1. Product Identification

Synonyms: Potassium cyanide, solid; hydrocyanic acid, potassium salt
CAS No.: 151-50-8
Molecular Weight: 65.12
Chemical Formula: KCN
Product Codes:
  J.T. Baker: 3080
  Mallinckrodt: 6881

2. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS No</th>
<th>Percent</th>
<th>Hazardous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium Cyanide</td>
<td>151-50-8</td>
<td>96 - 100%</td>
<td>Yes</td>
</tr>
</tbody>
</table>

3. Hazards Identification

Emergency Overview

POISON! DANGER! MAY BE FATAL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. CONTACT WITH ACIDS LIBERATES POISONOUS GAS. CAUSES BURNS TO SKIN, EYES, AND RESPIRATORY TRACT. AFFECTS BLOOD, CARDIOVASCULAR SYSTEM, CENTRAL NERVOUS SYSTEM AND THYROID.

J.T. Baker SAF-T-DATA® Ratings (Provided here for your convenience)

<table>
<thead>
<tr>
<th>Health Rating</th>
<th>Flammability Rating</th>
<th>Reactivity Rating</th>
<th>Contact Rating</th>
<th>Lab Protective Equip</th>
<th>Storage Color Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 - Severe (Poison)</td>
<td>0 - None</td>
<td>2 - Moderate</td>
<td>3 - Severe (Life)</td>
<td>GOGGLES; LAB COAT; VENT HOOD; PROPER GLOVES</td>
<td>Blue (Health)</td>
</tr>
</tbody>
</table>

Potential Health Effects

In most cases, cyanide poisoning causes a deceptively healthy pink to red skin color. However, if a physical injury or lack of oxygen is involved, the skin color may be bluish. Reddening of the eyes and pupil dilation are symptoms of cyanide poisoning. Cyanosis (blue discoloration of the skin) tends to be associated with severe cyanide poisonings.

Inhalation:
Corrosive to the respiratory tract. The substance inhibits cellular respiration and may cause blood, central nervous system, and thyroid changes. May cause headache, weakness, dizziness, labored breathing nausea and vomiting, which can be followed by weak and irregular heart beat, unconsciousness, convulsions, coma and death.

Ingestion:
Highly Toxic! Corrosive to the gastro-intestinal tract with burning in the mouth and esophagus, and abdominal pain. Larger doses may produce sudden loss of consciousness and prompt death from respiratory arrest. Smaller but still lethal doses may prolong the illness for one or more hours. Bitter almonds odor may be noted on the breath or vomitus. Other symptoms may be similar to those noted for inhalation exposure.

Skin Contact:
Corrosive. May cause severe pain and skin burns. Solutions are corrosive to the skin and eyes, and may cause deep ulcers which heal slowly. May be absorbed through the skin, with symptoms similar to those noted for inhalation.

Eye Contact:
Corrosive. Symptoms may include redness, pain, blurred vision, and eye damage.

Chronic Exposure:
Prolonged or repeated skin exposure may cause a "cyanide" rash and nasal sores.
Agragation of Pre-existing Conditions:
Workers using cyanides should have a preplacement and periodic medical exam. Those with history of central nervous system, thyroid, skin, heart or lung diseases may be more susceptible to the effects of this substance.

4. First Aid Measures

IN CASE OF CYANIDE POISONING, start first aid treatment immediately, then get medical attention. A cyanide antidote kit (amyl nitrite, sodium nitrite and sodium thiosulfate) should be available in any cyanide work area. Actions to be taken in case of cyanide poisoning should be planned and practiced before beginning work with cyanides. Oxygen and amyl nitrite can be given by a first responder before medical help arrives. Allow victim to inhale amyl nitrite for 15-30 seconds per minute until sodium nitrite and sodium thiosulfate can be administered intravenously (see Note to Physician). A new amyl nitrite ampule should be used every 3 minutes. If conscious but symptomatic (nausea, difficult breathing, dizziness, etc.) are evident, give oxygen. If consciousness is impaired (non-responsiveness, slurred speech, confusion, drowsiness) or the patient is unconscious but breathing, give oxygen and amyl nitrite by means of a respirator. If not breathing, give oxygen and amyl nitrite immediately by means of a positive pressure respirator (artificial respiration).

