SAFETY DATA SHEET

Orfom® MC 37 Collector

Version 2.4
Revision Date 2020-01-13

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Product information

Product Name: Orfom® MC 37 Collector
Material: 1119737, 1119735, 1119734, 1119732, 1119711, 1108011, 1106092, 1106090, 1106089, 1106091, 1105818

Use: Mineral Collector

Company: Chevron Phillips Chemical Company LP
Mining Chemicals
10001 Six Pines Drive
The Woodlands, TX 77380

Emergency telephone:

Health:
866.442.9628 (North America)
1.832.813.4984 (International)

Transport:
CHEMTREC 800.424.9300 or 703.527.3887 (Int'l)
Asia: CHEMWATCH (+612 9186 1132) China: 0532 8388 9090
EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Mexico CHEMTREC 01-800-681-9531 (24 hours)
South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600
Argentina: +(54)-1159839431

Responsible Department: Product Safety and Toxicology Group
E-mail address: SDS@CPChem.com
Website: www.CPChem.com

This product is for experimental uses only. The product has not been completely analyzed and all of the hazards may not be known. Please use caution while handling this product.

SECTION 2: Hazards identification

Classification of the substance or mixture
This product has been classified in accordance with the hazard communication standard 29 CFR 1910.1200; the SDS and labels contain all the information as required by the standard.

Classification:
Flammable liquids, Category 4
Skin irritation, Category 2

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Eye irritation, Category 2A
Skin sensitization, Category 1
Carcinogenicity, Category 1B
Reproductive toxicity, Category 2
Specific target organ toxicity - repeated exposure, Category 2,
Blood, Liver, thymus gland
Aspiration hazard, Category 1

Labeling

Symbol(s):

Signal Word: Danger

Hazard Statements:

H227: Combustible liquid.
H304: May be fatal if swallowed and enters airways.
H315: Causes skin irritation.
H317: May cause an allergic skin reaction.
H319: Causes serious eye irritation.
H350: May cause cancer.
H361: Suspected of damaging fertility or the unborn child.
H373: May cause damage to organs (Blood, Liver, thymus gland) through prolonged or repeated exposure.

Precautionary Statements:

Prevention:
P201 Obtain special instructions before use.
P210 Keep away from heat/sparks/open flames/hot surfaces.
No smoking.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response:
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P302 + P352 IF ON SKIN: Wash with plenty of water.
P308 + P313 IF exposed or concerned: Get medical advice/attention.
P311 Call a POISON CENTER or doctor/physician.
P331 Do NOT induce vomiting.
P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P337 + P313 If eye irritation persists: Get medical advice/attention.
P370 + P378 In case of fire: Use alcohol-resistant foam, carbon dioxide or water mist to extinguish.

Storage:
P403 + P235 Store in a well-ventilated place. Keep cool.

Disposal:
P501 Dispose of contents/container to an approved waste disposal plant.

Carcinogenicity:

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IARC
Group 2B: Possibly carcinogenic to humans
Decant (clarified) Oils 64741-62-4
Light Cycle Oil 64741-59-9

NTP
Known to be human carcinogen
Light Cycle Oil 64741-59-9

SECTION 3: Composition/information on ingredients

Synonyms : None Established
Molecular formula : Mixture

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Weight %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light Cycle Oil</td>
<td>64741-59-9</td>
<td>25 - 75</td>
</tr>
<tr>
<td>tert-Dodecanethiol</td>
<td>25103-58-6</td>
<td>25 - 75</td>
</tr>
<tr>
<td>Decant (clarified) Oils</td>
<td>64741-62-4</td>
<td>25 - 75</td>
</tr>
</tbody>
</table>

This is an experimental material: The composition of this material may vary.

SECTION 4: First aid measures

General advice : Move out of dangerous area. Show this material safety data sheet to the doctor in attendance. Material may produce a serious, potentially fatal pneumonia if swallowed or vomited.

If inhaled : Consult a physician after significant exposure. If unconscious, place in recovery position and seek medical advice.

In case of skin contact : If on skin, rinse well with water. If on clothes, remove clothes.

In case of eye contact : Flush eyes with water as a precaution. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.

