

Safety Data Sheet acc. to OSHA HCS (HazCom 2012)

Printing date 09/29/2017

Reviewed on 09/28/2017

1 Identification

- **Product identifier**
- **Trade name:** **Molybdate No.1 HR**
- **Catalogue number:** 00513061, (4)513060(BT), (4)513061(BT), 513063(0), 00513069(BT)
- **Application of the substance / the mixture:** Reagent for water analysis
- **Manufacturer/Supplier:**
Tintometer Inc.
6456 Parkland Drive
Sarasota, FL 34243
USA
phone: (941) 756-6410
fax: (941) 727-9654
www.lovibond.us
Made in Germany
- **Emergency telephone number:** + 1 866 928 0789 (English, French, Spanish)

* 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS08 Health hazard

Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.



GHS05 Corrosion

Eye Dam. 1 H318 Causes serious eye damage.



GHS07

Skin Sens. 1 H317 May cause an allergic skin reaction.

- **Label elements**

- **GHS label elements** The product is classified and labeled according to the Hazard Communication Standard (HCS).

- **Hazard pictograms**



GHS05



GHS08

- **Signal word** Danger

- **Hazard-determining components of labeling:**

sodium bisulfate
potassium persulphate

- **Hazard statements**

H318 Causes serious eye damage.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317 May cause an allergic skin reaction.

- **Precautionary statements**

P261 Avoid breathing dust.
P280 Wear protective gloves/protective clothing/eye protection.
P302+P352 If on skin: Wash with plenty of soap and water.

(Contd. on page 2)

Safety Data Sheet

acc. to OSHA HCS (HazCom 2012)

Printing date 09/29/2017

Reviewed on 09/28/2017

Trade name: **Molybdate No.1 HR**

(Contd. of page 1)

- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
 Continue rinsing.
 P310 Immediately call a doctor.

· **Other hazards** No further relevant information available.

* 3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** Mixture of organic and inorganic compounds
- **Composition and Information on Ingredients:**
 Percent ranges are used due to the confidential product information.

CAS: 124-04-9 EINECS: 204-673-3 Index number: 607-144-00-9 RTECS: AU 8400000	adipic acid ⚠ Eye Irrit. 2A, H319	30–40%
CAS: 7681-38-1 EINECS: 231-665-7 Index number: 016-046-00-X RTECS: VZ1860000	sodium bisulfate ⚠ Eye Dam. 1, H318	10–20%
CAS: 7727-21-1 EINECS: 231-781-8 Index number: 016-061-00-1 RTECS: SE0400000	potassium persulphate ⚠ Ox. Sol. 3, H272; ⚠ Resp. Sens. 1, H334; ⚠ Acute Tox. 4, H302; Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H317; STOT SE 3, H335	2.5–5%

- **Additional information:** For the wording of the listed hazard phrases refer to section 16.

4 First-aid measures

- **Description of first aid measures**
- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:** Supply fresh air or oxygen; call for doctor.
- **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 (at least 15 min) under running water.
 Call a doctor immediately.
- **After swallowing:**
 Rinse out mouth and then drink 1-2 glasses of water.
 Seek medical treatment in case of complaints.
- **Most important symptoms and effects, both acute and delayed**
 burns
 irritations
 allergic reactions
 after inhalation:
 coughing
 breathing difficulty
 after swallowing of large amounts:
 thirst
 gastric or intestinal disorders
 sickness
 vomiting
 diarrhoea
 cardiovascular disorders
- **Danger:**
 Danger of pulmonary edema.
 risk of airways sensitization
- **Indication of any immediate medical attention and special treatment needed:** No further relevant information available.

— US —
 (Contd. on page 3)

Safety Data Sheet

acc. to OSHA HCS (HazCom 2012)

Printing date 09/29/2017

Reviewed on 09/28/2017

Trade name: **Molybdate No.1 HR**

(Contd. of page 2)

