Material Safety Data Sheet

Version 5.2
Revision Date 10/23/2012
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1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	Potassium cyanide
Product Number	:	60178
Brand	:	Sigma
Supplier	:	Sigma-Aldrich 3050 Spruce Street SAINT LOUIS MO 63103 USA
Telephone	:	+1 800-325-5832
Fax	:	+1 800-325-5052
Emergency Phone # (For both supplier and manufacturer)	:	(314) 776-6555
Preparation Information	:	Sigma-Aldrich Corporation Product Safety - Americas Region 1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Target Organ Effect, Highly toxic by inhalation, Highly toxic by ingestion, Highly toxic by skin absorption

Target Organs

Blood, Central nervous system, Cardiovascular system., Thyroid

GHS Classification
Corrosive to metals (Category 1)
Acute toxicity, Oral (Category 2)
Acute toxicity, Inhalation (Category 2)
Acute toxicity, Dermal (Category 1)
Specific target organ toxicity - single exposure (Category 1)
Specific target organ toxicity - repeated exposure (Category 1)
Acute aquatic toxicity (Category 1)

GHS Label elements, including precautionary statements

Pictogram

Signal word Danger

Hazard statement(s)

H290	May be corrosive to metals.
H300 + H310 + H330	Fatal if swallowed, in contact with skin or if inhaled
H370	Causes damage to organs.
H372	Causes damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.

Precautionary statement(s)

P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264	Wash hands thoroughly after handling.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing.

P284	Wear respiratory protection.
P302 + P350	IF ON SKIN: Gently wash with plenty of soap and water.
P310	Immediately call a POISON CENTER or doctor/ physician.

Other hazards
Contact with acids liberates very toxic gas.

HMIS Classification

Health hazard:	4
Chronic Health Hazard:	*
Flammability:	0
Physical hazards:	0

NFPA Rating

Health hazard:	4
Fire:	0
Reactivity Hazard:	0

Health hazard:	4
Fire:	0
Reactivity Hazard:	0

Potential Health Effects

Inhalation	May be fatal if inhaled. May cause respiratory tract irritation.
Skin	May be fatal if absorbed through skin. May cause skin irritation.
Eyes	May cause eye irritation.
Ingestion	May be fatal if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula	:	CKN
Molecular Weight	:	65.12 g/mol

Component		Concentration
Potassium cyanide		
CAS-No.	151-50-8	-
EC-No.	205-792-3	
Index-No.	006-007-00-5	

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.Continue rinsing eyes during transport to hospital.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Conditions of flammability
Not flammable or combustible.

Suitable extinguishing media
Dry chemical Dry sand Alcohol-resistant foam

Extinguishing media which shall not be used for safety reasons
Water Carbon dioxide (CO2)

Special protective equipment for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx), Potassium oxides, Hydrogen cyanide (hydrocyanic acid)

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up
Pick up and arrange disposal without creating dust. Sweep up and shovel. Do not flush with water. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.

Conditions for safe storage
Keep container tightly closed in a dry and well-ventilated place.
hygroscopic
Never allow product to get in contact with water during storage. Do not store near acids.

Light sensitive.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Basis
Potassium cyanide	151-50-8	TWA	5 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
Remarks	Skin contact does contribute to exposure.			
		TWA	5 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
	Skin contact does contribute to exposure.			
		TWA	5 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
	Skin designation			
		C	5 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Upper Respiratory Tract irritation Headache Nausea Thyroid effects Danger of cutaneous absorption varies			
		TWA	5 mg/m3	USA. OSHA - TABLE Z-1 Limits for Air Contaminants -

				1910.1000
		C	4.7 ppm 5 mg/m3	USA. NIOSH Recommended Exposure Limits
	10 minute ceiling value			

Personal protective equipment

Respiratory protection
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. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Immersion protection
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: > 480 min
Material tested:Dermatril® (Aldrich Z677272, Size M)

Splash protection
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: > 30 min
Material tested:Dermatril® (Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 873000, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an Industrial Hygienist familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Eye protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	solid
Colour	white

Safety data

pH	11.5 at 20 g/l at 20 °C (68 °F)
Melting point/freezing point	Melting point/range: 634 °C (1,173 °F)
Boiling point	1,625 °C (2,957 °F)
Flash point	no data available
Ignition temperature	no data available

Autoignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapour pressure	no data available
Density	1.520 g/cm3
Water solubility	400 g/l at 20 °C (68 °F) - soluble
Partition coefficient: n-octanol/water	log Pow: 0.44
Relative vapour density	no data available
Odour	no data available
Odour Threshold	no data available
Evaporation rate	no data available

10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
no data available

Conditions to avoid
Avoid moisture.