If swallowed : Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

SECTION 5: Firefighting measures

Flash point : 93°C (199°F)
Autoignition temperature : 260°C (500°F)

Suitable extinguishing media : Carbon dioxide (CO2).
Unsuitable extinguishing media : High volume water jet.
Specific hazards during firefighting : Do not allow run-off from fire fighting to enter drains or water courses.
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Special protective equipment for fire-fighters: Wear self-contained breathing apparatus for firefighting if necessary.

Further information: Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.

Fire and explosion protection: Do not spray on an open flame or any other incandescent material. Keep away from open flames, hot surfaces and sources of ignition.

Hazardous decomposition products: Carbon oxides. Sulfur oxides.

SECTION 6: Accidental release measures

Personal precautions: Use personal protective equipment. Ensure adequate ventilation.

Environmental precautions: Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.

Methods for cleaning up: Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Keep in suitable, closed containers for disposal.

SECTION 7: Handling and storage

Handling

Advice on safe handling: Avoid formation of aerosol. Do not breathe vapors/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Provide sufficient air exchange and/or exhaust in work rooms. Dispose of rinse water in accordance with local and national regulations. Persons susceptible to skin sensitization problems or asthma, allergies, chronic or recurrent respiratory disease should not be employed in any process in which this mixture is being used.

Advice on protection against fire and explosion: Do not spray on an open flame or any other incandescent material. Keep away from open flames, hot surfaces and sources of ignition.

Storage

Requirements for storage areas and containers: No smoking. Keep in a well-ventilated place. Containers which are opened must be carefully resealed and kept upright.
**Orfom® MC 37 Collector**

Use: Mineral Collector

### SECTION 8: Exposure controls/personal protection

#### Ingredients with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>Basis</th>
<th>Value</th>
<th>Control parameters</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>tert-Dodecanethiol</td>
<td>Manufacturer</td>
<td>TWA</td>
<td>0.1 ppm</td>
<td></td>
</tr>
</tbody>
</table>

### Hazardous components without workplace control parameters

**Engineering measures**

Adequate ventilation to control airborne concentrations below the exposure guidelines/limits. Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

**Personal protective equipment**

- **Respiratory protection**: Wear a supplied-air NIOSH approved respirator unless ventilation or other engineering controls are adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure. Wear a NIOSH approved respirator that provides protection when working with this material if exposure to harmful levels of airborne material may occur, such as: Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.

- **Hand protection**: The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

- **Eye protection**: Eye wash bottle with pure water. Tightly fitting safety goggles.

- **Skin and body protection**: Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Wear as appropriate: Flame retardant protective clothing. Remove and wash contaminated clothing before re-use. Skin should be washed after contact. Footwear protecting against chemicals.
## Orfom® MC 37 Collector

**Version 2.4**

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### Hygiene measures
- When using do not eat or drink.
- When using do not smoke.
- Wash hands before breaks and at the end of workday.

### SECTION 9: Physical and chemical properties

#### Information on basic physical and chemical properties

**Appearance**
- **Physical state**: Liquid
- **Color**: Dark Brown
- **Odor**: Pungent

**Safety data**
- **Flash point**: 93°C (199°F)
- **Lower explosion limit**: 0.6 % (V)
- **Oxidizing properties**: no
- **Autoignition temperature**: 260°C (500°F)
- **Molecular formula**: Mixture
- **Molecular weight**: Not applicable
- **pH**: Not applicable
- **Pour point**: No data available

- **Boiling point/boiling range**: 110-427°C (230-801°F)
- **Vapor pressure**: 1.00 MMHG at 25°C (77°F)
- **Relative density**: No data available
- **Density**: 0.9529 g/cm³
- **Water solubility**: Negligible
- **Partition coefficient: n-octanol/water**: No data available
- **Viscosity, kinematic**: No data available
- **Relative vapor density**: 1
  
  (Air = 1.0)
- **Evaporation rate**: < 1

### SECTION 10: Stability and reactivity
Orfom® MC 37 Collector

SECTION 11: Toxicological information

THE TOXICITY OF THIS MATERIAL HAS NOT BEEN FULLY ASSESSED
Since this is an experimental material, limited data are available regarding potential health effects following exposure to it. Therefore, we strongly recommend that this document be read carefully and the precautions outlined in it be followed to minimize exposure.

This product is for experimental uses only. The product has not been completely analyzed and all of the hazards may not be known. Please use caution while handling this product.

