



## Scentinel® TB Gas Odorant

Version 6.2

Revision Date 2024-01-29

According to Regulation (EC) No. 1907/2006, Regulation (EC) No. 2020/878

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

#### 1.1 Product identifier

##### Product information

Product Name : Scentinel® TB Gas Odorant  
 Material : 1119678, 1086437, 1086436, 1103087, 1103086, 1103855,  
 1024798, 1024799

##### EC-No.Registration number

Chemical name	CAS-No. EC-No. Index No.	Legal Entity Registration number
Tetrahydrothiophene	110-01-0 203-728-9 613-087-00-0	Chevron Phillips Chemicals International NV 01-2119489799-07-0001
t-Butyl Mercaptan	75-66-1 200-890-2	Chevron Phillips Chemicals International NV 01-2119491288-26-0000

#### 1.2

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

Relevant Identified Uses Supported : Manufacture under Strictly Controlled Conditions  
 Formulation under Strictly Controlled Conditions  
 Injection in Gas under Strictly Controlled Conditions  
 Injection as Odorant in Natural Gas under Strictly Controlled Conditions

#### 1.3

##### Details of the supplier of the safety data sheet

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

Local : Chevron Phillips Chemicals International N.V.  
 Airport Plaza (Stockholm Building)  
 Leonardo Da Vincilaan 19  
 1831 Diegem  
 Belgium

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SDS Requests: (800) 852-5530  
 Responsible Party: Product Safety Group  
 Email:sds@cpchem.com

**1.4****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: POISON CENTER MILAN – Azienda Ospedaliera Niguarda Ca` Grande Tel. +39 02

66101029; POISON CENTER ROME – Policlinico “Agostino Gemelli”, Servizio di tossicologia

clinica Tel. +39 06 3054343; POISON CENTER ROME – Ospedale Pediatrico Bambino Gesù

Tel. +39 06 68593726; POISON CENTER ROME – Policlinico “Umberto I” Tel. +39 06 4997 8000;

POISON CENTER FOGGIA – Azienda Ospedaliera Universitaria Riuniti Tel. +39 0881 732326;

POISON CENTER NAPLES – Azienda Ospedaliera “Antonio Cardarelli” Tel. +39 081 7472870;

POISON CENTER FLORENCE – Azienda Ospedaliera universitaria Careggi Tel. +39 055

7947819; POISON CENTER PAVIA – IRCCS Fondazione Salvatore Maugeri Tel. +39 0382

24444; POISON CENTER BERGAMO – Azienda Ospedaliera “Papa Giovanni XXIII” Tel. 800 883

300; POISON CENTER VERONA – Azienda Ospedaliera Universitaria integrata Tel. 800 011

858;

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

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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

**ODOR-FADE WARNING**

**A GAS LEAK CAN CAUSE A FIRE OR EXPLOSION RESULTING IN SERIOUS INJURY OR DEATH.**

Be aware that the stenching chemical added to gas to make it detectable may not warn of a gas leak or the presence of propane or natural gas to all persons in every instance.

Instances where the odorant in an odorized gas may be undetectable include:

- Odor intensity may fade or be eliminated for a variety of chemical and physical causes, including the oxidation of rusting pipes, adsorption into or sticking onto the interior of pipes or appliances, or absorption into liquids.
- Contact with soil in underground leaks may de-odorize or remove odorant from the gas.
- Some people have a diminished ability, or inability to smell the stench. Factors that negatively affect a person's sense of smell include age, gender, medical conditions, and alcohol/tobacco usage.
- The stench of odorized gas may not awaken sleeping persons.
- Other odors may mask or hide the stench.
- Exposure to the odor for even a short period of time, may cause nasal fatigue, where a person can no longer smell the stench.

Gas detectors listed by the Underwriters Laboratories (UL) can be used as an extra measure of safety for detecting gas leaks, especially under conditions where the odorant alone may not provide an adequate warning. Gas detectors emit a loud, shrill sound when gas is present and do not depend on sense of smell. Because the odor intensity can fade or people may have problems with their sense of smell, we recommend installing, per manufacturer's instructions, one or more combustible gas detectors, in suitable locations to ensure adequate coverage to detect gas leaks.

