SAFETY DATA SHEET

DSP SINGAPORE HOLDINGS PTE. LTD.

Product name: MOLYKOTE® G-3407 Caliper Pin Grease **Issue Date:** 04.03.2026
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DSP SINGAPORE HOLDINGS PTE. LTD. encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. IDENTIFICATION OF THE HAZARDOUS CHEMICAL AND OF THE SUPPLIER

Product name: MOLYKOTE® G-3407 Caliper Pin Grease

Recommended use of the chemical and restrictions on use
Identified uses: Lubricants and lubricant additives

COMPANY IDENTIFICATION
DSP SINGAPORE HOLDINGS PTE. LTD.
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SINGAPORE 018983
SINGAPORE

Customer Information Number: 65-6322-5288
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EMERGENCY TELEPHONE NUMBER
24-Hour Emergency Contact: +(65)-31581349
Local Emergency Contact: +(60)-392125794

2. HAZARDS IDENTIFICATION

GHS Classification
Classified as hazardous according to regulatory criteria.
Hazardous to the aquatic environment - chronic hazard : Category 3

GHS label elements

Hazard statements
Harmful to aquatic life with long lasting effects.

Precautionary statements

Prevention
Avoid release to the environment.

Disposal
Dispose of contents/ container to an approved waste disposal plant.

Other hazards
No data available

3. COMPOSITION AND INFORMATION OF THE INGREDIENTS OF THE HAZARDOUS CHEMICAL

This product is a mixture.

Component	CASRN	Concentration
Polypropylene glycol monobutyl ether	9003-13-8	>= 70.0 - < 90.0 %
Lithium 12-hydroxyoctadecanoate	7620-77-1	>= 1.0 - < 10.0 %
Methylene bis(dibutylthiocarbamate)	10254-57-6	>= 2.5 - < 10.0 %
Nonanedioic acid, dilithium salt	38900-29-7	>= 1.0 - < 10.0 %
Quinoline, 1,2-dihydro-2,2,4-trimethyl-, homopolymer	26780-96-1	>= 1.0 - < 2.5 %
N-phenyl-alpha-naphthylamine	90-30-2	>= 0.1 - < 0.25 %

4. FIRST AID MEASURES

Description of first aid measures
General advice:
First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: If inhaled Move person to fresh air; if effects occur, consult a physician.

Skin contact: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. If skin irritation occurs: Get medical advice/ attention.

Eye contact: Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist. Suitable emergency eye wash facility should be available in work area.

Ingestion: If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel. Consult a physician if necessary.

Most important symptoms and effects, both acute and delayed:
Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed
Notes to physician: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Water spray Alcohol-resistant foam Carbon dioxide (CO2) Dry chemical

Unsuitable extinguishing media: None known.

Special hazards arising from the substance or mixture
Hazardous combustion products: Carbon oxides Sulphur oxides Metal oxides Nitrogen oxides (NOx)

Unusual Fire and Explosion Hazards: Exposure to combustion products may be a hazard to health.

Advice for firefighters
Fire Fighting Procedures: Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage.
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Use water spray to cool unopened containers. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Remove undamaged containers from fire area if it is safe to do so. Evacuate area.

Special protective equipment for firefighters: Wear self-contained breathing apparatus for firefighting if necessary. Use personal protective equipment.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Follow safe handling advice and personal protective equipment recommendations.

Environmental precautions: Do not release the product to the aquatic environment above defined regulatory levels Prevent further leakage or spillage if safe to do so. Retain and dispose of

contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up: Wipe up or scrape up and contain for salvage or disposal. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.
See sections: 7, 8, 11, 12 and 13.

7. HANDLING AND STORAGE

Precautions for safe handling: Take care to prevent spills, waste and minimize release to the environment. Handle in accordance with good industrial hygiene and safety practice.
Use only with adequate ventilation. See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Advice on general occupational hygiene
Handle in accordance with good industrial hygiene and safety practice. Use good personal hygiene. Do not consume or store food in the work area. Wash hands before smoking or eating. Ensure that eye flushing systems and safety showers are located close to the working place.

Conditions for safe storage: Keep in properly labelled containers. Store in accordance with the particular national regulations.

Do not store with the following product types: Strong oxidizing agents.
Unsuitable materials for containers**:** None known.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters
If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

Component	Regulation	Type of listing	Value
Lithium 12-hydroxyoctadecanoate	ACGIH	TWA Inhalable particulate matter	10 mg/m3
	Further information: A4: Not classifiable as a human carcinogen		
	ACGIH	TWA Respirable particulate matter	3 mg/m3
	Further information: A4: Not classifiable as a human carcinogen		
	MY PEL	TWA	10 mg/m3

Exposure controls
Engineering measures: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations.

