

65 Percentile Fuel

Version 5.1

Revision Date 2021-06-15

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

Product information

Product Name : 65 Percentile Fuel
 Material : 1020475, 1020478, 1020477, 1020476, 1033666, 1020479

Use : Fuel

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

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

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

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

SECTION 2: Hazards identification

Classification of the substance or mixture

This product has been classified in accordance with the hazard communication standard 29 CFR 1910.1200; the SDS and labels contain all the information as required by the standard.

Classification

: Flammable liquids, Category 2
 Skin irritation, Category 2
 Germ cell mutagenicity, Category 1B
 Carcinogenicity, Category 1A
 Reproductive toxicity, Category 2
 Specific target organ toxicity - single exposure, Category 3,

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Central nervous system
 Specific target organ toxicity - repeated exposure, Category 2,
 Inhalation, Auditory organs, color vision, Nervous system
 Aspiration hazard, Category 1

Labeling

Symbol(s)



Signal Word

: Danger

Hazard Statements

: H225: Highly flammable liquid and vapor.
 H304: May be fatal if swallowed and enters airways.
 H315: Causes skin irritation.
 H336: May cause drowsiness or dizziness.
 H340: May cause genetic defects.
 H350: May cause cancer.
 H361d: Suspected of damaging the unborn child.
 H373: May cause damage to organs (Auditory organs, color vision, Nervous system) through prolonged or repeated exposure if inhaled.

Precautionary Statements

: **Prevention:**
 P201 Obtain special instructions before use.
 P202 Do not handle until all safety precautions have been read and understood.
 P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
 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.
 P260 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
 P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
 P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
 P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
 P308 + P313 IF exposed or concerned: Get medical advice/ attention.
 P331 Do NOT induce vomiting.
 P332 + P313 If skin irritation occurs: Get medical advice/ attention.
 P362 Take off contaminated clothing and wash before reuse.
 P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
Storage:
 P403 + P233 Store in a well-ventilated place. Keep container

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tightly closed.
 P403 + P235 Store in a well-ventilated place. Keep cool.
Disposal:
 P501 Dispose of contents/ container to an approved waste disposal plant.

Carcinogenicity:**IARC**

Group 1: Carcinogenic to humans

Benzene 71-43-2

Group 2B: Possibly carcinogenic to humans

Naphtha, Petroleum, Heavy 64741-54-4

Catalytic Cracked

Ethylbenzene 100-41-4

Naphthalene 91-20-3

Isoprene 78-79-5

NTP

Reasonably anticipated to be a human carcinogen

Naphthalene 91-20-3

Isoprene 78-79-5

Known to be human carcinogen

Benzene 71-43-2

SECTION 3: Composition/information on ingredients

Synonyms : 65% IVD Test Fuel
 Intake Valve Deposits (IVD) Certification Test
 IVD Test Fuel
 65th Percentile Test Fuel
 65 Percentile Fuel

Molecular formula : Mixture

Component	CAS-No.	Weight %
Naphtha, Petroleum, Heavy Catalytic Cracked	64741-54-4	60 - 80
Toluene	108-88-3	10 - 25
n-Butane	106-97-8	0 - 10
C12-C14 Isoalkanes	68551-19-9	0 - 10
Xylenes	1330-20-7	0 - 10
Isopentane	78-78-4	0 - 20
2-Methylpentane	107-83-5	0 - 20
Benzene	71-43-2	0 - 5
3-Methylpentane	96-14-0	0 - 5
2-Methylhexane	591-76-4	0 - 10
Methylcyclopentane	96-37-7	0 - 5
3-Methylhexane	589-34-4	0 - 5
1,2,4-Trimethylbenzene	95-63-6	0 - 5
2-methyl-2-butene	513-35-9	0 - 5
Ethylbenzene	100-41-4	0 - 5
Naphthalene	91-20-3	0 - 5
Methylcyclohexane	108-87-2	0 - 5
n-hexane	110-54-3	0 - 5
n-Pentane	109-66-0	0 - 5

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2,3-Dimethylbutane	79-29-8	0 - 5
2-methyl-1-butene	563-46-2	0 - 5
Hydrogen Sulfide	7783-06-4	0 - 0.8
Isoprene	78-79-5	0 - 0.4
Cyclohexane	110-82-7	0 - 2.6

SECTION 4: First aid measures

- General advice : Move out of dangerous area. Show this material safety data sheet to the doctor in attendance. Material may produce a serious, potentially fatal pneumonia if swallowed or vomited.
- If inhaled : Consult a physician after significant exposure. If unconscious, place in recovery position and seek medical advice.
- In case of skin contact : If skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes.
- In case of eye contact : Flush eyes with water as a precaution. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
- If swallowed : Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

SECTION 5: Firefighting measures

- Flash point : 0°C (32°F)
- Autoignition temperature : No data available
- Suitable extinguishing media : Alcohol-resistant foam. Carbon dioxide (CO₂). 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 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

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explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.

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.
- 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

- 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 : Fuel

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

Components	Basis	Value	Control parameters	Note
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SDS Number:100000014950

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C12-C14 Isoalkanes	Manufacturer	TWA	1,200 mg/m3	RCP,
RCP Reciprocal Calculation Procedure				

