

Orfom® MC 37 Collector

Version 2.2

Revision Date 2023-12-05

according to GB/T 16483 and GB/T 17519

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

Product Name : Orfom® MC 37 Collector
 Material : 1106090, 1119737, 1119735, 1119734, 1119733, 1119732,
 1119711, 1108011, 1106092, 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

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

EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Austria: VIZ +43 1 406 43 43 (24 hours/day, 7 days/week)

Belgium: 070 245 245 (24 hours/day, 7 days/week)

Bulgaria: +359 2 9154 233

Croatia: +3851 2348 342 (24 hours/day, 7 days/week)

Cyprus: 1401

Czech Republic: Toxicological Information Center +420 224 919 293, +420 224 915 402

Denmark: Danish Poison Center (Giftlinjen): +45 8212 1212

Estonia: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Finland: 0800 147 111 09 471 977 (24 hours/day)

France: ORFILA number (INRS): + 33 (0) 1 45 42 59 59 (24 hours/day, 7 days/week)

Germany: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Greece: (0030) 2107793777 (24 hours/day, 7 days/week)

Hungary: +36-80-201-199 (24 hours/day, 7 days/week)

Iceland: 543 2222 (24 hours/day, 7 days/week)

Ireland: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Italy: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

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Latvia: State Fire and Rescue Service, phone number: 112; Toxicology and Sepsis Clinic Poisoning and Drug Information Center, Hipokrāta 2, Riga, Latvia, LV-1038, phone number +371 67042473. (24 hours.)

Liechtenstein: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Lithuania: +370 (85) 2362052

Luxembourg: (+352) 8002 5500 (24 hours/day, 7 days/week)

Malta: +356 2395 2000

The Netherlands: NVIC: +31 (0)88 755 8000

Norway: 22 59 13 00 (24 hours/day, 7 days/week)

Poland: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Portugal: CIAV phone number: +351 800 250 250

Romania: +40213183606

Slovakia: +421 2 5477 4166

Slovenia: Phone number: 112

Spain: National Emergency Telephone Number of Spanish Poison Centre: +34 91 562 04 20 (24 hours/day, 7 days/week)

Sweden: 112 – ask for Poisons Information

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

SECTION 2: Hazards identification**Classification of the substance or mixture**

GHS Classification and Labeling: Follow GB 13690, GB 15258 and GB 30000.2 to GB 30000.29 (GHS 2011)

Emergency Overview**Danger**

Physical state: liquid **Color:** Dark Brown **Odor:** Pungent

Hazards : Combustible liquid. May be harmful if swallowed. Harmful if inhaled. Causes skin irritation. May cause an allergic skin reaction. May cause cancer. Suspected of damaging fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure. May be fatal if swallowed and enters airways. Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.

Classification


: Flammable liquids, Category 4
Acute toxicity, Category 5, Oral
Acute toxicity, Category 4, Inhalation
Skin corrosion/irritation, Category 2
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
Short-term (acute) aquatic hazard, Category 1
Long-term (chronic) aquatic hazard, Category 1

Labeling

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| | | |
|--------------------------|---|---|
| Symbol(s) | : |  |
| Signal Word | : | Danger |
| Hazard Statements | : | <p>H227: Combustible liquid. H303: May be harmful if swallowed. H304: May be fatal if swallowed and enters airways. H315: Causes skin irritation. H317: May cause an allergic skin reaction. H332: Harmful if inhaled. 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. H410: Very toxic to aquatic life with long lasting effects.</p> |
| Precautionary Statements | : | <p>Prevention: P201: Obtain special instructions before use. P202: Do not handle until all safety precautions have been read and understood. P210: Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking. P260: Do not breathe dust/ fume/ gas/ mist/ vapors/ spray. P271: Use only outdoors or in a well-ventilated area. P273: Avoid release to the environment. P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.</p> <p>Response: P301+P310: IF SWALLOWED: Immediately call a POISON CENTER/doctor. P302+P352: IF ON SKIN: Wash with plenty of water. P312: Call a POISON CENTER/doctor if you feel unwell. 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. P370+P378: In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish. P391: Collect spillage.</p> <p>Storage: P403 + P235: Store in a well-ventilated place. Keep cool.</p> <p>Disposal: P501: Dispose of contents/ container to an approved waste disposal plant.</p> |

