# Safety Data Sheet
**acc. to OSHA HCS**

*Printing date 04/23/2019* *Reviewed on 04/23/2019*

## 1 Identification

· **Product identifier**

· **Product name:** **Molybdenum Standard: 1000 µg/mL Mo in 1% NH4OH [500ml bottle]**

· **Part number:** 5190-8488
· **Application of the substance / the mixture** Reagents and Standards for Analytical Chemical Laboratory Use

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Agilent Technologies, Inc. Tel: 800-227-9770
5301 Stevens Creek Blvd
Santa Clara, CA 95051,
USA

· **Information department:** e-mail: pdl-msds_author@agilent.com
· **Emergency telephone number:** CHEMTREC®: 1-800-424-9300

## 2 Hazard(s) identification

· **Classification of the substance or mixture**

GHS07

Skin Irrit. 2 H315 Causes skin irritation.
Eye Irrit. 2A H319 Causes serious eye irritation.

Aquatic Acute 3 H402 Harmful to aquatic life.

· **Label elements**
· **GHS label elements**
The product is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms**

GHS07

· **Signal word** Warning
· **Hazard statements**
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H402 Harmful to aquatic life.
· **Precautionary statements**
P273 Avoid release to the environment.
P280 Wear protective gloves / eye protection / face protection.
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).
P332+P313 If skin irritation occurs: Get medical advice/attention.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

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***Product name:*** **Molybdenum Standard: 1000 µg/mL Mo in 1% NH4OH [500ml bottle]**

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· ***Classification system:***
· ***NFPA ratings (scale 0 - 4)***


*Health = 2*
*Fire = 0*
*Reactivity = 0*

· ***HMIS-ratings (scale 0 - 4)***


*Health = 2*
*Fire = 0*
*Reactivity = 0*

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

## 3 Composition/information on ingredients

· ***Chemical characterization: Mixtures***
· ***Description:***
*Aqueous solution.*
*Also contains substances at levels not considered to be hazardous.*

| · ***Dangerous components:*** | | | |
|---|---|---|---|
| *CAS: 1336-21-6*<br>*RTECS: BQ9625000* | *Ammonium hydroxide* | *Skin Corr. 1B, H314; Aquatic Acute 1, H400* | *<2%* |

## 4 First-aid measures

· ***Description of first aid measures***
· ***General information:*** *Immediately remove any clothing soiled by the product.*
· ***After inhalation:*** *Supply fresh air; consult doctor in case of complaints.*
· ***After skin contact:***
*Immediately wash with water and soap and rinse thoroughly.*
*If skin irritation continues, consult a doctor.*
· ***After eye contact:***
*Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.*
· ***After swallowing:*** *Rinse mouth. Do not induce vomiting.*
· ***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:*** *Use fire fighting measures that suit the environment.*

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· ***Special hazards arising from the substance or mixture***
*Formation of toxic gases is possible during heating or in case of fire.*
· ***Advice for firefighters***
· ***Protective equipment:*** *Wear self-contained respiratory protective device.*

## *6 Accidental release measures*

· ***Personal precautions, protective equipment and emergency procedures*** *Wear protective clothing.*
· ***Environmental precautions:***
*Dilute with plenty of water.*
*Do not allow to enter sewers/ surface or ground water.*
· ***Methods and material for containment and cleaning up:***
*Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).*
· ***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.*
· ***Protective Action Criteria for Chemicals***

| · ***PAC-1:*** | | |
|---|---|---|
| *CAS: 1336-21-6* | *Ammonium hydroxide* | *61 ppm* |
| *CAS: 13106-76-8* | *Ammonium molybdate(VI)* | *3.1 mg/m³* |

| · ***PAC-2:*** | | |
|---|---|---|
| *CAS: 1336-21-6* | *Ammonium hydroxide* | *330 ppm* |
| *CAS: 13106-76-8* | *Ammonium molybdate(VI)* | *22 mg/m³* |

| · ***PAC-3:*** | | |
|---|---|---|
| *CAS: 1336-21-6* | *Ammonium hydroxide* | *2,300 ppm* |
| *CAS: 13106-76-8* | *Ammonium molybdate(VI)* | *130 mg/m³* |

## *7 Handling and storage*

· ***Handling:***
· ***Precautions for safe handling*** *Store in cool, dry place in tightly closed receptacles.*
· ***Information about protection against explosions and fires:*** *No special measures required.*