US

Components	Basis	Value	Control parameters	Note
Naphtha, Petroleum, Heavy Catalytic Cracked	OSHA Z-1-A	TWA	400 ppm, 1,600 mg/m3	
Toluene	OSHA Z-1	TWA	500 ppm, 2,000 mg/m3	
	ACGIH	TWA	20 ppm,	A4,
	OSHA Z-2	TWA	200 ppm,	
	OSHA Z-2	CEIL	300 ppm,	
	OSHA Z-2	Peak	500 ppm,	
n-Butane	OSHA Z-1-A	TWA	100 ppm, 375 mg/m3	
	OSHA Z-1-A	STEL	150 ppm, 560 mg/m3	
	OSHA Z-1-A	TWA	800 ppm, 1,900 mg/m3	
	ACGIH	STEL	1,000 ppm,	CNS impair, EX,
	OSHA Z-1	TWA	100 ppm, 435 mg/m3	
Xylenes	OSHA Z-1-A	STEL	150 ppm, 655 mg/m3	
	OSHA Z-1-A	TWA	100 ppm, 435 mg/m3	
	ACGIH	TWA	100 ppm,	A4,
	ACGIH	STEL	150 ppm,	A4,
	ACGIH	TWA	1,000 ppm,	
Isopentane	ACGIH	TWA	500 ppm,	
	ACGIH	STEL	1,000 ppm,	
	OSHA Z-1-A	TWA	500 ppm, 1,800 mg/m3	
	OSHA Z-1-A	STEL	1,000 ppm, 3,600 mg/m3	
	ACGIH	TWA	0.5 ppm,	A1, Skin,
2-Methylpentane	ACGIH	STEL	2.5 ppm,	A1, Skin,
	OSHA Z-1-A	TWA	1 ppm,	
	OSHA Z-1-A	CEIL	5 ppm,	
	OSHA Z-2	Peak	50 ppm,	
	OSHA 29 CFR 1910.1028(c)	TWA	1 ppm,	
Benzene	OSHA 29 CFR 1910.1028(c)	STEL	5 ppm,	
	OSHA CARC	PEL	1 ppm,	
	OSHA CARC	STEL	5 ppm,	
	ACGIH	TWA	500 ppm,	
	ACGIH	STEL	1,000 ppm,	
3-Methylpentane	OSHA Z-1-A	TWA	500 ppm, 1,800 mg/m3	
	OSHA Z-1-A	STEL	1,000 ppm, 3,600 mg/m3	
	ACGIH	TWA	400 ppm,	
	ACGIH	STEL	500 ppm,	
	ACGIH	TWA	500 ppm,	CNS impair, URT irr, eye irr,
2-Methylhexane	ACGIH	STEL	1,000 ppm,	CNS impair, URT irr, eye irr,
	OSHA Z-1-A	TWA	500 ppm, 1,800 mg/m3	
	OSHA Z-1-A	STEL	1,000 ppm, 3,600 mg/m3	
	ACGIH	TWA	400 ppm,	
	ACGIH	STEL	500 ppm,	
Methylcyclopentane	ACGIH	TWA	500 ppm,	CNS impair, URT irr, eye irr,
	ACGIH	STEL	1,000 ppm,	CNS impair, URT irr, eye irr,
	OSHA Z-1-A	TWA	500 ppm, 1,800 mg/m3	
	OSHA Z-1-A	STEL	1,000 ppm, 3,600 mg/m3	
	ACGIH	TWA	400 ppm,	
3-Methylhexane	ACGIH	STEL	500 ppm,	
	ACGIH	TWA	25 ppm,	
	OSHA Z-1-A	TWA	25 ppm, 125 mg/m3	
	OSHA Z-1	TWA	100 ppm, 435 mg/m3	
	OSHA Z-1-A	TWA	100 ppm, 435 mg/m3	
Ethylbenzene	OSHA Z-1-A	STEL	125 ppm, 545 mg/m3	
	ACGIH	TWA	20 ppm,	A3,
	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	
Methylcyclohexane	OSHA Z-1-A	TWA	10 ppm, 50 mg/m3	
	OSHA Z-1-A	STEL	15 ppm, 75 mg/m3	
	ACGIH	TWA	400 ppm,	
	OSHA Z-1	TWA	500 ppm, 2,000 mg/m3	
	OSHA Z-1-A	TWA	400 ppm, 1,600 mg/m3	
n-hexane	ACGIH	TWA	50 ppm,	Skin,
	OSHA Z-1	TWA	500 ppm, 1,800 mg/m3	
	OSHA Z-1-A	TWA	50 ppm, 180 mg/m3	
	ACGIH	TWA	1 ppm,	
	ACGIH	STEL	5 ppm,	
Hydrogen Sulfide	OSHA Z-2	CEIL	20 ppm,	
	OSHA Z-2	Peak	50 ppm,	
	OSHA Z-1-A	TWA	10 ppm, 14 mg/m3	
	OSHA Z-1-A	STEL	15 ppm, 21 mg/m3	
	US WEEL	TWA	2 ppm,	

() Adopted values or notations enclosed are those for which changes are proposed in the NIC

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A1	Confirmed human carcinogen
A3	Confirmed animal carcinogen with unknown relevance to humans
A4	Not classifiable as a human carcinogen
CNS impair	Central Nervous System impairment
EX	Explosion hazard: the substance is a flammable asphyxiant or excursions above the TLV ® could approach 10% of the lower explosive limit.
eye dam	Eye damage
eye irr	Eye irritation
hematologic eff	Hematologic effects
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
Toluene	108-88-3	Immediately Dangerous to Life or Health Concentration Value 500 parts per million	1995-03-01
n-Butane	106-97-8	Immediately Dangerous to Life or Health Concentration Value 1600 parts per million	2017-02-03
Xylenes	1330-20-7	Immediately Dangerous to Life or Health Concentration Value 900 parts per million	2017-09-01
Benzene	71-43-2	Immediately Dangerous to Life or Health Concentration Value 500 parts per million	1995-03-01
Ethylbenzene	100-41-4	Immediately Dangerous to Life or Health Concentration Value 800 parts per million	1995-03-01
Naphthalene	91-20-3	Immediately Dangerous to Life or Health Concentration Value 250 parts per million	1995-03-01
Methylcyclohexane	108-87-2	Immediately Dangerous to Life or Health Concentration Value 1200 parts per million	1995-03-01
n-hexane	110-54-3	Immediately Dangerous to Life or Health Concentration Value 1100 parts per million	1995-03-01
Hydrogen Sulfide	7783-06-4	Immediately Dangerous to Life or Health Concentration Value 100 parts per million	1995-03-01

Biological exposure indices**US**

Substance name	CAS-No.	Control parameters	Sampling time	Update
Toluene	108-88-3	Toluene: 0.02 mg/l (In blood)	Prior to last shift of workweek	2010-03-01
		Toluene: 0.03 mg/l (Urine)	End of shift (As soon as possible after exposure ceases)	2010-03-01
		o-Cresol: 0.3 mg/g Creatinine Background (Urine) With hydrolyses ()	End of shift (As soon as possible after exposure ceases)	2010-03-01
Xylenes	1330-20-7	Methylhippuric acids: 1.5 g/g creatinine (Urine)	End of shift (As soon as possible after exposure ceases)	2013-03-01
Benzene	71-43-2	S-Phenylmercapturic acid: 25 µg/g creatinine Background (Urine)	End of shift (As soon as possible after exposure ceases)	2010-03-01
		t,t-Muconic acid: 500 µg/g creatinine Background (Urine)	End of shift (As soon as possible after exposure ceases)	2010-03-01

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Ethylbenzene	100-41-4	Sum of mandelic acid and phenyl glyoxylic acid: 0.15 g/g creatinine Nonspecific (Urine)	End of shift (As soon as possible after exposure ceases)	2016-03-01
n-hexane	110-54-3	2,5-Hexanedione: 0.5 mg/l Without hydrolysis (Urine)	End of shift	2020-02-01

