



Section 1. Product and Company Identification

Product Name Sodium Molybdate 35% Solution
CAS Number 7631-95-0

Parchem - fine & specialty chemicals
415 Huguenot Street
New Rochelle, NY 10801
☎ (914) 654-6800 ☎ (914) 654-6899
🌐 parchem.com ✉ info@parchem.com

EMERGENCY RESPONSE NUMBER
CHEMTEL
Toll Free US & Canada: 1 (800) 255-3924
All other Origins: 1 (813) 248-0585
Collect Calls Accepted

Section 2. Hazards Identification

Classification according to Regulation (EC) No. 1272/2008 (CLP/GHS)

Not classified.

Classification according to Directive 67/548/EEC

Not classified.

Labelling according to Regulation (EC) No. 1272/2008 (CLP/GHS)

Sodium molybdate is not classified as a hazardous substance and does not require specific label elements (such as Hazard Pictograms or a Signal Word).

Labelling according to Directive 67/548/EEC

Sodium molybdate is not classified as a hazardous substance and does not require specific label elements.

GHS Label Elements

Pictograms: N/A

Signal word: N/A

Hazard and precautionary statements

None

Other hazards

The substance does not meet the criteria for a PBT or vPvB substance.
No environmental, toxicological or physico-chemical hazards identified.

Section 3. Composition / Information on Ingredients

Common Name Sodium Molybdate 35% Solution
Formula Na_2MoO_4
CAS Number 7631-95-0

COMPONENT	CAS NUMBER	CONCENTRATION
Sodium Molybdate 35% Solution	7631-95-0	100%



Section 4. First Aid Measures

Description of first-aid measures

Note: Sodium Molybdate is not classified as a hazardous substance and no substance-specific toxicological hazards are expected. Nevertheless, the following generic first aid measures should be applied as usual when handling any chemical substance.

General Advice: First-aid responders should wear suitable personal protective equipment in case of insufficient ventilation or possible inhalation or eye contact.

Inhalation: Remove patient from exposure and bring to fresh air. If breathing has stopped, perform artificial respiration and get medical advice/attention immediately.

Skin contact: Wash skin with water and soap, and rinse thoroughly. If skin irritation occurs, get medical advice/attention.

Eye contact: Check for and remove and contact lenses. Immediately flush eyes with plenty of water, occasionally lifting upper and lower eyelids, for several minutes. If irritation occurs, get medical advice/attention.

Ingestion: Seek medical advice/attention if feeling unwell.

Most important symptoms and effects, both acute and delayed: Acute or delayed effects are not anticipated for sodium molybdate.

Indication of any immediate medical attention and special treatment needed: No specific treatment expected to be required.

Section 5. Firefighting Measures

Note: Sodium molybdate is not flammable / combustible and it does not support fires (no oxidising properties). Nevertheless, below some general firefighting measures are given, which should be adjusted to the surroundings (e.g. other, hazardous chemicals involved, packaging materials...).

Extinguishing media

Suitable extinguishing media: Standard extinguishing media such as water, sand, foam. Use firefighting measures that suit the location and surroundings. Sodium molybdate is not considered flammable or combustible.

Unsuitable extinguishing media: None. Use firefighting measures that suit the location and surroundings.

Special hazards arising from the substance or mixture: None.

Advice for firefighters: Standard extinguishing media such as water, sand, foam. Use firefighting measures that suit the location and surroundings. Sodium molybdate is not considered flammable or combustible.

Section 6. Accidental Release Measures

Note: Sodium molybdate is not classified as a hazardous substance and no substance-specific toxicological or ecotoxicological hazards are expected. Nevertheless, the following generic accidental release measures should be applied as usual when handling any chemical substance.



Personal precautions, protective equipment, and emergency procedures

For non-emergency personnel: Avoid formation and inhalation of dust. Seek to ensure ventilation that maintains airborne concentrations below Occupational Exposure Limits. Keep unprotected persons away. Although the substance has no acute toxicity, it is advised to avoid contact with skin, eyes, and clothing - wear suitable protective equipment.

