

20012 HIGH PERFORMANCE GEAR OIL 75W-90 GL4+ 1L

Liqui Moly GmbH

Chemwatch Hazard Alert Code: **2**

Chemwatch: 52-9987

Issue Date: 12/10/2015

Version No: 3.1.1.1

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Safety Data Sheet according to OSHA HazCom Standard (2012) requirements

Initial Date: **Not Available**
S.GHS.USA.EN

SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

Product Identifier

| | |
|--------------------------------------|--|
| Product name | 20012 HIGH PERFORMANCE GEAR OIL 75W-90 GL4+ 1L |
| Synonyms | Item No: 20012 |
| Other means of identification | Not Available |

Relevant identified uses of the substance or mixture and uses advised against

| | |
|---------------------------------|---|
| Relevant identified uses | Use according to manufacturer's directions. Lubricant. |
|---------------------------------|---|

Details of the supplier of the safety data sheet

| | |
|--------------------------------|--|
| Registered company name | Liqui Moly GmbH |
| Address | Jerg-Wieland-Strasse 4 Ulm D-89081 Germany |
| Telephone | +49 731 1420 0 |
| Fax | +49 731 1420 82 |
| Website | Not Available |
| Email | Not Available |

Emergency telephone number

| | |
|--|---------------|
| Association / Organisation | Not Available |
| Emergency telephone numbers | Not Available |
| Other emergency telephone numbers | Not Available |

SECTION 2 HAZARDS IDENTIFICATION

Classification of the substance or mixture

CHEMWATCH HAZARD RATINGS

| | Min | Max |
|--------------|-----|-----|
| Flammability | 1 | |
| Toxicity | 0 | |
| Body Contact | 1 | |
| Reactivity | 1 | |
| Chronic | 2 | |

0 = Minimum
1 = Low
2 = Moderate
3 = High
4 = Extreme



| | |
|---------------------------|----------------------------|
| GHS Classification | Skin Sensitizer Category 1 |
|---------------------------|----------------------------|

Label elements

| | |
|---------------------------|--|
| GHS label elements | |
|---------------------------|--|

| | |
|--------------------|----------------|
| SIGNAL WORD | WARNING |
|--------------------|----------------|

Hazard statement(s)

| | |
|-------------|-------------------------------------|
| H317 | May cause an allergic skin reaction |
|-------------|-------------------------------------|

Precautionary statement(s) Prevention

| | |
|-------------|--|
| P280 | Wear protective gloves/protective clothing/eye protection/face protection. |
| P261 | Avoid breathing dust/fume/gas/mist/vapours/spray. |

P272 Contaminated work clothing should not be allowed out of the workplace.

Precautionary statement(s) Response

| | |
|------------------|--|
| P363 | Wash contaminated clothing before reuse. |
| P302+P352 | IF ON SKIN: Wash with plenty of water and soap |
| P333+P313 | If skin irritation or rash occurs: Get medical advice/attention. |

Precautionary statement(s) Storage

Precautionary statement(s) Disposal

| | |
|-------------|---|
| P501 | Dispose of contents/container in accordance with local regulations. |
|-------------|---|

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS

Substances

See section below for composition of Mixtures

Mixtures

| CAS No | %[weight] | Name |
|---------------|-----------|--|
| 157707-86-3 | 40-60 | <u>1-decene, trimers, hydrogenated</u> |
| 64742-55-8. | 5-15 | <u>paraffinic distillate, light, hydrotreated (severe)</u> |
| 64742-54-7. | } | <u>paraffinic distillate, heavy, hydrotreated (severe)</u> |
| 64741-88-4. | } | <u>paraffinic distillate, heavy, solvent-refined (severe)</u> |
| 64742-65-0. | } | <u>paraffinic distillate, heavy, solvent-dewaxed (severe)</u> |
| 68937-96-2 | 1-5 | <u>di-tert-butyl polysulfides</u> |
| Not avail. | 1-2.5 | <u>mineral oil</u> |
| Not Available | 0.1-<1 | reaction product of bis(4-methylpentan-2-yl)dithiophosphoric acid with phosphorus oxide, propylene oxide and amines, C12-14-alkyl (branched) |

The specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

SECTION 4 FIRST AID MEASURES

Description of first aid measures

| | |
|---------------------|--|
| Eye Contact | <p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> ▶ Wash out immediately with fresh running water. ▶ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. ▶ Seek medical attention without delay; if pain persists or recurs seek medical attention. ▶ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel. |
| Skin Contact | <p>If skin contact occurs:</p> <ul style="list-style-type: none"> ▶ Immediately remove all contaminated clothing, including footwear. ▶ Flush skin and hair with running water (and soap if available). ▶ Seek medical attention in event of irritation. |
| Inhalation | <ul style="list-style-type: none"> ▶ If fumes, aerosols or combustion products are inhaled remove from contaminated area. ▶ Other measures are usually unnecessary. |
| Ingestion | <ul style="list-style-type: none"> ▶ If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomitus. ▶ If swallowed do NOT induce vomiting. ▶ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. ▶ Observe the patient carefully. ▶ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. ▶ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. ▶ Seek medical advice. ▶ Avoid giving milk or oils. ▶ Avoid giving alcohol. |

