

# Safety Data Sheet per OSHA HazCom 2012

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#### 1 Identification

Product identifier

Product name: Lead(II) hexacyanoferrate(II)

**Stock number:** A10174 **CAS Number:** 14402-61-0 Index number: 082-001-00-6

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

Identified use: SU24 Scientific research and development

Details of the supplier of the safety data sheet

Details of the supplier of the safety da Manufacturer/Supplier:
Alfa Aesar
Thermo Fisher Scientific Chemicals, Inc. 30 Bond Street
Ward Hill, MA 01835-8099
Tel: 800-343-0660
Fax: 800-322-4757

Email: tech@alfa.com www.alfa.com

Information Department: Health, Safety and Environmental Department

Emergency telephone number:
During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660. After normal business hours, call Carechem 24 at (866) 928-0789.

### 2 Hazard(s) identification

Classification of the substance or mixture in accordance with 29 CFR 1910 (OSHA HCS)



GHS06 Skull and crossbones

Acute Tox. 3 H331 Toxic if inhaled.



GHS08 Health hazard

H360 May damage fertility or the unborn child. Repr. 1A

STOT RE 2 H373 May cause damage to the reproductive system, the blood, the brain and the endocrine system through prolonged or repeated exposure. Route of exposure: Oral, Inhalative.



Acute Tox. 4 H302 Harmful if swallowed.

Hazards not otherwise classified No information known.

Label elements

GHS label elements The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS) Hazard pictograms







Signal word Danger

Hazard statements
H302 Harmful if swallowed.
H331 Toxic if inhaled.
H360 May damage fertility or the unborn child.
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Oral, Inhalative.

Precautionary statements
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P281 Use personal protective equipment as required.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P405

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

WHMIS classification
D1B - Toxic material causing immediate and serious toxic effects
D2A - Very toxic material causing other toxic effects



Classification system HMIS ratings (scale 0-4) (Hazardous Materials Identification System)



Health (acute effects) = 2 Flammability = 1

WIY 1 Physical Hazard = 1

Other hazards

Results of PBT and vPvB assessment PBT: Not applicable.

vPvB: Not applicable.

#### Product name: Lead(II) hexacyanoferrate(II)

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#### 3 Composition/information on ingredients

Chemical characterization: Substances CAS# Description: 14402-61-0 Lead(II) hexacyanoferrate(II)

Identification number(s): Index number: 082-001-00-6

#### 4 First-aid measures

Description of first aid measures
After inhalation
Supply fresh air. If required, provide artificial respiration. Keep patient warm.
Seek inhalation

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 Seek medical treatment.

Information for doctor

Most important symptoms and effects, both acute and delayed No further relevant information available.

Indication of any immediate medical attention and special treatment needed No further relevant information available.

### 5 Fire-fighting measures

Extinguishing media
Suitable extinguishing agents Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
Special hazards arising from the substance or mixture
If this product is involved in a fire, the following can be released:

If this product is involved in a fire, the a Carbon monoxide and carbon dioxide Metal oxide fume Nitrogen oxides (NOx) Lead oxide fume Hydrogen cyanide (HCN) Advice for firefighters Protective equipment: Wear self-contained respirator. Wear fully protective impervious suit.

### 6 Accidental release measures

Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away Ensure adequate ventilation

Ensure adequate ventilation: Do not allow material to be released to the environment without proper governmental permits. 
Methods and material for containment and cleaning up:
Dispose of contaminated material as waste according to section 13.
Ensure adequate ventilation.

Prevention of secondary hazards: No special measures required.

Reference to other sections

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

Precautions 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: No information known.

Conditions for safe storage, including any incompatibilities

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

Information about storage in one common storage facility: Store away from oxidizing agents.

Further information about storage conditions:

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

Specific end use(s) No further relevant information available.

### 8 Exposure controls/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.

Control parameters
Components with limit values that require monitoring at the workplace:

Iron salts, soluble (as Fe) mg/m3 ACGIH TLV 1 Finland TWA 1 Korea TLV 1

Norway TWA Norway TWA Switzerland MAK-W 1 United Kingdom LTEL 1; 2-STEL

Lead, elemental, and inorganic compounds (as Pb) mg(Pb)/m3

ACGIH TLV 0.05 Confirmed animal carcinogen Austria MAK 0.1
Belgium TWA 0.15
Denmark TWA 0.1
Germany MAK 0.1

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#### Product name: Lead(II) hexacyanoferrate(II)