For emergency responders: Avoid formation and inhalation of dust. Seek to ensure ventilation that maintains airborne concentrations below Occupational Exposure Limits. Keep unprotected persons away. Although the substance has no acute toxicity, it is advised to avoid contact with skin, eyes, and clothing - wear suitable protective equipment.

Environmental precautions: Although the substance is not classified as dangerous to the environment, it is advised that in the event of an accidental release the product should be prevented from reaching the sewage system or any water course, and from penetrating the ground/soil. Dispose of spilled material in accordance with the relevant local regulations. See Section 13 for disposal considerations.

Methods and material for containment and cleaning up: Avoid formation and inhalation of dust. Use an appropriate industrial vacuum cleaner, equipped with ULPA or HEPA filters. Collect spilled material in suitable containers or bags for recovery or disposal. In the case of disposal, spilled material or contaminated material should be disposed of as waste as described in Section 13.

Reference to other sections: For more information on exposure controls/personal protection or disposal considerations, check Sections 8 and 13 of this Data Sheet.

Section 7. Handling and Storage

Note: Sodium molybdate is not classified as a hazardous substance and no substance-specific toxicological or ecotoxicological hazards are expected. Nevertheless, the following generic advice on handling and storage should be followed as for any chemical substance.

Precautions for safe handling

Protective measures: Avoid formation of dust, inhalation and ingestion. General occupational hygiene practice should always be followed (see 7.1.2 below).

Advice on general occupational hygiene: Avoid formation of dust, inhalation and ingestion. General occupational hygiene measures are required to ensure safe handling of the substance. These measures involve good personal and housekeeping practices (i.e. regular cleaning with suitable cleaning devices), no eating, drinking, and smoking at the workplace and wearing standard working clothes and shoes unless otherwise stated.

Wash hands after contact with the powder or fume.

Remove contaminated clothing and protective equipment before entering eating areas.

Shower and change clothes at end of work shift. Do not wear contaminated clothing at home. Do not blow dust off with compressed air.

Conditions for safe storage, including any incompatibilities: Store in closed container in a dry area. Do not store in open, inadequate, or mis-labelled packaging.

Section 8. Exposure Controls / Personal Protection

Control parameters

Occupational Exposure Limits (OELS)

Type of limit value	Limit value [mg Mo/m ³]	References, Legislation,...	Information on recommended monitoring procedures
Austria: Molybdenum compounds (as Mo), soluble compounds, STEL (Peak), 2 times per shift, 60 minutes:	20 Inhalable dust fraction	GKV_MAK (Austria 9/2007)	Consult the national authorities about which measurement methodology is suitable to demonstrate respective limit values. Applicable standards for monitoring of inhalable and/or respirable dust may include:
Austria: Molybdenum compounds (as Mo), soluble compounds, 8-hour TWA reference period	10 Inhalable dust fraction	GKV_MAK (Austria 9/2007)	
Belgium: molybdenum compounds (as Mo), soluble, in the respirable fraction, TLV-TWA	0.5 Respirable dust fraction	Belgian Royal Decree of 11/06/2009 (protection of the employee's health and safety against the risk of chemicals).	
Belgium: Mo compounds (as Mo), soluble, TLV-TWA	10 Inhalable dust fraction	Belgian Royal Decree of 11/06/2009 (protection of the employee's health and safety against the risk of chemicals).	
Denmark: Molybdenum compounds (as Mo), soluble, 8-hour TWA reference period	5	Arbejdstilsynet (Denmark 3/2008)	
Denmark: Molybdenum compounds (as Mo), insoluble, 8-hour TWA reference period	10	Arbejdstilsynet (Denmark 3/2008)	
France: No indicative or mandatory Occupational Exposure Limit (OEL) specifically for molybdenum. 8-hour TWA reference period to be protective against long-term exposure:	10 mg/m ³ Total dust 5 mg/m ³ Respirable fraction		
Germany: No limit value (MAK-value) is defined for Mo or molybdenum trioxide. In the absence of a MAK-value, 8-hour	10 mg/m ³ Inhalable dust fraction 3 mg/m ³ Respirable dust fraction	Deutsche Forschungsgemeinschaft: List of MAK and BAT values 2010. Commission for the	

