

**SAFETY DATA SHEET****Zeriol® MOV**

According to Appendix D, OSHA Hazard Communication Standard 29 CFR §1910.1200

1. Identification**Product identifier**

Product name Zeriol® MOV
Product number 350-M-00079PL, 350-M-00079DR

Recommended use of the chemical and restrictions on use

Application Corrosion inhibitor.
Uses advised against Use only for intended applications.

Details of the supplier of the safety data sheet

Manufacturer Northern Technologies International Corporation
4201 Woodland Rd
Circle Pines, MN 55014 - United States
1-763-225-6600
sds@ntic.com

Emergency telephone number

Emergency telephone Carechem +1 202 464 2554; Outside US/Canada +44 1865 407333 (24 hours; 7 days/week)

2. Hazard(s) identification**Classification of the substance or mixture**

Physical hazards Not Classified
Health hazards Skin Corr. 1B - H314 Eye Dam. 1 - H318 Repr. 2 - H361f
Environmental hazards Not Classified

Label elements**Hazard symbols**

Signal word Danger

Hazard statements H314 Causes severe skin burns and eye damage.
H361f Suspected of damaging fertility.

Zeriol® MOV

Precautionary statements

P201 Obtain special instructions before use.
 P202 Do not handle until all safety precautions have been read and understood.
 P260 Do not breathe vapor/ spray.
 P264 Wash contaminated skin thoroughly after handling.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
 P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.
 P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
 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.
 P308+P313 If exposed or concerned: Get medical advice/ attention.
 P310 Immediately call a poison center/ doctor.
 P321 Specific treatment (see medical advice on this label).
 P363 Wash contaminated clothing before reuse.
 P405 Store locked up.
 P501 Dispose of contents/ container in accordance with national regulations.

Contains

Cyclohexylamine

Other hazards

This product does not contain any substances classified as PBT or vPvB.

3. Composition/information on ingredients

Mixtures

Distillates, petroleum, hydrotreated heavy naphthenic CAS number: 64742-52-5 CLP Note L: This product contains less than 3% DMSO extract as measured by IP-346	60-100%
Classification Not Classified	
Cyclohexylamine CAS number: 108-91-8	10-30%
Classification Flam. Liq. 3 - H226 Acute Tox. 4 - H302 Acute Tox. 4 - H312 Skin Corr. 1B - H314 Eye Dam. 1 - H318 Repr. 2 - H361f	

The full text for all hazard statements is displayed in Section 16.

4. First-aid measures

Description of first aid measures

General information

Get medical attention if any discomfort continues. Show this Safety Data Sheet to the medical personnel. Chemical burns must be treated by a physician.

Zeriol® MOV

Inhalation	Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Maintain an open airway. Loosen tight clothing such as collar, tie or belt. Rinse nose and mouth with water. Never give anything by mouth to an unconscious person. Get medical attention if symptoms are severe or persist.
Ingestion	Rinse mouth thoroughly with water. Give a few small glasses of water or milk to drink. Stop if the affected person feels sick as vomiting may be dangerous. Get medical attention.
Skin Contact	It is important to remove the substance from the skin immediately. Rinse immediately with plenty of water. Continue to rinse for at least 15 minutes and get medical attention. Chemical burns must be treated by a physician.
Eye contact	Rinse immediately with plenty of water. Do not rub eye. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes and get medical attention.
Protection of first aiders	It may be dangerous for first aid personnel to carry out mouth-to-mouth resuscitation.

Most important symptoms and effects, both acute and delayed

General information	The severity of the symptoms described will vary dependent on the concentration and the length of exposure.
Inhalation	A single exposure may cause the following adverse effects: Severe irritation of nose and throat. Symptoms following overexposure may include the following: Corrosive to the respiratory tract.
Ingestion	May cause chemical burns in mouth, esophagus and stomach. Symptoms following overexposure may include the following: Severe stomach pain. Nausea, vomiting.
Skin contact	Causes severe burns. Symptoms following overexposure may include the following: Pain or irritation. Redness. Blistering may occur.
Eye contact	Causes serious eye damage. Symptoms following overexposure may include the following: Pain. Profuse watering of the eyes. Redness.

