

# SAFETY DATA SHEET

GHS  
United States  
English

## Section 1. Product and company identification

|                              |  |  |
|------------------------------|--|--|
| <b>Product name</b>          | <b>MOLYVAN® 822 NT</b>   | <b><u>In case of emergency</u></b>                         |
| <b>Code</b>                  | 29171  | 1-203-853-1400   |
| <b>Supplier/Manufacturer</b> | Vanderbilt Chemicals, LLC<br>30 Winfield Street<br>Norwalk, CT 06855                     | Chemtrec: 1-800-424-9300<br>Outside US:<br>+1-703-527-3887 |
| <b>Chemical name</b>         | molybdenum, bis (C11-14 branched and linear alkyl) carbamodithioate oxo thioxo complexes |  |
| <b>Synonym</b>               | Molybdenum dialkyldithiocarbamate in petroleum process oil.                              |  |
| <b>Material uses</b>         | Friction Reducer   |  |
| <b>Product type</b>          | Liquid.  |  |

## Section 2. Hazards identification

|   |  |
|---|--|
| <b>OSHA/HCS status</b>                            | 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. |
| <b>Classification of the substance or mixture</b> | Not classified.<br><br>Percentage of the mixture consisting of ingredient(s) of unknown acute dermal toxicity: 50%<br>Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 100%   |
| <b><u>GHS label elements</u></b>                  |  |
| <b>Signal word</b>                                | No signal word.  |
| <b>Hazard statements</b>                          | No known significant effects or critical hazards.  |
| <b><u>Precautionary statements</u></b>            |  |
| <b>Prevention</b>                                 | Not applicable.  |
| <b>Response</b>                                   | Not applicable.  |
| <b>Storage</b>                                    | Not applicable.  |
| <b>Disposal</b>                                   | Not applicable.  |
| <b>Hazards not otherwise classified</b>           | None known.  |

## Section 3. Composition/information on ingredients

**Substance/mixture** Mixture

| Ingredient name  | CAS number  | % by weight |
|--|-------------|-------------|
| molybdenum, N,N-bis(C11-14-branched and linear alkyl)carbamodithioate oxo thioxo complexes | 906665-74-5 | 50          |
| petroleum process oil, <3.0% DMSO extractable material                                     | 64742-52-5  | 50          |

Alternate CAS No. 71342-89-7 (Molybdenum, bis(N,N-ditridecylcarbamodithioato)di-m-oxodioxo-di-, sulfurized) also applies.

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

## Section 4. First aid measures

### Description of necessary first aid measures

|                     |   |
|---------------------|---|
| <b>Eye contact</b>  | 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.   |
| <b>Inhalation</b>   | Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.   |
| <b>Skin contact</b> | Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.  |
| <b>Ingestion</b>    | Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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

|                     |   |
|---------------------|---|
| <b>Eye contact</b>  | No known significant effects or critical hazards. |
| <b>Inhalation</b>   | No known significant effects or critical hazards. |
| <b>Skin contact</b> | No known significant effects or critical hazards. |
| <b>Ingestion</b>    | No known significant effects or critical hazards. |

#### Over-exposure signs/symptoms

|                     |                   |
|---------------------|-------------------|
| <b>Eye contact</b>  | No specific data. |
| <b>Inhalation</b>   | No specific data. |
| <b>Skin contact</b> | No specific data. |
| <b>Ingestion</b>    | No specific data. |

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

|                                   |   |
|-----------------------------------|---|
| <b>Notes to physician</b>         | Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. |
| <b>Specific treatments</b>        | No specific treatment.  |
| <b>Protection of first-aiders</b> | 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

In a fire or if heated, a pressure increase will occur and the container may burst.

