DirectDrill™ Lubricant

Version 1.4 Revision Date 2025-12-03

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

Product information

Product Name	:	DirectDrill™ Lubricant
Material	:	1125293
Use	:	Lubricant
Company	:	Chevron Phillips Chemical Company LP Drilling Specialties Company LLC 9500 Lakeside Blvd. The Woodlands, TX 77381

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
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

Organization that prepared the SDS	:	Product Safety and Toxicology Group
E-mail address	:	SDS@CPChem.com
Website	:	www.CPChem.com

For Research and Development Purposes Only. Contains substances not on the TSCA Inventory. To be used under the direction of a Technically Qualified Individual.

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

: Acute toxicity, Category 4, Inhalation
Skin irritation, Category 2
Eye irritation, Category 2A
Skin sensitization, Category 1
Carcinogenicity, Category 1B
Reproductive toxicity, Category 2
Specific target organ toxicity - repeated exposure, Category 2, Blood, Auditory organs, thymus
Aspiration hazard, Category 1

Labeling

Symbol(s) :

Signal Word : Danger

Hazard Statements : H304: May be fatal if swallowed and enters airways.
H315: Causes skin irritation.
H317: May cause an allergic skin reaction.
H319: Causes serious eye irritation.
H332: Harmful if inhaled.
H350: May cause cancer.
H361: Suspected of damaging fertility or the unborn child.

H373: May cause damage to organs (Blood, Auditory organs, thymus) through prolonged or repeated exposure.

Precautionary Statements : **Prevention:**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P260 Do not breathe mist or vapors.
P264 Wash skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing must not be allowed out of the workplace.
P280 Wear protective gloves/ eye protection/ face protection.
P280 Wear protective gloves, protective clothing, eye protection and face protection.
Response:
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P302 + P352 IF ON SKIN: Wash with plenty of water.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P331 Do NOT induce vomiting.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.
Storage:
P405 Store locked up.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Carcinogenicity:

IARC	Group 2B: Possibly carcinogenic to humans	
	Naphthalene	91-20-3
NTP	Known to be human carcinogen	
	Phenanthrene	85-01-8
	Anthracene	120-12-7
	Reasonably anticipated to be a human carcinogen	
	Phenanthrene	85-01-8
	Naphthalene	91-20-3

SECTION 3: Composition/information on ingredients

Component	CAS-No.	Weight %

Aromatic hydrocarbons, C9-11	70693-06-0	0 - 99
Fuel oil, no. 6	68553-00-4	0 - 99
Naphthalene	91-20-3	0 - 80
Ethoxylated mercaptan	Proprietary	1 - 25
2-Methylnaphthalene	91-57-6	1 - 15
Biphenyl	92-52-4	1 - 10
1-Methylnaphthalene	90-12-0	1 - 10
Indene	95-13-6	1 - 10
Xylenes	1330-20-7	1 - 5
Phenanthrene	85-01-8	1 - 5
Anthracene	120-12-7	1 - 5
N,N'-di-sec-Butyl-p-phenylenediamine	101-96-2	0.1 - 1

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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 skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes.

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

If swallowed : Keep respiratory tract clear. Do NOT induce vomiting. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

Notes to physician

Risks : May be harmful if swallowed or in contact with skin. May be fatal if swallowed and enters airways. Causes skin irritation and serious eye irritation. May cause an allergic skin reaction. Harmful if inhaled. May cause cancer. Suspected of damaging fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure.
May be fatal if swallowed and enters airways. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye irritation. Harmful if inhaled. May cause cancer. Suspected of damaging fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure.

Treatment : Treat symptomatically.

SECTION 5: Firefighting measures

Flash point : 104°C (219°F)

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.
Fire and explosion protection	:	Normal measures for preventive fire protection.

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	:	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

SECTION 7: Handling and storage

Handling

Advice on safe handling	:	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. 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	:	Normal measures for preventive fire protection.

