

1. IDENTIFICATION

Product Name	Sodium molybdate, dihydrate
Other Names	Molybdic acid (H ₂ MoO ₄), disodium salt, dihydrate
Uses	Water treatment; Automotive industry; Corrosion inhibitor; Metal production; Trace element in agricultural applications.
Chemical Family	No Data Available
Chemical Formula	Na ₂ MoO ₄ .2H ₂ O
Chemical Name	Molybdate (MoO ₄ ²⁻), disodium, dihydrate, (T-4)-
Product Description	No Data Available

Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Pty Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Pty Ltd	11 Mayo Road Wiri Auckland 2104 New Zealand	+64-9-2506222
Redox Inc.	3960 Paramount Boulevard Suite 107 Lakewood CA 90712 USA	+1-424-675-3200
Redox Chemicals Sdn Bhd	Level 2, No. 8, Jalan Sapir 33/7 Seksyen 33, Shah Alam Premier Industrial Park 40400 Shah Alam Sengalor, Malaysia	+60-3-5614-2111

Emergency Contact Details

For emergencies only; DO NOT contact these companies for general product advice.

Organisation	Location	Telephone
Poisons Information Centre	Westmead NSW	1800-251525 131126
Chemcall	Australia	1800-127406 +64-4-9179888
Chemcall	Malaysia	+64-4-9179888
Chemcall	New Zealand	0800-243622 +64-4-9179888
National Poisons Centre	New Zealand	0800-764766
CHEMTREC	USA & Canada	1-800-424-9300 CN723420 +1-703-527-3887

2. HAZARD IDENTIFICATION

Poisons Schedule (Aust) Not Scheduled

Globally Harmonised System

Hazard Classification Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)

Hazard Categories Skin Corrosion/Irritation - Category 2
 Serious Eye Damage/Irritation - Category 2B
 Specific Target Organ Toxicity (Single Exposure) - Category 3

Pictograms



Signal Word Warning

Hazard Statements **H335** May cause respiratory irritation.
H315 + H320 Causes skin and eye irritation.

Precautionary Statements

Prevention	P280	Wear protective gloves.
	P261	Avoid breathing dust.
	P271	Use only outdoors or in a well-ventilated area.
Response	P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
	P312	Call a POISON CENTER or doctor/physician if you feel unwell.
	P332 + P313	If skin irritation occurs: Get medical advice/attention.
	P362	Take off contaminated clothing and wash before reuse.
	P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Storage	P403 + P233	Store in a well-ventilated place. Keep container tightly closed.
	P405	Store locked up.
Disposal	P501	Dispose of contents/container in accordance with local / regional / national / international regulations.

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

HSNO Classifications Health Hazards **6.1E** Substances that are acutely toxic –May be harmful, Aspiration hazard

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Sodium molybdate, dihydrate	Na ₂ MoO ₄ .2H ₂ O	10102-40-6	<=100 %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed	IF SWALLOWED: Rinse mouth, then drink plenty of water. Do not induce vomiting. Call a Poison Centre or doctor/physician if you feel unwell. Never give anything by mouth to an unconscious person.
Eye	IF IN EYES: Immediately flush eyes with running water for several minutes, holding eyelids open and occasionally lifting the upper and lower lids. Remove contact lenses if present and easy to do. Continue rinsing for at least 15 minutes. If eye irritation persists, get medical advice/attention.
Skin	IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash before reuse. If skin irritation occurs, get medical advice/attention.
Inhaled	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a Poison Centre or doctor/physician if respiratory symptoms persist or if you feel unwell. Apply resuscitation if victim is not breathing. Administer oxygen if breathing is difficult.
Advice to Doctor	Treat symptomatically.
Medical Conditions Aggravated by Exposure	Persons with pre-existing skin disorders or eye problems or impaired respiratory function may be more susceptible to the effects of the substance.

5. FIRE FIGHTING MEASURES

General Measures	If safe to do so, move undamaged containers from fire area. Cool containers with water spray until well after fire is out.
Flammability Conditions	Non-combustible; Material does not burn.
Extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Fire and Explosion Hazard	Not considered to be a fire hazard. Not considered to be an explosion hazard.
Hazardous Products of Combustion	Fire or heat may produce irritating and/or toxic fumes. Toxic metal fumes may form when heated to decomposition.
Special Fire Fighting Instructions	Contain runoff from fire control water - Runoff may pollute waterways.
Personal Protective Equipment	Wear self-contained breathing apparatus (SCBA) in combination with normal firefighting clothing (full fire kit).
Flash Point	No Data Available
Lower Explosion Limit	No Data Available
Upper Explosion Limit	No Data Available
Auto Ignition Temperature	No Data Available
Hazchem Code	No Data Available