Hygiene measures: Handle in accordance with good industrial hygiene and safety practice. Use good personal hygiene. Do not consume or store food in the work area. Wash hands before smoking or eating. Ensure that eye flushing systems and safety showers are located close to the working place.

Individual protection measures
Eye/face protection: Use safety glasses (with side shields). If there is a potential for exposure to particles which could cause eye discomfort, wear chemical goggles.
Skin protection
Hand protection: Use gloves chemically resistant to this material. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.
Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.
Respiratory protection: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	
Physical state	Grease
Color	green
Odor	not significant
Odor Threshold	No data available
pH	Substance/mixture is non-soluble (in water).
Melting point/ range	No data available
Freezing point	No data available
Boiling point (760 mmHg)	Not applicable
Flash point	**closed cup** 188 °C
Evaporation Rate (Butyl Acetate = 1)	Not applicable
Flammability (solid, gas)	Not classified as a flammability hazard
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapor Pressure	Not applicable
Relative Vapor Density (air = 1)	No data available
Relative Density (water = 1)	1.0
Water solubility	No data available

Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Dynamic Viscosity	Not applicable
Kinematic Viscosity	Not applicable
Explosive properties	Not explosive
Oxidizing properties	The substance or mixture is not classified as oxidizing.
Molecular weight	No data available
Particle size	No data available

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: Not classified as a reactivity hazard.

Chemical stability: Stable under normal conditions.

Possibility of hazardous reactions: Can react with strong oxidizing agents.

Conditions to avoid: None known.

Incompatible materials: Oxidizing agents

Hazardous decomposition products
No hazardous decomposition products are known.

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Acute toxicity

Acute oral toxicity
Product test data not available. Refer to component data.

Acute dermal toxicity
Product test data not available. Refer to component data.

Acute inhalation toxicity
Product test data not available. Refer to component data.

Skin corrosion/irritation
Product test data not available. Refer to component data.

Serious eye damage/eye irritation
Product test data not available. Refer to component data.

Sensitization
Product test data not available. Refer to component data.

Specific Target Organ Systemic Toxicity (Single Exposure)
Product test data not available. Refer to component data.

Specific Target Organ Systemic Toxicity (Repeated Exposure)
Product test data not available. Refer to component data.

Carcinogenicity
Product test data not available. Refer to component data.

Teratogenicity
Product test data not available. Refer to component data.

Reproductive toxicity
Product test data not available. Refer to component data.

Mutagenicity
Product test data not available. Refer to component data.

Aspiration Hazard
Product test data not available. Refer to component data.

COMPONENTS INFLUENCING TOXICOLOGY:

Polypropylene glycol monobutyl ether

Acute oral toxicity
LD50, Rat, female, 34,200 mg/kg

Acute dermal toxicity
LD50, Rabbit, male, > 19,940 mg/kg

LD50, Rat, female, > 15,950 mg/kg

Acute inhalation toxicity
For similar material(s): Rat, 8 Hour, No deaths occurred following exposure to a saturated atmosphere.

Skin corrosion/irritation
Brief contact is essentially nonirritating to skin.

Serious eye damage/eye irritation

Essentially nonirritating to eyes.

Sensitization
For skin sensitization:
No relevant data found.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)
Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)
Based on available data, repeated exposures to small amounts are not anticipated to cause significant adverse effects.

Carcinogenicity
No relevant data found.

Teratogenicity
No relevant data found.

Reproductive toxicity
No relevant data found.

Mutagenicity
No relevant data found.

Aspiration Hazard
Based on physical properties, not likely to be an aspiration hazard.

Lithium 12-hydroxyoctadecanoate

Acute oral toxicity
Information given is based on data obtained from similar substances. LD50, Rat, > 2,000 mg/kg

Acute dermal toxicity
Information given is based on data obtained from similar substances. LD50, Rat, > 2,000 mg/kg OECD Test Guideline 402

Acute inhalation toxicity
The LC50 has not been determined.

Skin corrosion/irritation
Brief contact is essentially nonirritating to skin.

Serious eye damage/eye irritation
May cause slight temporary eye irritation.

Sensitization
Did not demonstrate the potential for contact allergy in mice.

Information given is based on data obtained from similar substances.

Specific Target Organ Systemic Toxicity (Single Exposure)
The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific Target Organ Systemic Toxicity (Repeated Exposure)
Based on available data, repeated exposures are not anticipated to cause additional significant adverse effects.