Educate yourself, your employees, and your customers with the content of this warning and other important facts associated with the so-called "odor-fade phenomenon."

**SECTION 2: Hazards identification****2.1****Classification of the substance or mixture  
REGULATION (EC) No 1272/2008**

Flammable liquids, Category 2	H225: Highly flammable liquid and vapor.
Acute toxicity, Category 4	H312: Harmful in contact with skin.
Skin irritation, Category 2	H315: Causes skin irritation.
Eye irritation, Category 2	H319: Causes serious eye irritation.
Skin sensitization, Sub-category 1B	H317: May cause an allergic skin reaction.
Long-term (chronic) aquatic hazard, Category 2	H411: Toxic to aquatic life with long lasting effects.

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**2.2****Labeling (REGULATION (EC) No 1272/2008)**

Hazard pictograms



Signal Word

: Danger

Hazard Statements

: H225 H312 H315 H317 H319 H411	Highly flammable liquid and vapor. Harmful in contact with skin. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. Toxic to aquatic life with long lasting effects.
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Precautionary Statements

: <b>Prevention:</b> P210  P233 P273 P280  <b>Response:</b> P370 + P378  P391	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Avoid release to the environment. Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.  In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish. Collect spillage.
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Hazardous ingredients which must be listed on the label:

- 110-01-0                      Tetrahydrothiophene
- 75-66-1                        t-Butyl Mercaptan

**2.3****Other hazards**

Results of PBT and vPvB assessment

: This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Endocrine disrupting properties

: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**SECTION 3: Composition/information on ingredients****3.1 - 3.2****Substance or Mixture**

Synonyms

: Scentinel® T-70 Gas Odorant

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Molecular formula : Mixture

**Hazardous ingredients**

Chemical name	CAS-No. EC-No. Index No.	Classification (REGULATION (EC) No 1272/2008)	Concentration [wt%]	Specific Conc. Limits, M-factors and ATEs
<b>Tetrahydrothiophene</b>	<b>110-01-0</b> <b>203-728-9</b> 613-087-00-0	Flam. Liq. 2; H225 Acute Tox. 4; H302 Acute Tox. 4; H332 Acute Tox. 4; H312 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Aquatic Chronic 3; H412	70	
t-Butyl Mercaptan	75-66-1 200-890-2	Flam. Liq. 2; H225 Eye Irrit. 2; H319 Skin Sens. 1B; H317 Aquatic Chronic 2; H411	30	

For the full text of the H-Statements mentioned in this Section, see Section 16.

**SECTION 4: First aid measures****4.1****Description of 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 skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes.
- In case of eye contact : Immediately flush eye(s) with plenty of water. 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.

**4.2 Most important symptoms and effects, both acute and delayed****Notes to physician**

Symptoms : No data available.

Risks : No data available.

**4.3 Indication of any immediate medical attention and special treatment needed**

Treatment : No data available.

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**SECTION 5: Firefighting measures**

Flash point :  $>-17,8^{\circ}\text{C}$  ( $>-0,0^{\circ}\text{F}$ )  
Method: Tagliabue Open Cup

Autoignition temperature : No data available

**5.1****Extinguishing media**

Suitable extinguishing media : Alcohol-resistant foam. Carbon dioxide (CO<sub>2</sub>). Dry chemical.

Unsuitable extinguishing media : High volume water jet.

**5.2****Special hazards arising from the substance or mixture**

Specific hazards during fire fighting : Do not allow run-off from fire fighting to enter drains or water courses.

**5.3****Advice for firefighters**

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. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.

Hazardous decomposition products : Carbon oxides. Sulfur oxides.

**SECTION 6: Accidental release measures****6.1****Personal precautions, protective equipment and emergency procedures**

Personal precautions : Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

**6.2****Environmental precautions**

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.

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**6.3****Methods and materials for containment and cleaning up**

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).

**6.4****Reference to other sections**

Reference to other sections : For personal protection see section 8. For disposal considerations see section 13.