TWA limit values for general dust should be applied:		Investigation of Health Hazards of Chemical Compounds in the Workplace, Report no. 46 WILEY-VCH Verlag GmbH & Co, KGaA, Weinheim, ISBN: 978-3-527-32815-4	
Italy: Molybdenum compounds (as Mo), soluble compounds, 8-hour TWA reference period:	10 Inhalable dust fraction 3 Respirable dust fraction	ACGIH TLV (USA 2/2010)	
Luxembourg: OEL's used in Luxembourg are those used by Germany, unless specific OEL's are provided (none identified for molybdenum)	See Germany		
Netherlands: Employers & employees responsible for setting Occupational Exposure Levels for safe handling since 1-1-2007		http://www.rivm.nl/rvs/normen/werk/grens	
Poland: Molybdenum compounds (as Mo), soluble compounds, STEL/Peak for 15 minutes:	10		
Poland: Molybdenum compounds (as Mo), soluble compounds, 8-hour TWA reference period	4		
Sweden: Molybdenum compounds (as Mo), 8-hour TWA reference period:	10 Total dust 5 Respirable dust fraction	AFS 2005:17 (Sweden 6/2007)	
United Kingdom: molybdenum compounds (as Mo), soluble compounds, long-term exposure limit (8-hour TWA reference period)	5 Inhalable dust fraction	UK HSE List of approved workplace exposure limits (WEL), October 2007, (http://www.hse.gov.uk/cosh/h/table1.pdf)	MDHS: Methods for the Determination of Hazardous Substances (MHS) guidance http://www.hse.gov.uk/pubns/mdhs/
United Kingdom: molybdenum compounds (as Mo), soluble compounds, short-term exposure limit (15-minute reference period)	10 Inhalable dust fraction		
United Kingdom: molybdenum compounds (as Mo), insoluble compounds, long-term exposure	10 Inhalable dust fraction		



limit (8-hour TWA reference period)			
United Kingdom: molybdenum compounds (as Mo), insoluble compounds, short-term exposure limit (15-minute reference period)	20 Inhalable dust fraction		
Further source of information: European Agency for Safety & Health at Work:		http://osha.europa.eu/en/topics/ds/oel/members.stm	Information on recommended monitoring procedures

PNECs and DNELs

Exposure pattern	Route	Descriptor	DNEL/PNEC
Long-term - systemic effects	Inhalation	DNEL (Derived No Effect Level)	11.17 mg Mo/m ³ Corresponding to 28 mg Na ₂ MoO ₄ · 2 H ₂ O / m ³ Note: derived for formal reasons in the REACH registration dossier; based on mass molybdenum per m ³ . This value is usually superseded by lower national occupational exposure limits for (soluble) molybdenum compounds or general dust limits.
Long-term - chronic effects	Freshwater	PNEC (Predicted No Effect Concentration)	12.7 mg Mo/L, equivalent to 32.0 mg Na ₂ MoO ₄ · 2 H ₂ O/L
Long-term - chronic effects	Marine	PNEC (Predicted No Effect Concentration)	1.9 mg Mo/L, equivalent to 4.8 mg Na ₂ MoO ₄ · 2 H ₂ O/L
Long-term - chronic effects	Freshwater Sediment	PNEC (Predicted No Effect Concentration)	22.6 g Mo/kg dw, equivalent to 57.0 g Na ₂ MoO ₄ · 2 H ₂ O/kg dw
Long-term - chronic effects	Marine Sediment	PNEC (Predicted No Effect Concentration)	1.98 g Mo/kg dw, equivalent to 4.99 g Na ₂ MoO ₄ · 2 H ₂ O/kg dw
Long-term - chronic effects	Soil	PNEC (Predicted No Effect Concentration)	11.8-188 mg Mo/kg dw, equivalent to 29.8 - 474 mg Na ₂ MoO ₄ · 2H ₂ O/ kg dw (dependent upon soil type)
Long-term - chronic effects	STP	PNEC (Predicted No Effect Concentration)	21.7 mg Mo/L, equivalent to 54.7 mg Na ₂ MoO ₄ · 2H ₂ O/L