(Contd. of page 2)

Japan OEL Netherlands TWA Norway TWA Poland TWA 0.1 0.15 0.05 0.05 Foland TWA 0.05
Switzerland MAK-W 0.1
United Kingdom TWA 0.1
Finland TWA 0.1
France TWA 0.15
Hungary STEL 0.04
Sweden TWA 0.1 (total dust)
USA PEL 0.05
Additional information: No data

Additional information: No data

Exposure controls

Exposure controls
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.
Maintain an ergonomically appropriate working environment.
Breathing equipment:

Breathing equipment:
Use suitable respirator when high concentrations are present.
Refer to 29CFR1910.1025 for regulations on respiratory protection required during exposure to lead and lead compounds.
Protection of hands:

Impervious gloves
Check protection gloves
Check protective gloves prior to each use for their proper condition.
The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.
Penetration time of glove material (in minutes) Not determined
Eye protection: Safety glasses
Body protection: Protective work clothing.

#### 9 Physical and chemical properties

Information on basic physical and chemical properties General Information

Appearance: Form: Color:

Powder Yellow Odor: Odor threshold: Not determined Not determined Not applicable.

pH-value: Change in condition

Melting point/Melting range:
Boiling point/Boiling range:
Sublimation temperature / start:
Flammability (solid, gaseous)
Ignition temperature:
Decomposition temperature:
Auto institue: Not determined Not determined Not determined Not determined Not determined Not determined Auto igniting: Not determined.

Danger of explosion: Explosion limits: Lower:

Product does not present an explosion hazard.

Not determined Upper: Not determined Upper: Vapor pressure: Density: Relative density Vapor density Evaporation rate Not applicable. Not determined Not determined. Not applicable. Not applicable.

Solubility in / Miscibility with Water

Partition coefficient (n-octanol/water): Not determined. Not applicable.

Viscosity dynamic: kinematic:

Not determined

Not applicable. No further relevant information available. Other information

# 10 Stability and reactivity

Reactivity No information known.

Chemical stability Stable under recommended storage conditions.

Thermal decomposition / conditions to be avoided: Decomposition will not occur if used and stored according to specifications.

Conditions to be avoided: Decomposition / Conditions to be avoided: Decomposition / Possibility of hazardous reactions No dangerous reactions known Conditions to avoid No further relevant information available. Incompatible materials: Oxidizing agents Hazardous decomposition products:

Carbon monoxide and carbon dioxide Metal oxide fume Nitrogen oxides Lead oxide fume Hydrogen cyanide

#### 11 Toxicological information

Information on toxicological effects

Acute toxicity:
Harmful if swallowed.
Toxic if inhaled.
LD/LC50 values that are relevant for classification: No data

Skin irritation or corrosion: May cause irritation Eye irritation or corrosion: May cause irritation

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#### Product name: Lead(II) hexacyanoferrate(II)

Sensitization: No sensitizing effects known.

Germ cell mutagenicity: No effects known.

Carcinogenicity:

EPA-B2: Probable human carcinogen, sufficient evidence from animal studies; inadequate evidence or no data from epidemiologic studies.

NTP-R: Reasonably anticipated to be a carcinogen: limited evidence from studies in humans or sufficient evidence from studies in experimental animals.

ACGIH A3: Animal carcinogen: Agent is carcinogenic in experimental animals at a relatively high dose, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) not considered relevant to worker exposure. Available epidemologic studies do not confirm an increased risk of cancer in exposed humans. Available evidence suggests that the agent is not likely to cause cancer in humans except under uncommon or unlikely routes or levels of exposure. IARC-2A: Probably carcinogenic to humans: limited human evidence; sufficient evidence in experimental animals

Reproductive toxicity: May damage fertility or the unborn child.

Specific target organ system toxicity - repeated exposure:

May cause damage to the reproductive system, the blood, the brain and the endocrine system through prolonged or repeated exposure. Route of exposure: Oral, Inhalative.

Specific target organ system toxicity - single exposure: No effects known.
Aspiration hazard: No effects known.
Subacute to chronic toxicity:

fron compounds may cause vomiting, diarrhea, pink urine, black stool, and liver damage. May cause damage to the kidneys. Irritating to the respiratory tract, they may cause pulmonary fibrosis if dusts are inhaled.

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Lead and lead compounds may cause abdominal pain, diarrhea, loss of appetite, metallic taste, nausea, vomiting, lassitude, insomnia, muscle weakness, joint and muscle pain, irritability, headache and dizziness. Red blood cells may be damaged resulting in anemia. Gastritis and injury to the kidneys, liver, male gonads, and central nervous system may also occur.