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture**
The product is not combustible.
Formation of toxic gases is possible during heating or in case of fire.
In case of fire, the following can be released:
Sulfur oxides (SO_x)
Nitrogen oxides (NO_x)
Sodium oxide
Carbon monoxide (CO) and carbon dioxide (CO₂)
- **Advice for firefighters**
- **Protective equipment:**
Wear self-contained respiratory protective device.
Wear fully protective suit.
- **Additional information**
Collect contaminated fire fighting water separately. It must not enter the sewage system.
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
Ambient fire may liberate hazardous vapours.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
- **Advice for non-emergency personnel:**
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Avoid inhalation of dust.
- **Advice for emergency responders:** Protective equipment: see section 8
- **Environmental precautions:** Do not allow product to reach sewage system or any water course.
- **Methods and material for containment and cleaning up:**
Ensure adequate ventilation.
Pick up mechanically.
Dispose contaminated material as waste according to item 13.
- **Reference to other sections**
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
- **Advice on safe handling:** No special precautions are necessary if used correctly.
- **Hygiene measures:**
Do not inhale dust / smoke / mist.
Avoid contact with the skin.
Avoid contact with the eyes.
Take off immediately all contaminated clothing.
Wash hands before breaks and at the end of work.
Do not eat, drink or smoke when using this product.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**
Store in a cool location.
Unsuitable material for receptacle: steel.
- **Information about storage in one common storage facility:** Store away from oxidizing agents.
- **Further information about storage conditions:**
Store in cool, dry conditions in well sealed receptacles.
Protect from heat and direct sunlight.
Protect from exposure to the light.
Store in dry conditions.
Protect from humidity and water.

(Contd. on page 4)

US

Safety Data Sheet

acc. to OSHA HCS (HazCom 2012)

Printing date 09/29/2017

Reviewed on 09/28/2017

Trade name: **Molybdate No.1 HR**

(Contd. of page 3)

- This product is hygroscopic.
- **Recommended storage temperature:** 20°C +/- 5°C (approx. 68°F)
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Control parameters**

- **Components with limit values that require monitoring at the workplace:**

CAS: 124-04-9 adipic acid

TLV (USA)	Long-term value: 5 mg/m ³
EL (Canada)	Long-term value: 5 mg/m ³
EV (Canada)	Long-term value: 5 mg/m ³

CAS: 7727-21-1 potassium persulphate

TLV (USA)	Long-term value: 0.1 mg/m ³ as Persulfates
EL (Canada)	Long-term value: 0.1 mg/m ³ as persulfate
EV (Canada)	Long-term value: 0.1 mg/m ³

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Engineering measures:**
Technical measures and appropriate working operations should be given priority over the use of personal protective equipment. See item 7.
- **Personal protective equipment:**
- **Breathing equipment:** Use respiratory protective device against the effects of fumes/dust/aerosol.
- **Recommended filter device for short term use:** Filter P2
- **Protection of hands:**
Protective gloves
Preventive skin protection by use of skin-protecting agents is recommended.
After use of gloves apply skin-cleaning agents and skin cosmetics.
- **Material of gloves**
Nitrile rubber, NBR
Recommended thickness of the material: ≥ 0.11 mm
- **Penetration time of glove material**
Value for the permeation: Level ≤ 1 (10 min)
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
- **Body protection:** Protective work clothing
- **Limitation and supervision of exposure into the environment:**
Do not allow product to reach sewage system or any water course.

9 Physical and chemical properties

- **Information on basic physical and chemical properties**

- **Appearance:**

Form / Physical state:	Tablets
Color:	Cream colored

- **Odor:** Odorless
- **Odor threshold:** Not applicable.

- **pH-value (10 g/l) at 20 °C (68 °F):** 2,4

- **Melting point/freezing point:** Not determined.
- **Initial boiling point and boiling range:** Not determined.

- **Flash point:** Not applicable.

- **Flammability (solid, gas):** The product is not combustible.

- **Decomposition temperature:** Not determined.

(Contd. on page 5)

Safety Data Sheet

acc. to OSHA HCS (HazCom 2012)

Printing date 09/29/2017

Reviewed on 09/28/2017

Trade name: **Molybdate No.1 HR**

(Contd. of page 4)

· Auto-ignition temperature:	Product is not self-igniting.
· Danger of explosion:	As the product is supplied it is not capable of dust explosion; however enrichment with fine dust causes risk of dust explosion.
· Flammability or explosive limits:	
Lower:	Not determined.
Upper:	Not determined.
· Oxidizing properties:	none
· Vapor Pressure:	Not applicable.
· Density at 20 °C (68 °F):	2 g/cm ³ (16.69 lbs/gal)
· Relative density:	Not determined.
· Vapor density:	Not applicable.
· Evaporation rate:	Not applicable.
· Solubility(ies)	
Water:	Partially insoluble.
· Partition coefficient (n-octanol/water):	Not applicable.
· Viscosity:	Not applicable.
· Solvent content:	
Organic solvents:	0,0 %
Solids content:	100,0 %
· Other information	No further relevant information available.