Most important symptoms and effects, both acute and delayed

See Section 11

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

For acute or short term repeated exposures to petroleum distillates or related hydrocarbons:

- ▶ Primary threat to life, from pure petroleum distillate ingestion and/or inhalation, is respiratory failure.
- ▶ Patients should be quickly evaluated for signs of respiratory distress (e.g. cyanosis, tachypnoea, intercostal retraction, obtundation) and given oxygen. Patients with inadequate tidal volumes or poor arterial blood gases (pO₂ 50 mm Hg) should be intubated.
- ▶ Arrhythmias complicate some hydrocarbon ingestion and/or inhalation and electrocardiographic evidence of myocardial injury has been reported; intravenous lines and cardiac monitors should be established in obviously symptomatic patients. The lungs excrete inhaled solvents, so that hyperventilation improves clearance.
- ▶ A chest x-ray should be taken immediately after stabilisation of breathing and circulation to document aspiration and detect the presence of pneumothorax.
- ▶ Epinephrine (adrenalin) is not recommended for treatment of bronchospasm because of potential myocardial sensitisation to catecholamines. Inhaled cardioselective bronchodilators (e.g. Alupent, Salbutamol) are the preferred agents, with aminophylline a second choice.

Continued...

‣ Lavage is indicated in patients who require decontamination; ensure use of cuffed endotracheal tube in adult patients. [Ellenhorn and Barceloux: Medical Toxicology]

SECTION 5 FIREFIGHTING MEASURES

Extinguishing media

- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.

Special hazards arising from the substrate or mixture

- | | |
|-----------------------------|--|
| Fire Incompatibility | ‣ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result |
|-----------------------------|--|

Advice for firefighters

Fire Fighting

- Alert Fire Brigade and tell them location and nature of hazard.
- Wear full body protective clothing with breathing apparatus.
- Prevent, by any means available, spillage from entering drains or water course.
- Use water delivered as a fine spray to control fire and cool adjacent area.

Fire/Explosion Hazard

- Combustible.
- Slight fire hazard when exposed to heat or flame.
- Heating may cause expansion or decomposition leading to violent rupture of containers.
- On combustion, may emit toxic fumes of carbon monoxide (CO).

SECTION 6 ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Minor Spills

- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Control personal contact with the substance, by using protective equipment.

Major Spills

- Moderate hazard.
- Clear area of personnel and move upwind.
 - Alert Fire Brigade and tell them location and nature of hazard.
 - Wear breathing apparatus plus protective gloves.

Personal Protective Equipment advice is contained in Section 8 of the SDS.

SECTION 7 HANDLING AND STORAGE

Precautions for safe handling

Safe handling

- The conductivity of this material may make it a static accumulator. A liquid is typically considered nonconductive if its conductivity is below 100 pS/m and is considered semi-conductive if its conductivity is below 10 000 pS/m. Whether a liquid is nonconductive or semi-conductive, the precautions are the same. A number of factors, for example liquid temperature, presence of contaminants, and anti-static additives can greatly influence the conductivity of a liquid.
- Containers, even those that have been emptied, may contain explosive vapours.
 - Do NOT cut, drill, grind, weld or perform similar operations on or near containers.
 - **DO NOT allow clothing wet with material to stay in contact with skin**
 - Electrostatic discharge may be generated during pumping - this may result in fire.

Other information

- Store in original containers.
- Keep containers securely sealed.
- No smoking, naked lights or ignition sources.
- Store in a cool, dry, well-ventilated area.

Conditions for safe storage, including any incompatibilities

Suitable container

- Metal can or drum
- Packaging as recommended by manufacturer.
- Check all containers are clearly labelled and free from leaks.

Storage incompatibility

- Avoid reaction with oxidising agents

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

| Source | Ingredient | Material name | TWA | STEL | Peak | Notes |
|---|---|---|---------|---------------|---------------|---------------------|
| US OSHA Permissible Exposure Levels (PELs) - Table Z1 | paraffinic distillate, light, hydrotreated (severe) | Oil mist, mineral | 5 mg/m3 | Not Available | Not Available | Not Available |
| US ACGIH Threshold Limit Values (TLV) | paraffinic distillate, light, hydrotreated (severe) | Mineral oil, excluding metal working fluids - Pure, highly and severely refined / Mineral oil, excluding metal working fluids - Poorly and mildly refined | 5 mg/m3 | Not Available | Not Available | TLV® Basis: URT irr |
| US NIOSH Recommended Exposure Limits (RELs) | paraffinic distillate, light, hydrotreated (severe) | Heavy mineral oil mist, Paraffin oil mist, White mineral oil mist | 5 mg/m3 | 10 mg/m3 | Not Available | Not Available |

Continued...