Exposure Controls

This substance is not classified as a hazardous substance and no substance-specific toxicological or ecotoxicological hazards are expected. Nevertheless, in some circumstances high airborne dust concentrations may require local or general ventilation to control worker exposure in general. Where ventilation is unable to control the workplace dust levels to below the OEL, then respirator controls must be used. However, no exposure controls specific to this substance are required, other than good hygiene practice and adherence to national and regional provisions with regards to exposure to dusts in the workplace. National, regional or local provisions or limit values may also apply for emissions to air or water. The generic advice on accidental release measures and on handling and storage given in sections 6 and 7 above should be followed to minimize release/exposure.



Section 9. Physical and Chemical Properties

Appearance: Solid, crystalline, colorless to white, odorless, inorganic, clear solution

Odor: Odorless.

Odor threshold: Not applicable as odorless.

pH: 9.2 for Solution

Melting point: Sodium Molybdate Dihydrate decomposes at ca. 100°C (loss of water of crystallization). For the anhydrous, a melting point of 687°C has been reported [25].

Initial boiling point and boiling range of Solution: 105°C

Flash point: N/A

Evaporation rate: Negligible at ambient temperatures.

Flammability (solid, gas): Not flammable.

Upper/lower flammability or explosive limits: Not explosive.

Vapor pressure: Low to negligible.

Vapor density: Not applicable (there are no sodium molybdate vapors).

Relative density: 2.59 at 20°C [26]

Solubility(ies): 654 g/L in water at 20°C [27].

Partition coefficient (n-Octanol/water): Not applicable for inorganic substances.

Auto-ignition temperature: Not applicable (sodium molybdate is not combustible/flammable and thus does not auto-ignite).

Viscosity: Not applicable. (Solid).

Explosive properties: Non explosive.

Oxidizing properties: Not oxidizing. Read-across from study with pure molybdenum trioxide (MoO_3), which also contains molybdenum in its highest oxidation state (+VI) [28].

Other Information: Not applicable

Section 10. Stability and Reactivity

Reactivity: Stable under ambient temperatures and pressures.

Chemical stability: Stable under ambient temperatures and pressures.

Possibility of hazardous reactions: According to "Bretherick's Handbook" [39] molybdates react violently or explosively when reduced to molybdenum by heating with zirconium.

Furthermore, in the preparation of dyestuffs from aniline, nitrobenzene (as oxidant), hydrochloric acid and sodium hydroxide, ferric chloride is often used as catalyst, but sodium molybdate was substituted as a more effective catalyst. The materials were charged into a 4.5 m³ reactor and heating was started after addition of nitrobenzene, but the temperature controller was mis-set, and overheating at a high rate ensued. The exothermic reaction was much higher than normal because of the more effective catalyst, and partial failure of the cooling water led to an uncontrollable exothermic reaction [39].

Other hazardous reactions have not been identified.

Conditions to avoid: No specific conditions to avoid have been identified.

Incompatible materials: No specific incompatible materials have been identified.

Hazardous decomposition products: No hazardous decomposition products have been identified.

Section 11. Toxicological Information

Information on toxicological effects

The information provided in this section is consistent with the information provided in the REACH Chemical Safety Report (CSR) for sodium molybdate. Further information can be obtained from the REACH Molybdenum Consortium, an initiative of the International Molybdenum Association (IMOA). For contact details, please refer to Section 16 of this data sheet.

