

**SCENTINEL® F-40 Gas Odorant**

Version 2.2

Revision Date 2022-11-10

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

Product Name : SCENTINEL® F-40 Gas Odorant  
Material : 1024701

Use : Odorant

Company : Chevron Phillips Chemical Company LP  
Specialty 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)  
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.)

**SCENTINEL® F-40 Gas Odorant**

Version 2.2

Revision Date 2022-11-10

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

**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****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**

SDS Number:100000013483

2/18

**SCENTINEL® F-40 Gas Odorant**

Version 2.2

Revision Date 2022-11-10

: Flammable liquids, Category 2  
 Eye irritation, Category 2B  
 Skin sensitization, Category 1

**Labeling**

Symbol(s)



Signal Word

: Danger

Hazard Statements

: H225: Highly flammable liquid and vapor.  
 H317: May cause an allergic skin reaction.  
 H320: Causes eye irritation.

Precautionary Statements

: **Prevention:**  
 P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.  
 P233 Keep container tightly closed.  
 P240 Ground/bond container and receiving equipment.  
 P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.  
 P242 Use only non-sparking tools.  
 P243 Take precautionary measures against static discharge.  
 P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.  
 P264 Wash skin thoroughly after handling.  
 P272 Contaminated work clothing must not be allowed out of the workplace.  
 P280 Wear protective gloves/ eye protection/ face protection.  
**Response:**  
 P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.  
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.  
 P337 + P313 If eye irritation persists: Get medical advice/ attention.  
 P363 Wash contaminated clothing 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

**SCENTINEL® F-40 Gas Odorant**

Version 2.2

Revision Date 2022-11-10

by NTP.

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

Synonyms : Mercaptan Mixture  
Gas Odorant

Molecular formula : Mixture

Component	CAS-No.	Weight %
t-Butyl Mercaptan	75-66-1	58 - 62
Dimethyl Sulfide	75-18-3	38 - 42

**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 : 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.

**SECTION 5: Firefighting measures**

Flash point : <-18°C (<0°F)  
Method: Tag closed cup  
estimated

Autoignition temperature : No data available

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

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

**SCENTINEL® F-40 Gas Odorant**

Version 2.2

Revision Date 2022-11-10

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**

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.

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).

**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. 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.

**Storage**

**SCENTINEL® F-40 Gas Odorant**

Version 2.2

Revision Date 2022-11-10

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.

Use : Odorant

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

Components	Basis	Value	Control parameters	Note
t-Butyl Mercaptan	Manufacturer	TWA	0.5 ppm,	

**US**

Components	Basis	Value	Control parameters	Note
Dimethyl Sulfide	ACGIH	TWA	10 ppm,	

**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. 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. Remove and wash contaminated clothing before re-use. Skin should be washed

**SCENTINEL® F-40 Gas Odorant**

Version 2.2

Revision Date 2022-11-10

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**

Form : liquid  
Physical state : liquid  
Color : Clear  
Odor : Repulsive

**Safety data**

Flash point : <-18°C (<0°F)  
Method: Tag closed cup  
estimated

Lower explosion limit : No data available

Upper explosion limit : No data available

Oxidizing properties : no

Autoignition temperature : No data available

Molecular formula : Mixture

Molecular weight : Not applicable

pH : Not applicable

Freezing point : -45.6°C (-50.1°F)

Pour point : No data available

Boiling point/boiling range : 35.6-82.2°C (96.1-180.0°F)

Vapor pressure : 10.30 PSI  
at 38°C (100°F)  
estimated

Relative density : 0.825  
at 15.6 °C (60.1 °F)

Density : 823.2 g/l

Water solubility : negligible

Partition coefficient: n-  
octanol/water : No data available

Viscosity, kinematic : 0.42 cSt  
at 40°C (104°F)

**SCENTINEL® F-40 Gas Odorant**

Version 2.2

Revision Date 2022-11-10

Relative vapor density : 2  
(Air = 1.0)

Evaporation rate : No data available

Percent volatile : > 99 %

**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: 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**

**SCENTINEL® F-40 Gas Odorant**  
**Acute oral toxicity** : Acute toxicity estimate: > 5,000 mg/kg  
Method: Calculation method

**SCENTINEL® F-40 Gas Odorant**  
**Acute inhalation toxicity** : Acute toxicity estimate: > 20 mg/l  
Species: Rat  
Method: Calculation method