Carcinogenicity
No data available

Teratogenicity
Has been toxic to the fetus in laboratory animals at doses toxic to the mother.

Reproductive toxicity
In animal studies, did not interfere with reproduction.

Mutagenicity
In vitro genetic toxicity studies were negative. Information given is based on data obtained from similar substances.

Aspiration Hazard
No aspiration toxicity classification

Methylene bis(dibutylthiocarbamate)

Acute oral toxicity
LD50, Rat, > 16,000 mg/kg OECD Test Guideline 401

Acute dermal toxicity
LD50, Rabbit, > 2,000 mg/kg OECD Test Guideline 402 No deaths occurred at this concentration.

Acute inhalation toxicity
The LC50 has not been determined.

Skin corrosion/irritation
Brief contact is essentially nonirritating to skin.

Serious eye damage/eye irritation
Essentially nonirritating to eyes.

Sensitization
Did not demonstrate the potential for contact allergy in mice.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)
The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific Target Organ Systemic Toxicity (Repeated Exposure)
Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Carcinogenicity
No relevant information found.

Teratogenicity
Did not cause birth defects in laboratory animals.

Reproductive toxicity
In animal studies, did not interfere with reproduction.

Mutagenicity
In vitro genetic toxicity studies were negative.

Aspiration Hazard
No aspiration toxicity classification

Nonanedioic acid, dilithium salt

Acute oral toxicity
LD50, Rat, male and female, 300 - 2,000 mg/kg OECD Test Guideline 420

Acute dermal toxicity
For similar material(s): LD50, Rat, male and female, > 2,000 mg/kg No deaths occurred at this concentration.

Acute inhalation toxicity
The LC50 has not been determined.

Skin corrosion/irritation
Brief contact is essentially nonirritating to skin.

Serious eye damage/eye irritation
May cause slight temporary eye irritation.
Corneal injury is unlikely.

Sensitization
For skin sensitization:
For similar material(s):
Did not demonstrate the potential for contact allergy in mice.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)
Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)
Based on information for a similar material:

Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Carcinogenicity
No relevant data found.

Teratogenicity
Did not cause birth defects or any other fetal effects in laboratory animals.

Reproductive toxicity
For similar material(s): In animal studies, did not interfere with reproduction.

Mutagenicity
For similar material(s): In vitro genetic toxicity studies were negative.

Aspiration Hazard
Based on physical properties, not likely to be an aspiration hazard.

Quinoline, 1,2-dihydro-2,2,4-trimethyl-, homopolymer

Acute oral toxicity
LD50, Rat, > 2,000 mg/kg

Acute dermal toxicity
LD50, Rabbit, > 5,100 mg/kg Estimated.

Acute inhalation toxicity
The LC50 has not been determined.

Skin corrosion/irritation
Brief contact is essentially nonirritating to skin.
Prolonged contact may cause slight skin irritation with local redness.

Serious eye damage/eye irritation
Solid or dust may cause irritation or corneal injury due to mechanical action.
Elevated temperatures may generate vapor levels sufficient to cause eye irritation. Effects may include discomfort and redness.

Sensitization
For skin sensitization:
Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)
Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)
Based on available data, repeated exposures are not anticipated to cause additional significant adverse effects.

Carcinogenicity
Relevant data not available.

Teratogenicity
Available data are inadequate for evaluation of potential to cause birth defects. Available data are inadequate for evaluation of potential to cause fetotoxicity.

Reproductive toxicity
No relevant data found.

Mutagenicity
In vitro genetic toxicity studies were negative.

Aspiration Hazard
Based on physical properties, not likely to be an aspiration hazard.

N-phenyl-alpha-naphthylamine

Acute oral toxicity
LD50, Rat, 1,625 mg/kg

Acute dermal toxicity
LD50, Rabbit, > 5,000 mg/kg

Acute inhalation toxicity
Rat, 8 Hour, vapour, No deaths occurred following exposure to a saturated atmosphere.

Skin corrosion/irritation
Brief contact is essentially nonirritating to skin.

Serious eye damage/eye irritation
May cause slight temporary eye irritation.
Corneal injury is unlikely.

Sensitization
Has caused allergic skin reactions in humans.
Has caused allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)
Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)
In animals, effects have been reported on the following organs:
Blood.

Carcinogenicity
Did not cause cancer in laboratory animals.

Teratogenicity

For similar material(s): Did not cause birth defects or any other fetal effects in laboratory animals.