SECTION 3: Composition/information on ingredients

Molecular formula : Mixture

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| Chemical name | CAS-No. / EINECS-No. | Concentration [wt%] |
|-----------------------------|----------------------|---------------------|
| Light Cycle Oil | 64741-59-9 | 25 - 75 |
| tert-Dodecanethiol | 25103-58-6 | 25 - 75 |
| Decant (clarified) Oils | 64741-62-4 | 25 - 75 |
| Naphthalene | 91-20-3 | 0 - 4 |
| Thiol synthesis by-products | | 0 - 2.5 |
| Polynuclear Aromatics | 130498-29-2 | 0 - 0.8 |

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 skin irritation persists, call a physician. 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 : >61°C (>142°F)
- Autoignition temperature : 260°C (500°F)
- Suitable extinguishing media : Carbon dioxide (CO₂).
- Unsuitable extinguishing media : High volume water jet.
- Specific hazards during fire fighting : Do not allow run-off from fire fighting to enter drains or water courses.
- 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.

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- Fire and explosion protection : Do not spray on a naked flame or any 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 a naked flame or any 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 to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.
- Use : Mineral Collector

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SECTION 8: Exposure controls/personal protection**Ingredients with workplace control parameters****Chevron Phillips Chemical Company LP**

| Components | Basis | Value | Control parameters | Note |
|--------------------|--------------|-------|--------------------|------|
| tert-Dodecanethiol | Manufacturer | TWA | 0.1 ppm, | |

CN

| Components | Basis | Value | Control parameters | Note |
|-------------|--------|---------|--------------------|------------|
| Naphthalene | CN OEL | PC-TWA | 50 mg/m3 | G2B, Skin, |
| | CN OEL | PC-STEL | 75 mg/m3 | G2B, Skin, |

G2B Skin G2B - Possibly carcinogenic to humans
Skin Skin

Not applicable

CN

| Substance name | CAS-No. | Control parameters | Sampling time | Update |
|----------------|---------|--------------------|---------------|--------|
| | | | | |

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 : If ventilation or other engineering controls are not adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure, a supplied-air NIOSH approved respirator may be appropriate. If exposure to harmful levels of airborne material may occur, a NIOSH approved respirator that provides protection may be appropriate, such as: A positive pressure, air-supplying respirator may be appropriate if there is potential for uncontrolled release, aerosolization, 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.

Hygiene measures : When using do not eat or drink. When using do not smoke.

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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 : >61°C (>142°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 : 6.06 cSt
 at 40°C (104°F)
 Relative vapor density : 1
 (Air = 1.0)
 Evaporation rate : < 1

SECTION 10: Stability and reactivity

Reactivity : Stable under recommended storage conditions.

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Chemical stability : This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Possibility of hazardous reactions

Hazardous reactions : Hazardous reactions: Hazardous polymerization does not occur.
Hazardous reactions: Vapors may form explosive mixture with air.

Conditions to avoid : Heat, flames and sparks.
Hazardous decomposition products : Carbon oxides
Sulfur oxides

Other data : No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

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Acute oral toxicity : Acute toxicity estimate: 2,640 mg/kg
Method: Calculation method

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Acute inhalation toxicity : Acute toxicity estimate: 3.63 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

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Acute dermal toxicity : Acute toxicity estimate: > 2,000 mg/kg
Method: Calculation method

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Skin irritation : Skin irritation

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Eye irritation : Vapors may cause irritation to the eyes, respiratory system and the skin.

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Sensitization : Causes sensitization.
largely based on animal evidence.

Repeated dose toxicity

Light Cycle Oil : Species: Rat, males
Sex: males
Application Route: Dermal

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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

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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: 50, 100, 200 mg/kg
Exposure time: 10 wk
Number of exposures: once daily
NOEL: 200 mg/kg
Method: OECD Guideline 422
Target Organs: Kidney, Liver

Species: Rat, female
Sex: female
Application Route: oral gavage
Dose: 50, 100, 200 mg/kg
Exposure time: 8 - 9 wk
Number of exposures: once daily
NOEL: 200 mg/kg
Method: OECD Guideline 422
Target Organs: Liver

Species: Rat, male
Sex: male
Application Route: Inhalation
Dose: 5, 25, 100 ppm
Exposure time: 13 wk
Number of exposures: 6h/d, 5d/wk
NOEL: 25 ppm
Method: OECD Test Guideline 413