For additional details, see the Exposure Scenario in the Annex portion

**SECTION 7: Handling and storage****7.1****Precautions for safe handling  
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. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. Open drum carefully as content may be under pressure. 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. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.

**7.2****Conditions for safe storage, including any incompatibilities****Storage**

Requirements for storage areas and containers : No smoking. Keep container tightly closed in a dry and 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.

**7.3****Specific End Use**

Use : For additional details, see the Exposure Scenario in the Annex portion

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**SECTION 8: Exposure controls/personal protection****8.1****Control parameters  
Ingredients with workplace control parameters****Chevron Phillips Chemical Company LP**

Components	Basis	Value	Control parameters	Note
t-Butyl Mercaptan	Manufacturer	TWA	0,5 ppm,	

**SI**

Sestavine	Osnova	Vrednost	Parametri nadzora	Pripomba
Tetrahydrothiophene	SI OEL	MV	50 ppm, 180 mg/m3	K,
	SI OEL	KTV	50 ppm, 180 mg/m3	K,

K Lastnost lažjega prehajanja snovi v organizem skozi kožo

**FR**

Composants	Base	Valeur	Paramètres de contrôle	Note
t-Butyl Mercaptan	FR VLE	VME	0,5 ppm, 1,5 mg/m3	Valeurs limites indicatives,

Valeurs limites Valeurs limites indicatives  
indicatives**DE**

Inhaltsstoffe	Grundlage	Wert	Zu überwachende Parameter	Bemerkung
Tetrahydrothiophene	DE TRGS 900	AGW	50 ppm, 180 mg/m3	H, Y,

H Hautresorptiv  
Y Ein Risiko der Fruchtschädigung braucht bei Einhaltung des Arbeitsplatzgrenzwertes und des biologischen Grenzwertes (BGW) nicht befürchtet zu werden**CH**

Inhaltsstoffe	Grundlage	Wert	Zu überwachende Parameter	Bemerkung
Tetrahydrothiophene	CH SUVA	MAK-Wert	50 ppm, 180 mg/m3	SSc,
	CH SUVA	KZGW	50 ppm, 180 mg/m3	SSc,

SSc Eine Schädigung der Leibesfrucht braucht bei Einhaltung des MAK-Wertes nicht befürchtet zu werden.

**8.2****Exposure controls  
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: Air-Purifying Respirator for Organic Vapors. Full-Face Air-Purifying Respirator for Organic Vapors, Dusts and Mists. 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.



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- 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. 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.

For additional details, see the Exposure Scenario in the Annex portion

**SECTION 9: Physical and chemical properties****9.1****Information on basic physical and chemical properties****Appearance**

- Physical state : liquid  
 Color : Colorless  
 Odor : Pungent  
 Odor Threshold : No data available

**Safety data**

- Flash point : >-17,8°C (>-0,0°F)  
 Method: Tagliabue Open Cup
- Lower explosion limit : No data available
- Upper explosion limit : No data available
- Flammability (solid, gas) :  
 Oxidizing properties : no
- Autoignition temperature : No data available
- Molecular formula : Mixture
- Molecular weight : Not applicable
- pH : Not applicable
- Melting point/freezing point : No data available

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Pour point	No data available
Boiling point/boiling range	: 85°C (185°F)
Vapor pressure	: 20,00 mbar at 20°C (68°F)
	3,60 PSI at 50°C (122°F)
Relative density	: 0,94 at 15,6 °C (60,1 °F)
Water solubility	: Insoluble
Partition coefficient: n-octanol/water	: No data available
Viscosity, kinematic	: No data available
Relative vapor density	: 3,04 (Air = 1.0)
Evaporation rate	: No data available
Percent volatile	: > 99 %

**9.2****Other information**

Conductivity : No data available

**SECTION 10: Stability and reactivity****10.1****Reactivity** : Stable under recommended storage conditions.**10.2****Chemical stability** : This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.**10.3****Possibility of hazardous reactions****Hazardous reactions** : Hazardous reactions: Hazardous polymerization does not occur.