10 Stability and reactivity

- **Reactivity** Dust can combine with air to form an explosive mixture.
- **Chemical stability** Stable at ambient temperature (room temperature).
- **Possibility of hazardous reactions**
 - Aqueous solution reacts with metals.
 - Forms hydrogen in aqueous solution with metals (Danger of explosion!).
 - Reacts with reducing agents.
 - Liberates acid in contact with water or alcohol.
 - Reacts with strong alkalis and oxidizing agents.
- **Conditions to avoid** Strong heating (decomposition)
- **Incompatible materials:**
 - metals
 - aluminum
 - steel
- **Hazardous decomposition products:**
 - oxygen
 - see section 5

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:** Based on available data, the classification criteria are not met.

· LD/LC50 values that are relevant for classification:

CAS: 124-04-9 adipic acid		
Oral	LD50	5700 mg/kg (rat) (MERCK)
Dermal	LD50	>7940 mg/kg (rabbit) (Registrant, ECHA: no deaths occurred)
Inhalative	LC50	>7.7 mg/l/4h (rat) (dust, aerosol) (Registrant, ECHA: no deaths occurred)
CAS: 7681-38-1 sodium bisulfate		
Oral	LD50	2490 mg/kg (rat) (IUCLID)

(Contd. on page 6)

US

Safety Data Sheet

acc. to OSHA HCS (HazCom 2012)

Printing date 09/29/2017

Reviewed on 09/28/2017

Trade name: **Molybdate No.1 HR**

(Contd. of page 5)

Dermal	LD50.	>2000 mg/kg (rabbit)
CAS: 7727-21-1 potassium persulphate		
Oral	LD50	802 mg/kg (rat)
Dermal	LD50	>10000 mg/kg (rabbit)

- **Primary irritant effect:**
- **on the skin:** Based on available data, the classification criteria are not met.
- **on the eye:**
Causes serious eye damage.
Risk of corneal clouding.
- **Information on components:**
CAS 7727-21-1: chronic: dermatitis

CAS: 124-04-9 adipic acid		
Irritation of skin	OECD 404	(rabbit: no irritation)
Irritation of eyes	OECD 405	(rabbit: severe irritations)
CAS: 7681-38-1 sodium bisulfate		
Irritation of skin	OECD 404	(rabbit: no irritation)
Irritation of eyes	OECD 405	(rabbit: severe irritations)

- **Sensitization:**
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.

Information on components:		
CAS: 124-04-9 adipic acid		
Sensitization	OECD 406	(guinea pig: negative) (IUCLID)

- **Carcinogenic categories**

IARC (International Agency for Research on Cancer)		
CAS: 139-05-9	sodium cyclamate	3
NTP (National Toxicology Program)		
None of the ingredients is listed.		
OSHA-Ca (Occupational Safety & Health Administration)		
None of the ingredients is listed.		

- **Other information:** see section 8 / 15

- **Synergistic Products:** None

- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction):** The following statements refer to the mixture:
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT (specific target organ toxicity) -single exposure** Based on available data, the classification criteria are not met.
- **STOT (specific target organ toxicity) -repeated exposure** Based on available data, the classification criteria are not met.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

Information on components:		
CAS: 124-04-9 adipic acid		
OECD 471	(negative) (Bacterial Reverse Mutation Test - Ames test) (IUCLID)	
OECD 474	(negative) (Mammalian Erythrocyte Micronucleus Test)	

12 Ecological information

- **Toxicity**

Aquatic toxicity:		
CAS: 124-04-9 adipic acid		
LC50	511 mg/l/48h	(gold orfe)

(Contd. on page 7)

US

Safety Data Sheet

acc. to OSHA HCS (HazCom 2012)

Printing date 09/29/2017

Reviewed on 09/28/2017

Trade name: Molybdate No.1 HR

(Contd. of page 6)

EC50	86 mg/l/48h (Daphnia magna) (OECD 202)
IC50	31 mg/l/72h (Desmodemus subspicatus) (IUCLID)
LC50	97 mg/l/96h (fathhead minnow) (ECOTOX)

CAS: 7681-38-1 sodium bisulfate

EC50	190 mg/l/48h (Daphnia magna) (IUCLID)
------	---------------------------------------

CAS: 7727-21-1 potassium persulphate

EC50	120 mg/l/48h (Daphnia magna)
------	------------------------------

· **Bacterial toxicity:**

sulfates toxic > 2.5 g/l

CAS: 124-04-9 adipic acid

EC50	92 mg/l (Pseudomonas putida) (DIN 38412) (IUCLID)
------	---

CAS: 7681-38-1 sodium bisulfate

EC10	>1000 mg/l (Pseudomonas putida) (16 h)
------	--

CAS: 7727-21-1 potassium persulphate

EC50	83.7 mg/l (Bacterial toxicity) (72h)
------	--------------------------------------

· **Other information:**

Toxic for fish:

sulfates > 7 g/l

· **Persistence and degradability****CAS: 124-04-9 adipic acid**

OECD 301 B	100 % / 28 d (readily biodegradable) (CO2 Evolution Test)
------------	---

· **Bioaccumulative potential**

Pow = n-octanol/wasser partition coefficient

log Pow < 1 = Does not accumulate in organisms.