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| | <p>Species: Rat, female Sex: female Application Route: Inhalation Dose: 5, 25, 100 ppm Exposure time: 13 wk Number of exposures: 6h/d, 5d/wk NOEL: 25 ppm Method: OECD Test Guideline 413</p> |
| Decant (clarified) Oils | <p>Species: Rat, male and female Sex: male and female Application Route: Dermal Dose: 1.06, 10.6, 53, 106, 530 mg/kg Exposure time: 13 wk Number of exposures: 6h;5d/wk NOEL: 1.06 mg/kg Method: OPPTS 870.3250 Target Organs: Liver, Blood, Thymus Information given is based on data obtained from similar substances.</p> |
| Genotoxicity in vitro | |
| Light Cycle Oil | <p>: Test Type: Modified Ames test Result: positive</p> <p>Test Type: Mouse lymphoma assay Result: positive</p> <p>Test Type: Sister Chromatid Exchange Assay Result: negative</p> |
| tert-Dodecanethiol | <p>Test Type: Ames test Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative</p> <p>Test Type: Mouse lymphoma assay Metabolic activation: with and without metabolic activation Method: OECD Guideline 476 Result: negative</p> <p>Test Type: Sister Chromatid Exchange Assay Metabolic activation: with and without metabolic activation Method: OECD Guideline 479 Result: negative</p> <p>Test Type: Chromosome aberration test in vitro Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 473 Result: negative</p> |
| Decant (clarified) Oils | <p>Test Type: Modified Ames test Result: positive</p> |

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| | 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 |
| Naphthalene | Test Type: Ames test Result: negative |
| | Test Type: Sister Chromatid Exchange Assay Result: negative |
| | Test Type: Unscheduled DNA synthesis assay Result: negative |
| 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 |
| Naphthalene | Test Type: Mouse micronucleus assay Result: negative |
| 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: 50, 100, 200 mg/kg/d Exposure time: 10 wk Number of exposures: Daily Method: OECD Guideline 422 NOAEL Parent: 200 mg/kg Animal testing did not show any effects on fertility. |

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Species: Rat
 Sex: female
 Application Route: oral gavage
 Dose: 50, 100, 200 mg/kg/d
 Exposure time: 8 - 9 wk
 Number of exposures: Daily
 Method: OECD Guideline 422
 NOAEL Parent: 200 mg/kg
 NOAEL F1: 100 mg/kg
 Animal testing did not show any effects on fertility.
 Reduced fetal weight.

Species: Rat
 Sex: male
 Application Route: oral gavage
 Dose: 25, 75, 200 mg/kg/d
 Exposure time: 18 wk
 Number of exposures: Daily
 Method: OECD Test Guideline 443
 NOAEL Parent: 200 mg/kg
 NOAEL F1: 200 mg/kg
 NOAEL F2: 200 mg/kg
 Animal testing did not show any effects on fertility.

Species: Rat
 Sex: female
 Application Route: oral gavage
 Dose: 25, 75, 200 mg/kg/d
 Exposure time: 16 - 18 wk
 Number of exposures: Daily
 Method: OECD Test Guideline 443
 NOAEL Parent: 200 mg/kg
 NOAEL F1: 200 mg/kg
 NOAEL F2: 200 mg/kg
 Animal testing did not show any effects on fertility.
 Reduced fetal weight.

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: \geq 88.6 ppm
 No adverse effects expected

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| | <p>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</p> <p>Species: Rabbit Application Route: oral gavage Dose: 0, 50, 100, 200 mg/kg/d Number of exposures: Daily Test period: GD 6-28 Method: OECD Guideline 414 NOAEL Teratogenicity: 100 mg/kg NOAEL Maternal: 100 mg/kg Embryotoxic effects and adverse effects on the offspring were detected only at high maternally toxic doses</p> |
| Decant (clarified) Oils | <p>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.</p> |
| Naphthalene | <p>Species: Rabbit Application Route: oral gavage Dose: 40, 200, 400 mg/kg Test period: 29 d, GD 6-18 NOAEL Teratogenicity: 400 mg/kg</p> |
| Orfom® MC 37 Collector | |
| Aspiration toxicity | : May be fatal if swallowed and enters airways. |
| CMR effects | |
| Light Cycle Oil | : Carcinogenicity: Possible human carcinogen |
| tert-Dodecanethiol | <p>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</p> |
| Decant (clarified) Oils | <p>Carcinogenicity: Possible human carcinogen Reproductive toxicity: Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.</p> |
| Naphthalene | Carcinogenicity: Limited evidence of carcinogenicity in animal studies |
| Polynuclear Aromatics | Carcinogenicity: Human carcinogen. |

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Mutagenicity: In vivo tests showed mutagenic effects

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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.

