

# Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 01/08/2008

Reviewed on 04/04/2007

## 1 Identification of substance:

### Product details:

**Product name:** Potassium cyanide

**Stock number:** L13273

### Manufacturer/Supplier:

Alfa Aesar, A Johnson Matthey Company  
Johnson Matthey Catalog Company, Inc.  
30 Bond Street  
Ward Hill, MA 01835-8099  
Emergency Phone: (978) 521-6300  
CHEMTREC: (800) 424-9300  
Web Site: www.alfa.com

**Information Department:** Health, Safety and Environmental Department

### Emergency information:

During normal hours the Health, Safety and Environmental Department.  
After normal hours call Chemtrec at (800) 424-9300.

## 2 Composition/Data on components:

### Chemical characterization:

#### Description: (CAS#)

Potassium cyanide (CAS# 151-50-8): 100%

#### Identification number(s):

**EINECS Number:** 205-792-3

**EU Number:** 006-007-00-5

## 3 Hazards identification

### Hazard description:



T+ Very toxic

N Dangerous for the environment

### Information pertaining to particular dangers for man and environment

R 26/27/28 Very toxic by inhalation, in contact with skin and if swallowed.

R 32 Contact with acids liberates very toxic gas.

R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

### Classification system

#### HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

HEALTH	4
FIRE	0
REACTIVITY	1

Health (acute effects) = 4

Flammability = 0

Reactivity = 1

## 4 First aid measures

### General information

Immediately remove any clothing soiled by the product.

Remove breathing apparatus only after contaminated clothing has been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

(Contd. on page 2)

**Material Safety Data Sheet**

acc. to OSHA and ANSI

Printing date 01/08/2008

Reviewed on 04/04/2007

**Product name: Potassium cyanide**

(Contd. of page 1)

**After inhalation**

Supply fresh air. If required, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

**After skin contact**

Immediately wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

**After eye contact**

Rinse opened eye for several minutes under running water. Then consult a doctor.

**After swallowing**

Do not induce vomiting; immediately call for medical help.

Seek immediate medical advice.

**5 Fire fighting measures****Suitable extinguishing agents**

Product is not flammable. Use fire fighting measures that suit the surrounding fire.

**Special hazards caused by the material, its products of combustion or resulting gases:**

In case of fire, the following can be released:

Hydrogen cyanide (HCN)

Nitrogen oxides (NOx)

**Protective equipment:**

Wear self-contained respirator.

Wear fully protective impervious suit.

**6 Accidental release measures****Person-related safety precautions:**

Mount respiratory protective device.

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

**Measures for environmental protection:**

Do not allow material to be released to the environment without proper governmental permits.

**Measures for cleaning/collecting:**

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

**Additional information:**

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

**7 Handling and storage****Handling****Information for safe handling:**

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

Open and handle container with care.

**Information about protection against explosions and fires:**

The product is not flammable

(Contd. on page 3)

**Material Safety Data Sheet**

acc. to OSHA and ANSI

Printing date 01/08/2008

Reviewed on 04/04/2007

**Product name: Potassium cyanide**

(Contd. of page 2)

**Storage****Requirements to be met by storerooms and receptacles:**

No special requirements.

**Information about storage in one common storage facility:**

Do not store together with acids.

Store away from oxidizing agents.

**Further information about storage conditions:**

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

**8 Exposure controls and personal protection****Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

**Components with limit values that require monitoring at the workplace:**

Potassium cyanide (as CN)	
	mg/m <sup>3</sup>
ACGIH TLV	5-Ceiling (skin)
Austria MAK	5 (skin)
Denmark TWA	5 (skin)
France VME	5 (skin)
Germany MAK	5 (skin)
Poland TWA	0.3; 10-Ceiling
Switzerland MAK-W	5; 10-KZG-W (skin)
United Kingdom TWA	5 (skin)
USA PEL	5

**Additional information:** No data**Personal protective equipment****General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the eyes and skin.

**Breathing equipment:**

Use suitable respirator when high concentrations are present.

**Protection of hands:**

Check protective gloves prior to each use for their proper condition.

Impervious gloves

**Material of gloves**

The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.

