

**Material Safety Data Sheet**

acc. to OSHA and ANSI

Printing date 02/08/2010

Reviewed on 02/05/2010

**1 Identification of substance:****Product details:****Product name:** Dimethyl selenide**Stock number:** 68116**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#)**

Dimethyl selenide (CAS# 593-79-3)

**Identification number(s):****EINECS Number:** 209-807-4**Index number:** 034-002-00-8**3 Hazards identification****Hazard description:**

T Toxic  
 F Highly flammable  
 N Dangerous for the environment

**Information pertaining to particular dangers for man and environment**

R 11 Highly flammable.

R 23/25 Toxic by inhalation and if swallowed.

R 33 Danger of cumulative effects.

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	2
FIRE	2
REACTIVITY	1

Health (acute effects) = 2  
 Flammability = 2  
 Reactivity = 1

**GHS label elements****Danger**

3.1/3 - Toxic if swallowed.

3.1/3 - Toxic if inhaled.

**Warning**

3.9/2 - May cause damage to organs through prolonged or repeated exposure.

**Warning**

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

**Prevention:**

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.

Use only outdoors or in a well-ventilated area.

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Avoid release to the environment.

**Response:**

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

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

Call a POISON CENTER or doctor/physician.

Get medical advice/attention if you feel unwell.

Specific treatment (see on this label).

Rinse mouth.

Collect spillage.

**Storage:**

Store in a well-ventilated place. Keep container tightly closed.

Store locked up.

**Disposal:**

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

**4 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 immediate medical advice.**5 Fire fighting measures****Suitable extinguishing agents**

Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

**Special hazards caused by the material, its products of combustion or resulting gases:**

In case of fire, the following can be released:

Carbon monoxide and carbon dioxide

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

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:**

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

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.

Open and handle container with care.

**Information about protection against explosions and fires:**

Keep ignition sources away.

Protect against electrostatic charges.

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Fumes can combine with air to form an explosive mixture.

**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 air.

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.

This product is air sensitive.

**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:**

Selenium and selenium compounds (as Se)

	mg/m <sup>3</sup>
ACGIH TLV	0.2
Austria MAK	0.1
Belgium TWA	0.2
Denmark TWA	0.1
Finland TWA	0.1; 0.3-STEEL
Germany MAK	0.1
Hungary	0.1-STEEL
Ireland TLV	0.1
Japan OEL	0.1
Korea TLV	0.2
Netherlands MAC-TGG	0.1
Poland TWA	0.1; 0.3-STEEL
Sweden NGV	0.1
Switzerland MAK-W	0.1
United Kingdom TWA	0.1
USA PEL	0.2

**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 respiratory protective device in case of insufficient ventilation.

Use suitable respirator when high concentrations are present.

**Protection of hands:**

Impervious gloves

Check protective gloves prior to each use for their proper condition.

**Material of gloves**

The selection of suitable gloves not only depends on the material, but also on quality.

Quality will vary from manufacturer to manufacturer.

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

<b>Form:</b>	Liquid
<b>Color:</b>	Colorless
<b>Odor:</b>	Unpleasant

**Change in condition**

<b>Melting point/Melting range:</b>	Not determined
<b>Boiling point/Boiling range:</b>	56-58°C (133-136°F)

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<b>Sublimation temperature / start:</b>	Not determined
<b>Flash point:</b>	0°C (32°F)
<b>Ignition temperature:</b>	Not determined
<b>Decomposition temperature:</b>	Not determined
<b>Explosion limits:</b>	
<b>Lower:</b>	Not determined
<b>Upper:</b>	Not determined
<b>Vapor pressure:</b>	Not determined
<b>Density at 20°C (68°F):</b>	1.41 g/cm <sup>3</sup>
<b>Solubility in / Miscibility with</b>	
<b>Water:</b>	Hydrolyzes slowly

**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:**

Oxidizing agents

Air

Water/moisture

**Dangerous reactions** No dangerous reactions known**Dangerous products of decomposition:**

Carbon monoxide and carbon dioxide

Toxic metal oxide fume

**11 Toxicological information****Acute toxicity:****LD/LC50 values that are relevant for classification:**

Oral	LD50	4000 mg/kg (mouse)
		2100 mg/kg (rat)
Inhalative	LC50	88500 mg/m <sup>3</sup> (mouse)
		103000 mg/m <sup>3</sup> (rat)

**Primary irritant effect:****on the skin:** May cause irritation**on the eye:** May cause irritation**Sensitization:** No sensitizing 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.