Inhalation:
If inhaled, remove to fresh air. Administer antidote kit and oxygen pre-planned instructions if symptoms occur. Keep patient warm and at rest. Do not give mouth to mouth resuscitation.

Ingestion:
If ingested, antidote kit and oxygen should be administered per above. If the patient is conscious, immediately give the patient activated charcoal slurry. Never give anything by mouth to an unconscious person. Do not induce vomiting as it could interfere with resuscitator use.

Skin Contact:
Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash clothing before reuse. Thoroughly clean shoes before reuse. Administer antidote kit and oxygen per preplanned instructions if symptoms occur.

Eye Contact:
Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

Note to Physician:
If patient does not respond to amyl nitrite, inject intravenously with 10mL of a 3% solution of sodium nitrite at a rate of not more than 2.5 to 5 mL per minute. Once nitrite administration is complete, follow directly with 50 mL of a 25% solution of sodium thiosulfate at the same rate by the same route. Give victim oxygen and keep under observation. If exposure was severe, watch victim for 24-48 hours. If signs of cyanide poisoning persist or reappear, repeat nitrite and thiosulfate injections 1 hour later in 1/2 the original doses. Cyanocobalamin (B12), 1 mg intramuscularly, may speed recovery. Moderate cyanide exposures need be treated only by supportive measures such as bed rest and oxygen.
cyanide antidote kit (amyl nitrite, sodium nitrite, and sodium thiosulfate) should be readily available in cyanide workplaces. The antidotes should be checked annually to ensure they are still within their shelf-lives. Identification of community hospital resources and emergency medical squads in order to equip and train them on handling cyanide emergencies is essential.

8. Exposure Controls/Personal Protection

Airborne Exposure Limits:
- OSHA Permissible Exposure Limit (PEL):
  5 mg/m³ skin (TWA) (as CN)
- ACGIH Threshold Limit Value (TLV):
  5 mg/m³ (STEL) Ceiling, skin, as CN

Ventilation System:
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, Industrial Ventilation, A Manual of Recommended Practices, most recent edition, for details.

Personal Respirators (NIOSH Approved):
If the exposure limit is exceeded, wear a supplied air, full-facepiece respirator, airlined hood, or full-facepiece self-contained breathing apparatus. This substance has poor warning properties.

Skin Protection:
Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Eye Protection:
Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance:
White deliquescent granular solid.

Odor:
Bitter almonds.

Solubility:
Very soluble in water.

Specific Gravity:
1.55 @ 20°C/4°C

pH:
11 (0.1 N aqueous solution)

% Volatiles by volume @ 21°C (70°F):
0

Boiling Point:
1625°C (2957°F)

Melting Point:
634°C (1173°F)

Vapor Density (Air=1):
No information found.

Vapor Pressure (mm Hg):
No information found.

Evaporation Rate (BuAc=1):
No information found.

10. Stability and Reactivity

Stability:
Very stable when dry. Moisture will cause slow decomposition, releasing poisonous hydrogen cyanide gas.

Hazardous Decomposition Products:
Emits toxic fumes of cyanide and oxides of nitrogen when heated to decomposition.

Hazardous Polymerization:
Will not occur.

Incompatibilities:
Strong acids and strong oxidizers. Reacts with acids to liberate toxic and flammable hydrogen cyanide gas. Water or weak alkaline solutions can produce dangerous amounts of hydrogen cyanide in confined areas. Can react with carbon dioxide in ordinary air to form hydrogen cyanide gas.

Conditions to Avoid:
Heat, moisture, incompatibles.
11. Toxicological Information

Oral rat LD50: 5 mg/kg. Investigated as a mutagen, reproductive effector.

---\Cancer Lists\-----------------------------------------

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Known</th>
<th>Anticipated</th>
<th>IARC Category</th>
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<tbody>
<tr>
<td>Potassium Cyanide (151-50-8)</td>
<td>No</td>
<td>No</td>
<td>None</td>
</tr>
</tbody>
</table>

12. Ecological Information

Environmental Fate:
This material has an estimated bioconcentration factor (BCF) of less than 100. This material is not expected to significantly bioaccumulate.

