

**Safety Data Sheet**

acc. to OSHA HCS

Printing date 01/22/2014

Reviewed on 01/22/2013

**1 Identification****Product identifier****Product name:** Molybdenum(VI) oxide**Stock number:** 36687**CAS Number:**  
1313-27-5**EC number:**  
215-204-7**Index number:**  
042-001-00-9**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, A Johnson Matthey Company  
Johnson Matthey Catalog Company, 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 hours the Health, Safety and Environmental Department at (800) 343-0660. After normal hours call Carechem 24 at (866) 928-0789.

**2 Hazard(s) identification****Classification of the substance or mixture****Classification according to Regulation (EC) No 1272/2008**

GHS06 Skull and crossbones

Acute Tox. 1 H300 Fatal if swallowed.



GHS08 Health hazard

Carc. 2 H351 Suspected of causing cancer.



GHS07

Eye Irrit. 2 H319 Causes serious eye irritation.

STOT SE 3 H335 May cause respiratory irritation.

**Classification according to Directive 67/548/EEC or Directive 1999/45/EC**

T; Toxic

R25: Toxic if swallowed.



Xn; Harmful

R40: Limited evidence of a carcinogenic effect.



Xi; Irritant

R36/37: Irritating to eyes and respiratory system.

Carc. Cat. 3

**Information concerning particular hazards for human and environment:** Not applicable**Hazards not otherwise classified** No information known.**Label elements****Labelling according to Regulation (EC) No 1272/2008**

The substance is classified and labeled according to the CLP regulation.

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**Hazard pictograms**

GHS06

GHS08

**Signal word** Danger**Hazard statements**

H300 Fatal if swallowed.

H319 Causes serious eye irritation.

H351 Suspected of causing cancer.

H335 May cause respiratory irritation.

**Precautionary statements**

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

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

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P321 Specific treatment (see on this label).

P405 Store locked up.

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

**WHMIS classification**

D1A - Very toxic material causing immediate and serious toxic effects

D2B - Toxic material causing other toxic effects

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

HEALTH	2
FIRE	0
REACTIVITY	1

Health (acute effects) = 2

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:**

1313-27-5 Molybdenum(VI) oxide

**Identification number(s):****EC number:** 215-204-7**Index number:** 042-001-00-9**4 First-aid measures****Description of 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.**Information for doctor****Most important symptoms and effects, both acute and delayed**

No further relevant information available.

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**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:

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**

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.

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

Do not allow to penetrate the ground/soil.

**Methods and material for containment and cleaning up:**

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

**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.

Prevent formation of dust.

**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:** 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:****1313-27-5 Molybdenum(VI) oxide (100.0%)**

TLV (USA)	Long-term value: 0.5 mg/m <sup>3</sup> as Mo; respirable fraction
EL (Canada)	Long-term value: 3* 10** mg/m <sup>3</sup> as Mo; *respirable **inhalable

**Additional information:** No data

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**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.

Avoid contact with the eyes.

Avoid contact with the eyes and skin.

Maintain an ergonomically appropriate working environment.

**Breathing equipment:** Use suitable respirator when high concentrations are present.**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.

**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 to grey
Odor:	Odorless
Odor threshold:	Not determined.

pH-value: Not applicable.

**Change in condition**

Melting point/Melting range:	795 °C (1463 °F)
Boiling point/Boiling range:	1155 °C (2111 °F) (subl) (subl)
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):	4.692 g/cm <sup>3</sup> (39.155 lbs/gal)
Relative density	Not determined.
Vapor density	Not applicable.
Evaporation rate	Not applicable.

**Solubility in / Miscibility with**

Water:	Not determined
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** No dangerous reactions known**Incompatible materials:** Oxidizing agents**Hazardous decomposition products:** Metal oxide fume

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**11 Toxicological information****Information on toxicological effects****Acute toxicity:**

Fatal if swallowed.

The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for components in this product.

**LD/LC50 values that are relevant for classification:**

Oral	LD50	188 mg/kg (rat)
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**Skin irritation or corrosion:** May cause irritation**Eye irritation or corrosion:** Causes serious eye irritation.**Sensitization:** No sensitizing effects known.**Germ cell mutagenicity:**

The Registry of Toxic Effects of Chemical Substances (RTECS) contains mutation data for this substance.

**Carcinogenicity:**

Suspected of causing cancer.

The Registry of Toxic Effects of Chemical Substances (RTECS) contains tumorigenic and/or carcinogenic and/or neoplastic data for this substance.

**Reproductive toxicity:** No effects known.**Specific target organ system toxicity - repeated exposure:** No effects known.**Specific target organ system toxicity - single exposure:** May cause respiratory irritation.**Aspiration hazard:** No effects known.**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.**Behavior in environmental systems:****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 of it to reach ground water, water course 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, ADR, IMDG, IATA

UN3288

**UN proper shipping name**

DOT

Toxic solid, inorganic, n.o.s. (Molybdenum(VI) oxide)

ADR

3288 Toxic solid, inorganic, n.o.s. (Molybdenum(VI) oxide)

IMDG, IATA

TOXIC SOLID, INORGANIC, N.O.S. (Molybdenum(VI) oxide)

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**Transport hazard class(es)****DOT**

**Class** 6.1 Toxic substances.  
**Label** 6.1  
**ADR**



**Class** 6.1 (T5) Toxic substances  
**Label** 6.1  
**IMDG, IATA**



**Class** 6.1 Toxic substances.  
**Label** 6.1

**Packing group**

**DOT, ADR, IMDG, IATA** III

**Environmental hazards:** Not applicable.

**Special precautions for user** Warning: Toxic substances

**Danger code (Kemler):** 60

**EMS Number:** F-A,S-A

**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":** UN3288, Toxic solid, inorganic, n.o.s. (Molybdenum(VI) oxide), 6.1, III

**15 Regulatory information**

**Safety, health and environmental regulations/legislation specific for the substance or mixture**

**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)**

1313-27-5 Molybdenum(VI) oxide

**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 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**

**Substances of very high concern (SVHC) according to REACH, Article 57**

Substance is not listed.

**REACH - Pre-registered substances** Substance is listed.

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**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:** Health, Safety and Environmental Department.**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

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)

WHMIS: Workplace Hazardous Materials Information System (Canada)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

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