· ***Conditions for safe storage, including any incompatibilities***
· ***Storage:***
· ***Requirements to be met by storerooms and receptacles:***
*Please refer to the manufacturers certificate for specific storage and transport temperature conditions.*
*Store only in the original receptacle unless other advice is given on the CoA.*
*Keep container in a well-ventilated place. Keep away from sources of ignition and heat.*
· ***Information about storage in one common storage facility:*** *Store away from foodstuffs.*
· ***Further information about storage conditions:*** *Keep receptacle tightly sealed.*
· ***Specific end use(s)*** *No further relevant information available.*

## *8 Exposure controls/personal protection*

· ***Additional information about design of technical systems:*** *No further data; see item 7.*

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· ***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:*** *The lists that were valid during the creation were used as basis.*

· ***Exposure controls***
· ***Personal protective equipment:***
· ***General protective and hygienic measures:***
*Keep away from foodstuffs, beverages and feed.*
*Immediately remove all soiled and contaminated clothing.*
*Wash hands before breaks and at the end of work.*
*Avoid contact with the eyes and skin.*
· ***Breathing equipment:*** *Use suitable respiratory protective device in case of insufficient ventilation.*
· ***Protection of hands:***
*The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.*
*Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation*
*The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374*

*Protective gloves*

· ***Material of gloves***
*PVC gloves*
*Neoprene gloves*
· ***Penetration time of glove material***
*The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.*
· ***Eye protection:***

*Tightly sealed goggles*

## *9 Physical and chemical properties*

| | |
|---|---|
| · ***Information on basic physical and chemical properties*** | |
| · ***General Information*** | |
| · ***Appearance:*** | |
| ***Form:*** | *Liquid* |
| ***Color:*** | *Colorless* |
| · ***Odor:*** | *Odorless* |
| · ***Odor threshold:*** | *Not determined.* |
| · ***pH-value:*** | *Not determined.* |
| · ***Change in condition*** | |
| ***Melting point/Melting range:*** | *0 °C (32 °F)* |

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| | |
|---|---|
| ***Boiling point/Boiling range:*** | *100 °C (212 °F)* |
| · ***Flash point:*** | *Not applicable.* |
| · ***Flammability (solid, gaseous):*** | *Not determined.* |
| · ***Ignition temperature:*** | *Not determined* |
| · ***Decomposition temperature:*** | *Not determined.* |
| · ***Auto igniting:*** | *Product is not selfigniting.* |
| · ***Danger of explosion:*** | *Not determined.* |
| · ***Explosion limits:*** | |
| ***Lower:*** | *Not determined.* |
| ***Upper:*** | *Not determined.* |
| · ***Vapor pressure at 20 °C (68 °F):*** | *23 hPa (17.3 mm Hg)* |
| · ***Density:*** | *Not determined.* |
| · ***Relative density*** | *Not determined.* |
| · ***Vapor density*** | *Not determined.* |
| · ***Evaporation rate*** | *Not determined.* |
| · ***Solubility in / Miscibility with*** | |
| ***Water:*** | *Fully miscible.* |
| · ***Partition coefficient (n-octanol/water):*** | *Not determined.* |
| · ***Viscosity:*** | |
| ***Dynamic at 20 °C (68 °F):*** | *0.952 mPas* |
| ***Kinematic:*** | *Not determined.* |
| · ***Other information*** | *No further relevant information available.* |

## *10 Stability and reactivity*

· ***Reactivity***
*Stable under normal conditions.*
*No further relevant information available.*
· ***Chemical stability*** *Stable under normal conditions.*
· ***Thermal decomposition / conditions to be avoided:***
*Formation of toxic gases is possible during heating or in case of fire.*
· ***Possibility of hazardous reactions*** *No dangerous reactions known.*
· ***Conditions to avoid*** *Heat.*
· ***Incompatible materials:*** *Strong oxidizing agents.*
· ***Hazardous decomposition products:*** *Formation of toxic gases is possible during heating or in case of fire.*

## *11 Toxicological information*

· ***Information on toxicological effects***
· ***Acute toxicity:***
· ***Primary irritant effect:***
· ***on the skin:*** *Irritant to skin and mucous membranes.*
· ***on the eye:*** *Irritating effect.*

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· ***Sensitization:*** *Based on available data, the classification criteria are not met.*
· ***Additional toxicological information:***
*The product shows the following dangers according to internally approved calculation methods for preparations:*
*Irritant*