Storage

Requirements for storage areas and containers	:	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 : Lubricant

SECTION 8: Exposure controls/personal protection

Ingredients with workplace control parameters

US

Components	Basis	Value	Control parameters	Note
Naphthalene	ACGIH	TWA	10 ppm,	A3, Skin,
	ACGIH	STEL	15 ppm,	hematologic eff, URT irr, eye irr, eye dam, (), A4, Skin,
	OSHA Z-1	TWA	10 ppm, 50 mg/m3	
	OSHA Z-1-A	TWA	10 ppm, 50 mg/m3	
	OSHA Z-1-A	STEL	15 ppm, 75 mg/m3	
2-Methylnaphthalene	ACGIH	TWA	0.5 ppm,	A4, Skin,
	ACGIH		0.05 ppm, 3mg/100 cm2	A4, Skin,
Biphenyl	ACGIH	TWA	0.2 ppm,	
	OSHA Z-1	TWA	0.2 ppm, 1 mg/m3	
	OSHA Z-1-A	TWA	0.2 ppm, 1 mg/m3	
1-Methylnaphthalene	ACGIH	TWA	0.5 ppm,	A4, Skin,
	ACGIH		0.05 ppm, 3mg/100 cm2	A4, Skin,
Indene	ACGIH	TWA	5 ppm,	
	OSHA Z-1-A	TWA	10 ppm, 45 mg/m3	
Xylenes	OSHA Z-1	TWA	100 ppm, 435 mg/m3	
	OSHA Z-1-A	STEL	150 ppm, 655 mg/m3	
	OSHA Z-1-A	TWA	100 ppm, 435 mg/m3	
	ACGIH	TWA	20 ppm,	OTO, A4,
	ACGIH	STEL	150 ppm,	A4,
Phenanthrene	OSHA Z-1-A	TWA	0.2 mg/m3	
	OSHA Z-1	TWA	0.2 mg/m3	
Anthracene	OSHA Z-1-A	TWA	0.2 mg/m3	
	OSHA Z-1	TWA	0.2 mg/m3	

() Adopted values or notations enclosed are those for which changes are proposed in the NIC
A3 Confirmed animal carcinogen with unknown relevance to humans
A4 Not classifiable as a human carcinogen
eye dam Eye damage
eye irr Eye irritation
hematologic eff Hematologic effects
OTO Ototoxicant
Skin Danger of cutaneous absorption
URT irr Upper Respiratory Tract irritation

Immediately Dangerous to Life or Health Concentrations (IDLH)

Substance name	CAS-No.	Control parameters	Update
Naphthalene	91-20-3	Immediately Dangerous to Life or Health Concentration Value 250 parts per million	1995-03-01
Biphenyl	92-52-4	Immediately Dangerous to Life or Health Concentration Value 100 mg/m³	1995-03-01
Xylenes	1330-20-7	Immediately Dangerous to Life or Health Concentration Value 900 parts per million	2017-09-01
Phenanthrene	85-01-8	Immediately Dangerous to Life or Health Concentration Value 80 mg/m³	2017-09-01
Anthracene	120-12-7	Immediately Dangerous to Life or Health Concentration Value 80 mg/m³	2017-09-01

Biological exposure indices

US

Substance name	CAS-No.	Control parameters	Sampling time	Update

Xylenes	1330-20-7	Methylhippuric acids: 0.3 g/g creatinine 2024 Adoption (Urine) Commercial or technical grade xylenes consist of mixtures of isomers and significant amounts of ethyl benzene as indicated under 'Properties.' Because ethyl benzene is known to reduce the metabolism of xylenes to methylhippuric acids, the BEI applies to technical or commercial grades of xylenes only. () The determinants refer to the total of all isomers of methylhippuric acids. () Adopted values or notations enclosed are those for which changes are proposed in the NIC ()	End of shift (As soon as possible after exposure ceases)	2024-01-01
Phenanthrene	85-01-8	1-Hydroxypyrene: 2.5 µg/l Adjusted for the Pyrene to Benzo(a)pyrene ratio of the PAH mixture to which workers are exposed (Urine) Background () With hydrolyses ()	End of shift at end of workweek	2018-03-20
		3-hydroxybenzo(a)pyrene: Nonquantitative (Urine) With hydrolyses ()	End of shift at end of workweek	2018-03-20
Anthracene	120-12-7	1-Hydroxypyrene: 2.5 µg/l Adjusted for the Pyrene to Benzo(a)pyrene ratio of the PAH mixture to which workers are exposed (Urine) Background () With hydrolyses ()	End of shift at end of workweek	2018-03-20
		3-hydroxybenzo(a)pyrene: Nonquantitative (Urine) With hydrolyses ()	End of shift at end of workweek	2018-03-20

Engineering measures

Adequate ventilation to control airborned 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 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.

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.

