

SAFETY DATA SHEET

Section 1. Product and company identification

| | | |
|------------------------------|--|--|
| Product name | MOLYVAN® 855 | <u>In case of emergency</u> |
| Code | 29178 | 1-203-853-1400 |
| Supplier/Manufacturer | Vanderbilt Chemicals, LLC 30 Winfield Street Norwalk, CT 06855 | Chemtrec: 1-800-424-9300 Outside US: +1-703-527-3887 |
| Chemical name | Organomolybdenum complex of organic amide. | |
| Synonym | organomolybdenum complex | |
| Material uses | Friction Reducer | |
| Product type | Liquid. | |

Section 2. Hazards identification

| | |
|---|--|
| OSHA/HCS status | While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product. |
| Classification of the substance or mixture | Not classified. |
| <u>GHS label elements</u> | |
| Signal word | No signal word. |
| Hazard statements | No known significant effects or critical hazards. |
| <u>Precautionary statements</u> | |
| Prevention | Not applicable. |
| Response | Not applicable. |
| Storage | Not applicable. |
| Disposal | Not applicable. |
| Hazards not otherwise classified | None known. |

Section 3. Composition/information on ingredients

Substance/mixture Mixture

| Ingredient name | CAS number | % by weight |
|--|-------------------|--------------------|
| Amides, coco, N,N-bis(hydroxyethyl), reaction products with coco monoglycerides and molybdenum oxide | 445409-27-8 | 90 - 93 |
| petroleum process oil, <3.0% DMSO extractable material | 64742-52-5 | 7 - 10 |

Occupational exposure limits, if available, are listed in Section 8.

Section 3. Composition/information on ingredients

Section 4. First aid measures

Description of necessary first aid measures

| | |
|---------------------|--|
| Eye contact | Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs. |
| Inhalation | Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur. |
| Skin contact | Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. |
| Ingestion | Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur. |

Most important symptoms/effects, acute and delayed

Potential acute health effects

| | |
|---------------------|---|
| Eye contact | No known significant effects or critical hazards. |
| Inhalation | No known significant effects or critical hazards. |
| Skin contact | No known significant effects or critical hazards. |
| Ingestion | No known significant effects or critical hazards. |

Over-exposure signs/symptoms

| | |
|---------------------|-------------------|
| Eye contact | No specific data. |
| Inhalation | No specific data. |
| Skin contact | No specific data. |
| Ingestion | No specific data. |

Indication of immediate medical attention and special treatment needed, if necessary

| | |
|-----------------------------------|---|
| Notes to physician | Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. |
| Specific treatments | No specific treatment. |
| Protection of first-aiders | No action shall be taken involving any personal risk or without suitable training. |

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

| | |
|---------------------------------------|---|
| Suitable extinguishing media | Use an extinguishing agent suitable for the surrounding fire. |
| Unsuitable extinguishing media | None known. |

Specific hazards arising from the chemical

| | |
|---|---|
| Hazardous thermal decomposition products | In a fire or if heated, a pressure increase will occur and the container may burst. Decomposition products may include the following materials: carbon dioxide carbon monoxide metal oxide/oxides |
|---|---|

Section 5. Fire-fighting measures

Special protective actions for fire-fighters

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.

For emergency responders

If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill

Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill

Stop leak if without risk. Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures

Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 7. Handling and storage

This product has a tendency upon standing to exhibit some crystallization or gelling. If this happens, the product may be re-liquified by agitation and heating at 40 to 50°C.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

| Ingredient name | Exposure limits |
|--|--|
| petroleum process oil, <3.0% DMSO extractable material | <p>ACGIH TLV (United States, 6/2013). TWA: 5 mg/m³ 8 hours. Form: Inhalable fraction</p> <p>NIOSH REL (United States, 10/2013). TWA: 5 mg/m³ 10 hours. Form: Mist STEL: 10 mg/m³ 15 minutes. Form: Mist</p> <p>ACGIH TLV (United States). STEL: 10 mg/m³</p> <p>OSHA PEL (United States, 2/2013). TWA: 5 mg/m³ 8 hours.</p> |

Appropriate engineering controls

Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields. Recommended: Chemical splash goggles.