**SCENTINEL® F-40 Gas Odorant**  
**Acute dermal toxicity** : Acute toxicity estimate: > 2,000 mg/kg  
Species: Rabbit  
Method: Calculation method

**SCENTINEL® F-40 Gas Odorant**



**SCENTINEL® F-40 Gas Odorant**

Version 2.2

Revision Date 2022-11-10

**Skin irritation** : May cause skin irritation and/or dermatitis.

**SCENTINEL® F-40 Gas Odorant**

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

**SCENTINEL® F-40 Gas Odorant**

**Sensitization** : Causes sensitization. largely based on animal evidence.

**Repeated dose toxicity**

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  
NOEL: > 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.

Dimethyl Sulfide : Species: Rat, Male and female  
Sex: Male and female  
Application Route: Oral diet  
Dose: 0, 2.5, 25, 250 mg/kg bw/day  
Exposure time: 14 wk  
Number of exposures: daily  
NOEL: 250 mg/kg  
Method: OECD Test Guideline 408  
No adverse effects expected

**SCENTINEL® F-40 Gas Odorant**

Version 2.2

Revision Date 2022-11-10

Species: Rat, Male and female  
 Sex: Male and female  
 Application Route: inhalation (vapor)  
 Dose: 0, 0.310, 0.964, 2.783 mg/l  
 Exposure time: 13 wk (6 h)  
 Number of exposures: 7 d/wk  
 NOEL: 2.783 mg/l  
 Method: OECD Guideline 413  
 Information given is based on data obtained from similar substances.

**Genotoxicity in vitro**

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

Dimethyl Sulfide : 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

**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

Dimethyl Sulfide : Test Type: In vivo micronucleus test  
 Species: Mouse  
 Cell type: Bone marrow  
 Route of Application: Oral  
 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

**SCENTINEL® F-40 Gas Odorant**

Version 2.2

Revision Date 2022-11-10

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**

t-Butyl Mercaptan

: 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

Dimethyl Sulfide

Species: Rat  
 Application Route: oral gavage  
 Dose: 100, 500, 1000 mg/kg  
 Exposure time: GD 6 - 19  
 Number of exposures: daily  
 Test period: 20 d  
 Method: OECD Guideline 414  
 NOAEL Teratogenicity: 1,000 mg/kg  
 NOAEL Maternal: 1,000 mg/kg

**SCENTINEL® F-40 Gas Odorant****Aspiration toxicity**

: May be harmful if swallowed and enters airways.

**CMR effects**

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.

Dimethyl Sulfide

Carcinogenicity: Not available  
 Mutagenicity: Tests on bacterial or mammalian cell cultures

**SCENTINEL® F-40 Gas Odorant**

Version 2.2

Revision Date 2022-11-10

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.

**SCENTINEL® F-40 Gas Odorant**

**Further information** : Solvents may degrease the skin.

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

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

Dimethyl Sulfide LC50: 213 mg/l  
 Exposure time: 96 h  
 Species: Oncorhynchus mykiss (rainbow trout)  
 Method: OECD Test Guideline 203

**Toxicity to daphnia and other aquatic invertebrates**

t-Butyl Mercaptan : EC50: 6.7 mg/l  
 Exposure time: 48 h  
 Species: Daphnia magna (Water flea)  
 static test Method: OECD Test Guideline 202

Dimethyl Sulfide EC50: 29 mg/l  
 Exposure time: 48 h  
 Species: Daphnia magna (Water flea)  
 static test Method: OECD Test Guideline 202

**Toxicity to algae**

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

Dimethyl Sulfide IC50: > 113.7 mg/l  
 Exposure time: 72 h  
 Species: Selenastrum capricornutum (algae)  
 Method: OECD Test Guideline 201

**Biodegradability**

t-Butyl Mercaptan : aerobic  
 Result: Not readily biodegradable.  
 6 %  
 Testing period: 63 d