Materials to avoid
Acids, Strong oxidizing agents, Iodine, permanganates, e.g. potassium permanganate, Peroxides, Metallic salts, Chloral hydrate, Alkaloids, Chlorates

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides, nitrogen oxides (NOx), Potassium oxides, Hydrogen cyanide (hydrocyanic acid)
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50
no data available

LDLO Oral - Human - 2.857 mg/kg

LD50 Oral - mouse - 8.5 mg/kg

LD50 Oral - rabbit - 5 mg/kg

LD50 Oral - rat - 6 mg/kg

Inhalation LC50
no data available

Dermal LD50
no data available

Other information on acute toxicity
LD50 Intraperitoneal - rat - 4 mg/kg
Remarks: Lungs, Thorax, or Respiration:Other changes.

LD50 Subcutaneous - rat - 7.814 mg/kg

LD50 Intravenous - rat - 3.6 mg/kg

Remarks: Behavioral:Altered sleep time (including change in righting reflex). Behavioral:Convulsions or effect on seizure threshold. Lungs, Thorax, or Respiration:Dyspnea.

LD50 Intraperitoneal - mouse - 5.991 mg/kg

Remarks: Behavioral:Convulsions or effect on seizure threshold. Lungs, Thorax, or Respiration:Respiratory stimulation.

LD50 Subcutaneous - mouse - 6.5 mg/kg

LD50 Intravenous - mouse - 2.6 mg/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 - 2.2 mg/kg

LD50 Intraperitoneal - rabbit - 3.972 mg/kg

Remarks: Blood:Other changes.

LD50 Subcutaneous - rabbit - 4 mg/kg

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

LD50 Intramuscular - rabbit - 3.256 mg/kg

LD50 Ocular - rabbit - 7.87 mg/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

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
no data available

Respiratory or skin sensitization
no data available

Germ cell mutagenicity

Genotoxicity in vitro - Hamster - fibroblast - with or without metabolic activation - negative

Carcinogenicity

IARC:	No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
ACGIH:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
NTP:	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

no data available

Teratogenicity

no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)
Ingestion - Causes damage to organs. - Heart, Testes

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard
no data available

Potential health effects

Inhalation	May be fatal if inhaled. May cause respiratory tract irritation.
Ingestion	May be fatal if swallowed.
Skin	May be fatal if absorbed through skin. May cause skin irritation.
Eyes	May cause eye irritation.

Signs and Symptoms of Exposure
Lung irritation, Cyanosis, Central nervous system depression, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated., May cause argyria (a slate-gray or bluish discoloration of the skin and deep tissues due to the deposit of insoluble albuminate of silver)., Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Inhalation may provoke the following symptoms:, spasm, inflammation and edema of the bronchi, Aspiration or inhalation may cause chemical pneumonitis., pulmonary edema, Lungs, CNS depression with hypertension or circulatory failure, and respiratory depression

Synergistic effects
no data available

Additional Information

Repeated dose toxicity - rat - male - Oral - No observed adverse effect level - 40 mg/kg
RTECS: Not available

12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to fish	LC50 - Oncorhynchus mykiss (rainbow trout) - 0.052 mg/l - 96.0 h
	LC50 - Lepomis macrochirus - 0.45 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 2 mg/l - 48 h
	EC50 - Daphnia magna (Water flea) - 0.53 mg/l - 24 h
	EC50 - Daphnia magna (Water flea) - 2 mg/l - 48 h
	EC50 - Daphnia magna (Water flea) - 0.53 mg/l - 24 h
Toxicity to algae	IC50 - Scenedesmus quadricauda (Green algae) - 0.03 mg/l - 192 h
Toxicity to bacteria	- Bacteria - 0.6 - 2.3 mg/l - 0.5 h

Persistence and degradability

Biodegradability	aerobic Result: 99 % - Readily biodegradable.

Bioaccumulative potential
Bioaccumulation is unlikely.

Mobility in soil
no data available

PBT and vPvB assessment
no data available

Other adverse effects

Chemical Oxygen Demand (COD)	< 1 mg/g

Very toxic to aquatic life with long lasting effects.

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

13. DISPOSAL CONSIDERATIONS

Product
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1680 Class: 6.1 Packing group: I
Proper shipping name: Potassium cyanide, solid
Reportable Quantity (RQ): 10 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG
UN number: 1680 Class: 6.1 Packing group: I EMS-No: F-A, S-A
Proper shipping name: POTASSIUM CYANIDE, SOLID
Marine pollutant: Marine pollutant

IATA
UN number: 1680 Class: 6.1 Packing group: I
Proper shipping name: Potassium cyanide, solid

15. REGULATORY INFORMATION

OSHA Hazards
Target Organ Effect, Highly toxic by inhalation, Highly toxic by ingestion, Highly toxic by skin absorption

SARA 302 Components
The following components are subject to reporting levels established by SARA Title III, Section 302:

	CAS-No.	Revision Date
Potassium cyanide	151-50-8	2007-03-01

SARA 313 Components
The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Potassium cyanide	151-50-8	2007-03-01

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Potassium cyanide	151-50-8	2007-03-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Potassium cyanide	151-50-8	2007-03-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Potassium cyanide	151-50-8	2007-03-01

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION

Further information

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 Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.