Subacute to chronic toxicity: No effects known.

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

#### 12 Ecological information

Toxicity
Aquatic toxicity: No further relevant information available.
Persistence and degradability No further relevant information available.
Bioaccumulative potential No further relevant information available.
Mobility in soil No further relevant information available.

Ecotoxical effects:
Remark: Very toxic for aquatic organisms
Additional ecological information:

General notes:

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

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.

Also poisonous for fish and plankfor in water bodies. May cause long lasting harmful effects to aquatic life. Avoid transfer into the environment. Very toxic for aquatic organisms

Results of PBT and vPvB assessment

RDT. Not applicable.

PBT: Not applicable. vPvB: Not applicable

Other adverse effects No further relevant information available.

#### 13 Disposal considerations

Waste treatment methods

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

Uncleaned packagings:
Recommendation: Disposal must be made according to official regulations.

14	Transport	information

UN-Number DOT, IMDG, IATA	UN2291
UN proper shipping name DOT IMDG, IATA	Lead compounds, soluble, n.o.s. (Lead(II) hexacyanoferrate(II)) LEAD COMPOUND, SOLUBLE, N.O.S. (Lead(II) hexacyanoferrate(II))
Transport hazard class(es)	

# DOT



6.1 Toxic substances.

(T5) Toxic substances

Class

Label

6.1 Toxic substances.

Packing group DOT, IMDG, IATA

Environmental hazards: Environmentally hazardous substance, solid

Special precautions for user Warning: Toxic substances

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code Not applicable.

Transport/Additional information:

DOT Marine Pollutant (DOT):

No

UN "Model Regulation": UN2291, Lead compounds, soluble, n.o.s. (Lead(II) hexacyanoferrate(II)), 6.1, III

USA

#### Product name: Lead(II) hexacyanoferrate(II)

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#### 15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture GHS label elements The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS) Hazard pictograms





GHS06 GHS08

Signal word Danger

Hazard statements
H302 Harmful if swallowed.
H331 Toxic if inhaled.
H360 May damage fertility or the unborn child.
H373 May cause damage to the reproductive system, the blood, the brain and the endocrine system through prolonged or repeated exposure. Route of exposure:

Oral, Inhalative.

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Precautionary statements
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P281 Use personal protective equipment as required.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

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

National regulations
This product is not listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical Substance Inventory. Use of this product is restricted to research and development only. This product must be used by or directly under the supervision of a technically qualified individual as defined by TSCA. This product must not be used for commercial purposes or in formulations for commercial purposes.
This product contains a chemical known to the state of California to cause cancer and/or reproductive toxicity.

#### SARA Section 313 (specific toxic chemical listings)

14402-61-0 Lead(II) hexacyanoferrate(II)

### California Proposition 65

#### Prop 65 - Chemicals known to cause cancer

14402-61-0 Lead(II) hexacyanoferrate(II)

Prop 65 - Developmental toxicity Substance is not listed.
Prop 65 - Developmental toxicity, female Substance is not listed.

Prop 65 - Developmental toxicity, male

14402-61-0 Lead(II) hexacyanoferrate(II)

Information about limitation of use:
For use only by technically qualified individuals.
This product contains lead and is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.

Other regulations, limitations and prohibitive regulations Refer to 29CFR1910.1025 for regulations concerning lead and lead compounds.

Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006. Substance is not listed.

The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the Market and use must be observed.

Substance is not listed.

Annex XIV of the REACH Regulations (requiring Authorisation for use) Substance is not listed.

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

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. conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing SDS: Global Marketing Department
Date of preparation / last revision 11/24/2015 / Abbreviations and acronyms:

RID: Reglement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
ATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organization
ICAO: International Instructions by the "International Civil Aviation Organization" (ICAO)
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
AS: Chemical Abstracts Service (division of the American Chemical Society)
HMIS: Hazardous Materials Identification System (USA)
WHMIS: Workplace Hazardous Materials Information System (Canada)
LC50: Lethal concentration, 50 percent
VPUS: very Persistent and very Bioaccumulative
ACGIH: American Conference of Governmental Industrial Hygienists (USA)
NTP: National Toxicology Program (USA)
NAP: National Toxicology Program (USA)
NAP: Alanianal Toxicology Program (USA)
NAP: Alanianal Protection Agency (USA)

USA