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 : Wear a supplied-air NIOSH approved respirator unless ventilation or other engineering controls are adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure. Wear a NIOSH approved respirator that provides protection when working with this material if exposure to harmful levels of airborne material may occur, such as:. Air-Purifying Respirator for Organic Vapors. Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, aerosolization, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.
- Hand protection : The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
- Eye protection : Eye wash bottle with pure water. Tightly fitting safety goggles.
- Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Wear as appropriate:. Flame retardant antistatic protective clothing. Workers should wear antistatic footwear.
- Hygiene measures : When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

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

- Physical state : liquid
Color : Amber
Odor : strong

Safety data

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Flash point	: 0°C (32°F)
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	: No data available
Pour point	No data available
Boiling point/boiling range	: 51.8-231.8°C (125.2-449.2°F)
Vapor pressure	: 10.57 PSI at 38°C (100°F)
Relative density	: 0.741
Density	: 748.9 g/l
Water solubility	: negligible
Partition coefficient: n-octanol/water	: No data available
Viscosity, kinematic	: No data available
Relative vapor density	: 3 (Air = 1.0)
Evaporation rate	: > 1
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.

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Possibility of hazardous reactions

- Hazardous reactions** : Hazardous reactions: Vapors may form explosive mixture with air.
- Conditions to avoid** : Heat, flames and sparks.
- Materials to avoid** : May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
- Other data** : No decomposition if stored and applied as directed.

SECTION 11: Toxicological information

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Acute oral toxicity** : Acute toxicity estimate: > 5,000 mg/kg
Method: Calculation method
- 65 Percentile Fuel
Acute inhalation toxicity** : Acute toxicity estimate: 32.6 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Method: Calculation method
- 65 Percentile Fuel
Acute dermal toxicity** : Acute toxicity estimate: > 5,000 mg/kg
Method: Calculation method
- 65 Percentile Fuel
Skin irritation** : Skin irritation
largely based on animal evidence.
May cause skin irritation in susceptible persons.
- 65 Percentile Fuel
Eye irritation** : Vapors may cause irritation to the eyes, respiratory system
and the skin.
Vapors may cause irritation to the eyes, respiratory system
and the skin.
- 65 Percentile Fuel
Sensitization** : Did not cause sensitization on laboratory animals.
largely based on animal evidence.
- Repeated dose toxicity**
- Naphtha, Petroleum, Heavy Catalytic Cracked : Species: Rat, male
Sex: male
Application Route: oral gavage
Dose: 0, 500, 2000 mg/kg
Exposure time: 28 d
Number of exposures: once daily, 5 d/wk
Lowest observable effect level: 500 mg/kg

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	<p>Species: Rabbit, male and female Sex: male and female Application Route: Dermal Dose: 200, 1000, 2000 mg/kg Exposure time: 28 d Number of exposures: 3 times/wk NOEL: > 2,000 mg/kg Method: OECD Test Guideline 410</p>
	<p>Species: Rat, male and female Sex: male and female Application Route: Inhalation Dose: 2000, 10000, 20000 mg/m³ Exposure time: 90 d Number of exposures: 6h/d 5d/wk NOEL: > 20000 mg/m³ Method: OECD Test Guideline 413</p>
Toluene	<p>Species: Rat Application Route: Inhalation Dose: 0, 100, 625, 1250, 3000 ppm Exposure time: 15 wk Number of exposures: 6.5 h/d, 5 d/wk NOEL: 625 ppm</p>
	<p>Species: Mouse Application Route: Inhalation Dose: 0, 100, 625, 1250, 3000 ppm Exposure time: 14 wk Number of exposures: 6.5 h/d, 5 d/wk NOEL: 100 ppm</p>
n-Butane	<p>Species: Rat, Male and female Sex: Male and female Application Route: Inhalation Dose: 0, 1017, 4489 ppm Exposure time: 90 day Number of exposures: 6 hr/d, 5 d/wk NOEL: 4489 ppm</p>
C12-C14 Isoalkanes	<p>Species: Rat, male and female Sex: male and female Application Route: oral gavage Dose: 500, 2500, 5000 mg/kg/d Exposure time: 13 wk Number of exposures: daily NOEL: >= 5000 mg/kg/d Method: OECD Test Guideline 408 No adverse effects expected Information given is based on data obtained from similar substances.</p>

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	<p>Species: Rat, male and female Sex: male and female Application Route: Dermal Dose: 165, 330, 495 mg/kg Exposure time: 13 wk Number of exposures: 5 d/wk NOEL: > 495 mg/kg/d Method: OECD Guideline 411 No adverse effects expected Information given is based on data obtained from similar substances.</p>
	<p>Species: Rat, male and female Sex: male and female Application Route: Inhalation Dose: 5, 10, 30 mg/L Exposure time: 90 d Number of exposures: 6 h/d NOEL: > 30 mg/l Method: OECD Test Guideline 413 No adverse effects expected Information given is based on data obtained from similar substances.</p>
Xylenes	<p>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</p>
	<p>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</p>
	<p>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</p>
Isopentane	<p>Species: Rat, male and female Sex: male and female Application Route: Inhalation Dose: 668, 2220, 6646 ppm Exposure time: 13 wk Number of exposures: 6 h/d, 5 d/wk NOEL: > 2220 ppm Lowest observable effect level: > = 6646 ppm Method: OECD Guideline 413 Target Organs: Kidney Information given is based on data obtained from similar substances.</p>
Benzene	<p>Species: Rat, female Sex: female</p>

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	<p>Application Route: oral gavage Dose: 0, 25, 50, 100 mg/kg Exposure time: 103 wk Number of exposures: 5 d/wk NOEL: < 25 mg/kg Lowest observable effect level: 25 mg/kg</p> <p>Species: Rat, male Sex: male Application Route: oral gavage Dose: 0, 50, 100, 200 mg/kg Exposure time: 103 wk Number of exposures: 5 d/wk NOEL: < 50 mg/kg Lowest observable effect level: 50 mg/kg</p> <p>Species: Mouse Application Route: oral gavage Dose: 0, 25, 50, 100 mg/kg Exposure time: 103 wk NOEL: < 25 mg/kg</p>
2-methyl-2-butene	<p>Species: Rat, Male and female Sex: Male and female Application Route: Inhalation Dose: 580, 2000, 7000 ppm Exposure time: 4 wk Number of exposures: 6 h/d, 7 d/wk NOEL: 580 ppm Method: OECD Guideline 422</p>
Ethylbenzene	<p>Species: Rat, male Sex: male Application Route: Inhalation Dose: 200, 400, 600, 800 ppm Exposure time: 13 weeks Number of exposures: 6 hours/day, 6 days/week NOEL: 200 ppm Test substance: yes Target Organs: Ototoxicity</p>
Methylcyclohexane	<p>Species: Rat, male Sex: male Application Route: oral gavage Dose: 62.5, 250, 1000 mg/kg Exposure time: 28 d Number of exposures: daily, 7d/wk NOEL: 250 mg/kg Lowest observable effect level: 1,000 mg/kg Method: OECD Guideline 422</p>