Reproductive toxicity
In animal studies, a similar material has been shown not to interfere with reproduction.

Mutagenicity
In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Aspiration Hazard
Based on physical properties, not likely to be an aspiration hazard.

12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

Ecotoxicity

Polypropylene glycol monobutyl ether

Acute toxicity to fish
Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).
LC50, Pimephales promelas (fathead minnow), 96 Hour, 20 - 65 mg/l

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), 48 Hour, 26 mg/l

Acute toxicity to algae/aquatic plants
EC50, > 100 mg/l

Toxicity to bacteria
IC50, Bacteria, 16 Hour, 19,000 mg/l

Lithium 12-hydroxyoctadecanoate

Acute toxicity to fish
LC50, Oncorhynchus mykiss (rainbow trout), 96 Hour, > 100 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), 48 Hour, > 100 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants
EC50, Raphidocelis subcapitata (freshwater green alga), 72 Hour, > 100 mg/l, OECD Test Guideline 201
NOEC, Raphidocelis subcapitata (freshwater green alga), 72 Hour, 100 mg/l, OECD Test Guideline 201

Chronic toxicity to aquatic invertebrates
No data available

Methylene bis(dibutylthiocarbamate)

Acute toxicity to fish
No toxicity at the limit of solubility
LC50, Oncorhynchus mykiss (rainbow trout), 96 Hour, > 0.06 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates
No toxicity at the limit of solubility
EC50, Daphnia magna (Water flea), 48 Hour, > 0.052 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants
No toxicity at the limit of solubility
EC50, Desmodesmus subspicatus (green algae), 72 Hour, > 0.0325 mg/l, OECD Test Guideline 201
No toxicity at the limit of solubility
NOEC, Desmodesmus subspicatus (green algae), 72 Hour, 0.0325 mg/l, OECD Test Guideline 201

Chronic toxicity to aquatic invertebrates
No toxicity at the limit of solubility
NOEC, Daphnia (water flea), 21 d, >= 247 µg/l

Nonanedioic acid, dilithium salt

Acute toxicity to fish
Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).
LC50, Carp (Cyprinus carpio), Static, 96 Hour, > 100 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), Static, 48 Hour, > 100 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants
ErC50, Pseudokirchneriella subcapitata (green algae), Static, 72 Hour, Growth rate, > 100 mg/l

Quinoline, 1,2-dihydro-2,2,4-trimethyl-, homopolymer

Acute toxicity to fish
Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).
LC50, Pimephales promelas (fathead minnow), 96 Hour, 64 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), 24 Hour, > 1,000 mg/l

Acute toxicity to algae/aquatic plants
EL50, Desmodesmus subspicatus (green algae), 72 Hour, > 100 mg/l, Directive 67/548/EEC, Annex V, C.3.

Toxicity to bacteria
EC50, Bacteria, 3 Hour, > 10,000 mg/l

N-phenyl-alpha-naphthylamine

Acute toxicity to fish
Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested).
LC50, Oncorhynchus mykiss (rainbow trout), semi-static test, 96 Hour, 0.44 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates
LC50, Daphnia magna (Water flea), static test, 48 Hour, 0.3 mg/l, OECD Test Guideline 202 or Equivalent

Toxicity to bacteria
EC50, activated sludge, static test, 3 Hour, Respiration rates., > 10,000 mg/l

Chronic toxicity to aquatic invertebrates
NOEC, Daphnia magna (Water flea), 21 d, 0.032 mg/l

Persistence and degradability

Polypropylene glycol monobutyl ether

Biodegradability: Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.
10-day Window: Fail
Biodegradation: 25 %
Exposure time: 28 d
Method: OECD Test Guideline 301F or Equivalent

Chemical Oxygen Demand: 2.04 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	5 %
10 d	5 %
20 d	15 %

Lithium 12-hydroxyoctadecanoate

Biodegradability: Readily biodegradable.
Biodegradation: 93 %
Exposure time: 28 d
Method: OECD Test Guideline 301C

Methylene bis(dibutylthiocarbamate)

Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

Biodegradation: 21 %
Exposure time: 28 d

Method: OECD Test Guideline 301B

Nonanedioic acid, dilithium salt

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability).
Based on information for a similar material: 10-day Window: Pass
Biodegradation: > 70 %
Exposure time: 10 d
Method: OECD Test Guideline 301B
Based on information for a similar material: 10-day Window: Not applicable
Biodegradation: 100 %
Exposure time: 4 d
Method: OECD Test Guideline 302B

