

Safety Data Sheet

According to OSHA Hazard Communication Standard, 29 CFR 1910.1200

Initial preparation date: 01.27.2016

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Molybdenum Standard Solution, 10.0 ± 0.1 mg/l as Mo+6

SECTION 1: Identification

Product identifier

Product name: Molybdenum Standard Solution, 10.0 ± 0.1 mg/l as Mo+6

Product code: MO1450

Recommended use of the product and restriction on use

Relevant identified uses: Standard solution

Uses advised against: Not determined or not applicable.

Reasons why uses advised against: Not determined or not applicable.

Manufacturer or supplier details

Manufacturer:

United States

AquaPhoenix Scientific, Inc.

860 Gitts Run Road

Hanover, PA 17331

1-717-632-1291

Emergency telephone number:

Canada

ChemTel: (24-hour)

+1(800)255-3924

+1(813)248-0585 (International)

SECTION 2: Hazard(s) identification

GHS classification: Not a hazardous substance or mixture

Label elements

Hazard pictograms: None

Signal word: None

Hazard statements: None

Precautionary statements: None

Hazards not otherwise classified: None

SECTION 3: Composition/information on ingredients

Identification	Name	Weight %
CAS number: 1330-43-4	Sodium Borate	<0.1
CAS number: 1336-21-6	Ammonium Hydroxide	<0.01
CAS number: 7697-37-2	Nitric Acid	<0.01
CAS number: 7782-91-4	Molybdic Acid	<0.01

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CAS number: 12125-02-9	Ammonium Chloride	<0.01
CAS number: 7732-18-5	Water	>99

Additional Information: None

SECTION 4: First aid measures

Description of first aid measures

General notes:

Not determined or not applicable.

After inhalation:

Maintain an unobstructed airway

Get medical advice/attention if you feel unwell

Loosen clothing as necessary and position individual in a comfortable position

After skin contact:

Rinse affected area with soap and water

If symptoms develop or persist, seek medical attention

After eye contact:

Get medical advice/attention

Continue rinsing

Remove contact lenses, if present and easy to do

Rinse/flush exposed eye(s) gently using water for 15-20 minutes

After swallowing:

Rinse mouth and then drink plenty of water

Do not induce vomiting

Get medical advice/attention if you feel unwell

Most important symptoms and effects, both acute and delayed

Acute symptoms and effects:

Not determined or not applicable.

Delayed symptoms and effects:

Not determined or not applicable.

Immediate medical attention and special treatment

Specific treatment:

Not determined or not applicable.

Notes for the doctor:

Not determined or not applicable.

SECTION 5: Firefighting measures

Extinguishing media

Suitable extinguishing media:

Use appropriate fire suppression agents for adjacent combustible materials or sources of ignition

Unsuitable extinguishing media:

Not determined or not applicable.

Specific hazards during fire-fighting:

Thermal decomposition can lead to release of irritating gases and vapors

Special protective equipment for firefighters:

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Wear protective eye wear, gloves and clothing

Refer to Section 8

Use typical firefighting equipment, self-contained breathing apparatus, special tightly sealed suit

Special precautions:

Heating causes a rise in pressure, risk of bursting and combustion

Shut off sources of ignition

Carbon monoxide and carbon dioxide may form upon combustion

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures:

Ensure adequate ventilation

Ensure air handling systems are operational

Wear protective eye wear, gloves and clothing

Environmental precautions:

Should not be released into the environment

Prevent from reaching drains, sewer or waterway

Methods and material for containment and cleaning up:

Absorb with non-combustible liquid-binding material (sand, diatomaceous earth (clay), acid binders, universal binders)

Dispose of contents / container in accordance with local regulations

Reference to other sections:

Not determined or not applicable.

SECTION 7: Handling and storage

Precautions for safe handling:

Use only with adequate ventilation.

Avoid breathing mist or vapor.

Do not eat, drink, smoke or use personal products when handling chemical substances.

Conditions for safe storage, including any incompatibilities:

Store away from foodstuffs.

Store in a cool, well-ventilated area.

SECTION 8: Exposure controls/personal protection

Only those substances with limit values have been included below.

