


**Orfom® MC17 Collector**

Version 1.10

Revision Date 2023-04-19

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

Product Name : Orfom® MC17 Collector  
 Material : 1122712, 1122623, 1119870, 1119869, 1119868, 1119860,  
 1119867, 1119866, 1119861, 1119859

**Company** : Chevron Phillips Chemical Company LP  
 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 (Gifftlinjen): +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)  
 Latvia: State Fire and Rescue Service, phone number: 112; Toxicology and Sepsis Clinic  
 Poisoning and Drug Information Center, Hipokrāta 2, Rīga, Latvia, LV-1038, phone number +371  
 67042473. (24 hours.)  
 Liechtenstein: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

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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**

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  
 Skin sensitization, Category 1  
 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.

Precautionary Statements : **Prevention:**  
 P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.  
 P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.  
 P264 Wash skin thoroughly after handling.  
 P280 Wear protective gloves/ eye protection/ face protection.  
**Response:**  
 P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.  
 P302 + P352 IF ON SKIN: Wash with plenty of soap and water.  
 P331 Do NOT induce vomiting.  
 P333 + P313 If skin irritation or rash occurs: Get medical

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advice/ attention.

P362 Take off contaminated clothing and wash before reuse.

P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam 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:****IARC**

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**NTP**

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

**SECTION 3: Composition/information on ingredients**

Synonyms : Orfom® MC17a Collector

Component	CAS-No.	Weight %
tert-Dodecanethiol	25103-58-6	20 - 80
C13-C16 Isoalkanes	68551-20-2	20 - 80
C12-C14 Isoalkanes	68551-19-9	20 - 80
Thiol synthesis by-products		1 - 4

**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 : If unconscious, place in recovery position and seek medical advice. If symptoms persist, call a physician.
- 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 : 79°C (175°F)

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Suitable extinguishing media	: Carbon dioxide (CO <sub>2</sub> ).
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.
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.
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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.

**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,	
C12-C14 Isoalkanes	Manufacturer	TWA	1,200 mg/m3	RCP,

RCP Reciprocal Calculation Procedure

**US**

Components	Basis	Value	Control parameters	Note
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**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.

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- 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. 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 : Colorless  
 Odor : mild hydrocarbon

**Safety data**

- Flash point : 79°C (175°F)
- Lower explosion limit : No data available
- Upper explosion limit : No data available
- Molecular weight : 202.44 g/mol
- pH : Not applicable
- Pour point : No data available
- Boiling point/boiling range : 233°C (451°F)
- Vapor pressure : 4.00 Pa  
at 24°C (75°F)
- Relative density : 0.80  
at 16 °C (61 °F)
- Density : 6.7 L/G
- Water solubility : No data available
- Partition coefficient: n-octanol/water : No data available
- Viscosity, dynamic : 2.6 cP  
at 20°C (68°F)
- Viscosity, kinematic : No data available
- Relative vapor density : 3  
(Air = 1.0)
- Evaporation rate : < 1

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**SECTION 10: Stability and reactivity**

- Reactivity** : Stable under recommended storage conditions.
- 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: 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: 3,179 mg/kg  
Method: Calculation method
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**Acute inhalation toxicity** : Acute toxicity estimate: 6.56 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Method: Calculation method
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**Acute dermal toxicity** : Acute toxicity estimate: 2,500 mg/kg  
Method: Calculation method
- Orfom® MC17 Collector**  
**Skin irritation** : Skin irritation  
largely based on animal evidence.  
May cause skin irritation and/or dermatitis.
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**Eye irritation** : May cause eye irritation.  
  
Vapors may cause irritation to the eyes, respiratory system and the skin.
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**Sensitization** : Causes sensitization.

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largely based on animal evidence.  
Causes sensitization.

**Repeated dose toxicity**

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>
C13-C16 Isoalkanes	<p>Species: Rat, male and female  Sex: male and female  Application Route: oral gavage  Exposure time: 13 wk  Number of exposures: 7 d/wk  NOEL: &gt; 5,000 mg/kg  Method: OECD Test Guideline 408  No significant adverse effects were reported  Information given is based on data obtained from similar substances.</p> <p>Species: Rat, male and female  Sex: male and female  Application Route: Inhalation  Exposure time: 13 wk  Number of exposures: 6 h/d  NOEL: 30 mg/l  Method: OECD Test Guideline 413  No significant adverse effects were reported  Information given is based on data obtained from similar substances.</p> <p>Species: Rat, male and female  Sex: male and female  Application Route: Dermal  Exposure time: 13 wk  Number of exposures: 5 d/wk  NOEL: &gt; 495 mg/kg  Method: OECD Test Guideline 411  No significant adverse effects were reported  Information given is based on data obtained from similar substances.</p>
C12-C14 Isoalkanes	<p>Species: Rat, male and female  Sex: male and female  Application Route: oral gavage  Dose: 100, 500, 1000 mg/kg/d  Exposure time: 13 wk  Number of exposures: daily  NOEL: &gt; 1000 mg/kg/d  Method: OECD Test Guideline 408  No adverse effects expected  Information given is based on data obtained from similar substances.</p>