**Orfom® MC 37 Collector**

**Acute oral toxicity**
- LD50: > 3,000 mg/kg
- Method: Acute toxicity estimate

**Orfom® MC 37 Collector**

**Acute inhalation toxicity**
- LC50: > 14 mg/l
  - Exposure time: 4 h
  - Test atmosphere: vapor
  - Method: Acute toxicity estimate

**Orfom® MC 37 Collector**

**Acute dermal toxicity**
- LD50: > 3,000 mg/kg
  - Method: Acute toxicity estimate

**Orfom® MC 37 Collector**

**Skin irritation**
- Skin irritation

**Orfom® MC 37 Collector**

**Eye irritation**
- Eye irritation

**Orfom® MC 37 Collector**

**Sensitization**
- Causes sensitization.
Repeated dose toxicity

Light Cycle Oil

Species: Rat, males
Sex: males
Application Route: Dermal
Dose: 0, 8, 25, 125, 500, 1250 mg/kg
Exposure time: 90 day
Number of exposures: 5 days/wk
NOEL: 25 mg/kg
Target Organs: Blood, Liver, Thymus

Species: Rat, females
Sex: females
Application Route: Dermal
Dose: 0, 8, 25, 125, 500, 1250 mg/kg
Exposure time: 90 day
Number of exposures: 5 days/wk
NOEL: 125 mg/kg
Target Organs: Blood, Liver, Thymus

tert-Dodecanethiol

Species: Rat, male
Sex: male
Application Route: Inhalation
Dose: 0, 26, 98 ppm
Exposure time: 4 wk
Number of exposures: 6 h/d, 5 d/wk
Lowest observable effect level: 26 ppm
Method: OECD Test Guideline 412
Target Organs: Kidney, Liver
Species: Rat, female  
Sex: female  
Application Route: Inhalation  
Dose: 0, 26, 98 ppm  
Exposure time: 4 wk  
Number of exposures: 6 h/d, 5 d/wk  
NOEL: 26 ppm  
Method: OECD Guideline 412  
Target Organs: Liver, Kidney

Species: Dog, male and female  
Sex: male and female  
Application Route: Inhalation  
Dose: 0, 25, 106 ppm  
Exposure time: 4 wk  
Number of exposures: 6 h/d, 5 d/wk  
NOEL: 25 ppm  
Lowest observable effect level: 109 ppm  
Method: OECD Test Guideline 412  
Target Organs: Liver

Species: Mouse, male and female  
Sex: male and female  
Application Route: Inhalation  
Dose: 0, 25, 109 ppm  
Exposure time: 4 wk  
Number of exposures: 6 h/d, 5 d/wk  
Lowest observable effect level: 25 ppm  
Method: OECD Test Guideline 412  
Target Organs: Liver

Species: Rat, male  
Sex: male  
Application Route: oral gavage  
Dose: 10, 50, 250 mg/kg  
Exposure time: 35 d  
Number of exposures: once daily  
NOEL: 50 mg/kg  
Method: OECD Guideline 422  
Target Organs: Liver, spleen  
Information given is based on data obtained from similar substances.

Species: Rat, female  
Sex: female  
Application Route: oral gavage  
Dose: 10, 50, 250 mg/kg  
Exposure time: 53 d  
Number of exposures: once daily  
NOEL: 50 mg/kg  
Method: OECD Guideline 422  
Target Organs: Liver, spleen  
Information given is based on data obtained from similar substances.

Species: Rat, male  
Sex: male  
Application Route: Inhalation  
Dose: 5, 25, 100 ppm  
Exposure time: 90 d
Number of exposures: 6h/d, 5d/wk  
NOEL: 25 ppm  
Method: OECD Test Guideline 413

Species: Rat, female  
Sex: female  
Application Route: Inhalation  
Dose: 5, 25, 100 ppm  
Exposure time: 90 d  
Number of exposures: 6h/d, 5d/wk  
NOEL: 25 ppm  
Method: OECD Test Guideline 413

Decant (clarified) Oils  
Species: Rat  
Application Route: Dermal  
Dose: 0, 8, 30, 125, 500 mg/kg  
Exposure time: 13 wk  
Lowest observable effect level: 8 mg/kg  
Target Organs: Liver