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	Ensure adequate ventilation. Do not touch or walk through spilled material. Avoid dust formation. Avoid breathing dust and contact with eyes, skin and clothing.
Clean Up Procedures	Collect material (sweep up or vacuum) and place it in suitable, labelled containers for reclamation or disposal (see SECTION 13); if appropriate, moisten first to prevent dusting.
Containment	Stop leak if safe to do so - Prevent entry into waterways, drains or confined areas.
Decontamination	No information available.
Environmental Precautionary Measures	Prevent entry into drains and waterways.
Evacuation Criteria	Spill or leak area should be isolated immediately. Keep unauthorised personnel away.
Personal Precautionary Measures	Use personal protective equipment as required (see SECTION 8).

7. HANDLING AND STORAGE

Handling	Safety showers and eyewash facilities should be provided within the immediate work area for emergency use. Use only outdoors or in a well-ventilated place. Handle in accordance with good industrial hygiene and safety practice. Avoid dust formation. Avoid breathing dust and contact with eyes, skin and clothing. Use personal protective equipment as required (see SECTION 8).
Storage	Store in a cool, dry and well-ventilated place, out of direct sunlight. Keep container tightly closed. Protect from physical damage. Protect from moisture. Keep away from heat and sources of ignition. Keep away from incompatible materials (see SECTION 10). Store locked up.
Container	Keep in the original container. Containers of this material may be hazardous when empty since they retain product residues; observe all warnings and precautions listed for the product.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	No specific exposure standards are available for this product. - Safe Work Australia Exposure Standard for Molybdenum, insoluble compounds (as Mo): TWA = 10 mg/m ³ . - Safe Work Australia Exposure Standard for Molybdenum, soluble compounds (as Mo): TWA = 5 mg/m ³ .
Exposure Limits	No Data Available
Biological Limits	No information available.
Engineering Measures	A system of local and/or general exhaust is recommended to keep employee exposures below the airborne exposure limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.
Personal Protection Equipment	- Respiratory protection: Wear respiratory protection in case of inadequate ventilation or if an inhalation risk exists. Recommended: A full facepiece particulate respirator may be worn for up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. If oil particles are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. - Eye/face protection: Wear appropriate eye protection to avoid eye contact. Recommended: Safety glasses, goggles and/or full face shield where dusting or splashing of solutions is possible. - Hand protection: Wear protective gloves. Recommended: Impervious gloves. - Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact. Recommended: Wear impervious protective clothing, including boots, lab coat, apron or coveralls, as appropriate.
Special Hazards Precautions	No information available.
Work Hygienic Practices	Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Take off contaminated clothing and wash before reuse.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Solid
Appearance	Crystals, scales or flakes
Odour	Odourless
Colour	White
pH	No Data Available
Vapour Pressure	No Data Available
Relative Vapour Density	No Data Available
Boiling Point	No Data Available
Melting Point	687 °C (Anhydrous)
Freezing Point	No Data Available
Solubility	84 g/100 ml water 100°C
Specific Gravity	3.28
Flash Point	No Data Available
Auto Ignition Temp	No Data Available
Evaporation Rate	No Data Available
Bulk Density	No Data Available
Corrosion Rate	No Data Available

Decomposition Temperature	No Data Available
Density	No Data Available
Specific Heat	No Data Available
Molecular Weight	241.95 g/mol
Net Propellant Weight	No Data Available
Octanol Water Coefficient	No Data Available
Particle Size	No Data Available
Partition Coefficient	No Data Available
Saturated Vapour Concentration	No Data Available
Vapour Temperature	No Data Available
Viscosity	No Data Available
Volatile Percent	0 % @ 21 °C
VOC Volume	No Data Available
Additional Characteristics	No information available.
Potential for Dust Explosion	No information available.
Fast or Intensely Burning Characteristics	No information available.
Flame Propagation or Burning Rate of Solid Materials	No information available.
Non-Flammables That Could Contribute Unusual Hazards to a Fire	No information available.
Properties That May Initiate or Contribute to Fire Intensity	Non-combustible; Material does not burn.
Reactions That Release Gases or Vapours	Fire or heat may produce irritating and/or toxic fumes. Toxic metal fumes may form when heated to decomposition.
Release of Invisible Flammable Vapours and Gases	No information available.