Occupational Exposure limit values:

Country (Legal Basis)	Substance	Identifier	Permissible concentration
ACGIH	Ammonium Chloride	12125-02-9	ACGIH TLV TWA 10.0 mg/m ³
	Ammonium Chloride	12125-02-9	ACGIH TLV STEL 20.0 mg/m ³
	Nitric Acid	7697-37-2	ACGIH TLV TWA 2 ppm
	Nitric Acid	7697-37-2	ACGIH TLV STEL 4 ppm
	Ammonium Hydroxide	1336-21-6	ACGIH TLV TWA 25 ppm (NH ₃)
	Ammonium Hydroxide	1336-21-6	ACGIH TLV STEL 35 ppm (NH ₃)
NIOSH	Ammonium Hydroxide	1336-21-6	NIOSH REL TWA 18 mg/m ³ (NH ₃)
	Ammonium Hydroxide	1336-21-6	NIOSH REL ST 35 ppm (NH ₃)
	Ammonium Hydroxide	1336-21-6	NIOSH REL ST 27 mg/m ³ (NH ₃)
	Ammonium Chloride	12125-02-9	NIOSH REL TWA 10.0 mg/m ³

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Country (Legal Basis)	Substance	Identifier	Permissible concentration
	Ammonium Chloride	12125-02-9	NIOSH REL ST 20.0 mg/m ³
	Nitric Acid	7697-37-2	NIOSH REL TWA 5 mg/m ³
	Nitric Acid	7697-37-2	NIOSH REL TWA 2 ppm
	Nitric Acid	7697-37-2	NIOSH REL ST 4 ppm
	Nitric Acid	7697-37-2	NIOSH REL ST 10 mg/m ³
	Ammonium Hydroxide	1336-21-6	NIOSH REL TWA 25 ppm (NH ₃)
United States (OSHA)	Nitric Acid	7697-37-2	OSHA PEL TWA 2 ppm
	Nitric Acid	7697-37-2	OSHA PEL TWA 5 mg/m ³
	Ammonium Hydroxide	1336-21-6	OSHA PEL TWA 50 ppm (NH ₃)
	Ammonium Hydroxide	1336-21-6	OSHA PEL TWA 35 mg/m ³ (NH ₃)

Biological limit values:

No biological exposure limits noted for the ingredient(s).

Information on monitoring procedures:

Not determined or not applicable.

Appropriate engineering controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapor and mists below the applicable workplace exposure limits (Occupational Exposure Limits-OELs) indicated above. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of use or handling.

Personal protection equipment

Eye and face protection:

Safety goggles or glasses, or appropriate eye protection.

Skin and body protection:

Select glove material based on rates of diffusion and degradation.

Select glove material impermeable and resistant to the substance.

Respiratory protection:

When necessary, use NIOSH-approved breathing equipment.

General hygienic measures:

Wash contaminated clothing before reusing.

Perform routine housekeeping.

Wash hands before breaks and at the end of work.

Avoid contact with skin, eyes and clothing.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance	Clear colorless liquid
Odor	Odorless
Odor threshold	Not determined
pH	9
Melting point/freezing point	~ 0 °C (~ 32 °F)
Initial boiling point/range	~ 100 °C (~ 212 °F)
Flash point (closed cup)	Not determined
Evaporation rate	0.54

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Flammability (solid, gas)	Not determined
Upper flammability/explosive limit	Not determined
Lower flammability/explosive limit	Not determined
Vapor pressure	Not determined
Vapor density	Not determined
Density	Not determined
Relative density	~ 1.0
Solubilities	Not determined or not available.
Partition coefficient (n-octanol/water)	Not determined
Auto/Self-ignition temperature	Not determined
Decomposition temperature	Not determined
Dynamic viscosity	Not determined
Kinematic viscosity	Not determined
Explosive properties	Not determined or not available.
Oxidizing properties	Not determined or not available.

Other information

SECTION 10: Stability and reactivity

Reactivity:

Does not react under normal conditions of use and storage.

Chemical stability:

Stable under normal conditions of use and storage.

Possibility of hazardous reactions:

None under normal conditions of use and storage.

Conditions to avoid:

None known.

Incompatible materials:

None known.

Hazardous decomposition products:

None known.

SECTION 11: Toxicological information

Acute toxicity

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data:

Name	Route	Result
Ammonium Chloride	oral	LD50 - Mouse: 1300 mg/kg

Skin corrosion/irritation

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data:

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Name	Result
Nitric Acid	Causes severe skin burns and eye damage.
Ammonium Hydroxide	Causes severe skin burns and eye damage.

Serious eye damage/irritation

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data:

Name	Result
Sodium Borate	Causes eye irritation
Ammonium Chloride	Causes serious eye irritation.

Respiratory or skin sensitization

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data: No data available.

Carcinogenicity

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data: No data available.