### Hazardous thermal decomposition products

Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide  
metal oxide/oxides

### 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.

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><b>ACGIH TLV (United States, 3/2012).</b><br/>TWA: 5 mg/m<sup>3</sup> 8 hours. Form: Inhalable fraction</p> <p><b>NIOSH REL (United States, 1/2013).</b><br/>TWA: 5 mg/m<sup>3</sup> 10 hours. Form: Mist<br/>STEL: 10 mg/m<sup>3</sup> 15 minutes. Form: Mist</p> <p><b>ACGIH TLV (United States).</b><br/>STEL: 10 mg/m<sup>3</sup></p> <p><b>OSHA PEL (United States, 6/2010).</b><br/>TWA: 5 mg/m<sup>3</sup> 8 hours.</p> |
| molybdenum, bis(C11-14 branched and linear alkyl) carbamodithioate oxothioxo complexes | <p><b>ACGIH TLV (United States, 3/2015).</b><br/>TWA: 10 mg/m<sup>3</sup>, (as Mo) 8 hours. Form: Inhalable fraction<br/>TWA: 3 mg/m<sup>3</sup>, (as Mo) 8 hours. Form: Respirable fraction</p> <p><b>OSHA PEL (United States, 2/2013).</b><br/>TWA: 15 mg/m<sup>3</sup>, (as Mo) 8 hours. Form: Total dust</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.

## Section 8. Exposure controls/personal protection

### 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: 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: lab coat

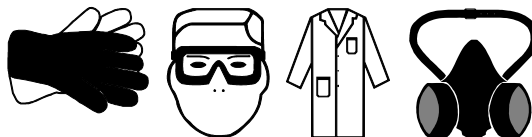
#### Other skin protection

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: Vapor and dust respirator.

### Personal protective equipment (Pictograms)



## Section 9. Physical and chemical properties

### Appearance

|  |   |
|--|---|
| Physical state                               | Liquid.   |
| Color  | Brown.  |
| Odor   | Not available.                                    |
| Odor threshold                               | Not available.                                    |
| pH   | Not available.                                    |
| Melting point                                | Not available.                                    |
| Boiling point                                | Not available.                                    |
| Flash point                                  | Closed cup: 160°C (320°F) [Pensky-Martens.]       |
| Burning time                                 | Not applicable.                                   |
| Burning rate                                 | Not applicable.                                   |
| Evaporation rate                             | Not available.                                    |
| Flammability (solid, gas)                    | Not available.                                    |
| Lower and upper explosive (flammable) limits | Not available.                                    |
| Vapor pressure                               | 0.0093 kPa (0.07 mm Hg) [room temperature]        |
| Vapor density                                | Not available.                                    |
| Density                                      | 0.97 g/cm <sup>3</sup> [15.6°C (60.1°F)]          |
| Relative density                             | 0.97  |
| Solubility                                   | Insoluble in the following materials: cold water. |
| Solubility in water                          | Not available.                                    |

## Section 9. Physical and chemical properties

|   |  |
|---|--|
| <b>Partition coefficient: n-octanol/water</b> | Not applicable.  |
| <b>Auto-ignition temperature</b>              | Not available.   |
| <b>Decomposition temperature</b>              | Not available.   |
| <b>SADT</b>                                   | Not available.   |
| <b>Viscosity</b>                              | Kinematic (room temperature): 6.51 cm <sup>2</sup> /s (651 cSt) [25°C] |

## Section 10. Stability and reactivity

|   |  |
|---|--|
| <b>Reactivity</b>                         | No specific test data related to reactivity available for this product or its ingredients.           |
| <b>Chemical stability</b>                 | The product is stable.   |
| <b>Possibility of hazardous reactions</b> | Under normal conditions of storage and use, hazardous reactions will not occur.                      |
| <b>Conditions to avoid</b>                | No specific data.  |
| <b>Incompatible materials</b>             | No specific data.  |
| <b>Hazardous decomposition products</b>   | 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 |
|---|-------------|---------|-------------|----------|
| petroleum process oil, <3.0% DMSO extractable material                                  | LD50 Dermal | Rabbit  | >2000 mg/kg | -        |
| molybdenum, bis(C11-14 branched and linear alkyl) carbamodithioate oxo thioxo complexes | LD50 Oral   | Rat     | >5000 mg/kg | -        |
|   | LD50 Oral   | Rat     | >2000 mg/kg | -        |

#### **Conclusion/Summary**

Both molybdenum (insoluble) and oil mist (mineral) are believed to have a low order of toxicity. Molybdenum at high oral dosages has produced weight loss, anorexia, liver and kidney damage in animals but few signs and symptoms in humans have been recorded during normal usage. Oil mists (unless contaminated with endotoxins or high volatile organics) have produced few adverse effects. Mild decrements in lung function, however, have more recently been reported with repeated elevated exposures.