**Eye protection:** Safety glasses**Body protection:** Protective work clothing.**9 Physical and chemical properties:****General Information**

<b>Form:</b>	Powder
<b>Color:</b>	White

(Contd. on page 4)

**Material Safety Data Sheet**

acc. to OSHA and ANSI

Printing date 01/08/2008

Reviewed on 04/04/2007

**Product name: Potassium cyanide**

(Contd. of page 3)

<b>Odor:</b>	Not determined
<b>Change in condition</b>	
<b>Melting point/Melting range:</b>	635°C (1175°F)
<b>Boiling point/Boiling range:</b>	1625°C (2957°F)
<b>Sublimation temperature / start:</b>	Not determined
<b>Flash point:</b>	Not applicable
<b>Ignition temperature:</b>	Not determined
<b>Decomposition temperature:</b>	Not determined
<b>Danger of explosion:</b>	Product does not present an explosion hazard.
<b>Explosion limits:</b>	
<b>Lower:</b>	Not determined
<b>Upper:</b>	Not determined
<b>Vapor pressure:</b>	Not determined
<b>Density at 20°C (68°F):</b>	1.52 g/cm <sup>3</sup>
<b>Solubility in / Miscibility with Water:</b>	Soluble

**10 Stability and reactivity****Thermal decomposition / conditions to be avoided:**

Decomposition will not occur if used and stored according to specifications.

**Materials to be avoided:**

Acids

Oxidizing agents

**Dangerous reactions** Contact with acids liberates very toxic gas.

**Dangerous products of decomposition:**

Hydrogen cyanide (prussic acid)

Nitrogen oxides

**11 Toxicological information****Acute toxicity:****LD/LC50 values that are relevant for classification:**

Oral	LD50	8500 µg/kg (mus)
		5 mg/kg (rat)
		5 mg/kg (rbt)
	LDLo	2857 µg/kg (hmn)

**Primary irritant effect:**

**on the skin:** Irritant to skin and mucous membranes.

**on the eye:** Irritating effect.

**Sensitization:** No sensitizing effects known.

**Other information (about experimental toxicology):**

Reproductive effects have been observed on tests with laboratory animals.

Mutagenic effects have been observed on tests with bacteria.

Mutagenic effects have been observed on tests with laboratory animals.

Mutagenic effects have been observed on tests with human lymphocytes.

(Contd. on page 5)

**Material Safety Data Sheet**

acc. to OSHA and ANSI

Printing date 01/08/2008

Reviewed on 04/04/2007

**Product name: Potassium cyanide**

(Contd. of page 4)

**Subacute to chronic toxicity:**

Cyanides may cause symptoms of salivation, nausea without vomiting, anxiety, confusion, vertigo, giddiness, lower jaw stiffness, convulsions, opisthotonos, paralysis, coma, cardiac arrhythmias and respiratory failure. They typically cause death through asphyxia. Skin contact may cause itching, macular, papular and vesicular eruptions.

**Subacute to chronic toxicity:**

Biochemical - Metabolism (Intermediary) - effect on cyclic nucleotides. The Registry of Toxic Effects of Chemical Substances (RTECS) reports the following effects in laboratory animals:

Behavioral - convulsions or effect on seizure threshold.

Behavioral - coma.

Behavioral - altered sleep time (including change in righting reflex).

Behavioral - tetany.

Behavioral - somnolence (general depressed activity).

Behavioral - rigidity (including catalepsy).

Behavioral - food intake (animal).

Behavioral - fluid intake.

Behavioral - ataxia.

Behavioral - tremor.

Nutritional and Gross Metabolic - metabolic acidosis.

Nutritional and Gross Metabolic - weight loss or decreased weight gain.

Kidney, Ureter, Bladder - other changes in urine composition.

Kidney, Ureter, Bladder - changes in tubules (including acute renal failure, acute tubular necrosis).

Endocrine - changes in thyroid weight.

Endocrine - other changes.

Endocrine - evidence of thyroid hypofunction.

Cardiac - pulse rate increase, without fall in BP.

Vascular - BP lowering not characterized in autonomic section.

Cardiac - arrhythmias (including changes in conduction).

Gastrointestinal - other changes.

Lungs, Thorax, or Respiration - other changes.

Lungs, Thorax, or Respiration - dyspnea.

Lungs, Thorax, or Respiration - respiratory obstruction.

Lungs, Thorax, or Respiration - respiratory stimulation.

Blood - other changes.

Blood - changes in serum composition (e.g. TP, bilirubin, cholesterol).

Blood - hemorrhage.

Spinal Cord - other degenerative changes.

Brain and Coverings - other degenerative changes.

Brain and Coverings - changes in surface EEG

Brain and Coverings - demyelination.