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

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance

Form	:	liquid
Physical state	:	liquid
Color	:	Dark Brown
Odor	:	No data available
Odor Threshold	:	No data available

Safety data

Flash point	:	104°C (219°F)
Ignition temperature	:	348.3°C (658.9°F)
Lower explosion limit	:	No data available
Upper explosion limit	:	No data available
Thermal decomposition	:	Not applicable
Molecular weight	:	No data available
pH	:	No data available
Freezing point	:	No data available
Pour point		-18°C (0°F)
Initial boiling point and boiling range	:	169.4-579.4°C (336.9-1,074.9°F)
Vapor pressure	:	No data available
Relative density	:	1
Density	:	No data available

Water solubility	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Solubility in other solvents	:	No data available
Viscosity, kinematic	:	10 - 100 cSt at 98.9°C (210.0°F)
Evaporation rate	:	No data available

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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	:	Further information: No decomposition if stored and applied as directed.
Conditions to avoid	:	No data available.
Thermal decomposition	:	Not applicable
Other data	:	No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

This product is for experimental uses only. Please use caution while handling this product.

DirectDrill™ Lubricant

Acute oral toxicity	:	Acute toxicity estimate: 3,814 mg/kg Method: Calculation method
		Acute toxicity estimate: 3,814 mg/kg Method: Calculation method

DirectDrill™ Lubricant

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

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

DirectDrill™ Lubricant
Acute dermal toxicity : Acute toxicity estimate: 2,484 mg/kg
Method: Calculation method

Acute toxicity estimate: 2,483 mg/kg
Method: Calculation method

DirectDrill™ Lubricant
Skin irritation : Skin irritation
largely based on animal evidence.
May cause skin irritation and/or dermatitis.

DirectDrill™ Lubricant
Eye irritation : May cause eye irritation.
largely based on animal evidence.
Vapors may cause irritation to the eyes, respiratory system and the skin.

DirectDrill™ Lubricant
Sensitization : Causes sensitization.
largely based on animal evidence.
Causes sensitization.

Repeated dose toxicity

Aromatic hydrocarbons, C9-11	:	Species: Rat Application Route: oral gavage Dose: 0, 300, 600, 1000 mg/kg/day Exposure time: 90 day NOEL: 300 mg/kg/day
Xylenes		Species: Rat Application Route: oral gavage Dose: 0, 62.5, 125, 250, 500, 100... Exposure time: 13 wk Number of exposures: daily, 5 d/wk NOEL: 1,000 mg/kg Species: Rat Application Route: Inhalation Dose: 0, 180, 460, 810 ppm Exposure time: 13 wk Number of exposures: 6 h/d, 5 d/wk NOEL: > 810 ppm Species: Rat Application Route: Inhalation Dose: 0, 450, 900, 1800 ppm Exposure time: 13 wk Number of exposures: 6 h/d, 6 d/wk Lowest observable effect level: 900 ppm

Genotoxicity in vitro

Aromatic hydrocarbons, C9-11	:	Test Type: Ames test Metabolic activation: with and without metabolic activation Result: negative
Naphthalene		Test Type: Ames test Result: negative Test Type: Sister Chromatid Exchange Assay Result: negative Test Type: Unscheduled DNA synthesis assay Result: negative
Xylenes		Test Type: Ames test Result: negative Test Type: Mouse lymphoma assay Result: negative

Genotoxicity in vivo

Aromatic hydrocarbons, C9-11	:	Test Type: Mouse micronucleus assay Species: Mouse Result: negative
Naphthalene		Test Type: Mouse micronucleus assay Result: negative
Xylenes		Test Type: Mouse micronucleus assay Result: negative

Carcinogenicity

Naphthalene	:	Species: Mouse Sex: male Dose: 10, 30 ppm Exposure time: 105 weeks Number of exposures: 6 hours/day, 5 days/week Test substance: yes Print Date: No information available. Remarks: No evidence of carcinogenicity Species: Mouse Sex: female Dose: 10, 30 ppm Exposure time: 105 weeks Number of exposures: 6 hours/day, 5 days/week Test substance: yes Print Date: No information available. Remarks: increased incidence of alveolar/bronchiolar adenomas Species: Rat Sex: male and female Dose: 10, 30, 60 ppm Exposure time: 105 weeks Number of exposures: 6 hours/day, 5 days/week Test substance: yes Print Date: No information available. Remarks: nose respiratory epithelial adenoma, increased incidence of olfactory neuroblastomas
Xylenes		Species: Rat Dose: 0, 250, 500 mg/kg Exposure time: 103 wks Number of exposures: 5 d/wk Remarks: No evidence of carcinogenicity Species: Mouse Dose: 0, 500, 1000 mg/kg Exposure time: 103 wks Number of exposures: 5 d/wk Remarks: No evidence of carcinogenicity