Indication of immediate medical attention and special treatment needed

Notes for the doctor	Treat symptomatically.
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5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media	The product is not flammable. Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog. Use fire-extinguishing media suitable for the surrounding fire.
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.

Special hazards arising from the substance or mixture

Specific hazards	Severe corrosive hazard. Water used for fire extinguishing, which has been in contact with the product, may be corrosive.
Hazardous combustion products	Thermal decomposition or combustion products may include the following substances: Very toxic or corrosive gases or vapors. Hydrocarbons. Carbon monoxide (CO). Carbon dioxide (CO ₂).

Advice for firefighters

Zeriol® MOV

Protective actions during firefighting	Avoid breathing fire gases or vapors. Evacuate area. Keep upwind to avoid inhalation of gases, vapors, fumes and smoke. Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Cool containers exposed to flames with water until well after the fire is out. If a leak or spill has not ignited, use water spray to disperse vapors and protect men stopping the leak. Avoid discharge to the aquatic environment. Control run-off water by containing and keeping it out of sewers and watercourses. If risk of water pollution occurs, notify appropriate authorities.
Special protective equipment for firefighters	Regular protection may not be safe. Wear chemical protective suit. Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing. Standard Firefighter's clothing including helmets, protective boots and gloves will provide a basic level of protection for chemical incidents.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal precautions	Wear protective clothing as described in Section 8 of this safety data sheet. No action shall be taken without appropriate training or involving any personal risk. Do not touch or walk into spilled material. Avoid inhalation of vapors and spray/mists. Use suitable respiratory protection if ventilation is inadequate. Avoid contact with skin and eyes.
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Environmental precautions

Environmental precautions	Avoid discharge into drains or watercourses or onto the ground. Avoid discharge to the aquatic environment.
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Methods and material for containment and cleaning up

Methods for cleaning up	Wear protective clothing as described in Section 8 of this safety data sheet. Clear up spills immediately and dispose of waste safely. This product is corrosive. Small Spillages: Collect spillage. Large Spillages: Absorb spillage with non-combustible, absorbent material. The contaminated absorbent may pose the same hazard as the spilled material. Collect and place in suitable waste disposal containers and seal securely. Label the containers containing waste and contaminated materials and remove from the area as soon as possible. Flush contaminated area with plenty of water. Wash thoroughly after dealing with a spillage. For waste disposal, see Section 13.
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Reference to other sections	For personal protection, see Section 8. See Section 11 for additional information on health hazards. See Section 12 for additional information on ecological hazards. For waste disposal, see Section 13.
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7. Handling and storage

Precautions for safe handling

Usage precautions	Read and follow manufacturer's recommendations. Wear protective clothing as described in Section 8 of this safety data sheet. Keep away from food, drink and animal feeding stuffs. Handle all packages and containers carefully to minimize spills. Keep container tightly sealed when not in use. Avoid the formation of mists. This product is corrosive. Immediate first aid is imperative. Suspected of damaging fertility. Do not handle until all safety precautions have been read and understood. Do not handle broken packages without protective equipment. Do not reuse empty containers.
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Advice on general occupational hygiene	Wash promptly if skin becomes contaminated. Take off contaminated clothing and wash before reuse. Wash contaminated clothing before reuse.
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Conditions for safe storage, including any incompatibilities

Zeriol® MOV

Storage precautions Store away from incompatible materials (see Section 10). Store locked up. Keep only in the original container. Keep container tightly closed, in a cool, well ventilated place. Keep containers upright. Protect containers from damage.

Storage class Corrosive storage.

Specific end uses(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.

8. Exposure controls/Personal protection

Control parameters

Occupational exposure limits

Cyclohexylamine

Long-term exposure limit (8-hour TWA): ACGIH 10 ppm 41 mg/m³

A4

ACGIH = American Conference of Governmental Industrial Hygienists.

