

## Material Safety Data Sheet

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Version 1.2

According to 91/155/EEC

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1 - Product and Company Information

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Product Name	POTASSIUM CYANIDE
Product Number	60178
Company	Sigma-Aldrich Pte Ltd #08-01 Citilink Warehouse Singapore 118529 Singapore
Technical Phone #	65 271 1089
Fax	65 271 1571

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2 - Composition/Information on Ingredients

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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		

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3 - Hazards Identification

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## 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.

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4 - First Aid Measures

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## 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.

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## 5 - Fire Fighting Measures

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### 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.

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## 6 - Accidental Release Measures

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### 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.

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## 7 - Handling and Storage

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### 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.

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## 8 - Exposure Controls / Personal Protection

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### 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.

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### 9 - Physical and Chemical Properties

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Appearance	Physical State: Solid	
Property	Value	At Temperature or Pressure
pH	N/A	
BP/BP Range	N/A	
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	N/A	
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	

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10 - Stability and Reactivity

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## 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

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11 - Toxicological Information

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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.

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## 12 - Ecological Information

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### 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

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## 13 - Disposal Considerations

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### SUBSTANCE DISPOSAL

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

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## 14 - Transport Information

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### 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

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## 15 - Regulatory Information

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### 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

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#### 16 - Other Information

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#### 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 2004 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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