physical hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0</td>
<td>1</td>
<td>N/A</td>
</tr>
</tbody>
</table>

6. Accidental release measures

Personal Precautions
Use personal protective equipment. Ensure adequate ventilation. Avoid dust formation. Avoid contact with skin, eyes and clothing.

Environmental Precautions
Avoid release to the environment. See Section 12 for additional ecological information.

Methods for Containment and Clean Up
Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation.

7. Handling and storage

Handling
Wear personal protective equipment. Ensure adequate ventilation. Avoid dust formation. Avoid contact with skin, eyes and clothing. Avoid ingestion and inhalation.

Storage
Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Keep away from direct sunlight.

8. Exposure controls / personal protection

Exposure Guidelines
9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
<th>NIOSH IDLH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium ferrocyanide</td>
<td>TWA: 1 mg/m³</td>
<td>(Vacated) TWA: 1 mg/m³ (Vacated)</td>
<td>IDLH: 25 mg/m³</td>
</tr>
<tr>
<td>Ferrate(4-), hexakis(cyano-C)-, tetrapotassium, (OC-6-11)-</td>
<td>TWA: 1 mg/m³</td>
<td>(Vacated) TWA: 1 mg/m³ (Vacated)</td>
<td>TWA: 1 mg/m³</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component</th>
<th>Quebec</th>
<th>Mexico OEL (TWA)</th>
<th>Ontario TWAEV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium ferrocyanide</td>
<td>TWA: 1.0 mg/m³ Ceiling: 10 ppm Ceiling: 11 mg/m³</td>
<td>TWA: 1 mg/m³ TWA: 5 mg/m³ STEL: 2 mg/m³</td>
<td>TWA: 1 mg/m³</td>
</tr>
<tr>
<td>Ferrate(4-), hexakis(cyano-C)-, tetrapotassium, (OC-6-11)-</td>
<td>TWA: 1.0 mg/m³ Ceiling: 10 ppm Ceiling: 11 mg/m³</td>
<td>TWA: 1 mg/m³ TWA: 5 mg/m³ STEL: 2 mg/m³</td>
<td>TWA: 1 mg/m³</td>
</tr>
</tbody>
</table>

**Legend**

ACGIH - American Conference of Governmental Industrial Hygienists
OSHA - Occupational Safety and Health Administration
NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

**Engineering Measures**
Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

**Personal Protective Equipment**

Eye/face Protection
Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA’s eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection
Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection
Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures
Handle in accordance with good industrial hygiene and safety practice.

10. Stability and reactivity

**Reactive Hazard**
None known, based on information available

**Stability**
Stable under normal conditions. Light sensitive.

**Conditions to Avoid**
Incompatible Materials  Acids, Strong oxidizing agents, Strong acids

Hazardous Decomposition Products  Nitrogen oxides (NOx), Carbon monoxide (CO), Carbon dioxide (CO₂), Hydrogen cyanide (hydrocyanic acid), Heavy metal oxides

Hazardous Polymerization  Hazardous polymerization does not occur.

Hazardous Reactions  Contact with acids liberates very toxic gas.

## 11. Toxicological information

### Acute Toxicity

#### Product Information

#### Component Information

<table>
<thead>
<tr>
<th>Component</th>
<th>LD50 Oral</th>
<th>LD50 Dermal</th>
<th>LC50 Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ferrate(4-), hexakis(cyano-C)-, tetrapotassium, (OC-6-11)-</td>
<td>3613 mg/kg (Rat)</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

**Toxicologically Synergistic Products**  No information available

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Irritation**  No information available

**Sensitization**  No information available

**Carcinogenicity**  The table below indicates whether each agency has listed any ingredient as a carcinogen.

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>IARC</th>
<th>NTP</th>
<th>ACGIH</th>
<th>OSHA</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium ferrocyanide</td>
<td>14459-95-1</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
<tr>
<td>Ferrate(4-), hexakis(cyano-C)-, tetrapotassium, (OC-6-11)-</td>
<td>13943-58-3</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

**Mutagenic Effects**  No information available

**Reproductive Effects**  No information available.

**Developmental Effects**  No information available.

**Teratogenicity**  No information available.

**STOT - single exposure**  None known

**STOT - repeated exposure**  None known

**Aspiration hazard**  No information available

**Symptoms / effects, both acute and delayed**  No information available

**Endocrine Disruptor Information**  No information available

<table>
<thead>
<tr>
<th>Component</th>
<th>EU - Endocrine Disruptors Candidate List</th>
<th>EU - Endocrine Disruptors - Evaluated Substances</th>
<th>Japan - Endocrine Disruptor Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium ferrocyanide</td>
<td>Group III Chemical</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Ferrate(4-), hexakis(cyano-C)-, tetrapotassium, (OC-6-11)-</td>
<td>Group III Chemical</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

**Other Adverse Effects**  The toxicological properties have not been fully investigated.

### 12. Ecological information

**Ecotoxicity**  This product contains the following substance(s) which are hazardous for the environment.

<table>
<thead>
<tr>
<th>Component</th>
<th>Freshwater Algae</th>
<th>Freshwater Fish</th>
<th>Microtox</th>
<th>Water Flea</th>
</tr>
</thead>
</table>
Potassium ferrocyanide trihydrate

Ferrate(4-), hexakis(cyano-C)-, tetrapotassium, (OC-6-11)- | Not listed | 100 mg/L LC50 96 h 19 mg/L LC50 96 h | Not listed | Not listed

Persistence and Degradability
No information available

Bioaccumulation/ Accumulation
No information available.