Hazardous reactions: Vapors may form explosive mixture with air.

**10.4****Conditions to avoid** : Heat, flames and sparks.

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**10.6**

**Hazardous decomposition products** : Carbon oxides  
Sulfur oxides

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

**SECTION 11: Toxicological information****11.1****Information on toxicological effects****Scentinel® TB Gas Odorant**

**Acute oral toxicity** : Acute toxicity estimate: 2.264 mg/kg  
Method: Calculation method

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**Acute inhalation toxicity** : Acute toxicity estimate: 32,29 mg/l  
Exposure time: 4 h  
Test atmosphere: vapor  
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  
largely based on animal evidence.

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**Eye irritation** : Eye irritation  
largely based on animal evidence.

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**Sensitization** : The product is a skin sensitizer, sub-category 1B.

**Repeated dose toxicity**

Tetrahydrothiophene : Species: Rat, Male and female  
Sex: Male and female  
Application Route: Inhalation  
Dose: 0, 51, 236, 1442 ppm  
Exposure time: 13 wk  
Number of exposures: 6 h/d, 5 d/wk  
NOEL: 51 ppm  
Method: OECD Guideline 413  
Target Organs: Upper respiratory tract

t-Butyl Mercaptan

Species: Rat, Male and female  
Sex: Male and female  
Application Route: Inhalation  
Dose: 9, 97, 196 ppm  
Exposure time: 13 wks  
Number of exposures: 6 hrs/d, 5 d/wk

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NOEL: &gt; 196 ppm

Species: Rat, Male and female

Sex: Male and female

Application Route: oral gavage

Dose: 10, 50, 200 mg/kg bw/day

Exposure time: 42-53 days

Number of exposures: Daily

NOEL: 50 mg/kg bw/day

Lowest observable effect level: 200 mg/kg bw/day

Method: OECD Guideline 422

Species: Rat, Male and female

Sex: Male and female

Application Route: Inhalation

Dose: 25.1, 99.6, 403.4 ppm

Exposure time: 13 wks

Number of exposures: 6 hrs/d, 5 d/wk

NOEL: 99.6 ppm

Lowest observable effect level: 403.4 ppm

Method: OECD Guideline 413

Target Organs: Liver, Kidney, Blood, Upper respiratory tract

Information given is based on data obtained from similar substances.

**Genotoxicity in vitro**

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Tetrahydrothiophene : Test Type: Ames test  
 Method: Mutagenicity (Escherichia coli - reverse mutation assay)  
 Result: negative

Test Type: Cytogenetic assay  
 Result: negative

Test Type: HGPRT assay  
 Result: negative

Test Type: Sister Chromatid Exchange Assay  
 Method: OECD Guideline 473  
 Result: negative

Test Type: Unscheduled DNA synthesis assay  
 Result: negative

t-Butyl Mercaptan : 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 Test Guideline 476  
 Result: negative

Test Type: Sister Chromatid Exchange Assay  
 Metabolic activation: with and without metabolic activation  
 Result: negative

**Genotoxicity in vivo**

t-Butyl Mercaptan : Test Type: Mouse micronucleus assay  
 Species: Mouse  
 Dose: 1250, 2500, 5000 mg/kg  
 Method: OECD Test Guideline 474  
 Result: negative

**Reproductive toxicity**

t-Butyl Mercaptan : Species: Rat  
 Sex: male and female  
 Application Route: oral gavage  
 Dose: 10, 50, 200 mg/kg bw/day  
 Number of exposures: Daily  
 Test period: 42 -53 days  
 Method: OECD Guideline 422  
 NOAEL Parent: 200 mg/kg bw/day  
 NOAEL F1: 50 mg/kg bw/day  
 No adverse effects expected

**Developmental Toxicity**

Tetrahydrothiophene : Species: Rat  
 Application Route: Inhalation  
 Dose: 234, 782, 1910 ppm

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t-Butyl Mercaptan

Method: OECD Guideline 414  
 NOAEL Teratogenicity: 1910 ppm  
 NOAEL Maternal: 234 ppm  
 No adverse effects expected