Skin protection

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Body protection

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. Recommended: Overalls.

Other skin protection

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection

Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Recommended: Substance/task appropriate respirator.

Section 8. Exposure controls/personal protection

Personal protective equipment (Pictograms)



Section 9. Physical and chemical properties

Appearance

| | |
|--|--|
| Physical state | Liquid. |
| Color | Greenish-Brown. |
| Odor | Not available. |
| Odor threshold | Not available. |
| pH | Not available. |
| Melting point | Not available. |
| Boiling point | Not available. |
| Flash point | Closed cup: 193°C (379.4°F) [Pensky-Martens] |
| Burning time | Not applicable. |
| Burning rate | Not applicable. |
| Evaporation rate | Not available. |
| Flammability (solid, gas) | Flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and heat. |
| Lower and upper explosive (flammable) limits | Not available. |
| Vapor pressure | 0.0000004 kPa (0.000003 mm Hg) [Molybdenum compound] |
| Vapor density | Not available. |
| Density | 1.08 g/cm ³ [15.6°C (60.1°F)] |
| Relative density | 1.08 |
| Solubility | Not available. |
| Solubility in water | <0.00125 g/l |
| Partition coefficient: n-octanol/water | >4.45 |
| Auto-ignition temperature | 382°C (719.6°F) |
| Decomposition temperature | Not available. |
| SADT | Not available. |
| Viscosity | Kinematic: 55 mm ² /s (55 cSt) [at 100°C] |

Section 10. Stability and reactivity

| | |
|------------------------------------|--|
| Reactivity | No specific test data related to reactivity available for this product or its ingredients. |
| Chemical stability | The product is stable. |
| Possibility of hazardous reactions | Under normal conditions of storage and use, hazardous reactions will not occur. |

Section 10. Stability and reactivity

| | |
|---|--|
| Conditions to avoid | No specific data. |
| Incompatible materials | No specific data. |
| Hazardous decomposition products | Under normal conditions of storage and use, hazardous decomposition products should not be produced. |

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

| Product/ingredient name | Result | Species | Dose | Exposure |
|---|---------------------------------|---------|--|----------|
| amides, coco, N,N-bis (hydroxyethyl), reaction products with coco monoglycerides and molybdenum oxide petroleum process oil, <3.0% DMSO extractable material | LD50 Dermal | Rabbit | >2000 mg/kg | - |
| | LD50 Oral | Rat | >5000 mg/kg | - |
| | LC50 Inhalation Dusts and mists | Rat | 2.18 mg/l (Based on tests of similar materials) | 4 hours |
| | LD50 Dermal | Rabbit | >5000 mg/kg (Based on tests of similar materials) | - |
| | LD50 Oral | Rat | >5000 mg/kg (Based on tests of similar materials) | - |

Irritation/Corrosion

| Product/ingredient name | Result | Species | Score | Exposure | Observation |
|---|--------------------------|---------|-------|----------|-------------|
| Amides, coco, N,N-bis (hydroxyethyl), reaction products with coco monoglycerides and molybdenum oxide | Skin - Mild irritant | Rabbit | - | - | - |
| | Eyes - Moderate irritant | Rabbit | - | - | - |

Conclusion/Summary

Skin

petroleum process oil, <3.0% DMSO extractable material: Non-irritating to the skin. (Rabbit)(Based on tests of similar materials)

Eyes

petroleum process oil, <3.0% DMSO extractable material: Non-irritating to the eyes. (Rabbit)(Based on tests of similar materials)

Sensitization

Section 11. Toxicological information

| Product/ingredient name | Route of exposure | Species | Result |
|---|-------------------|------------|---|
| amides, coco, N,N-bis (hydroxyethyl), reaction products with coco monoglycerides and molybdenum oxide petroleum process oil, <3.0% DMSO extractable material | skin | Guinea pig | Not sensitizing |
| | skin | Guinea pig | Not sensitizing (Based on tests of similar materials) |

