

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 06/08/2009

Reviewed on 06/08/2009

1 Identification of substance:

Product details:
Product name: Zinc Hexacyanocobaltate
Stock number: 96416

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#)

Zinc Hexacyanocobaltate (CAS# 14049-79-7): 100%

3 Hazards identification

Hazard description:


T Toxic
 N Dangerous for the environment

Information pertaining to particular dangers for man and environment

R 23/24/25 Toxic by inhalation, in contact with skin and if swallowed.

R 51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

GHS label elements

Danger

3.1/3 - Toxic if swallowed.
 3.1/3 - Toxic in contact with skin.
 3.1/3 - Toxic if inhaled.



4.1/2 - Toxic to aquatic life with long lasting effects.

Prevention:

Avoid breathing dust/fume/gas/mist/vapours/spray.

Wash thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

Avoid release to the environment.

Wear protective gloves/protective clothing/eye protection/face protection.

Response:

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

IF ON SKIN: Wash with plenty of soap and water.

IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.

Call a POISON CENTER or doctor/physician.

Call a POISON CENTER or doctor/physician if you feel unwell.

Specific treatment (see label).

Specific measures (see label).

Rinse mouth.

Remove/Take off immediately all contaminated clothing.

Wash contaminated clothing before reuse.

Collect spillage.

Storage:

Store in a well-ventilated place. Keep container tightly closed.

Store locked up.

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Disposal:

Dispose of contents/container in accordance with local/regional/national/international regulations.

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.

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

Use carbon dioxide, extinguishing powder or foam. Water may be ineffective but may be used for cooling exposed containers.

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

In case of fire, the following can be released:

Nitrogen oxides (NOx)

Hydrogen cyanide (HCN)

Toxic metal oxide fume

Protective equipment:

Wear self-contained respirator.

Wear fully protective impervious suit.

6 Accidental release measures

Person-related safety precautions:

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: Keep ignition sources away.

Storage

Requirements to be met by storerooms and receptacles: No special requirements.

Information about storage in one common storage facility:

Store away from oxidizing agents.

Do not store together with acids.

Further information about storage conditions:

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

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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:

Cyanides (as CN)

	mg/m3
Austria MAK	5 (skin)
Denmark TWA	5 (skin)
Finland TWA	5; 10-STEL
France VME	5 (skin)
Germany MAK	5 (skin)
Hungary TWA	0.3; 0.6-STEL (skin)
Netherlands MAC-TGG	5 (skin)
Poland TWA	0.3; 10-Ceiling
Sweden	5-Ceiling (skin)
Switzerland MAK-W	5; 10-STEL (skin)
United Kingdom	5-LTEL (skin)
OSHA PEL	5 (skin)

Cobalt, elemental & inorganic compounds, as Co

	mg/m3
ACGIH TLV	0.02; Confirmed animal carcinogen
Austria	Carcinogen
Belgium TWA	0.05
Denmark TWA	0.05
Finland TWA	0.05 (skin)
Germany	Carcinogen
Hungary TWA	0.1; 0.2-STEL
Japan OEL	0.05; 2B-Carcinogen
Korea TLV	0.02; Confirmed animal carcinogen
Netherlands MAC-TGG	0.05
Norway TWA	0.05
Poland TWA	0.05; 0.2-STEL
Russia	0.5-STEL
Sweden NGV	0.05
Switzerland MAK-W	0.1; Carcinogen
United Kingdom TWA	0.1
USA PEL	0.1 (dust and fume)

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: Impervious gloves

Eye protection: Safety glasses

Body protection: Protective work clothing.

