

Material Safety Data Sheet

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Version 1.3

According to 91/155/EEC

Classified as Hazardous according to the criteria of EU Annex 1 and NOHSC.

1 - Product and Company Information

Product Name	POTASSIUM CYANIDE
Product Number	60178
Company	Sigma-Aldrich Pty, Ltd Unit 2, 14 Anella Avenue Castle Hill NSW 1765 Australia
Technical Phone #	+61 2 9841 0555
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2 - Composition/Information on Ingredients

Product Name	CAS #	EC no	Annex I Index Number
POTASSIUM CYANIDE	151-50-8	205-792-3	006-007-00-5
Formula	CKN		
Molecular Weight	65.12 AMU		
Synonyms	Cyanide of potassium * Cyanure de potassium (French) * Hydrocyanic acid, potassium salt * Potassium cyanide (ACGIH) * RCRA waste number P098		

3 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT

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.

4 - First Aid Measures

AFTER INHALATION

If inhaled, remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

AFTER SKIN CONTACT

In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes.
Call a physician.

AFTER EYE CONTACT

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.

AFTER INGESTION

If swallowed, wash out mouth with water provided person is conscious. Call a physician immediately.

5 - Fire Fighting Measures

EXTINGUISHING MEDIA

Suitable: Appropriate foam.

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

SPECIAL RISKS

Specific Hazard(s): Emits toxic fumes under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

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.

6 - Accidental Release Measures

PERSONAL PRECAUTION PROCEDURES 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.

7 - Handling and Storage

HANDLING

Directions for Safe Handling: Do not breathe dust. Do not get in eyes, on skin, on clothing. Avoid prolonged or repeated exposure.

STORAGE

Conditions of Storage: 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.

8 - Exposure Controls / Personal Protection

ENGINEERING CONTROLS

Safety shower and eye bath. Use only in a chemical fume hood.

GENERAL HYGIENE MEASURES

Wash contaminated clothing before reuse. Wash thoroughly after handling.

EXPOSURE LIMITS

Country	Source	Type	Value
Poland		NDS	-
Poland		NDSch	-
Poland		NDSP	5 mg/m3

EXPOSURE LIMITS - DENMARK

Source	Type	Value
OEL	TWA	5 mg/m3

Remarks: LH

EXPOSURE LIMITS - GERMANY

Source	Type	Value
OEL TRGS 900	OEL	5 mg/m3, E

Remarks: 4

Remarks: H

EXPOSURE LIMITS - SWITZERLAND

Source	Type	Value
OEL	OEL	5 mg/m3

Remarks: E H

EXPOSURE LIMITS - UNITED KINGDOM

Source	Type	Value
OEL	TWA	5MG(CN)/M3

Remarks: Skin

PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection: Government approved respirator.

Hand Protection: Compatible chemical-resistant gloves.

Eye Protection: Chemical safety goggles.

9 - Physical and Chemical Properties

Appearance	Physical State: Solid Color: White	
Property	Value	At Temperature or Pressure
pH	11.5	20 °C Concentration: 20 g/l
BP/BP Range	1,625 °C	
MP/MP Range	634 °C	
Flash Point	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	N/A	
Vapor Pressure	N/A	
SG/Density	1.52 g/cm3	
Partition Coefficient	Log Kow: 0.44	
Viscosity	N/A	
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
Evaporation Rate	N/A	
Bulk Density	N/A	

Decomposition Temp.	N/A
Solvent Content	N/A
Water Content	N/A
Surface Tension	N/A
Conductivity	N/A
Miscellaneous Data	N/A
Solubility	N/A

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 Decomposition Products: Hydrogen cyanide, Nitrogen oxides, Potassium oxides.

HAZARDOUS POLYMERIZATION

Hazardous Polymerization: Will not occur

11 - Toxicological Information

RTECS NUMBER: TS8750000

ACUTE TOXICITY

LDLO
Oral
Human
2.857 mg/kg

LD50
Oral
Rat
5 mg/kg

LD50
Intraperitoneal
Rat
4 MG/KG

Remarks: Lungs, Thorax, or Respiration:Other changes.

LD50
Subcutaneous
Rat
7814 UG/KG

LD50
Intravenous
Rat
3600 UG/KG
Remarks: Behavioral:Altered sleep time (including change in righting reflex). Behavioral:Convulsions or effect on seizure threshold. Lungs, Thorax, or Respiration:Dyspnea.

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
Remarks: Peripheral Nerve and Sensation:Flaccid paralysis
without anesthesia (usually neuromuscular blockage).
Behavioral:Convulsions or effect on seizure threshold. Lungs,
Thorax, or Respiration:Respiratory stimulation.

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

LD50
Intravenous
Cat
2200 UG/KG

LD50
Oral
Rabbit
5 mg/kg

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

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

LD50
Intramuscular
Rabbit
3256 UG/KG

LD50
Ocular
Rabbit
7870 UG/KG
Remarks: Sense Organs and Special Senses (Nose, Eye, Ear, and
Taste):Eye:Other. Behavioral:Ataxia. Lungs, Thorax, or
Respiration:Respiratory stimulation.

LD50
Intramuscular
Pigeon
4 MG/KG

SIGNS AND SYMPTOMS OF EXPOSURE

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

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 INFORMATION

Blood. Central nervous system. Cardiovascular system. Thyroid.

CHRONIC EXPOSURE - MUTAGEN

Rat
300 UMOL/L
Cell Type: liver
DNA damage

Mouse
1 MMOL/L
Cell Type: lymphocyte
DNA inhibition

Mouse
1 MMOL/L
48H
Cell Type: mammary gland
Cytogenetic analysis

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 - 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.

12 - Ecological Information

ECOTOXICOLOGICAL EFFECTS

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

13 - Disposal Considerations

SUBSTANCE DISPOSAL

Contact a licensed professional waste disposal service to dispose of this material. Observe all federal, state, and local environmental regulations.

14 - Transport Information

RID/ADR

UN#: 1680

Class: 6.1

PG: I

Proper Shipping Name: Potassium cyanide

IMDG

UN#: 1680

Class: 6.1

PG: I

Proper Shipping Name: POTASSIUM CYANIDE, SOLID

Marine Pollutant: Yes

Severe Marine Pollutant: No

IATA

UN#: 1680

Class: 6.1

PG: I

Proper Shipping Name: Potassium cyanide

Inhalation Packing Group I: No

15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES

ANNEX I INDEX NUMBER: 006-007-00-5

NOTA: A

INDICATION OF DANGER: T+ N

Very toxic. Dangerous for the environment.

R-PHRASES: 26/27/28 32 50/53

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-PHRASES: 7 28 29 45 60 61

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.

COUNTRY SPECIFIC INFORMATION

Germany

WGK: 3

SWITZERLAND

SWISS POISON CLASS: 1

16 - Other Information

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. Copyright 2005 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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