Genotoxicity in vitro

Light Cycle Oil  
: Test Type: Modified Ames test  
Result: positive

: Test Type: Mouse lymphoma assay  
Result: positive

: Test Type: Sister Chromatid Exchange Assay  
Result: negative

tert-Dodecanethiol  
Test Type: Ames test  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
Result: negative

Test Type: Mouse lymphoma assay  
Metabolic activation: with and without metabolic activation  
Method: OECD Guideline 476  
Result: negative

Test Type: Sister Chromatid Exchange Assay  
Metabolic activation: with and without metabolic activation  
Method: OECD Guideline 479  
Result: negative

Test Type: Chromosome aberration test in vitro  
Metabolic activation: with and without metabolic activation  
Method: OECD Guideline 473  
Result: Ambiguous

Decant (clarified) Oils  
Test Type: Modified Ames test  
Result: positive
Test Type: Mouse lymphoma assay  
Result: positive

Test Type: Sister Chromatid Exchange Assay  
Result: positive

Test Type: Unscheduled DNA synthesis assay  
Result: positive

Test Type: Cell transformation assay  
Result: Ambiguous

Genotoxicity in vivo

Light Cycle Oil
Test Type: Cytogenetic assay  
Result: negative

tert-Dodecanethiol
Test Type: In vivo micronucleus test  
Species: Mouse  
Route of Application: Oral  
Dose: 1250, 2500, 5000 mg/kg/bw  
Method: Mutagenicity (micronucleus test)  
Result: negative  
Remarks: Information given is based on data obtained from similar substances.

Decant (clarified) Oils
Test Type: Sister Chromatid Exchange Assay  
Result: positive

Orfom® MC 37 Collector
Carcinogenicity
Method: Expected to be carcinogenic based on individual component data.

Reproductive toxicity

tert-Dodecanethiol
Species: Rat  
Sex: male  
Application Route: oral gavage  
Dose: 10, 50, 250 mg/kg/d  
Exposure time: 35 d  
Number of exposures: Daily  
Method: OECD Guideline 422  
NOAEL Parent: >= 250 mg/kg  
Information given is based on data obtained from similar substances.
Species: Rat
Sex: female
Application Route: oral gavage
Dose: 10, 50, 250 mg/kg/d
Exposure time: 53 d
Number of exposures: Daily
Method: OECD Guideline 422
NOAEL Parent: 50 mg/kg
NOAEL F1: 50 mg/kg
Information given is based on data obtained from similar substances.
Decrease in Delivery Index

Decant (clarified) Oils

Suspected of damaging fertility or the unborn child.

Developmental Toxicity

Light Cycle Oil
Species: Rat
Application Route: Dermal
Dose: 1, 50, 250 mg/kg/d
Number of exposures: once daily
Test period: GD 0-19
Method: OECD Guideline 414
NOAEL Teratogenicity: 1 mg/kg
NOAEL Maternal: 1 mg/kg

tert-Dodecanethiol
Species: Rat
Application Route: Inhalation
Dose: 0, 22.7, 88.6 ppm
Number of exposures: 6 hrs/d
Test period: GD 6-19
Method: OECD Guideline 414
NOAEL Teratogenicity: >= 88.6 ppm
No adverse effects expected

Species: Mouse
Application Route: Inhalation
Dose: 0, 22.7, 88.6 ppm
Number of exposures: 6 hrs/d
Test period: GD 6-19
Method: OECD Guideline 414
NOAEL Teratogenicity: >= 88.6 ppm
No adverse effects expected

Decant (clarified) Oils
Species: Rat
Application Route: Dermal
Dose: 0, 0.05, 1, 50, 250 mg/kg/bw/d
Exposure time: 6h/d
Number of exposures: daily
Test period: GD 0-19
NOAEL Teratogenicity: 0.05 mg/kg
NOAEL Maternal: 0.05 mg/kg
Suspected of damaging fertility or the unborn child.

Orfom® MC 37 Collector
Aspiration toxicity: May be fatal if swallowed and enters airways.

CMR effects

SDS Number:100000014964 12/19
Light Cycle Oil: Carcinogenicity: Possible human carcinogen

tert-Dodecanethiol: Carcinogenicity: Not available
Mutagenicity: Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
Teratogenicity: Animal testing did not show any effects on fetal development.
Reproductive toxicity: No toxicity to reproduction

Decant (clarified) Oils: Carcinogenicity: Possible human carcinogen
Reproductive toxicity: Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.