Toxicity endpoints	Description of effects
Toxicokinetics: Absorption, Distribution, Metabolism and Excretion	Molybdenum is an essential element. Uptaken sodium molybdate dissolves and exists predominantly in the form of the molybdate ion (MoO_4^{2-}). Oral absorption: Rapid and almost complete absorption through GI tract. Inhalation absorption: Well absorbed based on animal data. Absorption in humans dependent on particle size, deposition/clearance. Dermal absorption: Low to negligible. Metabolism: No metabolism. Molybdenum compounds transform quickly to molybdate anions (MoO_4^{2-}) upon dissolution. Excretion: Rapidly eliminated from plasma predominantly via renal excretion (> 80%), and faeces (< 10%).
(a) Acute toxicity	Low acute toxicity LD50, oral, rat: between 2733 and 6556 mg/kg bw (male/female) [29] LD50, dermal, rat: > 2000 mg/kg bw (male/female) [30] LD50, inhalation, rat (4h): > 1.93 mg/L (male/female) [31]
(b) skin corrosion/irritation	Not irritating/not corrosive to the skin [32].
(c) serious eye damage/irritation	Not irritant/not corrosive to the eyes [33].
(d) respiratory or skin sensitization	Sodium molybdate is not sensitizing to the skin [34]. There is no data indicating respiratory sensitization.
(e) germ-cell mutagenicity	Not a germ cell mutagen. Negative test results three tests with sodium molybdate for: Bacterial reverse mutation assay [35], in vitro micronucleus assay in human lymphocytes [36], and in vitro gene mutation assay (tk) in mouse lymphoma cells [37].
(f) carcinogenicity	Not a carcinogen. (Read-across for absence of systemic carcinogenicity, based on chronic toxicity and carcinogenicity studies with molybdenum trioxide [38]. Local effects in the lung observed in these molybdenum trioxide studies are specific to molybdenum trioxide and not read-across to sodium molybdate).
(g) reproductive toxicity	There are currently no reliable scientific data available indicating adverse effects on reproduction or fertility.
(h) STOT-single exposure	There are no specific target organ effects after single exposure to sodium molybdate.
(i) STOT-repeated exposure	No reliable scientific data available indicating adverse systemic effects after repeated exposure to molybdenum substances.
(j) aspiration hazard	Not applicable (not an aerosol/mist).

Section 12. Ecological Information

Toxicity: Reliable acute aquatic toxicity test results (tests conducted with sodium molybdate; UV-spectra of aqueous solutions of sodium molybdate dihydrate demonstrated that the only dissolved molybdenum species, originating directly from sodium molybdate dihydrate is molybdate); critical values for classification are also expressed as mg Na₂MoO₄ · 2H₂O)

Test Organisms	End-point	Range of values	References
Freshwater fish: Pimephales promelas	96h LC50	609 - 681.4 mg Mo/L (1,536 - 1,718 mg Na ₂ MoO ₄ · 2H ₂ O/L)	[1]
Freshwater fish: Oncorhynchus mykiss	96h LC50	7600 mg Mo/L	[2]
Freshwater fish: Oncorhynchus mykiss	96h LC50	781 - 1339 mg Mo/L (recalculated - logistic fit)	[3]
Invertebrates: Daphnia magna	48h LC50	1680.4 - 1776.6 mg Mo/L	[1]
Invertebrates: Daphnia magna	48h LC50	2729.4 mg Mo/L	[4]
Invertebrates: Daphnia magna	48h LC50	2847.5 mg Mo/L	[5]
Invertebrates: Daphnia magna	48h LC50	130.9 mg Mo/L (330.1 mg Na ₂ MoO ₄ · 2H ₂ O/L)	[6]
Invertebrates: Ceriodaphnia dubia	48h LC50	1005.5 - 1024.6 mg Mo/L	[1]
Invertebrate (aq. worm): Girardia dorocephala	96h LC50	1226 mg Mo/L	[1]
Algae: Pseudokirchneriella subcapitata	72h-ErC50 (growth rate)	295.0 - 390.9 mg Mo/L 289.2 - 369.6 mg Mo/L Geom. mean: 333.1 mg Mo/L (840 mg Na ₂ MoO ₄ · 2H ₂ O/L)	[7] [8]

Tests were conducted according to international test guidelines (e.g., OECD) or scientifically acceptable methods.