20012 HIGH PERFORMANCE GEAR OIL 75W-90 GL4+ 1L


| | | | | | | |
|---|--|---|---------|---------------|---------------|---------------------|
| US OSHA Permissible Exposure Levels (PELs) - Table Z1 | paraffinic distillate, heavy, hydrotreated (severe) | Oil mist, mineral | 5 mg/m3 | Not Available | Not Available | Not Available |
| US ACGIH Threshold Limit Values (TLV) | paraffinic distillate, heavy, hydrotreated (severe) | Mineral oil, excluding metal working fluids - Pure, highly and severely refined / Mineral oil, excluding metal working fluids - Poorly and mildly refined | 5 mg/m3 | Not Available | Not Available | TLV® Basis: URT irr |
| US NIOSH Recommended Exposure Limits (RELs) | paraffinic distillate, heavy, hydrotreated (severe) | Heavy mineral oil mist, Paraffin oil mist, White mineral oil mist | 5 mg/m3 | 10 mg/m3 | Not Available | Not Available |
| US OSHA Permissible Exposure Levels (PELs) - Table Z1 | paraffinic distillate, heavy, solvent-dewaxed (severe) | Oil mist, mineral | 5 mg/m3 | Not Available | Not Available | Not Available |
| US ACGIH Threshold Limit Values (TLV) | paraffinic distillate, heavy, solvent-dewaxed (severe) | Mineral oil, excluding metal working fluids - Pure, highly and severely refined / Mineral oil, excluding metal working fluids - Poorly and mildly refined | 5 mg/m3 | Not Available | Not Available | TLV® Basis: URT irr |
| US NIOSH Recommended Exposure Limits (RELs) | paraffinic distillate, heavy, solvent-dewaxed (severe) | Heavy mineral oil mist, Paraffin oil mist, White mineral oil mist | 5 mg/m3 | 10 mg/m3 | Not Available | Not Available |
| US OSHA Permissible Exposure Levels (PELs) - Table Z1 | mineral oil | Oil mist, mineral | 5 mg/m3 | Not Available | Not Available | Not Available |
| US ACGIH Threshold Limit Values (TLV) | mineral oil | Mineral oil, excluding metal working fluids - Pure, highly and severely refined / Mineral oil, excluding metal working fluids - Poorly and mildly refined | 5 mg/m3 | Not Available | Not Available | TLV® Basis: URT irr |
| US NIOSH Recommended Exposure Limits (RELs) | mineral oil | Heavy mineral oil mist, Paraffin oil mist, White mineral oil mist | 5 mg/m3 | 10 mg/m3 | Not Available | Not Available |

EMERGENCY LIMITS

| Ingredient | Material name | TEEL-1 | TEEL-2 | TEEL-3 |
|--|---|----------|-----------|------------|
| paraffinic distillate, heavy, hydrotreated (severe) | Hydrotreated (mild & severe) heavy paraffinic distillates | 45 mg/m3 | 500 mg/m3 | 3000 mg/m3 |
| paraffinic distillate, heavy, solvent-refined (severe) | Mineral oil, petroleum distillates, solvent-refined (mild) heavy paraffinic | 15 mg/m3 | 170 mg/m3 | 990 mg/m3 |
| paraffinic distillate, heavy, solvent-dewaxed (severe) | Pump oil | 15 mg/m3 | 170 mg/m3 | 990 mg/m3 |

| Ingredient | Original IDLH | Revised IDLH |
|--|---------------|---------------|
| 1-decene, trimers, hydrogenated | Not Available | Not Available |
| paraffinic distillate, light, hydrotreated (severe) | Not Available | Not Available |
| paraffinic distillate, heavy, hydrotreated (severe) | Not Available | Not Available |
| paraffinic distillate, heavy, solvent-refined (severe) | Not Available | Not Available |
| paraffinic distillate, heavy, solvent-dewaxed (severe) | Not Available | Not Available |
| di-tert-butyl polysulfides | Not Available | Not Available |
| mineral oil | Not Available | Not Available |
| reaction product of bis(4-methylpentan-2-yl)dithiophosphoric acid with | Not Available | Not Available |