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	<p>Species: Rat, female Sex: female Application Route: oral gavage Dose: 62.5, 250, 1000 mg/kg Exposure time: 46 d Number of exposures: daily, 7 d/wk NOEL: 250 mg/kg Lowest observable effect level: 1,000 mg/kg Method: OECD Guideline 422</p>
n-hexane	<p>Species: Rat, male Sex: male Application Route: Inhalation Dose: 3,000 ppm Exposure time: 16 wks Number of exposures: 12 h/d Lowest observable effect level: 3,000 ppm Target Organs: Peripheral nervous system</p> <p>Species: Mouse, female Sex: female Application Route: Inhalation Dose: 500, 1,000, 4,000, 10,000 ppm Exposure time: 13 wks Number of exposures: 6h or 22h (1,000 ppm)/ 5d/wk Lowest observable effect level: 500 ppm Target Organs: Nose</p> <p>Species: Mouse, male Sex: male Application Route: Inhalation Dose: 500, 1,000, 4000, 10,000 ppm Exposure time: 13 wks Number of exposures: 6h or 22h (1,000 ppm)/d, 5d/wk NOEL: 500 ppm Lowest observable effect level: 1,000 ppm Target Organs: Nose</p> <p>Species: Rat, male Sex: male Application Route: oral gavage Dose: 568, 1,135, 3,973 mg/kg bw/day Exposure time: 90 or 120 days Number of exposures: Daily or 5d/wk (120-d study) NOEL: 568 mg/kg bw/day Lowest observable effect level: 1135 mg/kg bw/day</p>
n-Pentane	<p>Species: Rat, Male and female Sex: Male and female Application Route: inhalation (gas) Dose: 0, 5000, 10,000, 20,000 mg/m3 Exposure time: 13 wk Number of exposures: 6 h/d, 5 d/wk NOEL: 20,000 mg/m3 Method: OECD Test Guideline 413</p>
2,3-Dimethylbutane	<p>Species: Rat Application Route: oral gavage Dose: 0, 500, 2000 mg/kg Exposure time: 4 wk</p>

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Number of exposures: once a day, 5 d/wk
 Lowest observable effect level: 500 mg/kg
 Target Organs: Kidney

Isoprene

Species: Rat
 Application Route: Inhalation
 Dose: 0, 70, 220, 700, 2200, 7000...
 Exposure time: 13 wk
 Number of exposures: 6 h/d, 5 d/wk
 NOEL: 7000 ppm

Species: Mouse
 Application Route: Inhalation
 Dose: 0, 70, 220, 700, 2200, 7000...
 Exposure time: 13 wk
 Number of exposures: 6 h/d, 5 d/wk
 Lowest observable effect level: 70 ppm

Cyclohexane

Species: Rat
 Application Route: Inhalation
 Dose: 0, 500, 2000, 7000 ppm
 Exposure time: 90 day
 Number of exposures: 6 h/d, 5 d/wk
 NOEL: 2000 ppm

Species: Rat, Male and female
 Sex: Male and female
 Application Route: Inhalation
 Dose: 0, 500, 2,000, 7000 ppm
 Exposure time: 13-14 wk
 Number of exposures: 6 hr/d, 5 d/wk
 NOEL: 7000 ppm

Species: Mouse, Male and female
 Sex: Male and female
 Application Route: Inhalation
 Dose: 0, 500, 2000, 7000 ppm
 Exposure time: 13-14 wk
 Number of exposures: 6 hr/d, 5 d/wk
 NOEL: 2000 ppm
 Target Organs: Blood

Genotoxicity in vitro

Naphtha, Petroleum, Heavy Catalytic Cracked : Test Type: Mouse lymphoma assay
 Result: positive

Toluene : Test Type: Ames test
 Result: negative

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	<p>Test Type: Sister Chromatid Exchange Assay Result: negative</p> <p>Test Type: Mouse lymphoma assay Result: negative</p> <p>Test Type: Cytogenetic assay Result: negative</p>
n-Butane	<p>Test Type: Ames test Result: negative</p>
C12-C14 Isoalkanes	<p>Test Type: Ames test Metabolic activation: with and without metabolic activation Result: negative</p> <p>Test Type: Mouse lymphoma assay Metabolic activation: with and without metabolic activation Result: negative</p> <p>Test Type: Sister Chromatid Exchange Assay Metabolic activation: with and without metabolic activation Result: negative</p>
Xylenes	<p>Test Type: Ames test Result: negative</p> <p>Test Type: Mouse lymphoma assay Result: negative</p>
Isopentane	<p>Test Type: Ames test Concentration: 1, 2, 5, 8, 10% Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative</p> <p>Test Type: Ames test Concentration: 1, 2, 5, 8, 10, 25, 50% Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative Remarks: Information given is based on data obtained from similar substances.</p> <p>Test Type: Chromosome aberration test in vitro Metabolic activation: with and without metabolic activation Method: Mutagenicity (in vitro mammalian cytogenetic test) Result: negative Remarks: Information given is based on data obtained from similar substances.</p>
Benzene	<p>Test Type: Ames test Result: negative</p>

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	<p>Test Type: Cytogenetic assay Result: positive</p> <p>Test Type: Mouse lymphoma assay Result: positive</p> <p>Test Type: Sister Chromatid Exchange Assay Result: negative</p>
2-methyl-2-butene	<p>Test Type: Ames test Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative</p> <p>Method: OECD Test Guideline 480 Result: negative</p>
Ethylbenzene	<p>Test Type: Ames test Result: negative</p> <p>Test Type: Unscheduled DNA synthesis assay Result: negative</p>
Naphthalene	<p>Test Type: Ames test Result: negative</p> <p>Test Type: Sister Chromatid Exchange Assay Result: negative</p> <p>Test Type: Unscheduled DNA synthesis assay Result: negative</p>
n-hexane	<p>Test Type: Ames test Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative</p> <p>Test Type: Mouse lymphoma assay Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476 Result: negative</p> <p>Test Type: Mouse lymphoma assay Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476 Result: Positive results were obtained in some in vitro tests.</p>
n-Pentane	<p>Test Type: Ames test Metabolic activation: with and without metabolic activation Result: negative</p> <p>Test Type: Chromosome aberration test in vitro Metabolic activation: with and without metabolic activation Result: Ambiguous</p>
2,3-Dimethylbutane	<p>Test Type: Ames test Result: negative</p>
Isoprene	<p>Test Type: Ames test Result: negative</p>