Mutagenicity

| Product/ingredient name | Test | Experiment | Result |
|---|----------|---|--|
| amides, coco, N,N-bis (hydroxyethyl), reaction products with coco monoglycerides and molybdenum oxide | OECD 471 | Experiment: In vitro Subject: Bacteria | Negative |
| | OECD 476 | Experiment: In vitro Subject: Mammalian-Animal | Negative |
| petroleum process oil, <3.0% DMSO extractable material | OECD 473 | Experiment: In vitro Subject: Mammalian-Human | Negative |
| | OECD 471 | Experiment: In vitro Subject: Bacteria | Positive (Based on tests of similar materials) |
| | OECD 474 | Experiment: In vivo Subject: Mammalian-Animal | Negative (Based on tests of similar materials) |

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Conclusion/Summary

petroleum process oil, <3.0% DMSO extractable material: NOAEL \geq 1000 mg/kg (OECD 421, Oral, Rat)(Based on tests of similar materials)

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Section 11. Toxicological information

Information on the likely routes of exposure Routes of entry anticipated: Oral, Dermal, Eyes.

Potential acute health effects

Eye contact No known significant effects or critical hazards.
Inhalation No known significant effects or critical hazards.
Skin contact May be harmful in contact with skin.
Ingestion No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact No specific data.
Inhalation No specific data.
Skin contact No specific data.
Ingestion No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects Not available.
Potential delayed effects Not available.

Long term exposure

Potential immediate effects Not available.
Potential delayed effects Not available.

Potential chronic health effects

| Product/ingredient name | Result | Species | Dose | Exposure |
|---|------------------------|---------|---|----------|
| amides, coco, N,N-bis (hydroxyethyl), reaction products with coco monoglycerides and molybdenum oxide | Sub-chronic NOAEL Oral | Rat | 150 mg/kg | 28 days |
| petroleum process oil, <3.0% DMSO extractable material | Sub-chronic LOAEL Oral | Rat | 125 mg/kg (Based on tests of similar materials) | - |

General No known significant effects or critical hazards.
Carcinogenicity No known significant effects or critical hazards.
Mutagenicity No known significant effects or critical hazards.
Teratogenicity No known significant effects or critical hazards.
Developmental effects No known significant effects or critical hazards.
Fertility effects No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

| Route | ATE value |
|--------|------------|
| Dermal | 2500 mg/kg |

Section 11. Toxicological information

Other information

Not available.

Section 12. Ecological information

Toxicity

| Product/ingredient name | Result | Species | Exposure |
|---|--|----------------|----------|
| amides, coco, N,N-bis (hydroxyethyl), reaction products with coco monoglycerides and molybdenum oxide | NOEC 100 mg/l | Micro-organism | 28 days |
| petroleum process oil, <3.0% DMSO extractable material | Acute LC50 1.5 mg/l | Algae | 72 hours |
| | Acute LC50 1.5 mg/l | Daphnia | 48 hours |
| | Acute LC50 >10 mg/l | Fish | 96 hours |
| | Acute NOEC 0.625 mg/l | Algae | 72 hours |
| | Acute NOEC 1 mg/l | Daphnia | 48 hours |
| | Acute EL50 >10000 mg/l (Based on tests of similar materials) | Daphnia | 48 hours |
| | Acute LL50 >100 mg/l (Based on tests of similar materials) | Fish | 96 hours |
| | Acute NOEL ≥100 mg/l (Based on tests of similar materials) | Algae | 72 hours |
| Acute NOEL ≥1000 mg/l (Based on tests of similar materials) | Daphnia | 48 hours | |
| Acute NOEL ≥100 mg/l (Based on tests of similar materials) | Fish | 96 hours | |

Persistence and degradability

| Product/ingredient name | Test | Result | Dose | Inoculum |
|---|------|--|------|----------|
| amides, coco, N,N-bis (hydroxyethyl), reaction products with coco monoglycerides and molybdenum oxide | - | 61 % - Readily - 28 days | - | - |
| petroleum process oil, <3.0% DMSO extractable material | - | 2 to 4 % - Not readily - 28 days (Based on tests of similar materials) | - | - |

| Product/ingredient name | Aquatic half-life | Photolysis | Biodegradability |
|---|-------------------|------------|---|
| amides, coco, N,N-bis (hydroxyethyl), reaction products with coco monoglycerides and molybdenum oxide | - | - | Readily |
| petroleum process oil, <3.0% DMSO extractable material | - | - | Not readily (Based on tests of similar materials) |

Bioaccumulative potential

Section 12. Ecological information

| Product/ingredient name | LogP _{ow} | BCF | Potential |
|---|--------------------|-----|-----------|
| amides, coco, N,N-bis (hydroxyethyl), reaction products with coco monoglycerides and molybdenum oxide | >4.45 | - | high |

Mobility in soil

Soil/water partition coefficient (K_{oc}) Not available.