Sense Organs and Special Senses (Eye) - effect, not otherwise specified.

Sense Organs and Special Senses (Ear) - changes in cochlear structure or function.

Peripheral Nerve and Sensation - flaccid paralysis without anesthesia (usuall neuromuscular blockage).

Liver - other changes.

Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - cytochrome oxidase (including oxidative phosphorylation).

Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - phosphatases.

Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - transaminases.

(Contd. on page 6)

# Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 01/08/2008

Reviewed on 04/04/2007

**Product name: Potassium cyanide**

(Contd. of page 5)

Biochemical - Metabolism (Intermediary) - effect on mitochondrial function  
 Biochemical - Neurotransmitters or modulators (purative) - dopamine in striatum.  
 Reproductive - Fertility - other measures of fertility.  
 Reproductive - Effects on Embryo or Fetus - fetotoxicity (except death, e.g., stunted fetus).  
 Reproductive - Effects on Newborn - weaning or lactation index (e.g., # alive at weaning per # alive at day 4).  
 Reproductive - Effects on Newborn - other neonatal measures or effects.

**Subacute to chronic toxicity:**  
 Potassium cyanide has caused teratogenic, mutagenic and reproductive effects in laboratory animals.

**Additional toxicological information:**  
 To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.  
 Danger through skin absorption.  
 No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

## 12 Ecological information:

**Ecotoxicological effects:**

**Remark:** Very toxic for fish

**General notes:**

Do not allow product to reach ground water, water course or sewage system, even in small quantities.  
 Danger to drinking water if even extremely small quantities leak into the ground.  
 Also poisonous for fish and plankton in water bodies.  
 Do not allow material to be released to the environment without proper governmental permits.  
 Very toxic for aquatic organisms

## 13 Disposal considerations

**Product:**

**Recommendation**

Consult state, local or national regulations to ensure proper disposal.

**Uncleaned packagings:**

**Recommendation:** Disposal must be made according to official regulations.

**Recommended cleansing agent:** Water, if necessary with cleansing agents.

## 14 Transport information

**DOT regulations:**



<b>Hazard class:</b>	6.1
<b>Identification number:</b>	UN1680
<b>Packing group:</b>	I
<b>Proper shipping name (technical name):</b>	POTASSIUM CYANIDE, SOLID

(Contd. on page 7)

# Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 01/08/2008

Reviewed on 04/04/2007

**Product name: Potassium cyanide**

(Contd. of page 6)

**Label** 6.1

**Land transport ADR/RID (cross-border)**


**ADR/RID class:** 6.1 (T5) Toxic substances  
**Danger code (Kemler):** 66  
**UN-Number:** 1680  
**Packaging group:** I  
**Description of goods:** 1680 POTASSIUM CYANIDE, SOLID

**Maritime transport IMDG:**


**IMDG Class:** 6.1  
**UN Number:** 1680  
**Label** 6.1  
**Packaging group:** I  
**Proper shipping name:** POTASSIUM CYANIDE, SOLID

**Air transport ICAO-TI and IATA-DGR:**


**ICAO/IATA Class:** 6.1  
**UN/ID Number:** 1680  
**Label** 6.1  
**Packaging group:** I  
**Proper shipping name:** POTASSIUM CYANIDE, SOLID

## 15 Regulations

**Product related hazard informations:**
**Hazard symbols:**

T+ Very toxic

N Dangerous for the environment

**Risk phrases:**

26/27/28 Very toxic by inhalation, in contact with skin and if swallowed.

32 Contact with acids liberates very toxic gas.

50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

**Safety phrases:**

7 Keep container tightly closed.

28 After contact with skin, wash immediately with plenty of water

29 Do not empty into drains.

45 In case of accident or if you feel unwell, seek medical advice immediately.

(Contd. on page 8)

**Material Safety Data Sheet**

acc. to OSHA and ANSI

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Reviewed on 04/04/2007

**Product name: Potassium cyanide**

(Contd. of page 7)

60 This material and its container must be disposed of as hazardous waste.

61 Avoid release to the environment. Refer to special instructions/Safety data sheets

**National regulations**

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

All components of this product are listed on the Canadian Domestic Substances List (DSL).

**Information about limitation of use:**

For use only by technically qualified individuals.

This product is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.

**16 Other information:**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

**Department issuing MSDS:** Health, Safety and Environmental Department.

**Contact:** Paul V. Connolly