Environmental Toxicity:
This material is expected to be very toxic to aquatic life. This material is expected to be very toxic to terrestrial life.

13. Disposal Considerations

Cyanides must be oxidized to harmless waste before disposal. An alkaline solution (pH about 10) is treated with chlorine or commercial bleach in excess to decompose cyanide. When cyanide-free, it can be neutralized. Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

**Domestic (Land, D.O.T.)**

Proper Shipping Name: RQ, POTASSIUM CYANIDE
Hazard Class: 6.1
UN/NA: UN1680
Packing Group: I
Information reported for product/size: 100LB

**International (Water, I.M.O.)**

Proper Shipping Name: POTASSIUM CYANIDE, SOLID
Hazard Class: 6.1
UN/NA: UN1680
Packing Group: I
Information reported for product/size: 100LB

**International (Air, I.C.A.O.)**

Proper Shipping Name: POTASSIUM CYANIDE, SOLID
Hazard Class: 6.1
UN/NA: UN1680
Packing Group: I
Information reported for product/size: 100LB

15. Regulatory Information

---\Chemical Inventory Status - Part 1\-----------------------------------------

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<th>Ingredient</th>
<th>TSCA</th>
<th>EC</th>
<th>Japan</th>
<th>Australia</th>
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<tbody>
<tr>
<td>Potassium Cyanide (151-50-8)</td>
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<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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</tbody>
</table>

---\Chemical Inventory Status - Part 2\-----------------------------------------

---Canada---

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<tr>
<th>Ingredient</th>
<th>Korea</th>
<th>DSL</th>
<th>NDSL</th>
<th>Phil.</th>
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</table>
Potassium Cyanide (151-50-8) Yes Yes No Yes

-------- Federal, State & International Regulations - Part 1 ----------------

SARA 302- ---- SARA 313-----

Ingredient RQ TPQ List Chemical Catg.

Potassium Cyanide (151-50-8) 10 100 No Cyanide comp

-------- Federal, State & International Regulations - Part 2 ----------------

RCRA- -TSCA-

Ingredient CERCLA 261.33 8(d)

Potassium Cyanide (151-50-8) 10 P098 No

Chemical Weapons Convention: Yes TSCA 12(b): No CDTA: No
SARA 311/312: Acute: Yes Chronic: Yes Fire: No Pressure: No
Reactivity: No (Pure / Solid)

Australian Hazchem Code: 4X
Poison Schedule: S7
WHMIS:
This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Ratings: Health: 3 Flammability: 0 Reactivity: 0
Label Hazard Warning:
POISON! DANGER! MAY BE FATAL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN. CONTACT WITH ACIDS LIBERATES POISONOUS GAS. CAUSES BURNS TO SKIN, EYES, AND RESPIRATORY TRACT. AFFECTS BLOOD, CARDIOVASCULAR SYSTEM, CENTRAL NERVOUS SYSTEM AND THYROID.

Label Precautions:
Do not breathe dust.
Do not get in eyes, on skin, or on clothing.
Keep container closed.
Use only with adequate ventilation.
Wash thoroughly after handling.

Label First Aid:
IN ALL CASES, GET MEDICAL ATTENTION IMMEDIATELY. KEEP A CYANIDE ANTIDOTE KIT (amyl nitrite, sodium nitrite and sodium thiosulfate) in area of product use or storage. First-aiders must take precautions to avoid contact with cyanide substance. If the patient is conscious, immediately give the patient activated charcoal slurry. Never give anything by mouth to an unconscious person. Do not induce vomiting as it could interfere with resuscitator use. If inhaled, remove to fresh air. Administer antidote kit and oxygen per pre-planned instructions. If symptoms occur. Keep patient warm and at rest. Do not give mouth to mouth resuscitation. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Administer antidote kit and oxygen per preplanned instructions if symptoms occur.

Product Use:
Laboratory Reagent.

Revision Information:
MSDS Section(s) changed since last revision of document include: 14.

Disclaimer:
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