International Agency for Research on Cancer (IARC): None of the ingredients are listed.

National Toxicology Program (NTP): None of the ingredients are listed.

Germ cell mutagenicity

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data: No data available.

Reproductive toxicity

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data:

Name	Result
Sodium Borate	May damage fertility or the unborn child

Specific target organ toxicity (single exposure)

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data: No data available.

Specific target organ toxicity (repeated exposure)

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data: No data available.

Aspiration toxicity

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data: No data available.

Information on likely routes of exposure: No data available.

Symptoms related to the physical, chemical and toxicological characteristics: No data available.

Other information: No data available.

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SECTION 12: Ecological information

Acute (short-term) toxicity

Assessment: Based on available data, the classification criteria are not met.

Product data: No data available.

Substance data:

Name	Result
Ammonium Hydroxide	LC50 - Coho salmon - 0.45 mg/L - 96 h

Chronic (long-term) toxicity

Product data: No data available.

Substance data: No data available.

Persistence and degradability

Product data: No data available.

Substance data: No data available.

Bioaccumulative potential

Product data: No data available.

Substance data: No data available.

Mobility in soil

Product data: No data available.

Substance data: No data available.

Other adverse effects: No data available.

SECTION 13: Disposal considerations

Disposal methods:

(US 40CFR262.11) It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities

SECTION 14: Transport information

United States Transportation of dangerous goods (49 CFR DOT)

UN number	Not regulated
UN proper shipping name	Not regulated
UN transport hazard class(es)	None
Packing group	None
Environmental hazards	None
Special precautions for user	None

International Maritime Dangerous Goods (IMDG)

UN number	Not regulated
UN proper shipping name	Not regulated
UN transport hazard class(es)	None
Packing group	None
Environmental hazards	None
Special precautions for user	None

International Air Transport Association Dangerous Goods Regulations (IATA-DGR)

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UN number	Not regulated
UN proper shipping name	Not regulated
UN transport hazard class(es)	None
Packing group	None
Environmental hazards	None
Special precautions for user	None

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	
Bulk Name	None
Ship type	None
Pollution category	None

SECTION 15: Regulatory information

United States regulations

Inventory listing (TSCA):

1330-43-4	Sodium Borate	Listed
7782-91-4	Molybdic Acid	Listed
12125-02-9	Ammonium Chloride	Listed
7732-18-5	Water	Listed
7697-37-2	Nitric Acid	Listed
1336-21-6	Ammonium Hydroxide	Listed

Significant New Use Rule (TSCA Section 5): Not determined.

Export notification under TSCA Section 12(b): Not determined.

SARA Section 311/312 hazards:

Acute	Chronic	Fire	Pressure	Reactive
No	No	No	No	No

SARA Section 302 extremely hazardous substances:

7697-37-2	Nitric Acid	Listed
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SARA Section 313 toxic chemicals:

7697-37-2	Nitric Acid	Listed
1336-21-6	Ammonium Hydroxide	Listed

CERCLA:

12125-02-9	Ammonium Chloride	Listed	5000
7697-37-2	Nitric Acid	Listed	1000
1336-21-6	Ammonium Hydroxide	Listed	1000

RCRA: Not determined.

Section 112(r) of the Clean Air Act (CAA): Not determined.

Massachusetts Right to Know:

12125-02-9	Ammonium Chloride	Not Listed
1330-43-4	Sodium Borate	Listed
7732-18-5	Water	Not Listed

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7782-91-4	Molybdic Acid	Not Listed
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New Jersey Right to Know:

12125-02-9	Ammonium Chloride	Not Listed
1330-43-4	Sodium Borate	Listed
7732-18-5	Water	Not Listed
7782-91-4	Molybdic Acid	Not Listed

New York Right to Know:

12125-02-9	Ammonium Chloride	Not Listed
1330-43-4	Sodium Borate	Not Listed
7732-18-5	Water	Not Listed
7782-91-4	Molybdic Acid	Not Listed

Pennsylvania Right to Know:

12125-02-9	Ammonium Chloride	Not Listed
1330-43-4	Sodium Borate	Not Listed
7732-18-5	Water	Not Listed
7782-91-4	Molybdic Acid	Not Listed

California Proposition 65: Not determined.

SECTION 16: Other information

Abbreviations and Acronyms: None

Disclaimer:

The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The responsibility to provide a safe workplace remains with the user. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations applicable to this material. This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

NFPA: 0-0-0

HMIS: 0-0-0

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End of Safety Data Sheet