10. STABILITY AND REACTIVITY

General Information	Explodes on contact with molten magnesium. Violent reaction with interhalogens (e.g. bromine pentafluoride; chlorine trifluoride). Incandescent reaction with hot sodium, potassium or lithium.
Chemical Stability	Stable under ordinary conditions of use and storage.
Conditions to Avoid	Avoid dust formation. Protect from moisture. Keep away from heat and sources of ignition.
Materials to Avoid	Incompatible/reactive with alkali metals, most common metals and oxidizing agents.
Hazardous Decomposition Products	Fire or heat may produce irritating and/or toxic fumes. Toxic metal fumes may form when heated to decomposition.
Hazardous Polymerisation	Will not occur.

11. TOXICOLOGICAL INFORMATION

General Information	<ul style="list-style-type: none"> - Acute toxicity: May be harmful if swallowed and if inhaled. Swallowing may cause abdominal pain/cramping, nausea, vomiting, diarrhoea, hypertension. - Skin corrosion/irritation: Causes skin irritation, particularly in contact with wet skin. - Eye damage/irritation: Causes eye irritation. - Respiratory/skin sensitisation: No information available. - Germ cell mutagenicity: No information available. - Carcinogenicity: No information available. - Reproductive toxicity: No information available. - STOT (single exposure): May cause respiratory irritation, coughing, shortness of breath. - STOT (repeated exposure): May cause adverse effects on bone marrow and blood-forming system, eyes, respiratory system, kidneys. - Aspiration toxicity: No information available.
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Acute

Ingestion	Acute toxicity (Oral): - LD50, Rat: 4,000 mg/kg [Anhydrous].
Inhalation	Acute toxicity (Inhalation): - LC50, Rat: >2.08 mg/l (4 h) [Anhydrous].
Carcinogen Category	None

12. ECOLOGICAL INFORMATION

Ecotoxicity	No information available.
Persistence/Degradability	No information available.
Mobility	No information available.
Environmental Fate	Prevent entry into drains and waterways.
Bioaccumulation Potential	No information available.
Environmental Impact	No Data Available

13. DISPOSAL CONSIDERATIONS

General Information	Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility and in accordance with local/regional/national regulations. Processing, use or contamination of this product may change the waste management options.
Special Precautions for Land Fill	Contaminated packaging: Containers of this material may be hazardous when empty since they retain product residues; observe all warnings and precautions listed for the product. Do not reuse container.

14. TRANSPORT INFORMATION**Land Transport (Australia)**

ADG Code

Proper Shipping Name	Sodium molybdate, dihydrate
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available

Land Transport (Malaysia)

ADR Code

Proper Shipping Name	Sodium molybdate, dihydrate
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available

Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available

Land Transport (New Zealand)

NZS5433

Proper Shipping Name	Sodium molybdate, dihydrate
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available

Land Transport (United States of America)

US DOT

Proper Shipping Name	Sodium molybdate, dihydrate
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available

Sea Transport

IMDG Code

Proper Shipping Name	Sodium molybdate, dihydrate
Class	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available
EMS	No Data Available
Marine Pollutant	No

Air Transport

IATA DGR

Proper Shipping Name	Sodium molybdate, dihydrate
Class	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	No Data Available

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification

NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

15. REGULATORY INFORMATION**General Information** No Data Available**Poisons Schedule (Aust)** Not Scheduled**Environmental Protection Authority (New Zealand)**

Hazardous Substances and New Organisms Amendment Act 2015

Approval Code HSR004076**National/Regional Inventories**

Australia (AICS)	Listed
Canada (DSL)	Not Determined
Canada (NDSL)	Not Determined
China (IECSC)	Not Determined
Europe (EINECS)	600-158-6
Europe (REACH)	Not Determined
Japan (ENCS/METI)	Not Determined
Korea (KECI)	Not Determined
Malaysia (EHS Register)	Not Determined
New Zealand (NZIoC)	Listed
Philippines (PICCS)	Not Determined
Switzerland (Giftliste 1)	Not Determined
Switzerland (Inventory of Notified Substances)	Not Determined
Taiwan (NCSR)	Not Determined
USA (TSCA)	Not Determined

