

1 Identification

Product identifier

Product name: Calcium selenide

Stock number: 13122

CAS Number:

1305-84-6

EC number:

215-141-5

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)



GHS02 Flame

Water-react. 3 H261 In contact with water releases flammable gas.



GHS06 Skull and crossbones

Acute Tox. 3 H301 Toxic if swallowed.

Acute Tox. 3 H331 Toxic if inhaled.



GHS08 Health hazard

STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.

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



GHS02 GHS06 GHS08

Signal word

Danger

Hazard statements

H261 In contact with water releases flammable gas.

H301+H331 Toxic if swallowed or if inhaled.

H373 May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

P231+P232 Handle under inert gas. Protect from moisture.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor/...

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

WHMIS classification

B6 - Reactive flammable material

D1A - Very toxic material causing immediate and serious toxic effects

F - Dangerously reactive material



Classification system

HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

HEALTH 2 Health (acute effects) = 2

FIRE 1 Flammability = 1

REACTIVITY 2 Physical Hazard = 2

Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

3 Composition/information on ingredients

Chemical characterization: Substances

CAS# Description:

1305-84-6 Calcium selenide

Product name: Calcium selenide	
Identification number(s): EC number: 215-141-5	(Contd. of page 1)
4 First-aid measures Description of 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. 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 CO2, sand, extinguishing powder. Do not use water. For safety reasons unsuitable extinguishing agents Water Special hazards arising from the substance or mixture If this product is involved in a fire, the following can be released: Selenium dioxide (SeO2) Calcium oxide 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 Mount respiratory protective device. Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation Environmental precautions: 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. Do not flush with water or aqueous cleansing agents 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 Handle under dry protective gas. 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 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. Store away from water/moisture. 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. 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: Selenium and selenium compounds (as Se) mg/m3 ACGIH TLV 0.2 Austria MAK 0.1 Belgium TWA 0.2 Denmark TWA 0.1 Finland TWA 0.1; 0.3-STEL Germany MAK 0.1 Hungary 0.1-STEL Ireland TLV 0.1	

Product name: Calcium selenide

(Contd. of page 2)

Japan OEL 0.1
Korea TLV 0.2
Netherlands MAC-TGG 0.1
Poland TWA 0.1; 0.3-STEL
Sweden NGV 0.1
Switzerland MAK-W 0.1
United Kingdom TWA 0.1
USA PEL 0.2

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.

Store protective clothing separately.

Maintain an ergonomically appropriate working environment.

Breathing equipment: Use self-contained respiratory protective device in emergency situations.

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.

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: Powder
Color: White
Odor: Characteristic
Odor threshold: Not determined.

pH-value: Not applicable.

Change in condition

Melting point/Melting range: Not determined
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: Product does not present an explosion hazard.

Explosion limits:

Lower: Not determined
Upper: Not determined
Vapor pressure: Not applicable.
Density at 20 °C (68 °F): 3.57 g/cm³ (29.792 lbs/gal)
Relative density Not determined.
Vapor density Not applicable.
Evaporation rate Not applicable.

Solubility in / Miscibility with

Water: Contact with water releases toxic gases

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 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.

Possibility of hazardous reactions

Contact with water releases toxic gases

Contact with acids releases toxic gases

Conditions to avoid No further relevant information available.

Incompatible materials:

Oxidizing agents

Water/moisture

Hazardous decomposition products:

Selenium dioxide (SeO₂)

Calcium oxide

11 Toxicological information

Information on toxicological effects

Acute toxicity:

Toxic if inhaled.

Toxic if swallowed.

LD/LC50 values that are relevant for classification: No data

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: No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

Reproductive toxicity: No effects known.

Specific target organ system toxicity - repeated exposure: May cause damage to organs through prolonged or repeated exposure.

(Contd. on page 4)
USA

Product name: Calcium selenide																					
Specific target organ system toxicity - single exposure: No effects known. Aspiration hazard: No effects known. Subacute to chronic toxicity: Selenium may cause amyotrophic lateral sclerosis, bronchial irritation, gastrointestinal distress, vasopharyngeal irritation, garlic odor on breath and sweat, metallic taste, pallor, irritability, excessive fatigue, loss of fingernails and hair, pulmonary edema, anemia and weight loss. The toxicity of calcium compounds is generally due to the anion. 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. (Contd. of page 3)																					
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. Ecotoxicological 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. 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 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 <table><tr><td>UN-Number DOT, IMDG, IATA</td><td>UN3134</td></tr><tr><td>UN proper shipping name DOT IMDG, IATA</td><td>Water-reactive solid, toxic, n.o.s. (Calcium selenide) WATER-REACTIVE SOLID, TOXIC, N.O.S. (Calcium selenide)</td></tr><tr><td>Transport hazard class(es) DOT  Class Label Class Label IMDG, IATA  Class Label</td><td>4.3 Substances which, in contact with water, emit flammable gases. 4.3+6.1 4.3 (WT2) Substances which, in contact with water, emit flammable gases 4.3+6.1 4.3 Substances which, in contact with water, emit flammable gases. 4.3+6.1</td></tr><tr><td>Packing group DOT, IMDG, IATA</td><td>III</td></tr><tr><td>Environmental hazards:</td><td>Environmentally hazardous substance, solid</td></tr><tr><td>Special precautions for user</td><td>Warning: Substances which, in contact with water, emit flammable gases</td></tr><tr><td>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</td><td>Not applicable.</td></tr><tr><td>Transport/Additional information:</td><td></td></tr><tr><td>DOT Marine Pollutant (DOT):</td><td>No</td></tr><tr><td>UN "Model Regulation":</td><td>UN3134, Water-reactive solid, toxic, n.o.s. (Calcium selenide), 4.3 (6.1), III</td></tr></table>		UN-Number DOT, IMDG, IATA	UN3134	UN proper shipping name DOT IMDG, IATA	Water-reactive solid, toxic, n.o.s. (Calcium selenide) WATER-REACTIVE SOLID, TOXIC, N.O.S. (Calcium selenide)	Transport hazard class(es) DOT   Class Label Class Label IMDG, IATA   Class Label	4.3 Substances which, in contact with water, emit flammable gases. 4.3+6.1 4.3 (WT2) Substances which, in contact with water, emit flammable gases 4.3+6.1 4.3 Substances which, in contact with water, emit flammable gases. 4.3+6.1	Packing group DOT, IMDG, IATA	III	Environmental hazards:	Environmentally hazardous substance, solid	Special precautions for user	Warning: Substances which, in contact with water, emit flammable gases	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":	UN3134, Water-reactive solid, toxic, n.o.s. (Calcium selenide), 4.3 (6.1), III
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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  GHS02 GHS06 GHS08 Signal word Danger Hazard statements H261 In contact with water releases flammable gas. H301+H331 Toxic if swallowed or if inhaled. H373 May cause damage to organs through prolonged or repeated exposure. (Contd. on page 5) USA																					

Product name: **Calcium selenide**

Precautionary statements

P231+P232 Handle under inert gas. Protect from moisture.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor/ ...
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

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).

SARA Section 313 (specific toxic chemical listings)

1305-84-6 Calcium selenide

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.
This product contains selenium 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

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:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
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)
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
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: 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
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)