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	Test Type: Sister Chromatid Exchange Assay Result: positive
Cyclohexane	Test Type: Ames test Metabolic activation: with and without metabolic activation Method: Mutagenicity (Escherichia coli - reverse mutation assay) Result: negative
	Test Type: Mouse lymphoma assay Metabolic activation: with and without metabolic activation Result: negative
	Test Type: Mouse lymphoma assay Metabolic activation: with and without metabolic activation Method: OECD Guideline 476 Result: negative
Genotoxicity in vivo	
Toluene	: Test Type: Cytogenetic assay Result: negative
	Test Type: Mouse micronucleus assay Result: negative
Xylenes	Test Type: Mouse micronucleus assay Result: negative
Isopentane	Test Type: In vivo micronucleus test Species: Rat Cell type: Bone marrow Route of Application: inhalation (vapor) Method: Directive 67/548/EEC, Annex V, B.12. Remarks: Information given is based on data obtained from similar substances.
Benzene	Test Type: Mouse micronucleus assay Result: positive
2-methyl-2-butene	Test Type: Mouse micronucleus assay Species: Rat Cell type: Bone marrow Route of Application: Inhalation Exposure time: 6 h/d 2d Method: OECD Test Guideline 474 Result: positive
Ethylbenzene	Test Type: Mouse micronucleus assay Species: Mouse Result: negative
Naphthalene	Test Type: Mouse micronucleus assay Result: negative
n-hexane	Test Type: Dominant lethal assay Species: Mouse Dose: 100 and 400 ppm

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Result: negative

Test Type: Cytogenetic assay
 Species: Rat
 Dose: 900, 3000, 9000 ppm
 Result: negative

n-Pentane

Test Type: Micronucleus test
 Species: Rat
 Cell type: Bone marrow
 Result: negative

Isoprene

Result: negative

Test Type: Micronucleus test
 Result: positive

Cyclohexane

Test Type: Cytogenetic assay
 Species: Rat
 Cell type: Bone marrow
 Dose: 96.6, 307.2, 10141.6 ppm
 Result: negative

CarcinogenicityNaphtha, Petroleum, Heavy
Catalytic Cracked

: Species: Mouse
 Sex: male
 Dose: 0, 0.05 ml
 Exposure time: 2 yrs
 Number of exposures: 3 times/wk
 Print Date: OECD Test Guideline 451
 Remarks: no increase incidence of tumors

Toluene

Species: Rat
 Dose: 0, 600, 1200 ppm
 Exposure time: 2 yrs
 Number of exposures: 6.5 h/d, 5 d/wk
 Remarks: No evidence of carcinogenicity

Species: Mouse
 Dose: 0, 600, 1200 ppm
 Exposure time: 2 yrs
 Number of exposures: 6.5 h/d, 5 d/wk
 Remarks: No evidence of carcinogenicity

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

Benzene

Species: Rat
 Sex: female

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Dose: 0, 25, 50, 250 mg/kg
 Exposure time: 103 wks
 Number of exposures: daily, 5 days/week
 Test substance: yes
 Remarks: zymbal gland carcinomas, squamous cell papillomas

Species: Rat
 Sex: male
 Dose: 0, 50, 100, 200 mg/kg
 Exposure time: 103 wks
 Number of exposures: daily, 5 days/week
 Test substance: yes
 Remarks: zymbal gland carcinomas, squamous cell papillomas

Species: Mouse
 Sex: male and female
 Dose: 25, 50, 100 mg/kg
 Exposure time: 103 wks
 Number of exposures: daily, 5 days/week
 Test substance: yes
 Remarks: Clear evidence of multiple organ 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

n-hexane

Species: Rat
 Dose: 0.043, 900, 3,000, 9,016 ppm
 Exposure time: 2 yrs
 Number of exposures: 6 h/d, 5 d/wk
 Remarks: No evidence of carcinogenicity, Information given is based on data obtained from similar substances.

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Isoprene	<p>Species: Mouse Sex: male and female Dose: 0.039, 900, 3,000, 9,018 ppm Exposure time: 2 yrs Number of exposures: 6 h/d, 5 d/wk Remarks: No evidence of carcinogenicity, Information given is based on data obtained from similar substances.</p>
Isoprene	<p>Species: Rat Dose: 0. 70, 220, 700, 220, 7000 ppm Exposure time: 26 wks Number of exposures: 6 h/d, 5 d/wk Remarks: interstitial cell hyperplasia of testis at 7000 ppm</p>
Isoprene	<p>Species: Mouse Dose: 0. 70, 220, 700, 220, 7000 ppm Exposure time: 26 wks Number of exposures: 6 h/d, 5 d/wk Remarks: malignant neoplastic lesions in the liver, lung, fore stomach and Harderian gland at 700 ppm</p>
Reproductive toxicity	
Toluene	: Species: Rat Application Route: Inhalation Dose: 0, 100, 500, 2000 ppm Test period: 95 d NOAEL Parent: 2000 ppm
C12-C14 Isoalkanes	Species: Rat Sex: male and female Application Route: oral gavage Dose: 50, 200, 750 mg/kg/bw/d Number of exposures: daily Test period: 70 d Method: OECD Test Guideline 416 NOAEL Parent: >750 mg/kg/bw/d NOAEL F1: >750 mg/kg/bw/d No adverse effects expected Information given is based on data obtained from similar substances.
Isopentane	Species: Rat Sex: male and female Application Route: inhalation (vapor) Dose: 0, 500, 2000, 7000 ppm Number of exposures: 6 h/d 5 d/wk Method: OECD Test Guideline 416 NOAEL Parent: 7000 ppm NOAEL F1: 2000 ppm NOAEL F2: 2000 ppm Information given is based on data obtained from similar substances.

