

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 08/20/2009

Reviewed on 08/19/2009

1 Identification of substance:**Product details:****Product name:** Cobalt(II) fluoride tetrahydrate**Stock number:** 10693**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#)

Cobalt(II) fluoride tetrahydrate (CAS# 13817-37-3)

Identification number(s):**EINECS Number:** 233-061-9**3 Hazards identification****Hazard description:**

T Toxic

Information pertaining to particular dangers for man and environment

R 25 Toxic if swallowed.

R 34 Causes burns.

R 40 Limited evidence of a carcinogenic effect.

R 43 May cause sensitization by skin contact.

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

| | |
|------------|---|
| HEALTH | 2 |
| FIRE | 0 |
| REACTIVITY | 0 |

Health (acute effects) = 2

Flammability = 0

Reactivity = 0

GHS label elements**Danger**

3.1/3 - Toxic if swallowed.

3.4/1 - May cause an allergic skin reaction.

**Danger**

3.2/1C - Causes severe skin burns and eye damage.

**Warning**

3.6/2 - Suspected of causing cancer.

Prevention:

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Do not breathe dust/fume/gas/mist/vapours/spray.

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

Wash thoroughly after handling.

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

Contaminated work clothing should not be allowed out of the workplace.

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Wear protective gloves/protective clothing/eye protection/face protection.
Use personal protective equipment as required.

Response:

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

IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

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

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

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

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

IF exposed or concerned: Get medical advice/attention.

Immediately call a POISON CENTER or doctor/physician.

Specific treatment (see on this label).

Rinse mouth.

If skin irritation or rash occurs: Get medical advice/attention.

Wash contaminated clothing before reuse.

Storage:

Store locked up.

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.

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

After inhalation

Supply fresh air and to be sure call for a doctor.

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.

Rub in calcium gluconate solution or calcium gluconate gel immediately.

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 fluoride (HF)

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.

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.

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7 Handling and storage

Handling

Information for safe handling:

Handle under dry protective gas.

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

Information about protection against explosions and fires: The product is not flammable

Storage

Requirements to be met by storerooms and receptacles:

Unsuitable material for container: ceramic, glass

Information about storage in one common storage facility:

Store away from water/moisture.

Store away from oxidizing agents.

Further information about storage conditions:

Store under dry inert gas.

This product is moisture sensitive.

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

Protect from humidity and water.

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:

Fluorides (as F)

| | mg/m ³ |
|--------------------|-------------------|
| ACGIH TLV | 2.5 |
| Austria MAK | 2.5 |
| Belgium TWA | 2.5 |
| Finland TWA | 2.5 |
| France TWA | 2.5 |
| Germany MAK | 2.5 |
| Hungary TWA | 1; 2-STEL |
| Netherlands MAC-K | 3.5 |
| Norway TWA | 0.6 |
| Poland TWA | 1; 3-STEL |
| Sweden NGV | 2 |
| Switzerland MAK-W | 1.5; 3-KZG-W |
| United Kingdom TWA | 2.5 |
| Russia TWA | 2 |
| Denmark TWA | 2.5 |
| USA PEL | 2.5 |

Cobalt, elemental & inorganic compounds, as Co

| | mg/m ³ |
|---------------------|-----------------------------------|
| 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.

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Keep away from foodstuffs, beverages and feed.
 Remove all soiled and contaminated clothing immediately.
 Wash hands before breaks and at the end of work.
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: | Crystalline |
| Color: | Pink |
| Odor: | Odorless |
| Change in condition | |
| Melting point/Melting range: | 200°C (392°F) (dec) |
| Boiling point/Boiling range: | Not determined |
| Sublimation temperature / start: | Not determined |
| Flash point: | Not applicable |
| Ignition temperature: | Not determined |
| 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 at 20°C (68°F): | 2.19 g/cm ³ |
| Solubility in / Miscibility with | |
| Water: | 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:
 Water/moisture
 Acids
 Oxidizing agents
Dangerous reactions Contact with strong acids releases hydrogen fluoride
Dangerous products of decomposition:
 Hydrogen fluoride
 Toxic metal oxide fume

11 Toxicological information

Acute toxicity:
Primary irritant effect:
on the skin: Corrosive effect on skin and mucous membranes.
on the eye: Strong corrosive effect.
Sensitization: Sensitization possible through skin contact.
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. Fluorides may cause salivation, nausea, vomiting, diarrhea and abdominal pain, followed by weakness, tremors, shallow respiration, convulsions and coma. May cause brain and kidney damage. Chronic fluoride poisoning can cause severe bone changes, loss of weight, anorexia, anemia and dental defects.
Subacute to chronic toxicity:
 Corrosive materials are acutely destructive to the respiratory tract, eyes, skin and digestive tract. Eye contact may result in permanent damage and complete vision loss. Inhalation may result in respiratory effects such as inflammation, edema, and chemical

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pneumonitis. May cause coughing, wheezing, laryngitis, shortness of breath, headache, nausea and vomiting. Ingestion may cause damage to the mouth, throat and esophagus. May cause skin burns or irritation depending on the severity of the exposure.

Additional toxicological information:

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

Swallowing will lead to a strong corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach.

IARC-2B: Possibly carcinogenic to humans: limited evidence in humans in the absence of sufficient evidence 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 epidemiologic 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.

12 Ecological information:**General notes:**

Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even small quantities leak into the ground.

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

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:**

Hazard class:

8

Identification number:

UN2923

Packing group:

III

Proper shipping name (technical name): CORROSIVE SOLID, TOXIC, N.O.S. (Cobalt(II) fluoride tetrahydrate)

Label

8+6.1

Land transport ADR/RID (cross-border)

ADR/RID class:

8 (CT2) Corrosive substances

Danger code (Kemler):

86

UN-Number:

2923

Packaging group:

III

Description of goods:

2923 CORROSIVE SOLID, TOXIC, N.O.S. (Cobalt(II) fluoride tetrahydrate)

Maritime transport IMDG:

IMDG Class:

8

UN Number:

2923

Label

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| | |
|------------------------------|---|
| Packaging group: | III |
| EMS Number: | F-A, S-B |
| Marine pollutant: | No |
| Proper shipping name: | CORROSIVE SOLID, TOXIC, N.O.S. (Cobalt(II) fluoride tetrahydrate) |

Air transport ICAO-TI and IATA-DGR:



| | |
|------------------------------|---|
| ICAO/IATA Class: | 8 |
| UN/ID Number: | 2923 |
| Label | 8+6.1 |
| Packaging group: | III |
| Proper shipping name: | CORROSIVE SOLID, TOXIC, N.O.S. (Cobalt(II) fluoride tetrahydrate) |

UN "Model Regulation": UN2923, CORROSIVE SOLID, TOXIC, N.O.S., 8 (6.1), III

15 Regulations

Product related hazard informations:

Hazard symbols:

T Toxic

Risk phrases:

25 Toxic if swallowed.

34 Causes burns.

40 Limited evidence of a carcinogenic effect.

43 May cause sensitization by skin contact.

Safety phrases:

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

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

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 Non-Domestic Substances List (NDSL).

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.

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

EINECS: European Inventory of Existing Commercial Chemical Substances

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

HMIS: Hazardous Materials Identification System (USA)

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