Orfom® MC 37 Collector
Further information: Solvents may degrease the skin.

SECTION 12: Ecological information

Toxicity to fish

Light Cycle Oil: LL50: > 0.3 mg/l
Exposure time: 96 h
Species: Oncorhynchus mykiss (rainbow trout)
semi-static test Method: OECD Test Guideline 203

tert-Dodecanethiol: LL50: > 100 mg/l
Exposure time: 96 h
Species: Danio rerio (Zebra Fish)
static test Method: OECD Test Guideline 203
No toxicity at the limit of solubility.

Decant (clarified) Oils: LL50: 79 mg/l
Exposure time: 96 h
semi-static test Method: OECD Test Guideline 203
Information given is based on data obtained from similar substances.

Toxicity to daphnia and other aquatic invertebrates

Light Cycle Oil: EL50: 0.32 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)
Immobilization Method: OECD Test Guideline 202

tert-Dodecanethiol: EC50: > 0.056 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)
semi-static test Method: OECD Test Guideline 202
No toxicity at the limit of solubility.

Decant (clarified) Oils: EL50: 0.22 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)
static test Method: OECD Test Guideline 202
Toxicity to algae

**Light Cycle Oil**
- EL50: 0.51 mg/l
- Exposure time: 72 h
- Species: Pseudokirchneriella subcapitata (green algae)
- Growth inhibition Method: OECD Test Guideline 201

**Decant (clarified) Oils**
- EL50: 0.32 mg/l
- Exposure time: 72 h
- static test Method: OECD Test Guideline 201

**M-Factor**
- **Distillates (petroleum), light catalytic cracked**
  - M-Factor (Acute Aquat. Tox.) 1
  - M-Factor (Chron. Aquat. Tox.) 1

**M-Factor**
- **Clarified oils (petroleum), catalytic cracked**
  - M-Factor (Acute Aquat. Tox.) 1
  - M-Factor (Chron. Aquat. Tox.) 1

Toxicity to bacteria

**tert-Dodecanethiol**
- NOEC: 8.6 mg/l
- Exposure time: 3 h
- Growth rate
- Respiration inhibition
- Method: OECD Test Guideline 209

- NOEC: > 10 mg/l
- Exposure time: 3 h
- Growth rate
- Respiration inhibition
- Method: OECD Test Guideline 209

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)

**tert-Dodecanethiol**
- NOEC: 0.0108 mg/l
- Exposure time: 21 d
- Species: Daphnia magna (Water flea)
- semi-static test
- Method: OECD Test Guideline 211
- No toxicity at the limit of solubility.

Biodegradability
- Taking into consideration the properties of several ingredients, the product is estimated not to be readily biodegradable according to OECD classification.

Elimination information (persistence and degradability)

Bioaccumulation

**tert-Dodecanethiol**
- Species: Danio rerio (zebra fish)
Exposure time: 15 d
Bioconcentration factor (BCF): > 500 - < 1,950
Method: OECD Test Guideline 305
Biomagnification factor <1
The product may be accumulated in organisms.

Results of PBT assessment

<table>
<thead>
<tr>
<th>Compound</th>
<th>PBT Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light Cycle Oil</td>
<td>Non-classified PBT substance,</td>
</tr>
<tr>
<td></td>
<td>Non-classified vPvB substance</td>
</tr>
<tr>
<td>tert-Dodecanethiol</td>
<td>Non-classified PBT substance,</td>
</tr>
<tr>
<td></td>
<td>Non-classified vPvB substance</td>
</tr>
<tr>
<td>Decant (clarified) Oils</td>
<td>Non-classified PBT substance,</td>
</tr>
<tr>
<td></td>
<td>Non-classified vPvB substance</td>
</tr>
</tbody>
</table>

Additional ecological information

**Ecotoxicology Assessment**

**Short-term (acute) aquatic hazard**

<table>
<thead>
<tr>
<th>Compound</th>
<th>Hazard to aquatic life</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light Cycle Oil</td>
<td>Very toxic to aquatic life.</td>
</tr>
<tr>
<td>tert-Dodecanethiol</td>
<td>No toxicity at the limit of solubility.</td>
</tr>
<tr>
<td>Decant (clarified) Oils</td>
<td>Very toxic to aquatic life.</td>
</tr>
</tbody>
</table>