9 Physical and chemical properties:

General Information

Form:	Powder
Color:	White
Odor:	Not determined

Change in condition

Melting point/Melting range:	Not determined
Boiling point/Boiling range:	Not determined
Sublimation temperature / start:	Not determined

Flash point: Not applicable

Ignition temperature: Not determined

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Decomposition temperature:	Not determined
Danger of explosion:	Product does not present an explosion hazard.
Explosion limits:	
Lower:	Not determined
Upper:	Not determined
Vapor pressure:	Not determined
Density:	Not determined

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:

Oxidizing agents

Acids

Dangerous reactions No dangerous reactions known

Dangerous products of decomposition:

Nitrogen oxides

Hydrogen cyanide (prussic acid)

Toxic metal oxide fume

11 Toxicological information

Acute toxicity:

Primary irritant effect:

on the skin: Irritant to skin and mucous membranes.

on the eye: Irritating effect.

Sensitization: No sensitizing effects known.

Subacute to chronic toxicity:

Cobalt is an experimental neoplastigen and tumorigen. It is an experimental carcinogen of the connective tissue and lungs. Cobalt metal and inorganic compounds are classified as an animal carcinogen by the ACGIH. Ingestion may cause burning in the mouth, esophagus, and stomach. Inhalation of dusts and fumes may cause irritation of the respiratory tract and labored breathing and coughing. Sensitization, nausea, flushing of the face and ringing in the ears is also possible. Chronic ingestion may result in pericardial effusion, polycardial effusion, polycythemia, cardiac failure, vomiting, convulsions and thyroid enlargement. 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.

Zinc fumes may cause metal fume fever. Effects include dry throat, metallic taste, chest pain, dyspnea, rales and dry cough. Several hours later, chills may occur with lassitude, malaise, fatigue, headache, back pain, muscle cramps, blurred vision, nausea, fever, perspiration, vomiting and leukocytosis.

Additional toxicological information:

Danger through skin absorption.

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

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: 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.

Toxic for aquatic organisms

13 Disposal considerations

Product:

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

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Uncleaned packagings:

Recommendation: Disposal must be made according to official regulations.

14 Transport information

DOT regulations:



Hazard class: 6.1
 Identification number: UN1588
 Packing group: III
 Proper shipping name (technical name): CYANIDES, INORGANIC, SOLID, N.O.S.
 Label: 6.1

Land transport ADR/RID (cross-border)



ADR/RID class: 6.1 (T5) Toxic substances
 Danger code (Kemler): 60
 UN-Number: 1588
 Packaging group: III
 Description of goods: 1588 CYANIDES, INORGANIC, SOLID, N.O.S. (Zinc Hexacyanocobaltate)

Maritime transport IMDG:



IMDG Class: 6.1
 UN Number: 1588
 Label: 6.1
 Packaging group: III
 Proper shipping name: CYANIDES, INORGANIC, SOLID, N.O.S. (Zinc Hexacyanocobaltate)

Air transport ICAO-TI and IATA-DGR:



ICAO/IATA Class: 6.1
 UN/ID Number: 1588
 Label: 6.1
 Packaging group: III
 Proper shipping name: CYANIDES, INORGANIC, SOLID, N.O.S.

UN "Model Regulation": UN1588, CYANIDES, INORGANIC, SOLID, N.O.S., 6.1, III

Environmental hazards: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID

15 Regulations

Product related hazard informations:

Hazard symbols:

T Toxic

N Dangerous for the environment

Risk phrases:

23/24/25 Toxic by inhalation, in contact with skin and if swallowed.

51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

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Safety phrases:

- 4 Keep away from living quarters.
- 9 Keep container in a well-ventilated place.
- 20 When using do not eat or drink.
- 27 Take off immediately all contaminated clothing.
- 36/37 Wear suitable protective clothing and gloves.
- 45 In case of accident or if you feel unwell, seek medical advice immediately.
- 57 Use appropriate container to avoid environmental contamination.
- 60 This material and its container must be disposed of as hazardous waste.

National regulations

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

Information about limitation of use:

For use only by technically qualified individuals.

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

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

This product contains a cyanide compound and 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: Zachariah Holt

Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

CAS: Chemical Abstracts Service (division of the American Chemical Society)

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