CAS: 124-04-9 adipic acid

log Pow	0.081 (.) (25°C, OECD 107)
---------	----------------------------

· **Mobility in soil** No further relevant information available.· **Other adverse effects**

Reacts with water to form toxic decomposition products.

Avoid transfer into the environment.

13 Disposal considerations

· **Waste treatment methods**· **Recommendation:**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Hand over to hazardous waste disposers.

· **Uncleaned packagings:**· **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

· UN-Number	
· DOT, IMDG, IATA	none
· UN proper shipping name	
· DOT, IMDG, IATA	none
· Transport hazard class(es)	
· DOT, IMDG, IATA	
· Class	none

(Contd. on page 8)

— US —

Safety Data Sheet

acc. to OSHA HCS (HazCom 2012)

Printing date 09/29/2017

Reviewed on 09/28/2017

Trade name: **Molybdate No.1 HR**

(Contd. of page 7)

· Packing group · DOT, IMDG, IATA	none
· 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.
· Transport/Additional information:	Not dangerous according to the above specifications.

* 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):
None of the ingredients is listed.

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

· New Jersey Right-to-Know List:
CAS: 124-04-9 adipic acid
CAS: 7727-21-1 potassium persulphate

· New Jersey Special Hazardous Substance List:
None of the ingredients is listed.

· Pennsylvania Right-to-Know List:
CAS: 7757-82-6 sodium sulphate
CAS: 124-04-9 adipic acid
CAS: 7727-21-1 potassium persulphate

· Pennsylvania Special Hazardous Substance List:	
CAS: 7757-82-6 sodium sulphate	E
CAS: 124-04-9 adipic acid	E

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

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

- Information about limitation of use: Employment restrictions concerning young persons must be observed.
- Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

* 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

(Contd. on page 9)
US —

Safety Data Sheet

acc. to OSHA HCS (HazCom 2012)

Printing date 09/29/2017

Reviewed on 09/28/2017

Trade name: Molybdate No.1 HR

(Contd. of page 8)

Relevant phrases

- H272 May intensify fire; oxidizer.
- H302 Harmful if swallowed.
- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H318 Causes serious eye damage.
- H319 Causes serious eye irritation.
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- H335 May cause respiratory irritation.

Date of preparation / last revision 09/29/2017 / 9
Abbreviations and acronyms:

- OECD: Organisation for Economic Co-operation and Development
- STOT: specific target organ toxicity
 - SE: single exposure
 - RE: repeated exposure
- EC50: half maximal effective concentration
- IC50: half maximal inhibitory concentration
- NOEL or NOEC: No Observed Effect Level or Concentration
- ACGIH[®] - American Conference of Governmental Industrial Hygienists
 - A1 - Confirmed human carcinogen
 - A2 - Suspected human carcinogen
 - A3 - Confirmed animal carcinogen with unknown relevance to humans
 - A4 - Not classifiable as a human carcinogen
 - A5 - Not suspected as a human carcinogen
- IARC - International Agency for Research on Cancer
 - Group 1 - Carcinogenic to humans
 - Group 2A - Probably carcinogenic to humans
 - Group 2B - Possibly carcinogenic to humans
 - Group 3 - Not classifiable as to carcinogenicity to humans
 - Group 4 - Probably not carcinogenic to humans
- NTP - National Toxicology Program, U.S. Department of Health and Human Services
 - Group K - Known to be Human Carcinogens
 - Group R - Reasonably Anticipated to be Human Carcinogens
- 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
- ELINCS: European List of Notified Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent
- NIOSH: National Institute for Occupational Safety
- OSHA: Occupational Safety & Health
- TLV: Threshold Limit Value
- PEL: Permissible Exposure Limit
- REL: Recommended Exposure Limit
- Ox. Sol. 3: Oxidizing solids – Category 3
- Acute Tox. 4: Acute toxicity – Category 4
- Skin Irrit. 2: Skin corrosion/irritation – Category 2
- Eye Dam. 1: Serious eye damage/eye irritation – Category 1
- Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
- Resp. Sens. 1: Respiratory sensitisation – Category 1
- Skin Sens. 1: Skin sensitisation – Category 1
- STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

Sources

- Data arise from safety data sheets, reference works and literature.
- ECHA: European CHemicals Agency <http://echa.europa.eu>
- IUCLID (International Uniform Chemical Information Database)

*** Data compared to the previous version altered.**