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Species: Rat, male and female  
 Sex: male and female  
 Application Route: Inhalation  
 Dose: 2600, 5200, 10400 mg/m<sup>3</sup>  
 Exposure time: 90 d  
 Number of exposures: 6 h/d; 5d/wk  
 NOEL: > 10400 mg/m<sup>3</sup>  
 Method: OECD Test Guideline 413  
 No adverse effects expected  
 Information given is based on data obtained from similar substances.

**Genotoxicity in vitro**

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 Test Guideline 473  
 Result: negative

C13-C16 Isoalkanes

Test Type: Reverse mutation assay  
 Metabolic activation: with and without metabolic activation  
 Method: OECD Test Guideline 471  
 Result: negative  
 Remarks: Information given is based on data obtained from similar substances.

Test Type: Cytogenetic assay  
 Test system: Chinese hamster cells  
 Metabolic activation: with and without metabolic activation  
 Method: OECD Test Guideline 473  
 Result: negative  
 Remarks: Information given is based on data obtained from similar substances.

Test Type: Mouse lymphoma assay  
 Metabolic activation: with and without metabolic activation  
 Method: OECD Test Guideline 476  
 Result: negative  
 Remarks: Information given is based on data obtained from similar substances.

C12-C14 Isoalkanes

Test Type: Ames test  
 Metabolic activation: with and without metabolic activation  
 Method: OECD Test Guideline 471

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Result: negative

Test Type: Mouse lymphoma assay

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 476

Result: negative

Test Type: Sister Chromatid Exchange Assay

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 479

Result: negative

**Genotoxicity in vivo**

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.

C12-C14 Isoalkanes : Test Type: dominant lethal test  
Species: Rat  
Route of Application: Intraperitoneal injection  
Dose: 300, 900 ppm  
Method: OECD Test Guideline 478  
Remarks: Information given is based on data obtained from similar substances.

**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.

**C13-C16 Isoalkanes**

Species: Rat  
 Sex: male and female  
 Application Route: oral gavage  
 Dose: 50, 100, 750 mg/kg/d  
 Exposure time: 70 d  
 Number of exposures: Daily  
 Method: OECD Test Guideline 416  
 NOAEL Parent:  $\geq$  750 mg/kg  
 NOAEL F1:  $\geq$  750 mg/kg  
 No adverse effects expected  
 Information given is based on data obtained from similar substances.

**Developmental Toxicity****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

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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:  $\geq$  88.6 ppm  
 No adverse effects expected

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

C12-C14 Isoalkanes

Species: Rat  
 Application Route: Inhalation  
 Dose: 0, 400, 1200 ppm  
 Exposure time: 6h  
 Test period: GD 6-15  
 NOAEL Teratogenicity: 1200 ppm  
 NOAEL Maternal: 1200 ppm  
 Information given is based on data obtained from similar substances.

Species: Rat  
 Application Route: Inhalation  
 Dose: 300, 900 ppm  
 Exposure time: 6h  
 Test period: GD 6-15  
 NOAEL Teratogenicity:  $\geq$  900 ppm  
 NOAEL Maternal:  $\geq$  900 ppm  
 Information given is based on data obtained from similar substances.

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**Aspiration toxicity**

: May be fatal if swallowed and enters airways.

**CMR effects**

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

C13-C16 Isoalkanes

Carcinogenicity: Not available  
 Mutagenicity: In vitro tests did not show mutagenic effects  
 Reproductive toxicity: No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments.

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C12-C14 Isoalkanes

Carcinogenicity: Not available  
 Mutagenicity: Tests on bacterial or mammalian cell cultures did not show mutagenic effects., In vivo tests did not show mutagenic effects  
 Teratogenicity: Animal testing did not show any effects on fetal development.  
 Reproductive toxicity: Animal testing did not show any effects on fertility.

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**Further information**

: Solvents may degrease the skin.

**SECTION 12: Ecological information****Toxicity to fish**

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.

C13-C16 Isoalkanes LL50: > 1,028 mg/l  
 Exposure time: 96 h  
 Species: Scophthalmus maximus (Flatfish, Flounder)  
 Method: OECD Test Guideline 203  
 Information given is based on data obtained from similar substances.