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	<p>Species: Rat Sex: female Application Route: oral gavage Dose: 0, 100, 300, 1000 mg/kg/d Method: OECD Test Guideline 415 NOAEL Parent: \geq 1,000 mg/kg NOAEL F1: \geq 1,000 mg/kg</p> <p>Species: Rat Sex: male Application Route: oral gavage Dose: 0, 100, 300, 1000 mg/kg/d Method: OECD Test Guideline 415 NOAEL Parent: \geq 300 mg/kg</p>
2-methyl-2-butene	<p>Species: Rat Sex: male and female Application Route: Inhalation Dose: 580, 2000, 7000 ppm Number of exposures: 6 h/d, 7 d/wk Test period: 4 wks Method: OECD Guideline 422 NOAEL Parent: 7000 ppm NOAEL F1: 7000 ppm no abnormalities observed</p>
Methylcyclohexane	<p>Species: Rat Sex: male Application Route: oral gavage Dose: 62.5, 250, 1000 mg/kg Number of exposures: daily, 7 d/wk Test period: 28 Method: OECD Guideline 422 NOAEL Parent: 1,000 mg/kg NOAEL F1: 1,000 mg/kg</p> <p>Species: Rat Sex: female Application Route: oral gavage Dose: 62.5, 250, 1000 mg/kg Number of exposures: daily, 7 d/wk Test period: 46 Method: OECD Guideline 422 NOAEL Parent: 1,000 mg/kg NOAEL F1: 1,000 mg/kg</p> <p>Species: Rat Sex: male and female Application Route: inhalation (vapor) Dose: 500, 2000, 7000 ppm Number of exposures: daily, 7 d/wk Test period: 28 Method: OECD Test Guideline 416 NOAEL Parent: 500 ppm NOAEL F1: 500 ppm NOAEL F2: 2000 ppm Information given is based on data obtained from similar substances.</p>
n-hexane	Species: Rat

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	<p>Sex: male Application Route: Inhalation Dose: 5,000 ppm Number of exposures: 16 hr/d, 6 d/wk Test period: 6 wks permanent testicular damage characterized by loss of germ-cell line</p>
n-Pentane	<p>Species: Rat Sex: male Application Route: Inhalation Dose: 0, 5, 10, 20 mg/l Exposure time: 13 wk Test period: 6hrs/day, 5 days/wk NOAEL Parent: 20 mg/l no abnormalities observed</p>
	<p>Species: Rat Sex: female Application Route: Inhalation Dose: 0, 5, 10, 20 mg/l Exposure time: 13 wk Test period: 6hrs/day, 5days/wk NOAEL Parent: 20 mg/l no abnormalities observed</p>
Cyclohexane	<p>Species: Rat Application Route: Inhalation Dose: 0, 500, 2000, 7000 ppm Number of exposures: 6 hr/d, 5 d/wk Method: OECD Test Guideline 416 NOAEL Parent: 500 ppm NOAEL F1: 7000 ppm NOAEL F2: 7000 ppm</p>
Developmental Toxicity	
Toluene	<p>: Species: Rat Application Route: Inhalation Dose: 0, 100, 500, 2000 ppm Test period: 95 d NOAEL Teratogenicity: 400-750 ppm</p>
Xylenes	<p>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</p> <p>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</p>
Isopentane	<p>Species: Rat</p>

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Application Route: oral gavage
 Dose: 0, 100, 500, 1000 mg/kg/d
 Exposure time: GD 6-15
 Number of exposures: daily
 Method: OECD Guideline 414
 NOAEL Teratogenicity: 1,000 mg/kg
 NOAEL Maternal: 1,000 mg/kg
 Information given is based on data obtained from similar substances.

Species: Rat
 Application Route: Inhalation
 Dose: 0, 500, 2000, 7000 ppm
 Exposure time: GD 6-15
 Number of exposures: 5 d/wk
 Method: OECD Guideline 414
 NOAEL Teratogenicity: 7000 ppm
 NOAEL Maternal: 500 - 2000 ppm
 Information given is based on data obtained from similar substances.

Species: Rabbit
 Application Route: Inhalation
 Dose: 0, 500, 2000, 7000 ppm
 Exposure time: GD 6-18
 Method: OECD Guideline 414
 NOAEL Teratogenicity: 7000 ppm
 NOAEL Maternal: 7000 ppm
 Information given is based on data obtained from similar substances.

2-methyl-2-butene

Species: Rat
 Application Route: Inhalation
 Dose: 500, 2000, 8000 ppm
 Exposure time: 6 h/d
 Test period: Days 5 -21
 Method: OECD Guideline 414
 NOAEL Teratogenicity: 8000 ppm
 NOAEL Maternal: 8000 ppm
 Information given is based on data obtained from similar substances.
 Animal testing did not show any effects on fetal development.

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

Methylcyclohexane

Species: Rat
 Application Route: Inhalation
 Dose: 500, 2000, 7000 ppm
 Number of exposures: 6 hr/d, 7 d/wk
 Test period: GD 7 - 16
 Method: OECD Guideline 414
 NOAEL Teratogenicity: 7000 ppm
 NOAEL Maternal: 500 ppm
 Information given is based on data obtained from similar substances.

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Species: Rabbit
 Application Route: Inhalation
 Dose: 500, 2000, 7000 ppm
 Number of exposures: 6 hr/d, 7 d/wk
 Test period: GD 6 - 18
 Method: OECD Guideline 414
 NOAEL Teratogenicity: 7000 ppm
 NOAEL Maternal: 500 ppm
 Information given is based on data obtained from similar substances.

n-hexane
 Species: Rat
 Application Route: Inhalation
 Dose: 200, 1,000, 5,000 ppm
 Number of exposures: 20 hr/d, daily
 Test period: GD 6-20
 NOAEL Teratogenicity: 200 ppm
 NOAEL Maternal: 200 ppm

Species: Mouse
 Application Route: Inhalation
 Dose: 200, 1,000, 5,000 ppm
 Number of exposures: 20 hr/d, daily
 Test period: GD 6-17
 NOAEL Maternal: 1,000 ppm

n-Pentane
 Species: Rat
 Application Route: Inhalation
 Dose: 0, 1000, 3000, 10000 ppm
 Number of exposures: 6 h/d
 Test period: GD 6-15
 NOAEL Teratogenicity: 10,000 ppm

Cyclohexane
 Species: Rat
 Application Route: Inhalation
 Dose: 0, 500, 2,000, 7,000 PPM
 Number of exposures: 6 hr/d
 Test period: GD 6-15
 Method: OECD Guideline 414
 NOAEL Teratogenicity: 7,000 ppm
 NOAEL Maternal: 500 ppm

Species: Rabbit
 Application Route: Inhalation
 Dose: 0, 500, 2,000, 7,000 PPM
 Number of exposures: 6 hr/d
 Test period: GD 6-18
 Method: OECD Guideline 414
 NOAEL Teratogenicity: 7,000 ppm
 NOAEL Maternal: 500 ppm

**65 Percentile Fuel
 Aspiration toxicity
 Toxicology Assessment**

: May be fatal if swallowed and enters airways.

