

SAFETY DATA SHEET

Version 5.9
Revision Date 06/02/2016
Print Date 12/11/2017

1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : Potassium cyanide

Product Number : 60178
Brand : Sigma
Index-No. : 006-007-00-5

CAS-No. : 151-50-8

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832
Fax : +1 800-325-5052

1.4 Emergency telephone number

Emergency Phone # : +1-703-527-3887 (CHEMTREC)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Corrosive to metals (Category 1), H290
Acute toxicity, Oral (Category 1), H300
Acute toxicity, Inhalation (Category 1), H330
Acute toxicity, Dermal (Category 1), H310
Specific target organ toxicity - single exposure, Oral (Category 1), Heart, Testes, Brain, H370
Specific target organ toxicity - repeated exposure (Category 1), Thyroid, H372
Acute aquatic toxicity (Category 1), H400
Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 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 (Heart, Testes, Brain) if swallowed.
H372 : Causes damage to organs (Thyroid) through prolonged or repeated exposure.
H410 : Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)	
P234	Keep only in original container.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P262	Do not get in eyes, on skin, or on clothing.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing.
P284	Wear respiratory protection.
P301 + P310 + P330	IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse mouth.
P302 + P350 + P310	IF ON SKIN: Gently wash with plenty of soap and water. Immediately call a POISON CENTER or doctor/ physician.
P304 + P340 + P310	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/ physician.
P307 + P311	IF exposed: Call a POISON CENTER or doctor/ physician.
P361	Remove/ Take off immediately all contaminated clothing.
P363	Wash contaminated clothing before reuse.
P390	Absorb spillage to prevent material damage.
P391	Collect spillage.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
P405	Store locked up.
P406	Store in corrosive resistant stainless steel container with a resistant inner liner.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Contact with acids liberates very toxic gas.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Formula	:	KCN
Molecular weight	:	65.12 g/mol
CAS-No.	:	151-50-8
EC-No.	:	205-792-3
Index-No.	:	006-007-00-5

Hazardous components

Component	Classification	Concentration
Potassium cyanide	Met. Corr. 1; Acute Tox. 1; STOT SE 1; STOT RE 1; Aquatic Acute 1; Aquatic Chronic 1; H290, H300 + H310 + H330, H370, H372, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of 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.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

5. FIREFIGHTING MEASURES**5.1 Extinguishing media****Suitable extinguishing media**

Dry chemical Dry sand Alcohol-resistant foam

Unsuitable extinguishing media

Water Carbon dioxide (CO₂)

5.2 Special hazards arising from the substance or mixture

No data available

5.3 Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

No data available

6. ACCIDENTAL RELEASE MEASURES**6.1 Personal precautions, protective equipment and emergency procedures**

Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 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.

6.3 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.

6.4 Reference to other sections

For disposal see section 13.

7. HANDLING AND STORAGE**7.1 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. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

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.

Storage class (TRGS 510): Non-combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

Component	CAS-No	Value	Control parameters	Basis
Potassium cyanide	151-50-8	C	4.700000 ppm 5.000000 mg/m3	USA. NIOSH Recommended Exposure Limits
	Remarks	10 minute ceiling value		
		TWA	5.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		CAS number varies with compound Skin designation		
		C	5.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Headache Nausea Thyroid effects Danger of cutaneous absorption varies		
		C	5.000000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
		Upper Respiratory Tract irritation Headache Nausea Thyroid effects Danger of cutaneous absorption varies		
		C	4.7 ppm 5 mg/m3	USA. NIOSH Recommended Exposure Limits
		10 minute ceiling value		
		TWA	5 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		CAS number varies with compound 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		
		PEL	5 mg/m3	California permissible exposure limits for chemical contaminants (Title 8, Article 107)
		Skin		

8.2 Exposure controls

Appropriate engineering controls

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

Personal protective equipment

Eye/face 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 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.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, 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 and safety officer 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.

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.

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).

