1 Identification
   Product identifier
   Product name: Zinc sulfide

   Stock number: 13239
   CAS Number:
   1314-98-3
   EC number:
   215-251-3

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
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)
The substance is not classified according to the Globally Harmonized System (GHS).

   Hazards not otherwise classified
   No information known.

   Label elements
   GHS label elements Not applicable
   Hazard pictograms Not applicable
   Signal word Not applicable
   Hazard statements Not applicable
   WHMIS classification Not controlled

   Classification system

   HMIS ratings (scale 0-4)
   (Hazardous Materials Identification System)
   HEALTH  FIRE  REACTIVITY
   1  0  1
   Health (acute effects) = 1
   Flammability = 0
   Physical Hazard = 1

   Other hazards
   Results of PBT and vPvB assessment
   PBT: Not applicable.
   vPvB: Not applicable.

3 Composition/information on ingredients
   Chemical characterization: Substances
   CAS# Description:
   1314-98-3 Zinc sulfide
   Identification number(s):
   EC number: 215-251-3

4 First-aid measures
   Description of first aid measures
   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
   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
   Product is not flammable. Use fire-fighting measures that suit the surrounding fire.
   Special hazards arising from the substance or mixture
   If this product is involved in a fire, the following can be released:
   Sulfur oxides (SOx)
   Metal oxide fume

   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

   Environmental precautions:
   Do not allow material to be released to the environment without proper governmental permits.
Methods and material for containment and cleaning up: Pick up mechanically.

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.

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

Conditions for safe storage, including any incompatibilities
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.

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:
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

Additional information: No data

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.
Maintain an ergonomically appropriate working environment.
Breathing equipment: Use suitable respirator when high concentrations are present.

Recommended filter device for short term use:
Use a respirator with type N95 (USA) or PE (EN 143) cartridges as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards.

Protection of hands:
Impervious 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.

Material of gloves Nitrile rubber, NBR

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: Various forms (powder/flake/crystalline/beads, etc.)
Color: White
Odor: Odorless
Odor threshold: Not determined.

pH-value: Not applicable.

Change in condition
Melting point/Melting range: 1700 °C (3092 °F)
Boiling point/Boiling range: Not determined
Sublimation temperature / start: Not determined
Flammability (solid, gaseous) Not determined.
Ignition temperature: Not determined
Decomposition temperature: Not determined
Auto igniting: Not determined.

Danger of explosion: Not determined.

Explosion limits:
Lower: Not determined
Upper: Not determined

Vapor pressure: Not determined.
Density at 20 °C (68 °F): 4.1 g/cm³ (34.215 lbs/gal)
Relative density Not determined.
Vapor density Not applicable.
Evaporation rate Not applicable.
Solubility in / Miscibility with
Water at 18 °C (64 °F): 0.0069 g/l
Partition coefficient (n-octanol/water): Not determined.

Viscosity:
dynamic: Not applicable.
kinematic: Not applicable.
Other information No further relevant information available.
10 Stability and reactivity

Reactivity Contact with acids liberates toxic gas.
Chemical stability Stable under recommended storage conditions.
Thermal decomposition / conditions to be avoided: Decomposition will not occur if used and stored according to specifications.
Possibility of hazardous reactions Reacts with strong oxidizing agents
Contact with acids liberates toxic gas.
Conditions to avoid No further relevant information available.
Incompatible materials: Oxidizing agents Acids
Hazardous decomposition products: Sulfur oxides (SOx) Metal oxide fume

11 Toxicological information

Information on toxicological effects
Acute toxicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for this substance.
LD/LC50 values that are relevant for classification:
Oral LD50 >2 gm/kg (rat) Derma LD50 >2 gm/kg (rat)
Skin irritation or corrosion: May cause irritation
Eye irritation or corrosion: May cause irritation
Sensitization: No sensitizing effects known.
Germ cell mutagenicity: No effects known.
Carcinogenicity:
EPA-D: Not classifiable as to human carcinogenicity: inadequate human and animal evidence of carcinogenicity or no data are available.
EPA-II: Data are inadequate for an assessment of human carcinogenic potential.
Reproductive toxicity:
Specific target organ system toxicity - repeated exposure: No effects known.
Specific target organ system toxicity - single exposure: No effects known.
Aspiration hazard: No effects known.
Subacute to chronic toxicity: The Registry of Toxic Effects of Chemical Substances (RTECS) contains multiple dose toxicity data for this substance.
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.
Additional ecological information:
General notes:
Do not allow material to be released to the environment without proper governmental permits.
Do not allow undiluted product or large quantities to reach ground water, water courses or sewage system.
Avoid transfer into the environment.
Results of PBT and vPvB assessment
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, ADN, IMDG, IATA Not applicable
UN proper shipping name
DOT, ADN, IMDG, IATA Not applicable
Transport hazard class(es)
DOT, ADR, ADN, IMDG, IATA Not applicable
Class Not applicable
Packaging group
DOT, IMDG, IATA Not applicable
Environmental hazards: Not applicable.
Special precautions for user Not applicable.
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": -

15 Regulatory information

Safety, health and environmental regulations/legislation specific for the substance or mixture
GHS label elements Not applicable
Hazard pictograms Not applicable
Signal word: Not applicable
Hazard statements: Not applicable
Product name: Zinc sulfide

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).

SARA Section 313 (specific toxic chemical listings)
1314-98-3 Zinc sulfide

California Proposition 65
Prop 65 - Chemicals known to cause cancer Substance is not listed.
Prop 65 - Developmental toxicity Substance is not listed.
Prop 65 - Developmental toxicity, female Substance is not listed.
Prop 65 - Developmental toxicity, male Substance is not listed.

Information about limitation of use: For use only by technically qualified individuals.

Other regulations, limitations and prohibitive regulations
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.

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 SDS: Global Marketing Department

Date of preparation / last revision 11/23/2015 / -

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)
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
HMSI: Hazardous Materials Identification System (USA)
WHMIS: Workplace Hazardous Materials Information System (Canada)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
vPvB: very Persistent and very Bioaccumulative
ACGIH: American Conference of Governmental Industrial Hygienists (USA)
OSHA: Occupational Safety and Health Administration (USA)
NTP: National Toxicology Program (USA)
IARC: International Agency for Research on Cancer
EPA: Environmental Protection Agency (USA)