Developmental Toxicity

Aromatic hydrocarbons, C9-11	:	Species: Rat Application Route: Oral diet Dose: 0, 75, 150, 450 mg/kg/day Exposure time: GD 6-15 NOAEL Teratogenicity: >450 mg/kg/day NOAEL Maternal: 150 mg/kg/day
Naphthalene		Species: Rabbit Application Route: oral gavage Dose: 40, 200, 400 mg/kg Test period: 29 d, GD 6-18 NOAEL Teratogenicity: 400 mg/kg

Xylenes	Species: Rat Application Route: Inhalation Dose: 0, 805, 1610 ppm Number of exposures: 6 h/d Test period: GD 7-16 NOAEL Maternal: 1610 ppm Species: Mouse Application Route: oral gavage Dose: 0, 780, 1960, 2619 mg/kg Number of exposures: 3 times/d Test period: GD 6-15 NOAEL Teratogenicity: 780 mg/kg NOAEL Maternal: 780 mg/kg

DirectDrill™ Lubricant
Aspiration toxicity : May be fatal if swallowed and enters airways.

CMR effects

Fuel oil, no. 6	: Carcinogenicity: Possible human carcinogen Reproductive toxicity: Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.
Naphthalene	Carcinogenicity: Limited evidence of carcinogenicity in animal studies
Xylenes	Carcinogenicity: Not classifiable as a human carcinogen. Mutagenicity: Did not show mutagenic effects in animal experiments. Teratogenicity: Damage to fetus not classifiable

DirectDrill™ Lubricant
Further information : No data available.
Solvents may degrease the skin.

SECTION 12: Ecological information

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

Toxicity to fish

Aromatic hydrocarbons, C9-11	: LC50: 0.84 mg/l Exposure time: 96 h Species: Oncorhynchus mykiss (rainbow trout)
Naphthalene	LC50: 3.2 mg/l Exposure time: 96 h Species: Pimephales promelas (fathead minnow)
Ethoxylated mercaptan	LC50: 64 mg/l Exposure time: 96 h Species: Pimephales promelas (fathead minnow) static test
1-Methylnaphthalene	LC50: 9 mg/l Exposure time: 96 h Species: Pimephales promelas (fathead minnow)

	static test
Xylenes	LC50: 8.2 mg/l Exposure time: 96 h Species: Salmo gairdneri (Rainbow trout)

Toxicity to daphnia and other aquatic invertebrates

Aromatic hydrocarbons, C9-11	:	EC50: 0.55 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea)
Naphthalene		LC50: 2.16 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea)
Ethoxylated mercaptan		EC50: 2.4 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) static test
Phenanthrene		0.1 mg/l Exposure time: 96 h Species: Daphnia pulex (Water flea)
Anthracene		0.035 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea)

Toxicity to algae

Aromatic hydrocarbons, C9-11	:	NOEC: 0.07 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (green algae)
Naphthalene		EC50: 2.96 mg/l Exposure time: 48 h Species: Selenastrum capricornutum (algae)
Ethoxylated mercaptan		EC50: 85 mg/l Exposure time: 72 h Species: Selenastrum capricornutum (algae) static test

M-Factor

N,N'-di-sec-butyl-p-phenylenediamine	:	M-Factor (Acute Aquat. Tox.)	1
		M-Factor (Chron. Aquat. Tox.)	10

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

Elimination information (persistence and degradability)

Bioaccumulation

Aromatic hydrocarbons, C9-	:	Does not significantly accumulate in organisms.

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Xylenes	:	This material is not expected to bioaccumulate.
N,N'-di-sec-Butyl-p-phenylenediamine	:	Bioconcentration factor (BCF): 125.9 Method: QSAR modeled data

Results of PBT assessment

N,N'-di-sec-Butyl-p-phenylenediamine	:	Not persistent, bioaccumulative, and toxic (PBT)., Not very persistent and very bioaccumulative (vPvB).
Additional ecological information	:	Toxic to aquatic life with long lasting effects. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal., Toxic to aquatic life with long lasting effects.