C12-C14 Isoalkanes LL50: > 1,000 mg/l  
 Exposure time: 96 h  
 Species: Oncorhynchus mykiss (rainbow trout)  
 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**

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.

C13-C16 Isoalkanes LL50: > 3,193 mg/l  
 Exposure time: 48 h  
 Species: Acartia tonsa (Marine Copepod)  
 static test Method: ISO 14669 and PARCOM method

C12-C14 Isoalkanes EL50: > 1,000 mg/l  
 Exposure time: 48 h  
 Species: Daphnia magna (Water flea)  
 static test Method: OECD Test Guideline 202  
 Information given is based on data obtained from similar substances.

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**Toxicity to algae**

C13-C16 Isoalkanes : EL50: > 3,200 mg/l  
 Exposure time: 72 h  
 Species: Skeletonema costatum (Marine Algae)  
 Growth inhibition Method: ISO 10253

C12-C14 Isoalkanes EL50: > 1,000 mg/l  
 Exposure time: 72 h  
 Species: Pseudokirchneriella subcapitata (green algae)  
 Growth inhibition Method: OECD Test Guideline 201  
 Information given is based on data obtained from similar substances.

**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

C13-C16 Isoalkanes > 100 mg/l  
 Exposure time: 3 h  
 Respiration inhibition  
 Method: OECD Test Guideline 209  
 Information given is based on data obtained from similar substances.

**Toxicity to fish (Chronic toxicity)**

C12-C14 Isoalkanes : No data available:

**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)



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**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.

C13-C16 Isoalkanes : The product may be accumulated in organisms.

C12-C14 Isoalkanes : The product may be accumulated in organisms.

**Mobility**

tert-Dodecanethiol : After release, adsorbs onto soil.

C13-C16 Isoalkanes : immobile

C12-C14 Isoalkanes : immobile

**Results of PBT assessment**

tert-Dodecanethiol : Non-classified PBT substance, Non-classified vPvB substance

C13-C16 Isoalkanes : Non-classified PBT substance, Non-classified vPvB substance

C12-C14 Isoalkanes : Non-classified PBT substance, Non-classified vPvB substance

Additional ecological information : May cause long lasting harmful effects to aquatic life.

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

tert-Dodecanethiol : No toxicity at the limit of solubility.

C13-C16 Isoalkanes : This material is not expected to be harmful to aquatic organisms.

C12-C14 Isoalkanes : This material is not expected to be harmful to aquatic organisms.

Thiol synthesis by-products : No toxicity at the limit of solubility.

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

tert-Dodecanethiol : May cause long lasting harmful effects to aquatic life.

C13-C16 Isoalkanes : This material is not expected to be harmful to aquatic organisms.

C12-C14 Isoalkanes : This material is not expected to be harmful to aquatic organisms.

Thiol synthesis by-products : May cause long lasting harmful effects to aquatic life.

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**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).**

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)**

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

Testing (ASTM D4206) has shown product does not sustain combustion.

**IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)**

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

**IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)**

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

**ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))**

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

**RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))**

NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

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**ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)**  
 NOT REGULATED AS A HAZARDOUS MATERIAL OR DANGEROUS GOODS FOR TRANSPORTATION BY THIS AGENCY.

**Maritime transport in bulk according to IMO instruments**

**SECTION 15: Regulatory information****National legislation**

**SARA 311/312 Hazards** : Flammable (gases, aerosols, liquids, or solids)  
 Respiratory or skin sensitization  
 Aspiration hazard  
 Skin corrosion or irritation

**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** : This material does not contain any components with a section 302 EHS TPQ.

**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).

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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 SOCM I Intermediate or Final VOC's (40 CFR 60.489).

**US State Regulations****Pennsylvania Right To Know**

- : C12-C14 Isoalkanes - 68551-19-9
- C13-C16 Isoalkanes - 68551-20-2
- tert-Dodecanethiol - 25103-58-6
- Thiol synthesis by-products -

**California Prop. 65 Components**

- : This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

**Notification status**

- Europe REACH : This product is in full compliance according to REACH regulation 1907/2006/EC.
- 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 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, 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

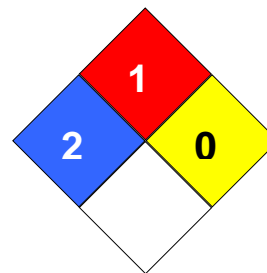
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**SECTION 16: Other information**

**NFPA Classification** : Health Hazard: 2  
Fire Hazard: 1  
Reactivity Hazard: 0

**Further information**

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 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

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			Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%	ATE	Acute toxicity estimate