**65 Percentile Fuel
 CMR effects**

: Carcinogenicity:

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May cause cancer.
 Mutagenicity:
 May cause genetic defects.
 Teratogenicity:
 Suspected of damaging the unborn child.
 Reproductive toxicity:
 Not available

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Further information**

: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Concentrations substantially above the TLV value may cause narcotic effects. Solvents may degrease the skin.

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

Naphtha, Petroleum, Heavy Catalytic Cracked	: LL50: 10 mg/l Exposure time: 96 h Species: Oncorhynchus mykiss (rainbow trout) semi-static test Method: OECD Test Guideline 203
Toluene	LC50: 18 - 36 mg/l Exposure time: 96 h Species: Pimephales promelas (fathead minnow)
C12-C14 Isoalkanes	LL50: > 1,000 mg/l Exposure time: 96 h Species: Oncorhynchus mykiss (rainbow trout) semi-static test Method: OECD Test Guideline 203 Information given is based on data obtained from similar substances.
Xylenes	LC50: 8.2 mg/l Exposure time: 96 h Species: Salmo gairdneri (Rainbow trout)
Isopentane	LC50: 4.26 mg/l Exposure time: 96 h Species: Oncorhynchus mykiss (rainbow trout) semi-static test Method: OECD Test Guideline 203 Information given is based on data obtained from similar substances.
Benzene	LC50: 5.3 mg/l Exposure time: 96 h Species: Oncorhynchus mykiss (rainbow trout) flow-through test Test substance: yes Method: OECD Test Guideline 203
3-Methylpentane	No data available
Methylcyclopentane	No data available
2-methyl-2-butene	LC50: 4.99 mg/l

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	Exposure time: 96 h Species: <i>Oncorhynchus mykiss</i> (rainbow trout) semi-static test Method: OECD Test Guideline 203
Ethylbenzene	LC50: 4.3 mg/l Exposure time: 96 h Species: <i>Marone saxatilis</i> (striped bass)
Naphthalene	LC50: 3.2 mg/l Exposure time: 96 h Species: <i>Pimephales promelas</i> (fathead minnow)
Methylcyclohexane	LC50: 2.07 mg/l Exposure time: 96 h Species: Fish semi-static test
n-hexane	LL50: 12.51 mg/l Exposure time: 96 h Species: <i>Oncorhynchus mykiss</i> (rainbow trout) Method: QSAR modeled data
n-Pentane	LC50: 4.3 mg/l Exposure time: 96 h Species: <i>Oncorhynchus mykiss</i> (rainbow trout) semi-static test
2,3-Dimethylbutane	LC50: 6.68 mg/l Exposure time: 96 h Species: Fish Method: QSAR modeled data
Isoprene	LC50: 7.43 mg/l Exposure time: 96 h Species: <i>Oncorhynchus mykiss</i> (rainbow trout) semi-static test Method: OECD Test Guideline 203
Cyclohexane	LC50: 4.53 mg/l Exposure time: 96 h Species: <i>Pimephales promelas</i> (fathead minnow) Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates

Naphtha, Petroleum, Heavy Catalytic Cracked	: EL50: 4.5 mg/l Exposure time: 48 h Species: <i>Daphnia magna</i> (Water flea) static test Method: OECD Test Guideline 202
Toluene	EC50: 3.78 mg/l Exposure time: 48 h Species: <i>Daphnia magna</i> (Water flea)
C12-C14 Isoalkanes	EL50: > 1,000 mg/l Exposure time: 48 h Species: <i>Daphnia magna</i> (Water flea) static test Method: OECD Test Guideline 202 Information given is based on data obtained from similar substances.
Isopentane	EC50: 2.3 mg/l

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	Exposure time: 48 h Species: Daphnia magna (Water flea) static test Method: OECD Test Guideline 202
2-Methylpentane	3.649 mg/l Exposure time: 48 h Species: Daphnia Method: Value calculated using ECOSAR.
Benzene	EC50: 10 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) static test Test substance: yes Method: OECD Test Guideline 202
3-Methylpentane	No data available
Methylcyclopentane	No data available
2-methyl-2-butene	EC50: 3.84 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) static test Method: OECD Test Guideline 202
Ethylbenzene	LC50: 2.6 mg/l Exposure time: 96 h Species: Mysidopsis bahia (mysid shrimp)
	EC50: 2.2 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) Method: OECD Test Guideline 202
Naphthalene	LC50: 2.16 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea)
Methylcyclohexane	EC50: 0.326 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) semi-static test
n-hexane	EL50: 21.85 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) Method: QSAR modeled data
n-Pentane	EC50: 2.7 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) static test
2,3-Dimethylbutane	LC50: 4.21 mg/l Exposure time: 48 h Species: Daphnia Method: QSAR modeled data No data available
Hydrogen Sulfide	EC50: 0.12 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) static test Analytical monitoring: yes

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	Test substance: yes Method: OECD Test Guideline 202
Isoprene	EC50: 5.77 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea)
Cyclohexane	EC50: 0.9 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) Method: OECD Test Guideline 202
Toxicity to algae	
Naphtha, Petroleum, Heavy Catalytic Cracked	: ErL50: 3.1 mg/l Exposure time: 96 h Species: Selenastrum capricornutum (green algae) static test Method: OECD Test Guideline 201
Toluene	EC50: 134 mg/l Exposure time: 72 h Species: Chlamydomonas angulosa (Green algae)
C12-C14 Isoalkanes	EL50: > 1,000 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (green algae) Growth inhibition Method: OECD Test Guideline 201 Information given is based on data obtained from similar substances.
Isopentane	EC50: 7.51 mg/l Exposure time: 72 h Species: Scenedesmus capricornutum (fresh water algae) Growth inhibition Method: OECD Test Guideline 201 Information given is based on data obtained from similar substances.
2-Methylpentane	4.321 mg/l Exposure time: 96 h Species: green algae Method: Value calculated using ECOSAR.
Benzene	ErC50: 100 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (green algae) Test substance: yes Method: OECD Test Guideline 201
2-methyl-2-butene	ErC50: 13.2 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (green algae) static test Method: OECD Test Guideline 201
Ethylbenzene	ErC50: 5.0 mg/l Exposure time: 96 h Species: Selenastrum capricornutum (algae)