Ecotoxicology Assessment

Short-term (acute) aquatic hazard	:	Toxic to aquatic life.
Long-term (chronic) aquatic hazard	:	Toxic to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

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

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

Product	:	The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.
Contaminated packaging	:	Empty remaining contents. Dispose of as unused product. Do not re-use empty containers.

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)

UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (NAPTHALENE, BIPHENYL), 9, III, MARINE POLLUTANT, (NAPTHALENE), RQ (NAPTHALENE, BIPHENYL)

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)
UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (AROMATIC HYDROCARBONS, C9-11, FUEL OIL, NO. 6), 9, III, (104 °C c.c.), MARINE POLLUTANT, (AROMATIC HYDROCARBONS, C9-11, FUEL OIL, NO. 6)

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)
UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (AROMATIC HYDROCARBONS, C9-11, FUEL OIL, NO. 6), 9, III

ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))
UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (AROMATIC HYDROCARBONS, C9-11, FUEL OIL, NO. 6), 9, III, (-)

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))
90,UN3082,ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (AROMATIC HYDROCARBONS, C9-11, FUEL OIL, NO. 6), 9, III

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)
UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., (AROMATIC HYDROCARBONS, C9-11, FUEL OIL, NO. 6), 9, III

Maritime transport in bulk according to IMO instruments

SECTION 15: Regulatory information

National legislation

SARA 311/312 Hazards : Acute toxicity (any route of exposure)
Respiratory or skin sensitization
Carcinogenicity
Reproductive toxicity
Specific target organ toxicity (single or repeated exposure)
Aspiration hazard
Skin corrosion or irritation
Serious eye damage or eye irritation

EPCRA - EMERGENCY PLANNING COMMUNITY RIGHT - TO – KNOW

CERCLA Reportable Quantity : 125 lbs

Naphthalene

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

Quantity		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	:	The following components are subject to reporting levels established by SARA Title III, Section 313:
	:	Naphthalene - 91-20-3 Biphenyl - 92-52-4 Xylenes - 1330-20-7 Phenanthrene - 85-01-8 Anthracene - 120-12-7

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):

: Naphthalene - 91-20-3
Biphenyl - 92-52-4
Xylenes - 1330-20-7
Phenanthrene - 85-01-8
Anthracene - 120-12-7

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).

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

: 2-Methylnaphthalene - 91-57-6
Biphenyl - 92-52-4
1-Methylnaphthalene - 90-12-0
Xylenes - 1330-20-7

US State Regulations

Pennsylvania Right To Know

: Aromatic hydrocarbons, C9-11 - 70693-06-0
Fuel oil, no. 6 - 68553-00-4
Naphthalene - 91-20-3
Tricyclo[5.2.1.02,6]decane - 6004-38-2
2-Methylnaphthalene - 91-57-6
Biphenyl - 92-52-4

1-Methylnaphthalene - 90-12-0
Naphthalene, dimethyl- - 28804-88-8
Naphthalene, trimethyl- - 28652-77-9
Indene - 95-13-6
Xylenes - 1330-20-7
Phenanthrene - 85-01-8
Anthracene - 120-12-7
1,2,4-Trimethylbenzene - 95-63-6

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

Phenanthrene	85-01-8
Anthracene	120-12-7
Naphthalene	91-20-3

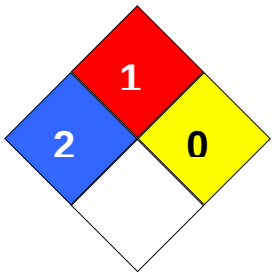
Notification status

Europe REACH	:	Not in compliance with the inventory
Switzerland CH INV	:	Not in compliance with the inventory
United States of America (USA) TSCA	:	All chemical substances in this product are either listed on the TSCA Inventory or are in compliance with a TSCA Inventory exemption.
Canada DSL	:	All components of this product are on the Canadian DSL
Australia AIIC	:	Not in compliance with the inventory
New Zealand NZIoC	:	Not in compliance with the inventory
Japan ENCS	:	Not in compliance with the inventory
Japan ISHL	:	Not in compliance with the inventory
Korea KECI	:	Not in compliance with the inventory
Philippines PICCS	:	Not in compliance with the inventory
China IECSC	:	Not in compliance with the inventory
Taiwan TCSI	:	Not in compliance with the inventory
Other TECI	:	Not in compliance with the inventory

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

SECTION 16: Other information

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



Revision Date : 2025-12-03
Date of last issue : 2021-04-08

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