Species: Mouse  
 Application Route: Inhalation  
 Dose: 11, 99, 195 ppm  
 Exposure time: GD 6-16  
 Number of exposures: 6 hrs/d  
 NOAEL Teratogenicity: > = 195 ppm  
 NOAEL Maternal: > = 195 ppm

Species: Rat  
 Application Route: Inhalation  
 Dose: 11, 99, 195 ppm  
 Exposure time: GD6-19  
 Number of exposures: 6 hrs/d  
 NOAEL Teratogenicity: > =195 ppm  
 NOAEL Maternal: > = 195 ppm

Species: Rat  
 Application Route: oral gavage  
 Dose: 10, 50, 200 mg/kg bw/day  
 Exposure time: 42-53 days  
 Number of exposures: Daily  
 NOAEL Teratogenicity: 50 mg/kg bw /day  
 NOAEL Maternal: 200 mg/kg bw /day

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Aspiration toxicity**

: May be harmful if swallowed and enters airways.

**CMR effects**

Tetrahydrothiophene

: 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: Animal testing did not show any effects on fertility.

t-Butyl Mercaptan

Carcinogenicity: Not available  
 Mutagenicity: Tests on bacterial or mammalian cell cultures did not show mutagenic effects., In vivo 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.**11.2****Information on other hazards****Scentinel® TB Gas Odorant  
Further information**

: Solvents may degrease the skin.

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Endocrine disrupting properties : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**SECTION 12: Ecological information****12.1****Toxicity****Toxicity to fish**

Tetrahydrothiophene : LC50: > 24 mg/l  
Exposure time: 96 h  
Species: Danio rerio (Zebra Fish)  
Method: OECD Test Guideline 203

t-Butyl Mercaptan LC50: 34 mg/l  
Exposure time: 96 h  
Species: Oncorhynchus mykiss (rainbow trout)  
semi-static test Method: OECD Test Guideline 203

**Toxicity to daphnia and other aquatic invertebrates**

Tetrahydrothiophene : EC50: 24 mg/l  
Exposure time: 48 h  
Species: Daphnia magna (Water flea)  
Method: OECD Test Guideline 202

t-Butyl Mercaptan EC50: 6,7 mg/l  
Exposure time: 48 h  
Species: Daphnia magna (Water flea)  
static test Method: OECD Test Guideline 202

**Toxicity to algae**

Tetrahydrothiophene : EC50: > 153,2 mg/l  
Exposure time: 72 h  
Species: Pseudokirchneriella subcapitata (green algae)  
Method: OECD Test Guideline 201

t-Butyl Mercaptan EC50: 24 mg/l  
Exposure time: 72 h  
Species: Pseudokirchneriella subcapitata (green algae)  
Method: OECD Test Guideline 201

**Toxicity to bacteria**

Tetrahydrothiophene : EC50: 1.530 mg/l  
Exposure time: 3 h  
Respiration inhibition  
Method: OECD Test Guideline 209

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**12.2****Persistence and degradability**

Biodegradability : This material is not expected to be readily biodegradable.

**12.3****Bioaccumulative potential**

Elimination information (persistence and degradability)

Bioaccumulation

Tetrahydrothiophene : No bioaccumulation is to be expected (log Pow <= 4).

t-Butyl Mercaptan : Bioconcentration factor (BCF): 12  
Method: QSAR modeled data  
This material is not expected to bioaccumulate.

**12.4****Mobility in soil**

Mobility

Tetrahydrothiophene : The product will be dispersed amongst the various environmental compartments (soil/ water/ air).

t-Butyl Mercaptan : Method: Calculation, Mackay Level III Fugacity Model  
The product will be dispersed amongst the various environmental compartments (soil/ water/ air).

**12.5****Results of PBT and vPvB assessment**

Results of PBT assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

**12.6****Endocrine disrupting properties**

Endocrine disrupting properties : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

**12.7****Other adverse effects**

Additional ecological information : Toxic to aquatic life with long lasting effects.

**12.8****Additional Information****Ecotoxicology Assessment**

Short-term (acute) aquatic hazard  
Tetrahydrothiophene : Harmful to aquatic life.