#### Irritation/Corrosion

Not available.

#### **Conclusion/Summary**

## Section 11. Toxicological information

**Skin** molybdenum, bis(C11-14 branched and linear alkyl) carbamodithioate oxo thioxo complexes: Non-irritating to the skin. (Reconstructed Human Epidermis Test Method)

**Eyes** molybdenum, bis(C11-14 branched and linear alkyl) carbamodithioate oxo thioxo complexes: Non-irritating to the eyes. (Bovine Corneal Opacity and Permeability Test Method)

### Sensitization

| Product/ingredient name   | Route of exposure | Species    | Result          |
|---|-------------------|------------|-----------------|
| molybdenum, bis(C11-14 branched and linear alkyl) carbamodithioate oxo thioxo complexes | skin              | Guinea pig | Not sensitizing |

### Mutagenicity

| Product/ingredient name   | Test     | Experiment  | Result   |
|---|----------|---|----------|
| molybdenum, bis(C11-14 branched and linear alkyl) carbamodithioate oxo thioxo complexes | OECD 471 | Experiment: In vitro<br>Subject: Bacteria         | Negative |
|   | OECD 490 | Experiment: In vitro<br>Subject: Mammalian-Animal | Negative |
|   | OECD 487 | Experiment: In vitro<br>Subject: Mammalian-Human  | Negative |

### Carcinogenicity

Not available.

### Reproductive toxicity

Not available.

### Conclusion/Summary

molybdenum, bis(C11-14 branched and linear alkyl) carbamodithioate oxo thioxo complexes: Oral administration of the test item to parental rats at dose levels of 100, 330 or 1000 mg/kg/day for five weeks to males and for two weeks before pairing, throughout gestation and up to Day 13 of lactation in females was well-tolerated with no adverse effect observed.

Reproductive performance, fertility and offspring survival were unaffected by parental treatment. There was no effect of treatment on the number of implantations, litter size or the growth of the offspring.

In the context of this study, the test item showed no evidence of being an endocrine disruptor. The No-observed-adverse-effect-level (NOAEL) of the test item for systemic toxicity and for reproductive/developmental effects was considered to be 1000 mg/kg/day, the limit dose tested.

### Teratogenicity

## Section 11. Toxicological information

Not available.

### Specific target organ toxicity (single exposure)

Not available.

### Specific target organ toxicity (repeated exposure)

Not available.

### Aspiration hazard

Not available.

### Information on the likely routes of exposure

Routes of entry anticipated: Oral, Inhalation.

### Potential acute health effects

|                     |   |
|---------------------|---|
| <b>Eye contact</b>  | No known significant effects or critical hazards. |
| <b>Inhalation</b>   | No known significant effects or critical hazards. |
| <b>Skin contact</b> | No known significant effects or critical hazards. |
| <b>Ingestion</b>    | May be harmful if swallowed.                      |

### Symptoms related to the physical, chemical and toxicological characteristics

|                     |                   |
|---------------------|-------------------|
| <b>Eye contact</b>  | No specific data. |
| <b>Inhalation</b>   | No specific data. |
| <b>Skin contact</b> | No specific data. |
| <b>Ingestion</b>    | No specific data. |

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

#### Short term exposure

|                                    |                |
|------------------------------------|----------------|
| <b>Potential immediate effects</b> | Not available. |
| <b>Potential delayed effects</b>   | Not available. |

#### Long term exposure

|                                    |                |
|------------------------------------|----------------|
| <b>Potential immediate effects</b> | Not available. |
| <b>Potential delayed effects</b>   | Not available. |

### Potential chronic health effects

Not available.