A4 = Not Classifiable as a Human Carcinogen.

Ingredient comments Any relevant occupational exposure limits for ingredients are listed.

Exposure controls

Appropriate engineering controls

Provide adequate ventilation. Personal, workplace environment or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Use process enclosures, local exhaust ventilation or other engineering controls as the primary means to minimize worker exposure. Personal protective equipment should only be used if worker exposure cannot be controlled adequately by the engineering control measures. Ensure control measures are regularly inspected and maintained. Ensure operatives are trained to minimize exposure.

Eye/face protection

Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. Personal protective equipment for eye and face protection should comply with OSHA 1910.133. Unless the assessment indicates a higher degree of protection is required, the following protection should be worn: Tight-fitting safety glasses.

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible. The most suitable glove should be chosen in consultation with the glove supplier/manufacture, who can provide information about the breakthrough time of the glove material. To protect hands from chemicals, gloves should comply with OSHA 1910.138 and be demonstrated to be impervious to the chemical and resist degradation. Frequent changes are recommended.

Other skin and body protection

Appropriate footwear and additional protective clothing complying with an approved standard should be worn if a risk assessment indicates skin contamination is possible.

Hygiene measures

Provide eyewash station and safety shower. Wash contaminated clothing before reuse. Good personal hygiene procedures should be implemented. Wash at the end of each work shift and before eating, smoking and using the toilet. When using do not eat, drink or smoke.

Respiratory protection

Respiratory protection complying with an approved standard should be worn if a risk assessment indicates inhalation of contaminants is possible. Ensure all respiratory protective equipment is suitable for its intended use and is NIOSH approved. Check that the respirator fits tightly and the filter is changed regularly.

Environmental exposure controls

Keep container tightly sealed when not in use.

9. Physical and chemical properties

Zeriol® MOV

Information on basic physical and chemical properties

Appearance	Liquid.
Color	Yellow. Amber.
Odor	Amine.
Odor threshold	No data available.
pH	No data available.
Melting point	No data available.
Initial boiling point and range	No data available.
Flash point	132°C
Evaporation rate	No data available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	No data available.
Vapor pressure	No data available.
Vapor density	No data available.
Relative density	No data available.
Solubility(ies)	No data available.
Partition coefficient	No data available.
Auto-ignition temperature	No data available.
Decomposition Temperature	No data available.
Viscosity	No data available.
Explosive properties	No data available.
Oxidizing properties	Not applicable.

10. Stability and reactivity

Reactivity	See the other subsections of this section for further details.
Stability	Stable at normal ambient temperatures and when used as recommended. Stable under the prescribed storage conditions.
Possibility of hazardous reactions	No potentially hazardous reactions known.
Conditions to avoid	Avoid heat, flames and other sources of ignition.
Materials to avoid	Strong acids. Strong oxidizing agents.
Hazardous decomposition products	Does not decompose when used and stored as recommended. Thermal decomposition or combustion products may include the following substances: Harmful gases or vapors.

11. Toxicological information

Information on toxicological effects

Zeriol® MOV

Acute toxicity - oral

Summary Based on available data the classification criteria are not met.

ATE oral (mg/kg) 2,631.58

Acute toxicity - dermal

Summary Based on available data the classification criteria are not met.

ATE dermal (mg/kg) 5,789.47

Acute toxicity - inhalation

Summary Based on available data the classification criteria are not met.

Skin corrosion/irritation

Summary Causes severe skin burns and eye damage.

Serious eye damage/irritation

Summary Causes serious eye damage.

Respiratory sensitization

Summary Based on available data the classification criteria are not met.

Skin sensitization

Summary Based on available data the classification criteria are not met.

Germ cell mutagenicity

Summary Based on available data the classification criteria are not met.

Carcinogenicity

Summary Based on available data the classification criteria are not met.