16. OTHER INFORMATION**Related Product Codes** SOMOLY0300, SOMOLY0400, SOMOLY0500, SOMOLY0700, SOMOLY0701, SOMOLY0702, SOMOLY0703, SOMOLY0800, SOMOLY0801, SOMOLY0802, SOMOLY0803, SOMOLY0804, SOMOLY0805, SOMOLY0806, SOMOLY0807, SOMOLY0808, SOMOLY0809, SOMOLY0810, SOMOLY0811, SOMOLY0812, SOMOLY0813, SOMOLY0814, SOMOLY0815, SOMOLY0816, SOMOLY0817, SOMOLY0818, SOMOLY0819, SOMOLY0820, SOMOLY0821, SOMOLY0822, SOMOLY0823, SOMOLY0824, SOMOLY0825, SOMOLY0826, SOMOLY0827, SOMOLY0828, SOMOLY0829, SOMOLY0830, SOMOLY0900, SOMOLY0901, SOMOLY1000, SOMOLY1001, SOMOLY1002, SOMOLY1003, SOMOLY1004, SOMOLY1005, SOMOLY1006, SOMOLY1007, SOMOLY1008,

SOMOLY1009, SOMOLY1010, SOMOLY1011, SOMOLY1012, SOMOLY1013, SOMOLY1014, SOMOLY1015, SOMOLY1016, SOMOLY1017, SOMOLY1018, SOMOLY1019, SOMOLY1020, SOMOLY1021, SOMOLY1100, SOMOLY1101, SOMOLY1300, SOMOLY1301, SOMOLY1500, SOMOLY1600, SOMOLY1700, SOMOLY1800, SOMOLY1900, SOMOLY2000, SOMOLY2100, SOMOLY2200, SOMOLY2500, SOMOLY2501, SOMOLY2900, SOMOLY3000, SOMOLY3001, SOMOLY3100, SOMOLY3101, SOMOLY3500, SOMOLY4000, SOMOLY4001, SOMOLY4002, SOMOLY4100, SOMOLY4101, SOMOLY4200, SOMOLY4300, SOMOLY4500, SOMOLY5000, SOMOLY5001, SOMOLY5500, SOMOLY6100, SOMOLY6101, SOMOLY6500, SOMOLY6600, SOMOLY6700, SOMOLY6701, SOMOLY7100, SOMOLY7300, SOMOLY7400, SOMOLY7500, SOMOLY7600, SOMOLY7700, SOMOLY7800, SOMOLY8000, SOMOLY8100, SOMOLY8600, SOMOLY9000, SOMOLY9100, SOMOLY9500, SOMOLY9600, SOMOLY9700, SOMOLY9900, SOMOLY1801, SOMOLY1802, SOMOLY1803, SOMOLY1804, SOMOLY1805, SOMOLY1806, SOMOLY1807, SOMOLY1808, SOMOLY1809, SOMOLY1810, SOMOLY1811, SOMOLY1812, SOMOLY1813, SOMOLY1814, SOMOLY9601, SOMOLY7701, SOMOLY0100

Revision

3

Revision Date

29 Sep 2016

Key/Legend

< Less Than

> Greater Than

AICS Australian Inventory of Chemical Substances

atm Atmosphere

CAS Chemical Abstracts Service (Registry Number)

cm² Square Centimetres

CO₂ Carbon Dioxide

COD Chemical Oxygen Demand

deg C (°C) Degrees Celcius

EPA (New Zealand) Environmental Protection Authority of New Zealand

deg F (°F) Degrees Farenheit

g Grams

g/cm³ Grams per Cubic Centimetre

g/l Grams per Litre

HSNO Hazardous Substance and New Organism

IDLH Immediately Dangerous to Life and Health

immiscible Liquids are insoluable in each other.

inHg Inch of Mercury

inH₂O Inch of Water

K Kelvin

kg Kilogram

kg/m³ Kilograms per Cubic Metre

lb Pound

LC50 LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours.

LD50 LD stands for Lethal Dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals.

ltr or **L** Litre

m³ Cubic Metre

mbar Millibar

mg Milligram

mg/24H Milligrams per 24 Hours

mg/kg Milligrams per Kilogram

mg/m³ Milligrams per Cubic Metre

Misc or **Miscible** Liquids form one homogeneous liquid phase regardless of the amount of either component present.

mm Millimetre

mmH₂O Millimetres of Water

mPa.s Millipascals per Second

N/A Not Applicable

NIOSH National Institute for Occupational Safety and Health

NOHSC National Occupational Health and Safety Commission

OECD Organisation for Economic Co-operation and Development

Oz Ounce

PEL Permissible Exposure Limit

Pa Pascal

ppb Parts per Billion

ppm Parts per Million

ppm/2h Parts per Million per 2 Hours

ppm/6h Parts per Million per 6 Hours

psi Pounds per Square Inch

R Rankine

RCP Reciprocal Calculation Procedure

STEL Short Term Exposure Limit

TLV Threshold Limit Value

tne Tonne

TWA Time Weighted Average

ug/24H Micrograms per 24 Hours

UN United Nations

wt Weight