### **Conclusion/Summary**

molybdenum, bis(C11-14 branched and linear alkyl) carbamodithioate oxo thioxo complexes: In a study performed to the standardized guidelines OECD 422, the No-observed-adverse-effect-level (NOAEL) of the test item for systemic toxicity effects was considered to be 1000 mg/kg/day.

### **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.



## Section 11. Toxicological information

### Fertility effects

No known significant effects or critical hazards.

### Numerical measures of toxicity

#### Acute toxicity estimates

| Route | ATE value  |
|-------|------------|
| Oral  | 5000 mg/kg |

### Other information

Not available.

## Section 12. Ecological information

### Toxicity

| Product/ingredient name   | Result                | Species        | Exposure |
|---|-----------------------|----------------|----------|
| molybdenum, bis(C11-14 branched and linear alkyl) carbamodithioate oxo thioxo complexes | Acute EC50 11 mg/l    | Algae          | 72 hours |
|   | Acute EC50 82 mg/l    | Daphnia        | 48 hours |
|   | Acute EC50 >1000 mg/l | Micro-organism | 3 hours  |
|   | Acute LC50 >100 mg/l  | Fish           | 96 hours |

### Persistence and degradability

| Product/ingredient name   | Test      | Result                      | Dose | Inoculum |
|---|-----------|-----------------------------|------|----------|
| molybdenum, bis(C11-14 branched and linear alkyl) carbamodithioate oxo thioxo complexes | OECD 301B | 8 % - Not readily - 28 days | -    | -        |

| Product/ingredient name   | Aquatic half-life | Photolysis | Biodegradability |
|---|-------------------|------------|------------------|
| molybdenum, bis(C11-14 branched and linear alkyl) carbamodithioate oxo thioxo complexes | -                 | -          | Not readily      |

### Bioaccumulative potential

Not available.

### 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          | Not regulated. | -                    | -       | -   |       | -                      |
| IMDG Class             | Not regulated. | -                    | -       | -   |       | -                      |
| IATA-DGR Class         | Not regulated. | -                    | -       | -   |       | -                      |

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](#)

## Section 15. Regulatory information

|                                     |  |
|-------------------------------------|--|
| <a href="#">Massachusetts</a>       | The following components are listed: OIL MIST, MINERAL |
| <a href="#">New York</a>            | None of the components are listed.                     |
| <a href="#">New Jersey</a>          | None of the components are listed.                     |
| <a href="#">Pennsylvania</a>        | None of the components are listed.                     |
| <a href="#">California Prop. 65</a> | None of the components are listed.                     |

### [International regulations](#)

Alternate CAS No. 71342-89-7 (Molybdenum, bis(N,N-ditridecylcarbomodithioato)di-m-oxodioxo-di-, sulfurized) also applies.

|   |  |
|---|--|
| <a href="#">Australia Inventory (AIIIC)</a>                 | All components are listed or exempted. |
| <a href="#">Canada Inventory</a>                            | All components are listed or exempted. |
| <a href="#">China Inventory (IECSC)</a>                     | All components are listed or exempted. |
| <a href="#">Japan Inventory (CSCL)</a>                      | All components are listed or exempted. |
| <a href="#">Korea inventory (KECI)</a>                      | All components are listed or exempted. |
| <a href="#">New Zealand Inventory of Chemicals (NZIoC)</a>  | All components are listed or exempted. |
| <a href="#">Philippines Inventory (PICCS)</a>               | All components are listed or exempted. |
| <a href="#">Taiwan Chemical Substances Inventory (TCSI)</a> | All components are listed or exempted. |

## Section 16. Other information

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

|                  |   |
|------------------|---|
| Health           | 1 |
| 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. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

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



## Section 16. Other information

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** 6/6/2023  
**Validation date** 6/6/2023  
**Date of previous issue** 12/13/2019  
**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.

### Information contact

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

Visit [www.vanderbiltchemicals.com](http://www.vanderbiltchemicals.com) for more information.

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