· ***Carcinogenic categories***

| · ***IARC (International Agency for Research on Cancer)*** |
|---|
| *None of the ingredients is listed.* |

| · ***NTP (National Toxicology Program)*** |
|---|
| *None of the ingredients is listed.* |

| · ***OSHA-Ca (Occupational Safety & Health Administration)*** |
|---|
| *None of the ingredients is listed.* |

## *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:***
*Water hazard class 1 (Self-assessment): slightly hazardous for water*
*Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.*
· ***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:***
*Must not be disposed of together with household garbage. Do not allow product to reach sewage system.*

· ***Uncleaned packagings:***
· ***Recommendation:*** *Dispose in accordance with national regulations.*
· ***Recommended cleansing agent:*** *Water, if necessary with cleansing agents.*

## *14 Transport information*

| | |
|---|---|
| · ***UN-Number*** | |
| · ***DOT, ADR, ADN, IMDG, IATA*** | *Not applicable* |
| · ***DOT*** | *Not applicable* |

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| | |
|---|---|
| · **ADR, ADN, IMDG, IATA** | Not applicable |
| · **Transport hazard class(es)** | |
| · **DOT, ADR, ADN, IMDG, IATA** | |
| · **Class** | Not applicable |
| · **Packing group** | |
| · **DOT, ADR, 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. |
| · **UN "Model Regulation":** | Not applicable |

## 15 Regulatory information

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

· **Section 355 (extremely hazardous substances):**
None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

| | |
|---|---|
| CAS: 1336-21-6 | Ammonium hydroxide |

· **TSCA (Toxic Substances Control Act):**
All ingredients are listed.

· **Hazardous Air Pollutants**
None of the ingredients is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**
None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**
None of the ingredients is listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**
None of the ingredients is listed.

· **TLV (Threshold Limit Value established by ACGIH)**

| | | |
|---|---|---|
| CAS: 13106-76-8 | Ammonium molybdate(VI) | A3 |

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients is listed.

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· ***Hazard pictograms***

GHS07

· ***Signal word*** *Warning*
· ***Hazard statements***
*H315 Causes skin irritation.*
*H319 Causes serious eye irritation.*
*H402 Harmful to aquatic life.*
· ***Precautionary statements***

| | |
|---|---|
| *P273* | *Avoid release to the environment.* |
| *P280* | *Wear protective gloves / eye protection / face protection.* |
| *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).* |
| *P332+P313* | *If skin irritation occurs: Get medical advice/attention.* |
| *P501* | *Dispose of contents/container in accordance with local/regional/national/international regulations.* |

· ***Chemical safety assessment:*** *A Chemical Safety Assessment has not been carried out.*

## *16 Other information*

*The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.*

· ***Date of preparation / last revision*** *04/23/2019 / -*
· ***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)*
*IMDG: International Maritime Code for Dangerous Goods*
*DOT: US Department of Transportation*
*IATA: International Air Transport Association*
*ACGIH: American Conference of Governmental Industrial Hygienists*
*EINECS: European Inventory of Existing Commercial Chemical Substances*
*ELINCS: European List of Notified Chemical Substances*
*CAS: Chemical Abstracts Service (division of the American Chemical Society)*
*NFPA: National Fire Protection Association (USA)*
*HMIS: Hazardous Materials Identification System (USA)*
*PBT: Persistent, Bioaccumulative and Toxic*
*vPvB: very Persistent and very Bioaccumulative*
*NIOSH: National Institute for Occupational Safety*
*OSHA: Occupational Safety & Health*
*TLV: Threshold Limit Value*
*PEL: Permissible Exposure Limit*
*REL: Recommended Exposure Limit*
*Skin Corr. 1B: Skin corrosion/irritation – Category 1B*
*Skin Irrit. 2: Skin corrosion/irritation – Category 2*
*Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A*
*Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1*
*Aquatic Acute 3: Hazardous to the aquatic environment - acute aquatic hazard – Category 3*

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· ***Sources***
*Tables 3.1 and 3.2 from Annex 6 of EC 1272/2008, EC 1907/2006, EH40/2005 as amended 2011, Registry of Toxic Effects of Chemical Substances (RTECS), The Dictionary of Substances and their Effects, 1st Edition, IUCLID.*
· ***Data compared to the previous version altered.*** *All sections have been updated.*