Section 1 - Product and Company Information

Product Name                  POTASSIUM CYANIDE
Product Number               60179
Brand                        FLUKA
Company                      Sigma-Aldrich Canada, Ltd
Address                      2149 Winston Park Drive
                              Oakville ON L6H 6J8 CA
Technical Phone:             9058299500
Fax:                         9058299292
Emergency Phone:             800-424-9300

Section 2 - Composition/Information on Ingredient

Substance Name                  CAS #            SARA 313
POTASSIUM CYANIDE               151-50-8        Yes

Formula                        CKN
Synonyms                       Cyanide of potassium * Cyanure de potassium
                              (French) * Hydrocyanic acid, potassium salt *
                              Potassium cyanide (ACGIH) * RCRA waste number P098
RTECS Number:                 TS8750000

Section 3 - Hazards Identification

EMERGENCY OVERVIEW
Highly Toxic (USA) Very Toxic (EU). Dangerous for the environment.
Very toxic by inhalation, in contact with skin and if swallowed.
Contact with acids liberates very toxic gas. Causes burns. Very
Toxic to aquatic organisms, may cause long-term adverse effects in
the aquatic environment.
Target organ(s): Blood. Central nervous system.

HMIS RATING
HEALTH: 3*
FLAMMABILITY: 0
REACTIVITY: 1

NFPA RATING
HEALTH: 3
FLAMMABILITY: 0
REACTIVITY: 1

*additional chronic hazards present.

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: Appropriate foam.
Unsuitable: Do not use carbon dioxide extinguisher on this material.

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.
Specific Method(s) of Fire Fighting: Fire fighting hazard: water spray can be used to fight fire in area containing cyanide and to cool fire-exposed metal containers. However, direct contact of material with water or steam will cause decomposition liberating highly toxic hydrogen cyanide gas as well as generating a highly hazardous solution of dissolved cyanide which must be kept out of sewers and watercourses. Cyanide has been found to form explosive mixtures sometimes spontaneously with chlorates, nitrates, and nitrogen trichloride plus ammonia.

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. Avoid raising dust. 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. Store in a cool dry place.
Incompatible Materials: Absorbs carbon dioxide from air.

SPECIAL REQUIREMENTS
Light and moisture sensitive. Avoid contact with acid.

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. Wash thoroughly after handling.

EXPOSURE LIMITS, RTECS
Country   Source        Type     Value
New Zealand OEL Remarks: check ACGIH TLV
USA        NIOSH        Ceiling co4.7 PPM(CN)/10M

EXPOSURE LIMITS
Country   Source     Type   Value
Poland    NDS        -
Poland    NDSCh      -
Poland    NDSP       5 mg/m3

Section 9 - Physical/Chemical Properties

Appearance
Physical State: Solid
Color: White

Property
Value                At Temperature or Pressure
Molecular Weight     65.12 AMU
pH                   11.5                   20 °C Concentration: 20 g/l
BP/BP Range          1,625 °C
MP/MP Range          634 °C
Freezing Point       N/A
Vapor Pressure       N/A
Vapor Density        N/A
Saturated Vapor Conc. N/A
SG/Density           1.52 g/cm3
Bulk Density         75.0 - 95.0 kg/l  20 °C
Odor Threshold       N/A
Volatile%            N/A
<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOC Content</td>
<td>N/A</td>
</tr>
<tr>
<td>Water Content</td>
<td>N/A</td>
</tr>
<tr>
<td>Solvent Content</td>
<td>N/A</td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>N/A</td>
</tr>
<tr>
<td>Viscosity</td>
<td>N/A</td>
</tr>
<tr>
<td>Surface Tension</td>
<td>N/A</td>
</tr>
<tr>
<td>Partition Coefficient</td>
<td>Log Kow: 0.44</td>
</tr>
<tr>
<td>Decomposition Temp.</td>
<td>N/A</td>
</tr>
<tr>
<td>Flash Point</td>
<td>N/A</td>
</tr>
<tr>
<td>Explosion Limits</td>
<td>N/A</td>
</tr>
<tr>
<td>Flammability</td>
<td>N/A</td>
</tr>
<tr>
<td>Autoignition Temp</td>
<td>N/A</td>
</tr>
<tr>
<td>Refractive Index</td>
<td>N/A</td>
</tr>
<tr>
<td>Optical Rotation</td>
<td>N/A</td>
</tr>
<tr>
<td>Miscellaneous Data</td>
<td>N/A</td>
</tr>
<tr>
<td>Solubility</td>
<td>Soluble</td>
</tr>
</tbody>
</table>

N/A = not available

### Section 10 - Stability and Reactivity

**STABILITY**

- Stable: Stable.
- Conditions of Instability: May decompose on exposure to moist air or water. Absorbs carbon dioxide from air. Light sensitive.
- Materials to Avoid: Strong oxidizing agents. Avoid contact with acid., Iodine, Permanganates, Peroxides, Metallic salts, Chloral hydrate, Alkaloids, Chlorates

**HAZARDOUS DECOMPOSITION PRODUCTS**


**HAZARDOUS POLYMERIZATION**

- Hazardous Polymerization: Will not occur

### Section 11 - Toxicological Information

**ROUTE OF EXPOSURE**

- Skin Contact: May cause skin irritation.
- Skin Absorption: May be fatal if absorbed through skin.
- Eye Contact: May cause eye irritation.
- Inhalation: May be fatal if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.
- Ingestion: May be fatal if swallowed.