IARC carcinogenicity None of the ingredients are listed or exempt.

Reproductive toxicity

Summary Suspected of damaging fertility.

Specific target organ toxicity - single exposure

Summary Based on available data the classification criteria are not met.

Specific target organ toxicity - repeated exposure

Summary Based on available data the classification criteria are not met.

Aspiration hazard

Summary Based on available data the classification criteria are not met.

General information

May damage fertility. The severity of the symptoms described will vary dependent on the concentration and the length of exposure.

Inhalation

Corrosive to the respiratory tract. Symptoms following overexposure may include the following: Severe irritation of nose and throat.

Ingestion

May cause chemical burns in mouth, esophagus and stomach. Symptoms following overexposure may include the following: Severe stomach pain. Nausea, vomiting.

Skin Contact

Causes severe burns. Symptoms following overexposure may include the following: Pain or irritation. Redness. Blistering may occur.

Eye contact

Causes serious eye damage. Symptoms following overexposure may include the following: Pain. Profuse watering of the eyes. Redness.

Zeriol® MOV

Route of exposure Ingestion Inhalation Skin and/or eye contact

Target Organs No specific target organs known.

Medical considerations Skin disorders and allergies.

Toxicological information on ingredients.

Cyclohexylamine

Acute toxicity - oral

ATE oral (mg/kg) 500.0

Acute toxicity - dermal

ATE dermal (mg/kg) 1,100.0

12. Ecological information

Ecotoxicity Not regarded as dangerous for the environment. However, large or frequent spills may have hazardous effects on the environment.

Acute aquatic toxicity

Summary Based on available data the classification criteria are not met.

Chronic aquatic toxicity

Summary Based on available data the classification criteria are not met.

Persistence and degradability

Persistence and degradability Expected to be readily biodegradable.

Bioaccumulative potential

Bio-Accumulative Potential Bioaccumulation is unlikely.

Partition coefficient No data available.

Mobility in soil

Mobility No data available.

Other adverse effects

Other adverse effects None known.

13. Disposal considerations

Waste treatment methods

General information The generation of waste should be minimized or avoided wherever possible. Reuse or recycle products wherever possible. This material and its container must be disposed of in a safe way. Disposal of this product, process solutions, residues and by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any local authority requirements. When handling waste, the safety precautions applying to handling of the product should be considered.

Disposal methods Do not empty into drains. Dispose of surplus products and those that cannot be recycled via a licensed waste disposal contractor. Waste, residues, empty containers, discarded work clothes and contaminated cleaning materials should be collected in designated containers, labeled with their contents. Waste packaging should be collected for reuse or recycling. Incineration or landfill should only be considered when recycling is not feasible.

14. Transport information

Zeriol® MOV**UN Number**

UN No. (TDG)	3267
UN No. (IMDG)	3267
UN No. (ICAO)	3267
UN No. (DOT)	UN3267

UN proper shipping name

Proper shipping name (TDG)	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (CONTAINS Cyclohexylamine)
Proper shipping name (IMDG)	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (CONTAINS Cyclohexylamine)
Proper shipping name (ICAO)	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (CONTAINS Cyclohexylamine)
Proper shipping name (DOT)	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S. (CONTAINS Cyclohexylamine)

Transport hazard class(es)

DOT hazard class	8
DOT hazard label	8
TDG class	8
TDG label(s)	8
IMDG Class	8
ICAO class/division	8

Transport labels**DOT transport labels****Packing group**

TDG Packing Group	III
IMDG packing group	III
ICAO packing group	III
DOT packing group	III

Environmental hazards

Environmentally Hazardous Substance
No.