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t-Butyl Mercaptan : Toxic to aquatic life.

Long-term (chronic) aquatic hazard  
Tetrahydrothiophene : Harmful to aquatic life with long lasting effects.

t-Butyl Mercaptan : Toxic to aquatic life with long lasting effects.

**SECTION 13: Disposal considerations****13.1****Waste treatment methods**

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.

For additional details, see the Exposure Scenario in the Annex portion

**SECTION 14: Transport information****14.1 - 14.7****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)**

UN3336, MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, N.O.S.,  
(TETRAHYDROTHIOPHENE, TERTIARY BUTYL MERCAPTAN), 3, II

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

UN3336, MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, N.O.S.,  
(TETRAHYDROTHIOPHENE, TERTIARY BUTYL MERCAPTAN), 3, II, (> -17,8 °C c.c.),  
MARINE POLLUTANT, (TERTIARY BUTYL MERCAPTAN)

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**IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)**

UN3336, MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, N.O.S.,  
(TETRAHYDROTHIOPHENE, TERTIARY BUTYL MERCAPTAN), 3, II

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

UN3336, MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, N.O.S.,  
(TETRAHYDROTHIOPHENE, TERTIARY BUTYL MERCAPTAN), 3, II, (D/E),  
ENVIRONMENTALLY HAZARDOUS, (TERTIARY BUTYL MERCAPTAN)

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

33, UN3336, MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, N.O.S.,  
(TETRAHYDROTHIOPHENE, TERTIARY BUTYL MERCAPTAN), 3, II, ENVIRONMENTALLY  
HAZARDOUS, (TERTIARY BUTYL MERCAPTAN)

**ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)**

UN3336, MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, N.O.S.,  
(TETRAHYDROTHIOPHENE, TERTIARY BUTYL MERCAPTAN), 3, II, ENVIRONMENTALLY  
HAZARDOUS, (TERTIARY BUTYL MERCAPTAN)

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

**SECTION 15: Regulatory information****15.1****Safety, health and environmental regulations/legislation specific for the substance or mixture**  
**National legislation**

Commission Regulation (EU) 2020/878 of 18 June 2020 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

**Water hazard class (Germany)** : WGK 3 highly water endangering

**15.2****Chemical Safety Assessment**

**Components** : tetrahydrothiophene A Chemical Safety Assessment 203-728-9  
has been carried out for this substance.

**Chemical Safety Assessment**

2-methylpropane-2-thiol A Chemical Safety Assessment 200-890-2  
has been carried out for this substance.

**Major Accident Hazard Legislation** : 96/82/EC Update: 2003  
Highly flammable  
7b  
Quantity 1: 5.000 t

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Quantity 2: 50.000 t

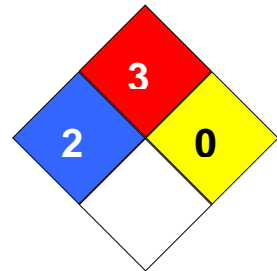
: 96/82/EC      Update: 2003  
 Dangerous for the environment  
 9b  
 Quantity 1: 200 t  
 Quantity 2: 500 t

**Notification status**

Europe REACH	:	This mixture contains only ingredients which have been registered according to Regulation (EU) No. 1907/2006 (REACH).
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
Other AICS	:	On the inventory, or in compliance with the inventory
New Zealand NZIoC	:	On the inventory, or in compliance with the inventory
Japan ENCS	:	On the inventory, or in compliance with the inventory
Korea KECI	:	All substances in this product were registered, notified to be registered, or exempted from registration by CPChem through an Only Representative according to K-REACH regulations. Importation of this product is permitted if the Korean Importer of Record was included on CPChem's notifications or if the Importer of Record themselves notified the substances.
Philippines PICCS	:	On the inventory, or 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: 3  
 Reactivity Hazard: 0

**Further information**

Legacy SDS Number : E027

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

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

**Full text of H-Statements referred to under sections 2 and 3.**

H225	Highly flammable liquid and vapor.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.