**Long-term (chronic) aquatic hazard**

<table>
<thead>
<tr>
<th>Compound</th>
<th>Hazard to aquatic life</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light Cycle Oil</td>
<td>Very toxic to aquatic life with long lasting effects.</td>
</tr>
<tr>
<td>tert-Dodecanethiol</td>
<td>May cause long lasting harmful effects to aquatic life.</td>
</tr>
<tr>
<td>Decant (clarified) Oils</td>
<td>Very toxic to aquatic life with long lasting effects.</td>
</tr>
</tbody>
</table>

**Toxicity Data on Soil**

<table>
<thead>
<tr>
<th>Compound</th>
<th>Toxicity in Soil</th>
</tr>
</thead>
<tbody>
<tr>
<td>tert-Dodecanethiol</td>
<td>Adsorbs on soil.</td>
</tr>
</tbody>
</table>

**SECTION 13: Disposal considerations**

The information in this SDS pertains only to the product as shipped.

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

<table>
<thead>
<tr>
<th>Material</th>
<th>Disposal Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product</td>
<td>The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.</td>
</tr>
<tr>
<td>Contaminated packaging</td>
<td>Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum.</td>
</tr>
</tbody>
</table>
SECTION 14: Transport information

The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments in non-bulk packages (see regulatory definition).

Consult the appropriate domestic or international mode-specific and quantity-specific Dangerous Goods Regulations for additional shipping description requirements (e.g., technical name or names, etc.) Therefore, the information shown here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the SDS and the bill of lading.

US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)
UN1268, PETROLEUM DISTILLATES, N.O.S., COMBUSTIBLE LIQUID, III

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)
UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (LIGHT CYCLE OIL, DECANT (CLARIFIED) OILS), 9, III, (93°C), MARINE POLLUTANT, (LIGHT CYCLE OIL, DECANT (CLARIFIED) OILS)

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)
UN3334, AVIATION REGULATED LIQUID, N.O.S., (LIGHT CYCLE OIL, DECANT (CLARIFIED) OILS), 9, III

ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))
UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (LIGHT CYCLE OIL, DECANT (CLARIFIED) OILS), 9, III

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))
UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (LIGHT CYCLE OIL, DECANT (CLARIFIED) OILS), 9, III

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)
UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (LIGHT CYCLE OIL, DECANT (CLARIFIED) OILS), 9, III

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

SECTION 15: Regulatory information

National legislation

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard
Chronic Health Hazard

SDS Number:100000014964  16/19
EPCRA - EMERGENCY PLANNING COMMUNITY RIGHT - TO – KNOW

CERCLA Reportable Quantity : This material does not contain any components with a CERCLA RQ.

SARA 302 Reportable Quantity : This material does not contain any components with a SARA 302 RQ.

SARA 302 Threshold Planning Quantity : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 304 Reportable Quantity : This material does not contain any components with a section 304 EHS RQ.

SARA 313 Components : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Air Act

Ozone-Depletion Potential : This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489).

US State Regulations

Pennsylvania Right To Know : tert-Dodecanethiol - 25103-58-6

California Prop. 65 Components : WARNING! This product contains a chemical known in the State of California to cause cancer.
Notification status

Europe REACH : A substance or substances in this product is not registered or notified to be registered. Importation or manufacture of this product is still permitted provided that it does not exceed the REACH minimum threshold quantity of the non-regulated substances.

Switzerland CH INV : On the inventory, or in compliance with the inventory

United States of America (USA) TSCA : On or in compliance with the active portion of the TSCA inventory

Canada DSL : All components of this product are on the Canadian DSL

Australia AICS : On the inventory, or in compliance with the inventory

New Zealand NZIoC : Not in compliance with the inventory

Japan ENCS : On the inventory, or in compliance with the inventory

Korea KECI : A substance(s) in this product was not registered, notified to be registered, or exempted from registration by CPChem according to K-REACH regulations. Importation or manufacture of this product is still permitted provided the Korean Importer of Record has themselves notified the substance.