Other adverse effects No known significant effects or critical hazards.



Section 13. Disposal considerations

Disposal methods

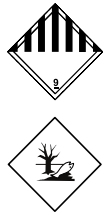
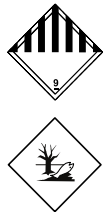
The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Section 14. Transport information

| Regulatory information | UN number | Proper shipping name | Classes | PG* | Label | Additional information |
|---------------------------|----------------|--|---------|-----|--|------------------------------------|
| DOT Classification | Not regulated. | - | - | - | | - |
| TDG Classification | Not regulated. | - | - | - | | - |
| ADR/RID Class | UN3082 | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Organomolybdenum complex) | 9 | III |   | Remarks Marine pollutant |
| | | | | | | |

Section 14. Transport information

| | | | | | | |
|-----------------------|--------|--|---|-----|---|------------------------------------|
| IMDG Class | UN3082 | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Organomolybdenum complex) | 9 | III |  | Remarks Marine pollutant |
| IATA-DGR Class | UN3082 | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Organomolybdenum complex) | 9 | III |  | - |

PG* : Packing group

Section 15. Regulatory information

[United States Inventory \(TSCA 8b\)](#) All components are active or exempted.

[U.S. Federal regulations](#)

TSCA 8(a) CDR Exempt/Partial exemption: Not determined

[SARA 302/304](#)

[Composition/information on ingredients](#)

No products were found.

[SARA 304 RQ](#)

Not applicable.

[SARA 311/312](#)

[Classification](#)

Not applicable.

[Composition/information on ingredients](#)

No products were found.

[State regulations](#)

[Massachusetts](#)

The following components are listed: OIL MIST, MINERAL

[New York](#)

None of the components are listed.

[New Jersey](#)

None of the components are listed.

[Pennsylvania](#)

None of the components are listed.

[California Prop. 65](#)

None of the components are listed.

[International regulations](#)

[Australia Inventory \(AIIIC\)](#)

All components are listed or exempted.

[Canada Inventory](#)

All components are listed or exempted.

[China Inventory \(IECSC\)](#)

All components are listed or exempted.

[Europe inventory](#)

At least one component is not listed in EINECS but all such components are listed in ELINCS.

[Japan Inventory \(CSCL\)](#)

All components are listed or exempted.

[Korea inventory \(KECI\)](#)

All components are listed or exempted.

Section 15. Regulatory information

| | |
|---|--|
| New Zealand Inventory of Chemicals (NZIoC) | All components are listed or exempted. |
| Philippines Inventory (PICCS) | All components are listed or exempted. |
| Taiwan Chemical Substances Inventory (TCSI) | All components are listed or exempted. |

Section 16. Other information

[Hazardous Material Identification System \(U.S.A.\)](#)

| | |
|------------------|---|
| Health | 2 |
| Flammability | 1 |
| Physical hazards | 0 |
| | |

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material.

[National Fire Protection Association \(U.S.A.\)](#)



Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

[History](#)

| | |
|--|-----------|
| Date of printing | 1/29/2024 |
| Validation date | 1/29/2024 |
| Date of previous issue | 6/25/2018 |
| Version | 5 |

[Key to abbreviations](#)

ATE = Acute Toxicity Estimate
 BCF = Bioconcentration Factor
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals
 IATA = International Air Transport Association
 IBC = Intermediate Bulk Container
 IMDG = International Maritime Dangerous Goods
 LogPow = logarithm of the octanol/water partition coefficient
 MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
 UN = United Nations

[References](#)

Not available.

Section 16. Other information

Information contact **Vanderbilt Global Services, LLC**
Corporate Risk Management
1-203-295-2143

Visit www.vanderbiltchemicals.com for more information.

Notice to reader

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