Reliable chronic toxicity test results (read-across from tests with sodium molybdate; UV-spectra of aqueous solutions of sodium molybdate dihydrate demonstrated that the only dissolved molybdenum species, originating directly from sodium molybdate dihydrate is molybdate):

Test organisms	Range of values (EC10 or NOEC)	References
Aquatic freshwater toxicity data		
Oncorhynchus mykiss, Pimephales promelas, Pseudokirchneriella subcapitata, Ceriodaphnia dubia, Daphnia magna, Chironomus riparius, Brachionus calyciflorus, Lymnaea stagnalis, Xenopus laevis, Lemna minor	43.3-241.5 mg Mo/L	[1], [4], [7], [8], [9], [10], [11]

Most sensitive species were the fish <i>O. mykiss</i> (43.3 mg Mo/L) and <i>P. promelas</i> (60.2 mg Mo/L). Symptoms of toxicity were effects on biomass growth, reproduction, (population) growth rate and malformation during development.		
Aquatic marine toxicity data		
Mytilus edulis, Acartia tonsa, Phaeodactylus tricornutum, Cyprinodon variegatus, Americamysis bahia, Crassostrea gigas, Dendraster excentricus, Dunaliella tertiolecta, Ceramium tenuicorne, Strongylocentrotus purpuratus,	4.4-1,174 mg Mo/L	[12], [13], [14], [15], [16], [17], [18], [19]
Most sensitive species were the mussel <i>M. edulis</i> (4.4 mg Mo/L) and the copepod <i>A. tonsa</i> (7.96 mg Mo/L). Symptoms of toxicity include effects on biomass growth, growth rate, reproduction and malformation during development		
Chronic sediment toxicity		
No reliable acute/chronic sediment data for molybdenum available. PNEC derivation was based on the equilibrium partitioning method, taking into account the PNEC _{freshwater} and the sediment K _d given in section 12.4.		
Chronic terrestrial toxicity test results (values were determined in different topsoils with contrasting properties and spiked with sodium molybdate):		
Annelid worms: Enchytraeus crypticus, Eisenia andrei	7.88 - 1661 mg Mo/kg dw (n=11)	[20]
Arthropod: Folsomia candida	37.9 - > 3,395 mg Mo/kg dw	[20]
Plants: Hordeum vulgare, Brassica napus, Trifolium pratense, Lolium perenne, Lycopersicon esculentum	4 - 3,476 mg Mo/kg dw	[21]
Soil micro-organisms (nitrification, glucose-induced respiration, plant residue mineralisation)	10 - 3,840 mg Mo/kg dw	[22]
Plants are most sensitive, with reduced shoot yield being the most first symptoms of toxicity, followed by reduced reproduction of invertebrates. Toxicity of sodium molybdate dihydrate in soils is dependent on the soil type. Sandy soils (e.g., 5% clay) with a low organic carbon content (e.g., 1%), a low iron oxide content (e.g., 0.5 g/kg) and high pH (e.g., 7) are most sensitive, while clay soils (e.g., 30% clay) with a high organic carbon content (e.g., 12%), high iron oxide content (e.g., 10 g/kg) and low pH (e.g., 4.5) are least sensitive.		

Tests were conducted according to international test guidelines (e.g., OECD, ASTM, ISO, EPA).

Toxicity data for micro-organisms (for STP) (values were determined using molybdenum trioxide unless indicated otherwise; UV-spectra of aqueous solutions of molybdenum trioxide demonstrated that the only dissolved molybdenum species, originating directly from molybdenum trioxide is also the molybdate anion):

Test Organisms	End Point	Range of Values	References
Domestic activated sludge population	3h-EC50 (respiration inhibition)	1,926 mg Mo/L	[23]



Domestic activated sludge population	3h-EC50 (respiration inhibition)	216.5 mg Mo/L	[24]
Domestic activated sludge population	30 min-NOEC (O ₂ utilization)	> 950 mg Mo/L ⁽¹⁾	[24]

(1): test conducted with sodium molybdate

Tests were conducted according to international accepted test guidelines or scientifically acceptable methods.

For an overview of PNECs for the different compartments see section 8.1.2.

Conclusion on the environmental classification and labelling: sodium molybdate dihydrate is not hazardous to the aquatic environment as:

- The lowest acute reference values for fish, invertebrates and algae are > 100 mg Mo/L
- The lowest aquatic NOEC for these three trophic levels is > 1 mg Mo/L (i.e., 43.2 mg Mo/L for the rainbow trout)
- There is no evidence for bioaccumulation or biomagnification in the environment

Persistence and Degradability: Sodium molybdate - when released into the environment - will rapidly dissolve and will be present as the molybdate species under normal environmental conditions.