Philippines PICCS : Not in compliance with the inventory

China IECSC : On the inventory, or in compliance with the inventory

Taiwan TCSI : On the inventory, or in compliance with the inventory

SECTION 16: Other information

NFPA Classification : Health Hazard: 2
Fire Hazard: 2
Reactivity Hazard: 0

Further information

Legacy SDS Number : CPC00568

Significant changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information in this SDS pertains only to the product as shipped.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.
### Key or legend to abbreviations and acronyms used in the safety data sheet

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td>American Conference of Government Industrial Hygienists</td>
</tr>
<tr>
<td>AICS</td>
<td>Australia, Inventory of Chemical Substances</td>
</tr>
<tr>
<td>DSL</td>
<td>Canada, Domestic Substances List</td>
</tr>
<tr>
<td>NDSL</td>
<td>Canada, Non-Domestic Substances List</td>
</tr>
<tr>
<td>CNS</td>
<td>Central Nervous System</td>
</tr>
<tr>
<td>CAS</td>
<td>Chemical Abstract Service</td>
</tr>
<tr>
<td>EC50</td>
<td>Effective Concentration</td>
</tr>
<tr>
<td>EC50</td>
<td>Effective Concentration 50%</td>
</tr>
<tr>
<td>EGEST</td>
<td>EOSCA Generic Exposure Scenario Tool</td>
</tr>
<tr>
<td>EOSCA</td>
<td>European Oilfield Specialty Chemicals Association</td>
</tr>
<tr>
<td>EINECS</td>
<td>European Inventory of Existing Chemical Substances</td>
</tr>
<tr>
<td>MAK</td>
<td>Germany Maximum Concentration Values</td>
</tr>
<tr>
<td>GHS</td>
<td>Globally Harmonized System</td>
</tr>
<tr>
<td>&gt;=</td>
<td>Greater Than or Equal To</td>
</tr>
<tr>
<td>IC50</td>
<td>Inhibition Concentration 50%</td>
</tr>
<tr>
<td>IARC</td>
<td>International Agency for Research on Cancer</td>
</tr>
<tr>
<td>IECSC</td>
<td>Inventory of Existing Chemical Substances in China</td>
</tr>
<tr>
<td>ENCS</td>
<td>Japan, Inventory of Existing and New Chemical Substances</td>
</tr>
<tr>
<td>KECI</td>
<td>Korea, Existing Chemical Inventory</td>
</tr>
<tr>
<td>&lt;=</td>
<td>Less Than or Equal To</td>
</tr>
<tr>
<td>LC50</td>
<td>Lethal Concentration 50%</td>
</tr>
<tr>
<td>LD50</td>
<td>Lethal Dose 50%</td>
</tr>
<tr>
<td>LOAEL</td>
<td>Lowest Observed Adverse Effect Level</td>
</tr>
<tr>
<td>NFPA</td>
<td>National Fire Protection Agency</td>
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<tr>
<td>NIOSH</td>
<td>National Institute for Occupational Safety &amp; Health</td>
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<tr>
<td>NTP</td>
<td>National Toxicology Program</td>
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<tr>
<td>NZIoC</td>
<td>New Zealand Inventory of Chemicals</td>
</tr>
<tr>
<td>NOAEL</td>
<td>No Observable Adverse Effect Level</td>
</tr>
<tr>
<td>NOEC</td>
<td>No Observed Effect Concentration</td>
</tr>
<tr>
<td>OSHA</td>
<td>Occupational Safety &amp; Health Administration</td>
</tr>
<tr>
<td>PEL</td>
<td>Permissible Exposure Limit</td>
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<tr>
<td>PICCS</td>
<td>Philippines Inventory of Commercial Chemical Substances</td>
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<tr>
<td>PRNT</td>
<td>Presumed Not Toxic</td>
</tr>
<tr>
<td>RCRA</td>
<td>Resource Conservation Recovery Act</td>
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<tr>
<td>STEL</td>
<td>Short-term Exposure Limit</td>
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<tr>
<td>SARA</td>
<td>Superfund Amendments and Reauthorization Act.</td>
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<tr>
<td>TLV</td>
<td>Threshold Limit Value</td>
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<tr>
<td>TWA</td>
<td>Time Weighted Average</td>
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<tr>
<td>TSCA</td>
<td>Toxic Substance Control Act</td>
</tr>
<tr>
<td>UVCB</td>
<td>Unknown or Variable Composition, Complex Reaction Products, and Biological Materials</td>
</tr>
<tr>
<td>WHMIS</td>
<td>Workplace Hazardous Materials Information System</td>
</tr>
</tbody>
</table>