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	ErC50: 7.7 mg/l Exposure time: 72 h Species: Skeletonema costatum (Marine Algae)
Naphthalene	EC50: 2.96 mg/l Exposure time: 48 h Species: Selenastrum capricornutum (algae)
Methylcyclohexane	EC50: 0.134 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (green algae) static test
n-hexane	EL50: 9.29 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (green algae) Method: QSAR modeled data
n-Pentane	EbC50: 10.7 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (green algae) static test
Hydrogen Sulfide	EC50: 1.87 mg/l Exposure time: 24 h Species: Selenastrum capricornutum (algae) static test Test substance: yes
Isoprene	EC50: > 35.2 mg/l Exposure time: 96 h Species: Pseudokirchneriella subcapitata (green algae)
Cyclohexane	EbC50: 3.4 mg/l Exposure time: 72 h Species: Selenastrum capricornutum (algae)
	NOEC: 0.925 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (microalgae) Method: OECD Test Guideline 201
M-Factor	
methylcyclohexane	: M-Factor (Acute Aquat. Tox.) 1
	M-Factor (Chron. Aquat. Tox.) 1
M-Factor	
cyclohexane	M-Factor (Acute Aquat. Tox.) 1
Toxicity to bacteria	
Methylcyclohexane	: IC50: 29 mg/l Exposure time: 15 h Growth inhibition

Toxicity to fish (Chronic toxicity)

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C12-C14 Isoalkanes : No data available:

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)

Naphtha, Petroleum, Heavy Catalytic Cracked : NOELR: 2.6 mg/l
 Exposure time: 21 d
 Species: Daphnia magna (Water flea)
 semi-static test
 Method: OECD Test Guideline 211

C12-C14 Isoalkanes : NOELR: 1 mg/l
 Exposure time: 21 d
 Species: Daphnia magna (Water flea)
 Information given is based on data obtained from similar substances.

Ethylbenzene : NOEC: 1 mg/l
 Exposure time: 7 d
 Species: Daphnia pulex (Water flea)
 semi-static test
 Analytical monitoring: yes

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

Elimination information (persistence and degradability)

Bioaccumulation : The product may be accumulated in organisms.

Mobility : No data available

Results of PBT assessment : Non-classified PBT substance, Non-classified vPvB substance

Additional ecological information : 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

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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)

UN1203, GASOLINE, 3, II, MARINE POLLUTANT, (NAPHTHALENE, 2-METHYLPENTANE)

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)

UN1203, GASOLINE, 3, II, (0°C), MARINE POLLUTANT, (NAPHTHA, PETROLEUM, HEAVY CATALYTIC CRACKED, XYLENES)

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)

UN1203, GASOLINE, 3, II

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

UN1203, MOTOR SPIRIT, 3, II, (D/E), ENVIRONMENTALLY HAZARDOUS, (NAPHTHA, PETROLEUM, HEAVY CATALYTIC CRACKED, XYLENES)

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

UN1203, GASOLINE, 3, II, ENVIRONMENTALLY HAZARDOUS, (NAPHTHA, PETROLEUM, HEAVY CATALYTIC CRACKED, XYLENES)

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

UN1203, GASOLINE, 3, II, ENVIRONMENTALLY HAZARDOUS, (NAPHTHA, PETROLEUM, HEAVY CATALYTIC CRACKED, XYLENES)

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

SECTION 15: Regulatory information**National legislation**

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SARA 311/312 Hazards : Flammable (gases, aerosols, liquids, or solids)
 Germ cell mutagenicity
 Carcinogenicity
 Reproductive toxicity
 Specific target organ toxicity (single or repeated exposure)
 Aspiration hazard
 Skin corrosion or irritation
 Serious eye damage or eye irritation

CERCLA Reportable Quantity : 249 lbs
 Benzene

SARA 302 Reportable Quantity : Calculated RQ exceeds reasonably attainable upper limit.
 Hydrogen Sulfide

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

SARA 304 Reportable Quantity : Calculated RQ exceeds reasonably attainable upper limit.
 Hydrogen Sulfide 7783-06-4 100 lbs

SARA 313 Components : The following components are subject to reporting levels established by SARA Title III, Section 313:

: Toluene - 108-88-3
 Xylenes - 1330-20-7
 Benzene - 71-43-2
 1,2,4-Trimethylbenzene - 95-63-6
 Ethylbenzene - 100-41-4
 Naphthalene - 91-20-3
 n-hexane - 110-54-3
 Isoprene - 78-79-5

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):

: Toluene - 108-88-3
 Xylenes - 1330-20-7
 Benzene - 71-43-2
 Ethylbenzene - 100-41-4
 Naphthalene - 91-20-3
 n-hexane - 110-54-3

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The following chemical(s) are listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F):

- : n-Butane - 106-97-8
- Isopentane - 78-78-4
- n-Pentane - 109-66-0

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

- : Toluene - 108-88-3
- Xylenes - 1330-20-7
- Isopentane - 78-78-4
- Benzene - 71-43-2
- Ethylbenzene - 100-41-4
- Methylcyclohexane - 108-87-2

US State Regulations**Pennsylvania Right To Know**

- : Naphtha, Petroleum, Heavy Catalytic Cracked - 64741-54-4
- Toluene - 108-88-3
- n-Butane - 106-97-8
- C12-C14 Isoalkanes - 68551-19-9
- Xylenes - 1330-20-7
- Isopentane - 78-78-4
- 2-Methylpentane - 107-83-5
- Benzene - 71-43-2
- 3-Methylpentane - 96-14-0
- 2-Methylhexane - 591-76-4
- Methylcyclopentane - 96-37-7
- 3-Methylhexane - 589-34-4
- 1,2,4-Trimethylbenzene - 95-63-6
- 2-methyl-2-butene - 513-35-9
- Ethylbenzene - 100-41-4
- Naphthalene - 91-20-3
- Methylcyclohexane - 108-87-2
- n-hexane - 110-54-3
- Hydrogen Sulfide - 7783-06-4
- Isoprene - 78-79-5
- Cyclohexane - 110-82-7
- Cumene - 98-82-8

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.

Benzene

71-43-2

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Ethylbenzene	100-41-4
Naphthalene	91-20-3
Isoprene	78-79-5
Cumene	98-82-8

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.

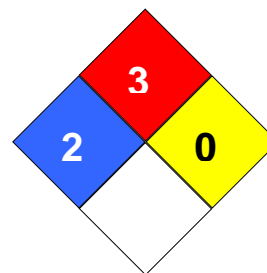
Toluene	108-88-3
Benzene	71-43-2
n-hexane	110-54-3

Notification status

Europe REACH	:	Not in compliance with the inventory
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 AIIIC	:	On the inventory, or in compliance with the inventory
New Zealand NZIoC	:	Not in compliance with the inventory
Japan ENCS	:	On the inventory, or in compliance with the inventory
Korea KECI	:	Not in compliance with the inventory
Philippines PICCS	:	Not in compliance with the inventory
Taiwan TCSI	:	On the inventory, or in compliance with the inventory
China IECSC	:	Not 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 : 645350

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%
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
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%		