Bioaccumulative Potential: Available BCF/BAF data for the aquatic environment show a distinct inverse relationship with the exposure concentration. This finding demonstrates that molybdenum is homeostatically controlled by these organisms, and this up to the milligram range of exposure. Available information on transfer of molybdenum through the food chain indicates that molybdenum does not biomagnify in aquatic food chains.

Although not homeostatically controlled in terrestrial plants and invertebrates, molybdenum is not largely concentrated from soil into plants, or soil to invertebrates. There is no significant concentration increase from diet to mammals or birds. It is concluded that biomagnification is not significant in the terrestrial foodchain.

Mobility in soil: Molybdate originating from sodium molybdate dihydrate is soluble in water and with its relatively low K_d value, the molybdate ions are leachable through normal soil and are mobile in sediment. Typical log K_d-values of 3.25 and 2.94 have been determined for sediment and soil, respectively.

Results of PBT and vPvB assessment: The PBT and vPvB criteria of Annex XIII to the REACH Regulation do not apply to inorganic substances, such as sodium molybdate. Therefore a PBT and vPvB assessment is not required.

Other adverse effects: Molybdate originating from sodium molybdate dihydrate can contribute to the onset of molybdenosis (which is a molybdenum-induced copper deficiency) in ruminants such as cattle, deer, and sheep. The level and bio-availability of copper in the animal diet are critical factors in the onset of molybdenosis. The recommended minimum dietary Cu:Mo mass ratio threshold to prevent molybdenosis is 1.30, i.e. there should be 30% more copper than molybdenum in the (note: mass ratio, not molar ratio). Cu & Mo content in the diet can be monitored, and if the ratio is < 1.3 then provide Cu supplements such as copper sulfate enriched feeds or copper sulfate enriched salt blocks for ruminants to use ad libitum. If there are ruminants in the vicinity of the plant, identify direct and diffuse air emission sources at the plant and carry out and record emission minimization measures. Have an animal health check program in place (e.g. blood tests for copper) to verify that the measures are effective.

Sodium molybdate dihydrate is not expected to contribute to ozone depletion, ozone formation, global warming or acidification.



Section 13. Disposal Considerations

Waste Treatment Methods: Dispose of product and contaminated packaging in accordance with all local, state, and federal environmental control regulations.

Section 14. Transport Information

Regulation (Abbreviation)	Regulation (Title)	RMC Transport Classification
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road	None
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail	None
AND	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways	None
IMDG	International Maritime Dangerous Goods	None
IATA	Technical Instructions for the Safe Transport of Dangerous Goods by Air	None

UN number: Not dangerous for transport.

UN proper shipping name: Not dangerous for transport.

Transport hazard class(es): Not dangerous for transport.

Packing group: Not dangerous for transport.

Environmental hazards: Not dangerous for transport.

Special precautions for user: Not dangerous for transport.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not dangerous for transport.

Section 15. Regulatory Information

Safety, health, and environmental regulations/legislation specific for the substance or mixture
Worldwide Chemical Inventories

Sodium molybdate is listed in following international chemical inventories (Source: database CHEMLIST)

EU/REACH list of pre-registered substances

EU EINECS (European Inventory of Existing Chemical Substances)

AICS - Australian Inventory of Chemical Substance

PICCS - Philippines Inventory of Chemicals and Chemical Substances

ASIA-PAC

NZIoC: New Zealand Inventory of Chemicals. This substance has HSNO approval.

TSCA Inventory (USA, Toxic Substances Control Act)

DSL, Canada: Domestic Substances List

ENCS, Japan: Existing Notified Chemical Substances

ECL, Korean Existing Chemicals List



Sodium molybdate is not a SEVESO substance, not an ozone-depleting substance and not a persistent organic pollutant.

Other regulatory information

Germany: Water Hazard class, WGK = 1 (low hazard to water)

Chemical safety assessment: A Chemical Safety Assessment has been carried out by the Molybdenum Consortium for its members in the context of the REACH registration.

Section 16. Other Information

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.

REVISION DATE: 10/12/2015