Naphthalene LC50: 3.2 mg/l
Exposure time: 96 h
Species: *Pimephales promelas* (fathead minnow)

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

Naphthalene LC50: 2.16 mg/l
Exposure time: 48 h
Species: *Daphnia magna* (Water flea)

Toxicity to algae

Light Cycle Oil : EL50: 0.51 mg/l

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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

Naphthalene
EC50: 2.96 mg/l
Exposure time: 48 h
Species: Selenastrum capricornutum (algae)

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

Light Cycle Oil : The product may be accumulated in organisms.

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| 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. |
| Decant (clarified) Oils | : The product may be accumulated in organisms. |
| Mobility | |
| Light Cycle Oil | : No data available |
| tert-Dodecanethiol | : After release, adsorbs onto soil. |
| Decant (clarified) Oils | : No data available |
| Results of PBT assessment Light Cycle Oil | : Non-classified PBT substance, Non-classified vPvB substance |
| tert-Dodecanethiol | : Non-classified PBT substance, Non-classified vPvB substance |
| Decant (clarified) Oils | : Non-classified PBT substance, Non-classified vPvB substance |
| Additional ecological information | : Very toxic to aquatic life with long lasting effects. |
| Ecotoxicology Assessment | |
| Short-term (acute) aquatic hazard | : Very toxic to aquatic life. |
| Long-term (chronic) aquatic hazard | : Very toxic to aquatic life with long lasting effects. |

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.

| | |
|------------------------|--|
| Product | : 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. |
| Contaminated packaging | : 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. |

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).

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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 PRODUCTS, 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, (> 61 °C c.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))

90, 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

Maritime transport in bulk according to IMO instruments

SECTION 15: Regulatory information**Notification status**

| | | |
|-------------------------------------|---|---|
| Europe REACH | : | Not in compliance with the inventory |
| Switzerland CH INV | : | Not 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 | : | On the inventory, or in compliance with the inventory |
| Australia AIIC | : | 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, |

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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 or the exported amount does not exceed the minimum threshold quantity of the non-registered substance(s).

Philippines PICCS : Not in compliance with the inventory
 Taiwan TCSI : On the inventory, or in compliance with the inventory
 China IECSC : On the inventory, or in compliance with the inventory

Other regulations : Law on the Prevention and Control of Occupational Diseases

SECTION 16: Other information**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

| | | | |
|--------|---|-------|---|
| ACGIH | American Conference of Government Industrial Hygienists | LD50 | Lethal Dose 50% |
| AIIC | Australian Inventory of Industrial Chemicals | LOAEL | Lowest Observed Adverse Effect Level |
| DSL | Canada, Domestic Substances List | NFPA | National Fire Protection Agency |
| NDSL | Canada, Non-Domestic Substances List | NIOSH | National Institute for Occupational Safety & Health |
| CNS | Central Nervous System | NTP | National Toxicology Program |
| CAS | Chemical Abstract Service | NZIoC | New Zealand Inventory of Chemicals |
| EC50 | Effective Concentration | NOAEL | No Observable Adverse Effect Level |
| EC50 | Effective Concentration 50% | NOEC | No Observed Effect Concentration |
| EGEST | EOSCA Generic Exposure Scenario Tool | OSHA | Occupational Safety & Health Administration |
| EOSCA | European Oilfield Specialty Chemicals Association | PEL | Permissible Exposure Limit |
| EINECS | European Inventory of Existing Chemical Substances | PICCS | Philippines Inventory of Commercial Chemical Substances |
| MAK | Germany Maximum Concentration Values | PRNT | Presumed Not Toxic |
| GHS | Globally Harmonized System | RCRA | Resource Conservation Recovery Act |
| >= | Greater Than or Equal To | STEL | Short-term Exposure Limit |
| IC50 | Inhibition Concentration 50% | SARA | Superfund Amendments and |

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| | | | |
|-------|--|-------|--|
| | | | Reauthorization Act. |
| IARC | International Agency for Research on Cancer | TLV | Threshold Limit Value |
| IECSC | Inventory of Existing Chemical Substances in China | TWA | Time Weighted Average |
| ENCS | Japan, Inventory of Existing and New Chemical Substances | TSCA | Toxic Substance Control Act |
| KECI | Korea, Existing Chemical Inventory | UVCB | Unknown or Variable Composition, Complex Reaction Products, and Biological Materials |
| <= | Less Than or Equal To | WHMIS | Workplace Hazardous Materials Information System |
| LC50 | Lethal Concentration 50% | ATE | Acute toxicity estimate |