**Subacute to chronic toxicity:**

The Registry of Toxic Effects of Chemical Substances (RTECS) reports the following effects in laboratory animals:

Behavioral - convulsions or effect on seizure threshold.

Behavioral - somnolence (general depressed activity).

Behavioral - ataxia.

Vascular - other changes.

Behavioral - general anesthetic.

Sense Organs and Special Senses (Eye) - effect, not otherwise specified.

Sense Organs and Special Senses (Eye) - conjunctive irritation.

Biochemical - Enzyme inhibition, induction, or change in blood or tissue levels - other oxidoreductases.

Lungs, Thorax, or Respiration - other changes.

Lungs, Thorax, or Respiration - changes in pulmonary vascular resistance.

Lungs, Thorax, or Respiration - structural or functional change in trachea or bronchi.

Gastrointestinal - other changes.

Liver - other changes.

Kidney, Ureter, Bladder - other changes.

Skin and Appendages - primary irritation (after topical exposure).

Blood - hemorrhage.

**Additional toxicological information:**

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

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EPA-D: Not classifiable as to human carcinogenicity: inadequate human and animal evidence of carcinogenicity or no data are available.

IARC-3: Not classifiable as to carcinogenicity to humans.

NTP-2: Reasonably anticipated to be a carcinogen: limited evidence from studies in humans or sufficient evidence from studies in experimental animals.

**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.

Danger to drinking water if even 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:**

3

**Identification number:**

UN1992

**Packing group:**

II

**Proper shipping name (technical name):** FLAMMABLE LIQUID, TOXIC, N.O.S. (Dimethyl selenide)

**Label**

3+6.1

**Land transport ADR/RID (cross-border)****ADR/RID class:**

3 (FT1) Flammable liquids

**Danger code (Kemler):**

36

**UN-Number:**

1992

**Packaging group:**

II

**Special marking:**

Symbol (fish and tree)

**Description of goods:**

1992 FLAMMABLE LIQUID, TOXIC, N.O.S. (Dimethyl selenide)

**Maritime transport IMDG:****IMDG Class:**

3

**UN Number:**

1992

**Label**

3+6.1

**Packaging group:**

II

**EMS Number:**

F-E, S-D

**Marine pollutant:**

No

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**Proper shipping name:** FLAMMABLE LIQUID, TOXIC, N.O.S. (Dimethyl selenide)**Air transport ICAO-TI and IATA-DGR:**

**ICAO/IATA Class:** 3  
**UN/ID Number:** 1992  
**Label:** 3+6.1  
**Packaging group:** II  
**Proper shipping name:** FLAMMABLE LIQUID, TOXIC, N.O.S. (Dimethyl selenide)

**UN "Model Regulation":** UN1992, FLAMMABLE LIQUID, TOXIC, N.O.S., 3 (6.1), II**Environmental hazards:** Environmentally hazardous substance, liquid; Marine Pollutant**15 Regulations****Product related hazard informations:****Hazard symbols:**

T Toxic  
 F Highly flammable  
 N Dangerous for the environment

**Risk phrases:**

11 Highly flammable.  
 23/25 Toxic by inhalation and if swallowed.  
 33 Danger of cumulative effects.  
 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

**Safety phrases:**

16 Keep away from sources of ignition - No smoking.  
 20/21 When using do not eat, drink or smoke.  
 28 After contact with skin, wash immediately with plenty of water  
 43 In case of fire, use sand, carbon dioxide or powdered extinguishing agent. Never use water.  
 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**

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.

Some or all of the components of this product are not listed on the Canadian Domestic Substances List (DSL) or the Canadian Non-Domestic Substances List (NDSL).

**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.

**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

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CAS: Chemical Abstracts Service (division of the American Chemical Society)  
HMIS: Hazardous Materials Identification System (USA)  
LC50: Lethal concentration, 50 percent  
LD50: Lethal dose, 50 percent

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