Control of environmental exposure

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

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

- | | |
|--|--|
| a) Appearance | Form: crystalline
Colour: white |
| b) Odour | No data available |
| c) Odour Threshold | No data available |
| d) pH | 11.5 at 20 g/l at 20 °C (68 °F) |
| e) Melting point/freezing point | Melting point/range: 634 °C (1,173 °F) |
| f) Initial boiling point and boiling range | 1,625 °C (2,957 °F) |
| g) Flash point | No data available |
| h) Evaporation rate | No data available |
| i) Flammability (solid, gas) | No data available |
| j) Upper/lower | No data available |

flammability or
explosive limits

- | | |
|---|------------------------------------|
| k) Vapour pressure | No data available |
| l) Vapour density | No data available |
| m) Relative density | 1.520 g/cm ³ |
| n) Water solubility | 400 g/l at 20 °C (68 °F) - soluble |
| o) Partition coefficient: n-octanol/water | log Pow: 0.44 |
| p) Auto-ignition temperature | No data available |
| q) Decomposition temperature | No data available |
| r) Viscosity | No data available |
| s) Explosive properties | No data available |
| t) Oxidizing properties | No data available |

9.2 Other safety information

No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity

Contact with acids liberates very toxic gas.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

Avoid moisture.

10.5 Incompatible materials

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

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NO_x), Potassium oxides, Hydrogen cyanide (hydrocyanic acid)

Other decomposition products - No data available

In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

No data available

LD50 Oral - Rat - female - \geq 7.49 mg/kg

Inhalation: No data available

LD50 Dermal - Rabbit - female - 14.29 mg/kg

LD50 Intraperitoneal - Rat - 4 mg/kg

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

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

Hamster

fibroblast

Result: 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.

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

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

Repeated dose toxicity Rat - male - Oral - NOAEL : 40 mg/kg

RTECS: Not available

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

Liver - Irregularities - Based on Human Evidence

Liver - Irregularities - Based on Human Evidence

12. ECOLOGICAL INFORMATION**12.1 Toxicity**

Toxicity to daphnia and other aquatic invertebrates static test EC50 - Daphnia pulex (Water flea) - 0.11 mg/l - 48 h

Toxicity to algae IC50 - Scenedesmus quadricauda (Green algae) - 0.03 mg/l - 192 h

Toxicity to bacteria Respiration inhibition - Sludge Treatment - 2.3 mg/l - 30 min

12.2 Persistence and degradability

No data available

Chemical Oxygen Demand (COD) < 1 mg/g

12.3 Bioaccumulative potential

Bioaccumulation is unlikely.

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Other adverse effects

Very toxic to aquatic life with long lasting effects.

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

No data available

13. DISPOSAL CONSIDERATIONS**13.1 Waste treatment methods****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

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: yes

IATA

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

15. REGULATORY INFORMATION**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	1993-04-24

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Potassium cyanide	151-50-8	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Potassium cyanide	151-50-8	1993-04-24

New Jersey Right To Know Components

Potassium cyanide

CAS-No.
151-50-8

Revision Date
1993-04-24

California Prop. 65 Components

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

CAS-No.
151-50-8

Revision Date
2013-08-15

Potassium cyanide

16. OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	Acute toxicity
Aquatic Acute	Acute aquatic toxicity
Aquatic Chronic	Chronic aquatic toxicity
H290	May be corrosive to metals.
H300	Fatal if swallowed.
H300 + H310 + H330	Fatal if swallowed, in contact with skin or if inhaled
H310	Fatal in contact with skin.
H330	Fatal if inhaled.
H370	Causes damage to organs (/\$/*_ORG_SING_ORAL\$/) if swallowed.
H372	Causes damage to organs (/\$/*_ORGAN_REPEAT\$/) through prolonged or repeated exposure.
H400	Very toxic to aquatic life.

HMIS Rating

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

NFPA Rating

Health hazard:	4
Fire Hazard:	0
Reactivity Hazard:	0

Further information

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Preparation Information

Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

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