**TARGET ORGAN(S) OR SYSTEM(S)**

- Cardiovascular system.
- Thyroid.
- Central nervous system.
- Blood.

**SIGNS AND SYMPTOMS OF EXPOSURE**

- Lung irritation. Exposure can cause: Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. Inhalation may result in spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Cyanosis. CNS depression. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**TOXICITY DATA**
Oral Human 2.857 mg/kg LDLO

Oral Rat 5 mg/kg LD50

Intraperitoneal Rat 4 MG/KG LD50
Remarks: Lungs, Thorax, or Respiration: Other changes.

Subcutaneous Rat 7814 UG/KG LD50

Intravenous Rat 3600 UG/KG LD50

Oral Mouse 8.5 mg/kg LD50

Intraperitoneal Mouse 5991 UG/KG LD50

Subcutaneous Mouse 6500 UG/KG LD50

Intravenous Mouse 2600 UG/KG LD50

Subcutaneous Dog 6 MG/KG LD50
Remarks: Behavioral: Convulsions or effect on seizure threshold.

Intravenous Cat
2200 UG/KG
LD50
Oral
Rabbit
5 mg/kg
LD50

Intraperitoneal
Rabbit
3972 UG/KG
LD50
Remarks: Blood:Other changes.

Subcutaneous
Rabbit
4 MG/KG
LD50
Remarks: Lungs, Thorax, or Respiration:Other changes.

Intramuscular
Rabbit
3256 UG/KG
LD50

Ocular
Rabbit
7870 UG/KG
LD50

Intramuscular
Pigeon
4 MG/KG
LD50

CHRONIC EXPOSURE - TERATOGEN

Species: Rat
Dose: 45 MG/KG
Route of Application: Intraperitoneal
Exposure Time: (1-15D PREG)
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus).

CHRONIC EXPOSURE - MUTAGEN

Species: Rat
Dose: 300 UMOL/L
Cell Type: liver
Mutation test: DNA damage

Species: Mouse
Dose: 1 MMOL/L
Cell Type: lymphocyte
Mutation test: DNA inhibition

Species: Mouse
Dose: 1 MMOL/L
Exposure Time: 48H
Cell Type: mammary gland
Mutation test: Cytogenetic analysis

CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Species: Rat
Dose: 65 GM/KG
Route of Application: Oral
Exposure Time: (14D PRE/1-22D PREG)
Result: Effects on Fertility: Other measures of fertility

Species: Domestic Animals
Dose: 1767 MG/KG
Route of Application: Oral
Exposure Time: (8-20W PREG/44D POST)
Result: Effects on Newborn: Weaning or lactation index (e.g., # alive at weaning per # alive at day 4). Effects on Newborn: Other neonatal measures or effects.

Section 12 - Ecological Information

ACUTE ECOTOXICITY TESTS

Test Type: LC50 Fish
Species: Lepomis macrochirus (Bluegill)
Time: 96 h
Value: 0.45 mg/l

Test Type: EC50 Daphnia
Species: Daphnia magna
Time: 48 h
Value: 2 mg/l

Test Type: EC50 Daphnia
Species: Daphnia magna
Time: 24 h
Value: 0.53 mg/l

Section 13 - Disposal Considerations

APPROPRIATE METHOD OF DISPOSAL OF SUBSTANCE OR PREPARATION
Contact a licensed professional waste disposal service to dispose of this material. Observe all federal, state, and local environmental regulations.

Section 14 - Transport Information

DOT
Proper Shipping Name: Potassium cyanide
UN#: 1680
Class: 6.1
Packing Group: Packing Group I
Hazard Label: Toxic substances.
PIH: Not PIH

IATA
Proper Shipping Name: Potassium cyanide
IATA UN Number: 1680
Hazard Class: 6.1
Packing Group: I

Section 15 - Regulatory Information
EU DIRECTIVES CLASSIFICATION
Symbol of Danger: T+-N
Indication of Danger: Very toxic. Dangerous for the environment.
R: 26/27/28-32-50/53
Risk Statements: Very toxic by inhalation, in contact with skin and if swallowed. Contact with acids liberates very toxic gas. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S: 7-28-29-45-60-61
Safety Statements: Keep container tightly closed. After contact with skin, wash immediately with plenty of soap-suds. Do not empty into drains. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheets.

US CLASSIFICATION AND LABEL TEXT
Risk Statements: Very toxic by inhalation, in contact with skin and if swallowed. Contact with acids liberates very toxic gas. Causes burns. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Safety Statements: Keep container tightly closed. After contact with skin, wash immediately with plenty of water. Do not empty into drains. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). This material and its container must be disposed of as hazardous waste. Avoid release to the environment. Refer to special instructions/safety data sheets.
US Statements: Target organ(s): Blood. Central nervous system.

UNITED STATES REGULATORY INFORMATION
SARA LISTED: Yes
NOTES: This product is subject to SARA section 313 reporting requirements.
TSCA INVENTORY ITEM: Yes

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: Yes
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.