

Material Safety Data Sheet

acc. to OSHA and ANSI

Printing date 05/26/2009

Reviewed on 05/26/2009

1 Identification of substance:**Product details:****Product name:** Zinc phosphide**Stock number:** 44019**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 phosphide (CAS# 1314-84-7), 100%

Identification number(s):**EINECS Number:** 215-244-5**Index number:** 015-006-00-9**3 Hazards identification****Hazard description:**

T+ Very toxic
 F Highly flammable
 N Dangerous for the environment

Information pertaining to particular dangers for man and environment

R 15/29 Contact with water liberates toxic, extremely flammable gas.

R 28 Very toxic 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	3
FIRE	2
REACTIVITY	2

Health (acute effects) = 3

Flammability = 2

Reactivity = 2

GHS label elements**Danger**

2.12/1 - In contact with water releases flammable gases which may ignite spontaneously.

**Danger**

3.1/1 - Fatal if swallowed.

**Warning**

4.1/1 - Very toxic to aquatic life with long lasting effects.

Prevention:

Handle under inert gas. Protect from moisture.

Keep container tightly closed.

Wash thoroughly after handling.

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

Avoid release to the environment.

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

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Response:

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

Specific treatment (see label).

Rinse mouth.

Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages.

In case of fire: Use for extinction: CO₂, powder or water spray.

Collect spillage.

Storage:

Store in a dry place. Store in a closed container.

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. 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** CO₂, sand, extinguishing powder. Do not use water.**For safety reasons unsuitable extinguishing agents** Water**Special hazards caused by the material, its products of combustion or resulting gases:**

In case of fire, the following can be released:

Hydrogen phosphide (Phosphine)

Phosphorus oxides

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

Keep away from ignition sources

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.

Do not flush with water or aqueous cleansing agents

Keep away from ignition sources.

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:**

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: Keep ignition sources away.

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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 water/moisture.

Further information about storage conditions:

Store under dry inert gas.

Protect from humidity and water.

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: Not required.**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.

Breathing equipment: Use suitable respirator when high concentrations are present.**Protection of hands:** Impervious gloves**Eye protection:**

Safety glasses

Full face protection

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

Form:	Powder
Color:	Black Grey
Odor:	Not determined

Change in condition

Melting point/Melting range:	420°C (788°F)
Boiling point/Boiling range:	1100°C (2012°F)
Sublimation temperature / start:	Not determined

Flash point: Not applicable**Flammability (solid, gaseous)** Contact with water liberates extremely flammable gases.**Ignition temperature:** Not determined**Decomposition temperature:** Not determined**Explosion limits:**

Lower:	Not determined
Upper:	Not determined

Vapor pressure: Not determined**Density at 20°C (68°F):** 4.55 g/cm³**Solubility in / Miscibility with****Water:** Contact with water releases flammable gases**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

Dangerous reactions

Contact with water releases flammable gases

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Contact with water releases toxic gases
 Contact with acids liberates very toxic gas.

Dangerous products of decomposition:

Hydrogen phosphide (Phosphine)

Phosphorus oxides (e.g. P2O5)

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:**

Inorganic phosphorus compounds may cause irritation and hemorrhages in the stomach as well as liver and kidney damage. Bone structure may be attacked, especially the jaw and teeth.

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.

Subacute to chronic toxicity:

Phosphine, if generated, is a very toxic, flammable gas. The chief effects are central nervous system depression and lung irritation. Inhalation can cause coma and convulsions leading to death within 48 hours.

Additional toxicological information:

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:** 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.

14 Transport information**DOT regulations:****Hazard class:**

4.3

Identification number:

UN1714

Packing group:

I

Proper shipping name (technical name): ZINC PHOSPHIDE**Label**

4.3+6.1

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Land transport ADR/RID (cross-border)

ADR/RID class: 4.3 (WT2) Substances which, in contact with water, emit flammable gases

Danger code (Kemler): -

UN-Number: 1714

Packaging group: I

Description of goods: 1714 ZINC PHOSPHIDE

Maritime transport IMDG:

IMDG Class: 4.3

UN Number: 1714

Label: 4.3+6.1

Packaging group: I

Proper shipping name: ZINC PHOSPHIDE

Air transport ICAO-TI and IATA-DGR:

ICAO/IATA Class: 4.3

UN/ID Number: 1714

Label: 4.3+6.1

Packaging group: I

Proper shipping name: ZINC PHOSPHIDE

UN "Model Regulation": UN1714, ZINC PHOSPHIDE, 4.3 (6.1), I

Environmental hazards: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID

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

T+ Very toxic

F Highly flammable

N Dangerous for the environment

Risk phrases:

15/29 Contact with water liberates toxic, extremely flammable gas.

28 Very toxic 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:

3/9/14 Keep in a cool, well ventilated place, away from acids

30 Never add water to this product.

36/37 Wear suitable protective clothing and gloves.

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

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 Non-Domestic Substances List (NDSL).

Information about limitation of use:

For use only by technically qualified individuals.

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Product name: Zinc phosphide

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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.

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)

USA