Exposure controls

| | |
|---|---|
| Appropriate engineering controls | <p>Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.</p> <p>The basic types of engineering controls are:</p> <ul style="list-style-type: none"> Process controls which involve changing the way a job activity or process is done to reduce the risk. Enclosure and/or isolation of emission source which keeps a selected hazard "physically" away from the worker and ventilation that strategically "adds" and "removes" air in the work environment. |
| Personal protection |  |
| Eye and face protection | <ul style="list-style-type: none"> ▶ Safety glasses with side shields. ▶ Chemical goggles. ▶ Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. |
| Skin protection | See Hand protection below |
| Hands/feet protection | <ul style="list-style-type: none"> ▶ Wear chemical protective gloves, e.g. PVC. ▶ Wear safety footwear or safety gumboots, e.g. Rubber <p>NOTE:</p> <ul style="list-style-type: none"> ▶ The material may produce skin sensitisation in predisposed individuals. Care must be taken, when removing gloves and other protective equipment, to avoid all possible skin contact. |

| | |
|-------------------------|--|
| | ▶ Contaminated leather items, such as shoes, belts and watch-bands should be removed and destroyed. |
| Body protection | See Other protection below |
| Other protection | <ul style="list-style-type: none"> ▶ Overalls. ▶ P.V.C. apron. ▶ Barrier cream. |
| Thermal hazards | Not Available |

Recommended material(s)**GLOVE SELECTION INDEX**

Glove selection is based on a modified presentation of the:

"Forsberg Clothing Performance Index".

The effect(s) of the following substance(s) are taken into account in the **computer-generated** selection:

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| Material | CPI |
|----------|-----|
|----------|-----|

* CPI - Chemwatch Performance Index

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to Dangerous Choice for other than short term immersion

NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -

* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

Respiratory protection

Type A-P Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required.

Degree of protection varies with both face-piece and Class of filter; the nature of protection varies with Type of filter.

| Required Minimum Protection Factor | Half-Face Respirator | Full-Face Respirator | Powered Air Respirator |
|------------------------------------|----------------------|----------------------|-------------------------|
| up to 10 x ES | A-AUS P2 | - | A-PAPR-AUS / Class 1 P2 |
| up to 50 x ES | - | A-AUS / Class 1 P2 | - |
| up to 100 x ES | - | A-2 P2 | A-PAPR-2 P2 ^ |

^ - Full-face

A(All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide(HCN), B3 = Acid gas or hydrogen cyanide(HCN), E = Sulfur dioxide(SO₂), G = Agricultural chemicals, K = Ammonia(NH₃), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds(below 65 degC)

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES**Information on basic physical and chemical properties**

| | | | |
|---|--|--|-----------------------|
| Appearance | Yellow colour liquid with characteristic odour; not miscible with water. | | |
| Physical state | Liquid | Relative density (Water = 1) | 0.865-0.87 |
| Odour | Not Available | Partition coefficient n-octanol / water | Not Available |
| Odour threshold | Not Available | Auto-ignition temperature (°C) | Not Available |
| pH (as supplied) | Not Applicable | Decomposition temperature | Not Available |
| Melting point / freezing point (°C) | Not Available | Viscosity (cSt) | 82 (40C), 14.5 (100C) |
| Initial boiling point and boiling range (°C) | Not Available | Molecular weight (g/mol) | Not Applicable |
| Flash point (°C) | 184-190 | Taste | Not Available |
| Evaporation rate | Not Available | Explosive properties | Not Available |
| Flammability | Not Applicable | Oxidising properties | Not Available |
| Upper Explosive Limit (%) | Not Available | Surface Tension (dyn/cm or mN/m) | Not Available |
| Lower Explosive Limit (%) | Not Available | Volatile Component (%vol) | Not Available |
| Vapour pressure (kPa) | Not Available | Gas group | Not Available |
| Solubility in water (g/L) | Immiscible | pH as a solution (1%) | Not Available |
| Vapour density (Air = 1) | Not Available | VOC g/L | Not Available |

SECTION 10 STABILITY AND REACTIVITY

| | |
|---|--|
| Reactivity | See section 7 |
| Chemical stability | <ul style="list-style-type: none"> ▶ Unstable in the presence of incompatible materials. ▶ Product is considered stable. ▶ Hazardous polymerisation will not occur. |
| Possibility of hazardous reactions | See section 7 |
| Conditions to avoid | See section 7 |
| Incompatible materials | See section 7 |
| Hazardous decomposition products | See section 5 |