Mobility
No information available.

13. Disposal considerations

Waste Disposal Methods
Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT | Not regulated
TDG | Not regulated
IATA | Not regulated
IMDG/IMO | Not regulated

15. Regulatory information

International Inventories

<table>
<thead>
<tr>
<th>Component</th>
<th>TSCA</th>
<th>DSL</th>
<th>NDSL</th>
<th>EINECS</th>
<th>ELINCS</th>
<th>NLP</th>
<th>PICCS</th>
<th>ENCS</th>
<th>AICS</th>
<th>IECSC</th>
<th>KECL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium ferrocyanide</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>X</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ferrate(4-), hexakis(cyano-C)-, tetrapotassium, (OC-6-11)-</td>
<td>X</td>
<td>X</td>
<td>-</td>
<td>237-722-2</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>-</td>
</tr>
</tbody>
</table>

Legend:
X - Listed
E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.
F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P - Indicates a commenced PMN substance
R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S - Indicates a substance that is identified in a proposed or final Significant New Use Rule
T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).
Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

U.S. Federal Regulations

TSCA 12(b) | Not applicable

SARA 313

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
<th>SARA 313 - Threshold Values %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium ferrocyanide</td>
<td>14459-95-1</td>
<td>&gt;95</td>
<td>1.0</td>
</tr>
<tr>
<td>Ferrate(4-), hexakis(cyano-C)-, tetrapotassium, (OC-6-11)-</td>
<td>13943-58-3</td>
<td>-</td>
<td>1.0</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazardous Categorization

Acute Health Hazard | No
Chronic Health Hazard | No
Fire Hazard | No
Sudden Release of Pressure Hazard | No
Reactive Hazard | No

Clean Water Act

<table>
<thead>
<tr>
<th>Component</th>
<th>CWA - Hazardous Substances</th>
<th>CWA - Reportable Quantities</th>
<th>CWA - Toxic Pollutants</th>
<th>CWA - Priority Pollutants</th>
</tr>
</thead>
</table>
Potassium ferrocyanide trihydrate

<table>
<thead>
<tr>
<th>Component</th>
<th>HAPS Data</th>
<th>Class 1 Ozone Depletors</th>
<th>Class 2 Ozone Depletors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ferrate(4-), hexakis(cyano-C)-, tetrapotassium, (OC-6-11)-</td>
<td>-</td>
<td>-</td>
<td>X</td>
</tr>
</tbody>
</table>

Clean Air Act

<table>
<thead>
<tr>
<th>Component</th>
<th>HAPS Data</th>
<th>Class 1 Ozone Depletors</th>
<th>Class 2 Ozone Depletors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium ferrocyanide</td>
<td>X</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ferrate(4-), hexakis(cyano-C)-, tetrapotassium, (OC-6-11)-</td>
<td>X</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

OSHA Occupational Safety and Health Administration
Not applicable

CERCLA
Not applicable

California Proposition 65
This product contains the following Proposition 65 chemicals:

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>California Prop. 65</th>
<th>Prop 65 NSRL</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ferrate(4-), hexakis(cyano-C)-, tetrapotassium, (OC-6-11)-</td>
<td>13943-58-3</td>
<td>Carcinogen Male Reproductive</td>
<td>-</td>
<td>Carcinogen</td>
</tr>
</tbody>
</table>

State Right-to-Know

<table>
<thead>
<tr>
<th>Component</th>
<th>Massachusetts</th>
<th>New Jersey</th>
<th>Pennsylvania</th>
<th>Illinois</th>
<th>Rhode Island</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium ferrocyanide</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Ferrate(4-), hexakis(cyano-C)-, tetrapotassium, (OC-6-11)-</td>
<td>-</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

U.S. Department of Transportation

Reportable Quantity (RQ): N
DOT Marine Pollutant: N
DOT Severe Marine Pollutant: N

U.S. Department of Homeland Security
This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade
No information available

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class
Non-controlled

16. Other information

Prepared By
Regulatory Affairs
Thermo Fisher Scientific
Email: EMSDS.RA@thermofisher.com

Creation Date
10-Feb-2011
Revision Date
16-Oct-2014
Print Date
16-Oct-2014
Revision Summary
This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)