Special precautions for user

IMDG Code segregation group	18. Alkalis
EmS	F-A, S-B
DOT reportable quantity	RQ: Methyl alcohol (555555.5556 lbs)

Zeriol® MOV

DOT TIH Zone Not applicable.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

15. Regulatory information

Regulatory References OSHA Hazard Communication Standard 29 CFR §1910.1200

US Federal Regulations**SARA Section 302 Extremely Hazardous Substances Tier II Threshold Planning Quantities**

The following ingredients are listed:

Cyclohexylamine

EPCRA 302 TPQ 10000 lbs Tier II TPQ 500 lbs

CERCLA/Superfund, Hazardous Substances/Reportable Quantities (EPA)

None of the ingredients are listed.

SARA Extremely Hazardous Substances EPCRA Reportable Quantities

The following ingredients are listed:

Cyclohexylamine

EPCRA RQ: 10000 lbs

SARA 313 Emission Reporting

None of the ingredients are listed.

CAA Accidental Release Prevention

The following ingredients are listed:

Cyclohexylamine

Threshold Quantity: 15000 lbs

FDA - Essential Chemical

None of the ingredients are listed or exempt.

FDA - Precursor Chemical

None of the ingredients are listed or exempt.

SARA (311/312) Hazard Categories

Reproductive toxicity

Serious eye damage or eye irritation

Skin corrosion or irritation

OSHA Highly Hazardous Chemicals

None of the ingredients are listed.

US State Regulations**California Proposition 65 Carcinogens and Reproductive Toxins**

None of the ingredients are listed or exempt.

California Air Toxics "Hot Spots" (A-I)

None of the ingredients are listed.

California Air Toxics "Hot Spots" (A-II)

None of the ingredients are listed.

Zeriol® MOV

California Directors List of Hazardous Substances

The following ingredients are listed:

Cyclohexylamine

Massachusetts "Right To Know" List

The following ingredients are listed:

Cyclohexylamine

Rhode Island "Right To Know" List

The following ingredients are listed:

Cyclohexylamine

Minnesota "Right To Know" List

The following ingredients are listed:

Cyclohexylamine

New Jersey "Right To Know" List

The following ingredients are listed:

Cyclohexylamine

Pennsylvania "Right To Know" List

The following ingredients are listed:

Cyclohexylamine

Inventories

EU - EINECS/ELINCS

All the ingredients are listed or exempt.

Canada - DSL/NDSL

All the ingredients are listed or exempt.

US - TSCA

All the ingredients are listed or exempt.

US - TSCA 12(b) Export Notification

None of the ingredients are listed or exempt.

Australia - AICS

All the ingredients are listed or exempt.

Japan - ENCS

All the ingredients are listed or exempt.

Korea - KECI

All the ingredients are listed or exempt.

China - IECSC

All the ingredients are listed or exempt.

Philippines - PICCS

All the ingredients are listed or exempt.

New Zealand - NZIOC

All the ingredients are listed or exempt.

Zeriol® MOV**Taiwan - TCSI**

All the ingredients are listed or exempt.

16. Other information**Abbreviations and acronyms
used in the safety data sheet**

TDG: The transport of dangerous goods act

IATA: International air transport association.

ICAO: Technical instructions for the safe transport of dangerous goods by air.

IMDG: International maritime dangerous goods.

CAS: Chemical abstracts service.

ATE: Acute toxicity estimate.

LC₅₀: Lethal concentration to 50 % of a test population.

LD₅₀: Lethal dose to 50% of a test population (median lethal dose).

EC₅₀: 50% of maximal effective concentration.

PBT: Persistent, bioaccumulative and toxic substance.

vPvB: Very persistent and very bioaccumulative.

**Classification abbreviations
and acronyms**

Eye Dam. = Serious eye damage

Repr. = Reproductive toxicity

Skin Corr. = Skin corrosion

Training advice

Only trained personnel should use this material.

Issued by

HS&E Manager.

Revision date

12/17/2021

Revision

1.2

Supersedes date

1/7/2020

SDS No.

233

Hazard statements in full

H226 Flammable liquid and vapor.

H302 Harmful if swallowed.

H312 Harmful in contact with skin.

H314 Causes severe skin burns and eye damage.

H318 Causes serious eye damage.

H361f Suspected of damaging fertility.

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.