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects

| | |
|---------------------|--|
| Inhaled | Inhalation of high concentrations of gas/vapour causes lung irritation with coughing and nausea, central nervous depression with headache and dizziness, slowing of reflexes, fatigue and inco-ordination. Central nervous system (CNS) depression may include general discomfort, symptoms of giddiness, headache, dizziness, nausea, anaesthetic effects, slowed reaction time, slurred speech and may progress to unconsciousness. Serious poisonings may result in respiratory depression and may be fatal. |
| Ingestion | The material has NOT been classified by EC Directives or other classification systems as "harmful by ingestion". This is because of the lack of corroborating animal or human evidence. |
| Skin Contact | There is some evidence to suggest that this material can cause inflammation of the skin on contact in some persons. Open cuts, abraded or irritated skin should not be exposed to this material Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected. |
| Eye | There is some evidence to suggest that this material can cause eye irritation and damage in some persons. |
| Chronic | Skin contact with the material is more likely to cause a sensitisation reaction in some persons compared to the general population. |

| 20012 HIGH PERFORMANCE GEAR OIL 75W-90 GL4+ 1L | TOXICITY | IRRITATION |
|--|--|---------------|
| | | Not Available |
| 1-decene, trimers, hydrogenated | TOXICITY | IRRITATION |
| | dermal (rat) LD50: >2000 mg/kg ^[1] | Not Available |
| | Inhalation (rat) LC50: 0.9 mg/l4 h ^[1] | |
| | Inhalation (rat) LC50: 1.4 mg/l4 h ^[1] | |
| Oral (rat) LD50: >2000 mg/kg ^[1] | | |
| paraffinic distillate, light, hydrotreated (severe) | TOXICITY | IRRITATION |
| | Dermal (rabbit) LD50: >2000 mg/kg ^[1] | Not Available |
| | Inhalation (rat) LC50: 3.9 mg/L/4H ^[2] | |
| Oral (rat) LD50: >2000 mg/kg ^[1] | | |
| paraffinic distillate, heavy, hydrotreated (severe) | TOXICITY | IRRITATION |
| | Dermal (rabbit) LD50: >2000 mg/kg ^[1] | Not Available |
| | Inhalation (rat) LC50: >3.9 mg/l4 h ^[1] | |
| | Inhalation (rat) LC50: >4.7 mg/l4 h ^[1] | |
| | Inhalation (rat) LC50: >5 mg/l4 h ^[1] | |
| | Inhalation (rat) LC50: >5.2 mg/l4 h ^[1] | |
| | Inhalation (rat) LC50: >5.3 mg/l4 h ^[1] | |
| | Inhalation (rat) LC50: 10.5 mg/l4 h ^[1] | |
| | Inhalation (rat) LC50: 5.7 mg/l4 h ^[1] | |
| | Inhalation (rat) LC50: 9.6 mg/l4 h ^[1] | |
| Oral (rat) LD50: >2000 mg/kg ^[1] | | |
| paraffinic distillate, heavy, solvent-refined (severe) | TOXICITY | IRRITATION |
| | Dermal (rabbit) LD50: >2000 mg/kg ^[1] | Not Available |
| | Inhalation (rat) LC50: >3.9 mg/l4 h ^[1] | |
| | Inhalation (rat) LC50: >4.7 mg/l4 h ^[1] | |
| | Inhalation (rat) LC50: >5 mg/l4 h ^[1] | |
| | Inhalation (rat) LC50: >5.2 mg/l4 h ^[1] | |
| | Inhalation (rat) LC50: >5.3 mg/l4 h ^[1] | |
| | Inhalation (rat) LC50: 10.5 mg/l4 h ^[1] | |
| | Inhalation (rat) LC50: 5.7 mg/l4 h ^[1] | |
| | Inhalation (rat) LC50: 9.6 mg/l4 h ^[1] | |
| Oral (rat) LD50: >2000 mg/kg ^[1] | | |
| paraffinic distillate, heavy, solvent-dewaxed (severe) | TOXICITY | IRRITATION |
| | Dermal (rabbit) LD50: >2000 mg/kg ^[1] | Not Available |
| | Inhalation (rat) LC50: >3.9 mg/l4 h ^[1] | |
| | Inhalation (rat) LC50: >4.7 mg/l4 h ^[1] | |
| Inhalation (rat) LC50: >5.2 mg/l4 h ^[1] | | |

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| | | |
|----------------------------|--|---|
| | Inhalation (rat) LC50: >5.3 mg/l4 h ^[1] | |
| | Inhalation (rat) LC50: 10.5 mg/l4 h ^[1] | |
| | Inhalation (rat) LC50: 5.7 mg/l4 h ^[1] | |
| | Inhalation (rat) LC50: 9.6 mg/l4 h ^[1] | |
| | Oral (rat) LD50: >2000 mg/kg ^[1] | |
| di-tert-butyl polysulfides | TOXICITY | IRRITATION |
| | Oral (rat) LD50: 6500 mg/kg ^[1] | Eye (rabbit): slight;y irritating Skin (rabbit): slight;y irritating |
| mineral oil | TOXICITY | IRRITATION |
| | Not Available | Not Available |
| Legend: | 1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2.* Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances | |

| | |
|---|---|
| 1-DECENE, TRIMERS, HYDROGENATED | No significant acute toxicological data identified in literature search. |
| PARAFFINIC DISTILLATE, LIGHT, HYDROTREATED (SEVERE) | * Q8 MSDS |
| DI-TERT-BUTYL POLYSULFIDES | The following information refers to contact allergens as a group and may not be specific to this product. Contact allergies quickly manifest themselves as contact eczema, more rarely as urticaria or Quincke's oedema. The pathogenesis of contact eczema involves a cell-mediated (T lymphocytes) immune reaction of the delayed type. Other allergic skin reactions, e.g. contact urticaria, involve antibody-mediated immune reactions. Guinea pig maximization test: not sensitising The material seems to be a sensitizer at challenge but not at rechallenge Ames test: negative with and without metabolic activation * IUCLID Data |
| MINERAL OIL | Toxicity and Irritation data for petroleum-based mineral oils are related to chemical components and vary as does the composition and source of the original crude. A small but definite risk of occupational skin cancer occurs in workers exposed to persistent skin contamination by oils over a period of years. This risk has been attributed to the presence of certain polycyclic aromatic hydrocarbons (PAH) (typified by benz[a]pyrene). Petroleum oils which are solvent refined/extracted or severely hydrotreated, contain very low concentrations of both. |
| PARAFFINIC DISTILLATE, LIGHT, HYDROTREATED (SEVERE) & PARAFFINIC DISTILLATE, HEAVY, SOLVENT-REFINED (SEVERE) | No significant acute toxicological data identified in literature search. The materials included in the Lubricating Base Oils category are related from both process and physical-chemical perspectives; The potential toxicity of a specific distillate base oil is inversely related to the severity or extent of processing the oil has undergone, since: <ul style="list-style-type: none"> ▶ The adverse effects of these materials are associated with undesirable components, and ▶ The levels of the undesirable components are inversely related to the degree of processing; ▶ Distillate base oils receiving the same degree or extent of processing will have similar toxicities; ▶ The potential toxicity of <i>residual base oils</i> is independent of the degree of processing the oil receives. ▶ The reproductive and developmental toxicity of the distillate base oils is inversely related to the degree of processing. Unrefined & mildly refined distillate base oils contain the highest levels of undesirable components, have the largest variation of hydrocarbon molecules and have shown the highest potential carcinogenic and mutagenic activities. |
| PARAFFINIC DISTILLATE, HEAVY, HYDROTREATED (SEVERE) & PARAFFINIC DISTILLATE, HEAVY, SOLVENT-DEWAXED (SEVERE) | The materials included in the Lubricating Base Oils category are related from both process and physical-chemical perspectives; The potential toxicity of a specific distillate base oil is inversely related to the severity or extent of processing the oil has undergone, since: <ul style="list-style-type: none"> ▶ The adverse effects of these materials are associated with undesirable components, and ▶ The levels of the undesirable components are inversely related to the degree of processing; ▶ Distillate base oils receiving the same degree or extent of processing will have similar toxicities; ▶ The potential toxicity of <i>residual base oils</i> is independent of the degree of processing the oil receives. ▶ The reproductive and developmental toxicity of the distillate base oils is inversely related to the degree of processing. Unrefined & mildly refined distillate base oils contain the highest levels of undesirable components, have the largest variation of hydrocarbon molecules and have shown the highest potential carcinogenic and mutagenic activities. Highly and severely refined distillate base oils are produced from unrefined and mildly refined oils by removing or transforming undesirable components. |

| | | | |
|--|---|---------------------------------|---|
| Acute Toxicity | ☒ | Carcinogenicity | ☒ |
| Skin Irritation/Corrosion | ☒ | Reproductivity | ☒ |
| Serious Eye Damage/Irritation | ☒ | STOT - Single Exposure | ☒ |
| Respiratory or Skin sensitisation | ✓ | STOT - Repeated Exposure | ☒ |
| Mutagenicity | ☒ | Aspiration Hazard | ☒ |

Legend: ✓ – Data required to make classification available
✗ – Data available but does not fill the criteria for classification
☒ – Data Not Available to make classification

SECTION 12 ECOLOGICAL INFORMATION

Toxicity

DO NOT discharge into sewer or waterways.

Continued...