Quinoline, 1,2-dihydro-2,2,4-trimethyl-, homopolymer

Biodegradability: Material is not readily biodegradable according to OECD/EEC guidelines.
10-day Window: Not applicable
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 301C or Equivalent

N-phenyl-alpha-naphthylamine

Biodegradability: Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.
10-day Window: Not applicable
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 301C or Equivalent
10-day Window: Not applicable
Biodegradation: 0 %
Exposure time: 14 d
Method: OECD Test Guideline 301C or Equivalent

Theoretical Oxygen Demand: 2.99 mg/mg

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	< 5 %
10 d	< 5 %
20 d	< 5 %

Photodegradation
Test Type: Half-life (indirect photolysis)
Sensitization: OH radicals
Atmospheric half-life: 0.031 d
Method: Estimated.

Bioaccumulative potential

Polypropylene glycol monobutyl ether

Bioaccumulation: No bioconcentration is expected because of the relatively high molecular weight (MW greater than 1000).

Lithium 12-hydroxyoctadecanoate

Bioaccumulation: Bioaccumulation is unlikely. Information given is based on data obtained from similar substances.
Partition coefficient: n-octanol/water(log Pow): > 0.915 at 25 °C OECD Test Guideline 123
Bioconcentration factor (BCF): 8 estimated

Methylene bis(dibutylthiocarbamate)

Partition coefficient: n-octanol/water(log Pow): 8.42 at 35 °C

Nonanedioic acid, dilithium salt

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): -3.53 at 20 °C OECD Test Guideline 107 or Equivalent

Quinoline, 1,2-dihydro-2,2,4-trimethyl-, homopolymer

Bioaccumulation: Bioconcentration potential is low (BCF less than 100 or log Pow greater than 7).
Partition coefficient: n-octanol/water(log Pow): 1.2 - 7.7

N-phenyl-alpha-naphthylamine

Partition coefficient: n-octanol/water(log Pow): 4.28
Bioconcentration factor (BCF): 427 - 2,730 Fish Measured

Mobility in Soil

Polypropylene glycol monobutyl ether

No relevant data found.

Lithium 12-hydroxyoctadecanoate

Expected to be relatively immobile in soil (Log Koc > 3).
OECD Test Guideline 121

Nonanedioic acid, dilithium salt

No relevant data found.

Quinoline, 1,2-dihydro-2,2,4-trimethyl-, homopolymer

No relevant data found.

N-phenyl-alpha-naphthylamine

Expected to be relatively immobile in soil (Koc > 5000).
Partition coefficient (Koc): 21000 Estimated.

Results of PBT and vPvB assessment

Lithium 12-hydroxyoctadecanoate
Not persistent, bioaccumulative, and toxic (PBT).

Methylene bis(dibutylthiocarbamate)
Not persistent, bioaccumulative, and toxic (PBT).

Nonanedioic acid, dilithium salt
Not persistent, bioaccumulative, and toxic (PBT).

N-phenyl-alpha-naphthylamine
This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

Other adverse effects

Polypropylene glycol monobutyl ether
This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Lithium 12-hydroxyoctadecanoate
This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Methylene bis(dibutylthiocarbamate)
This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Nonanedioic acid, dilithium salt
This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Quinoline, 1,2-dihydro-2,2,4-trimethyl-, homopolymer
No data available

N-phenyl-alpha-naphthylamine
This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

13. DISPOSAL INFORMATION

Disposal methods: DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Recycler. Reclaimer. Incinerator or other thermal destruction device. For additional information, refer to: Handling & Storage Information, MSDS Section 7 Stability & Reactivity Information, MSDS Section 10 Regulatory Information, MSDS Section 15

Treatment and disposal methods of used packaging: Empty containers should be recycled or otherwise disposed of by an approved waste management facility. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. Do not re-use containers for any purpose.

14. TRANSPORTATION INFORMATION

Classification for ROAD and Rail transport:

Not regulated for transport

Classification for SEA transport (IMO-IMDG):

Not regulated for transport

Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Not regulated for transport

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013.
Occupational Safety and Health (Use and Standards of Exposure of Chemicals Hazardous to Health) Regulations 2000.

16. OTHER INFORMATION

Revision

Identification Number: 4094721 / A761 / Issue Date: 04.03.2026 / Version: 1.2
Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
MY PEL	Malaysia. Occupational Safety and Health (Use and Standards of Exposure of Chemicals Hazardous to Health) Regulations 2000.
TWA	8-hour, time-weighted average

Full text of other abbreviations

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonised System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MERCOSUR - The Agreement for the Facilitation of the Transport of Dangerous Goods; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organisation for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

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