**SCENTINEL® F-40 Gas Odorant**

Version 2.2

Revision Date 2022-11-10

	Method: OECD Test Guideline 301
Dimethyl Sulfide	: aerobic Result: Readily biodegradable. 77 % Method: OECD Test Guideline 301
Bioaccumulation	
t-Butyl Mercaptan	: Bioconcentration factor (BCF): 12 Method: QSAR modeled data This material is not expected to bioaccumulate.
Dimethyl Sulfide	: No bioaccumulation is to be expected (log Pow <= 4).
Mobility	
t-Butyl Mercaptan	: Method: Calculation, Mackay Level III Fugacity Model The product will be dispersed amongst the various environmental compartments (soil/ water/ air).
Dimethyl Sulfide	: Method: Calculation, Mackay Level III Fugacity Model The product will be dispersed amongst the various environmental compartments (soil/ water/ air).
Results of PBT assessment	
t-Butyl Mercaptan	: Non-classified PBT substance, Non-classified vPvB substance
Dimethyl Sulfide	: Non-classified PBT substance, Non-classified vPvB substance
Additional ecological information	: Toxic to aquatic life with long lasting effects.
<b>Ecotoxicology Assessment</b>	
Short-term (acute) aquatic hazard	
t-Butyl Mercaptan	: Toxic to aquatic life.
Dimethyl Sulfide	: Harmful to aquatic life.
Long-term (chronic) aquatic hazard	
t-Butyl Mercaptan	: Toxic to aquatic life with long lasting effects.
Dimethyl Sulfide	: This material is not expected to be harmful to aquatic organisms.

**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.

**SCENTINEL® F-40 Gas Odorant**

Version 2.2

Revision Date 2022-11-10

- 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)**

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

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

UN3336, MERCAPTAN MIXTURE, LIQUID, FLAMMABLE, N.O.S., (TERTIARY BUTYL MERCAPTAN, DIMETHYL SULFIDE), 3, II, (< -18 °C c.c.), MARINE POLLUTANT, (TERTIARY BUTYL MERCAPTAN)

**IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)**

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

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

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

**SCENTINEL® F-40 Gas Odorant**

Version 2.2

Revision Date 2022-11-10

**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  
Serious eye damage or eye irritation

CERCLA Reportable Quantity : 50000 lbs  
Carbon disulfide

SARA 302 Reportable Quantity : Calculated RQ exceeds reasonably attainable upper limit.  
Carbon disulfide

SARA 302 Threshold Planning Quantity : This material does not contain any components with a section 302 EHS TPQ.

SARA 304 Reportable Quantity : 50000 lbs  
Carbon disulfide 75-15-0 100 lbs

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).

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 112 (40 CFR 61):  
: Benzene - 71-43-2  
Toluene - 108-88-3  
Carbon disulfide - 75-15-0

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).

**SCENTINEL® F-40 Gas Odorant**

Version 2.2

Revision Date 2022-11-10

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCMII Intermediate or Final VOC's (40 CFR 60.489):

: Dimethyl Sulfide - 75-18-3

**US State Regulations**

Pennsylvania Right To Know

: t-Butyl Mercaptan - 75-66-1  
 Dimethyl Sulfide - 75-18-3  
 Carbon disulfide - 75-15-0  
 Methyl Mercaptan - 74-93-1  
 Dimethyl Disulfide - 624-92-0  
 Toluene - 108-88-3  
 Benzene - 71-43-2

California Prop. 65  
 Components

: WARNING: This product can expose you to chemicals including [listed below], which is [are] known to the State of California to cause cancer. For more information go to [www.P65Warnings.ca.gov/food](http://www.P65Warnings.ca.gov/food).

Benzene

71-43-2

WARNING: This product can expose you to chemicals including [listed below], which is [are] known to the State of California to cause birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

Carbon disulfide

75-15-0

Toluene

108-88-3

Benzene

71-43-2

**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

Other AIIC : 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 : 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



**SCENTINEL® F-40 Gas Odorant**

Version 2.2

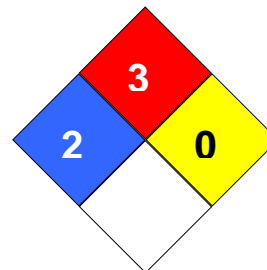
Revision Date 2022-11-10

quantity of the non-registered substance(s).

Philippines PICCS : On the inventory, or 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

**SECTION 16: Other information**

**NFPA Classification** : Health Hazard: 2  
 Fire Hazard: 3  
 Reactivity Hazard: 0

**Further information**

Legacy SDS Number : 99590

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%
AICS	Australia, Inventory of Chemical Substances	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

**SCENTINEL® F-40 Gas Odorant**

Version 2.2

Revision Date 2022-11-10

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%		