Persistence and degradability

| Ingredient | Persistence: Water/Soil | Persistence: Air |
|---------------------------------|-------------------------|------------------|
| 1-decene, trimers, hydrogenated | LOW | LOW |

Bioaccumulative potential

| Ingredient | Bioaccumulation |
|---------------------------------|------------------------|
| 1-decene, trimers, hydrogenated | LOW (LogKOW = 15.0744) |

Mobility in soil

| Ingredient | Mobility |
|---------------------------------|-----------------------|
| 1-decene, trimers, hydrogenated | LOW (KOC = 357700000) |

SECTION 13 DISPOSAL CONSIDERATIONS**Waste treatment methods**

| Product / Packaging disposal | |
|------------------------------|---|
| | <ul style="list-style-type: none"> ▶ Recycle wherever possible or consult manufacturer for recycling options. ▶ Consult State Land Waste Authority for disposal. ▶ Bury or incinerate residue at an approved site. ▶ Recycle containers if possible, or dispose of in an authorised landfill. |

SECTION 14 TRANSPORT INFORMATION**Labels Required**

| Marine Pollutant | |
|------------------|----|
| | NO |

Land transport (DOT): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Air transport (ICAO-IATA / DGR): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Sea transport (IMDG-Code / GGVSee): NOT REGULATED FOR TRANSPORT OF DANGEROUS GOODS

Transport in bulk according to Annex II of MARPOL 73 / 78 and the IBC code

| Source | Ingredient | Pollution Category |
|---|---------------------------------|--------------------|
| IMO MARPOL 73/78 (Annex II) - List of Noxious Liquid Substances Carried in Bulk | 1-decene, trimers, hydrogenated | Y |

SECTION 15 REGULATORY INFORMATION**Safety, health and environmental regulations / legislation specific for the substance or mixture****1-DECENE, TRIMERS, HYDROGENATED(157707-86-3) IS FOUND ON THE FOLLOWING REGULATORY LISTS**

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

PARAFFINIC DISTILLATE, LIGHT, HYDROTREATED (SEVERE)(64742-55-8.) IS FOUND ON THE FOLLOWING REGULATORY LISTS

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

US - Alaska Limits for Air Contaminants

US - California Permissible Exposure Limits for Chemical Contaminants

US - California Proposition 65 - Carcinogens

US - Hawaii Air Contaminant Limits

US - Idaho - Limits for Air Contaminants

US - Michigan Exposure Limits for Air Contaminants

US - Minnesota Permissible Exposure Limits (PELs)

US - Oregon Permissible Exposure Limits (Z-1)

US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants

US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants

US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants

US - Washington Permissible exposure limits of air contaminants

US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants

US ACGIH Threshold Limit Values (TLV)

US ACGIH Threshold Limit Values (TLV) - Carcinogens

US National Toxicology Program (NTP) 13th Report Part A Known to be Human Carcinogens

US NIOSH Recommended Exposure Limits (RELs)

US OSHA Permissible Exposure Levels (PELs) - Table Z1

US Priority List for the Development of Proposition 65 Safe Harbor Levels - No Significant Risk Levels (NSRLs) for Carcinogens and Maximum Allowable Dose Levels (MADLs) for Chemicals Causing Reproductive Toxicity

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

PARAFFINIC DISTILLATE, HEAVY, HYDROTREATED (SEVERE)(64742-54-7.) IS FOUND ON THE FOLLOWING REGULATORY LISTS

| | |
|---|--|
| International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs | US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants |
| US - Alaska Limits for Air Contaminants | US - Washington Permissible exposure limits of air contaminants |
| US - California Permissible Exposure Limits for Chemical Contaminants | US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants |
| US - California Proposition 65 - Carcinogens | US ACGIH Threshold Limit Values (TLV) |
| US - Hawaii Air Contaminant Limits | US ACGIH Threshold Limit Values (TLV) - Carcinogens |
| US - Idaho - Limits for Air Contaminants | US National Toxicology Program (NTP) 13th Report Part A Known to be Human Carcinogens |
| US - Michigan Exposure Limits for Air Contaminants | US NIOSH Recommended Exposure Limits (RELs) |
| US - Minnesota Permissible Exposure Limits (PELs) | US OSHA Permissible Exposure Levels (PELs) - Table Z1 |
| US - Oregon Permissible Exposure Limits (Z-1) | US Priority List for the Development of Proposition 65 Safe Harbor Levels - No Significant Risk Levels (NSRLs) for Carcinogens and Maximum Allowable Dose Levels (MADLs) for Chemicals Causing Reproductive Toxicity |
| US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants | US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory |
| US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants | |

PARAFFINIC DISTILLATE, HEAVY, SOLVENT-REFINED (SEVERE)(64741-88-4.) IS FOUND ON THE FOLLOWING REGULATORY LISTS

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

PARAFFINIC DISTILLATE, HEAVY, SOLVENT-DEWAXED (SEVERE)(64742-65-0.) IS FOUND ON THE FOLLOWING REGULATORY LISTS

| | |
|---|--|
| International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs | US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants |
| US - Alaska Limits for Air Contaminants | US - Washington Permissible exposure limits of air contaminants |
| US - California Permissible Exposure Limits for Chemical Contaminants | US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants |
| US - California Proposition 65 - Carcinogens | US ACGIH Threshold Limit Values (TLV) |
| US - Hawaii Air Contaminant Limits | US ACGIH Threshold Limit Values (TLV) - Carcinogens |
| US - Idaho - Limits for Air Contaminants | US National Toxicology Program (NTP) 13th Report Part A Known to be Human Carcinogens |
| US - Michigan Exposure Limits for Air Contaminants | US NIOSH Recommended Exposure Limits (RELs) |
| US - Minnesota Permissible Exposure Limits (PELs) | US OSHA Permissible Exposure Levels (PELs) - Table Z1 |
| US - Oregon Permissible Exposure Limits (Z-1) | US Priority List for the Development of Proposition 65 Safe Harbor Levels - No Significant Risk Levels (NSRLs) for Carcinogens and Maximum Allowable Dose Levels (MADLs) for Chemicals Causing Reproductive Toxicity |
| US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants | US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory |
| US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants | |

DI-TERT-BUTYL POLYSULFIDES(68937-96-2) IS FOUND ON THE FOLLOWING REGULATORY LISTS

US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory

MINERAL OIL(NOT AVAIL.) IS FOUND ON THE FOLLOWING REGULATORY LISTS

| | |
|---|--|
| International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs | US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants |
| US - Alaska Limits for Air Contaminants | US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants |
| US - California Permissible Exposure Limits for Chemical Contaminants | US - Washington Permissible exposure limits of air contaminants |
| US - California Proposition 65 - Carcinogens | US - Wyoming Toxic and Hazardous Substances Table Z1 Limits for Air Contaminants |
| US - Hawaii Air Contaminant Limits | US ACGIH Threshold Limit Values (TLV) |
| US - Idaho - Limits for Air Contaminants | US ACGIH Threshold Limit Values (TLV) - Carcinogens |
| US - Michigan Exposure Limits for Air Contaminants | US National Toxicology Program (NTP) 13th Report Part A Known to be Human Carcinogens |
| US - Minnesota Permissible Exposure Limits (PELs) | US NIOSH Recommended Exposure Limits (RELs) |
| US - Oregon Permissible Exposure Limits (Z-1) | US OSHA Permissible Exposure Levels (PELs) - Table Z1 |
| US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants | US Priority List for the Development of Proposition 65 Safe Harbor Levels - No Significant Risk Levels (NSRLs) for Carcinogens and Maximum Allowable Dose Levels (MADLs) for Chemicals Causing Reproductive Toxicity |

Federal Regulations

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SECTION 311/312 HAZARD CATEGORIES

| | |
|---------------------------------|-----|
| Immediate (acute) health hazard | YES |
| Delayed (chronic) health hazard | NO |
| Fire hazard | NO |
| Pressure hazard | NO |
| Reactivity hazard | NO |

US. EPA CERCLA HAZARDOUS SUBSTANCES AND REPORTABLE QUANTITIES (40 CFR 302.4)

None Reported

State Regulations

US. CALIFORNIA PROPOSITION 65

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm

US - CALIFORNIA PREPOSITION 65 - CARCINOGENS & REPRODUCTIVE TOXICITY (CRT): LISTED SUBSTANCE

Soots, tars, and mineral oils (untreated and mildly treated oils and used engine oils) Listed

| National Inventory | Status |
|--------------------|--|
| Australia - AICS | N (1-decene, trimers, hydrogenated; mineral oil) |
| Canada - DSL | N (1-decene, trimers, hydrogenated; mineral oil) |

| | |
|-------------------------------|---|
| Canada - NDSL | N (paraffinic distillate, heavy, hydrotreated (severe); paraffinic distillate, heavy, solvent-dewaxed (severe); mineral oil; di-tert-butyl polysulfides; paraffinic distillate, heavy, solvent-refined (severe); paraffinic distillate, light, hydrotreated (severe)) |
| China - IECSC | N (mineral oil) |
| Europe - EINEC / ELINCS / NLP | N (mineral oil) |
| Japan - ENCS | N (mineral oil; di-tert-butyl polysulfides; paraffinic distillate, heavy, solvent-refined (severe); paraffinic distillate, light, hydrotreated (severe)) |
| Korea - KECI | N (mineral oil) |
| New Zealand - NZIoC | N (mineral oil) |
| Philippines - PICCS | N (1-decene, trimers, hydrogenated; mineral oil) |
| USA - TSCA | N (mineral oil) |
| Legend: | <i>Y = All ingredients are on the inventory N = Not determined or one or more ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)</i> |

SECTION 16 OTHER INFORMATION

Other information

Ingredients with multiple cas numbers

| Name | CAS No |
|---------------------------------|--------------------------|
| 1-decene, trimers, hydrogenated | 157707-86-3, 638-68-6 |
| di-tert-butyl polysulfides | 1021171-50-5, 68937-96-2 |

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:

www.chemwatch.net

The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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