

**Tier III E-10 Gasoline**

Version 1.0

Revision Date 2021-06-02

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

Product Name : Tier III E-10 Gasoline  
Material : 1126384, 1126383, 1126382

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

**Emergency telephone:****Health:**

866.442.9628 (North America)

1.832.813.4984 (International)

**Transport:**

CHEMTREC 800.424.9300 or 703.527.3887(int'l)

Asia: CHEMWATCH (+612 9186 1132) China: 0532 8388 9090

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  
Eye irritation, Category 2A  
Germ cell mutagenicity, Category 1B  
Carcinogenicity, Category 1A  
Reproductive toxicity, Category 2  
Specific target organ toxicity - single exposure, Category 3,  
Central nervous system

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Specific target organ toxicity - repeated exposure, Category 2,  
Inhalation, Auditory organs, color vision  
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.  
H319: Causes serious eye irritation.  
H336: May cause drowsiness or dizziness.  
H340: May cause genetic defects.  
H350: May cause cancer.  
H361: Suspected of damaging fertility or the unborn child.  
H373: May cause damage to organs (Auditory organs, color vision) 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.  
P264 Wash skin thoroughly after handling.  
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.  
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.  
P332 + P313 If skin irritation occurs: Get medical advice/ attention.  
P337 + P313 If eye irritation persists: 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.

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**Storage:**

P403 + P235 Store in a well-ventilated place. Keep cool.

**Disposal:**

P501 Dispose of contents/ container to an approved waste disposal plant.

**Carcinogenicity:****IARC**

Group 1: Carcinogenic to humans

Benzene 71-43-2

Group 2B: Possibly carcinogenic to humans

Naphtha, Petroleum, Heavy Catalytic Cracked 64741-54-4

Naphtha (petroleum), light catalytic reformed 64741-63-5

Hydrocarbons, C3-11, catalytic cracker distillates 68476-46-0

Naphtha (petroleum), light alkylate 64741-66-8

Ethylbenzene 100-41-4

Naphthalene 91-20-3

Isoprene 78-79-5

Gasoline, Natural Stream 8006-61-9

Cumene 98-82-8

**NTP**

Known to be human carcinogen

Benzene 71-43-2

Reasonably anticipated to be a human carcinogen

Naphthalene 91-20-3

Isoprene 78-79-5

Cumene 98-82-8

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

Component	CAS-No.	Weight %
Naphtha, Petroleum, Heavy Catalytic Cracked	64741-54-4	0 - 100
Naphtha (petroleum), light catalytic reformed	64741-63-5	0 - 100
Hydrocarbons, C3-11, catalytic cracker distillates	68476-46-0	0 - 100
2,2,4-Trimethylpentane (Isooctane)	540-84-1	0 - 65
Naphtha (petroleum), light alkylate	64741-66-8	0 - 50
3,3-Dimethylpentane	562-49-2	0 - 35
Toluene	108-88-3	0 - 30
Isopentane	78-78-4	0 - 22
Xylenes	1330-20-7	0 - 21
C9-C11 Isoalkanes	68551-16-6	0 - 20
Isoalkanes C7-8	70024-92-9	0 - 20
Heptane, branched, cyclic and linear	426260-76-6	0 - 20
n-Heptane	142-82-5	0 - 15
Ethanol	64-17-5	9 - 11

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n-Butane	106-97-8	0 - 10
Ethylbenzene	100-41-4	0 - 5
2-Methylpentane	107-83-5	0 - 5
Naphthalene	91-20-3	0 - 5
n-hexane	110-54-3	0 - 5
3-Methylpentane	96-14-0	0 - 5
2-Methylhexane	591-76-4	0 - 5
Methylcyclopentane	96-37-7	0 - 5
3-Methylhexane	589-34-4	0 - 5
1,2,4-Trimethylbenzene	95-63-6	0 - 7
2-methyl-2-butene	513-35-9	0 - 5
2,3-Dimethylbutane	79-29-8	0 - 5
2,3-Dimethylpentane	565-59-3	0 - 5
2,4-Dimethylpentane	108-08-7	0 - 5
Methylcyclohexane	108-87-2	0 - 5
n-Pentane	109-66-0	0 - 5
Benzene	71-43-2	0 - 5
2,3,4-Trimethylpentane	565-75-3	0 - 5
Isoprene	78-79-5	0 - 5
Hydrogen Sulfide	7783-06-4	0 - 1
Gasoline, Natural Stream	8006-61-9	0.1 - 0.7

**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	:	Immediately flush eye(s) with plenty of water. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
If swallowed	:	Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

**SECTION 5: Firefighting measures**

Flash point	:	-37°C (-35°F) estimated
Autoignition temperature	:	No data available
Suitable extinguishing media	:	Alcohol-resistant foam. Carbon dioxide (CO <sub>2</sub> ). Dry chemical.
Unsuitable extinguishing media	:	High volume water jet.

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- 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 explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.
- Hazardous decomposition products : Carbon Dioxide. Carbon oxides.

**SECTION 6: Accidental release measures**

- Personal precautions : Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
- Environmental precautions : Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
- Methods for cleaning up : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

**SECTION 7: Handling and storage****Handling**

- Advice on safe handling : Avoid formation of aerosol. Do not breathe vapors/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. Open drum carefully as content may be under pressure. Dispose of rinse water in accordance with local and national regulations.
- 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

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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.

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

Components	Basis	Value	Control parameters	Note
C9-C11 Isoalkanes	Manufacturer	TWA	1,200 mg/m3	RCP,
Isoalkanes C7-8	Manufacturer	TWA	300 ppm,	

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	
	OSHA Z-1	TWA	500 ppm, 2,000 mg/m3	
Naphtha (petroleum), light catalytic reformed	OSHA Z-1-A	TWA	400 ppm, 1,600 mg/m3	
	OSHA Z-1	TWA	500 ppm, 2,000 mg/m3	
Hydrocarbons, C3-11, catalytic cracker distillates	OSHA Z-1	TWA	500 ppm, 2,000 mg/m3	
	OSHA Z-1-A	TWA	400 ppm, 1,600 mg/m3	
2,2,4-Trimethylpentane (Isooctane)	ACGIH	TWA	300 ppm,	
Naphtha (petroleum), light alkylate	OSHA Z-1-A	TWA	400 ppm, 1,600 mg/m3	
	OSHA Z-1	TWA	500 ppm, 2,000 mg/m3	
3,3-Dimethylpentane	ACGIH	TWA	400 ppm,	
	ACGIH	STEL	500 ppm,	
Toluene	ACGIH	TWA	20 ppm,	A4,
	OSHA Z-2	TWA	200 ppm,	
	OSHA Z-2	CEIL	300 ppm,	
	OSHA Z-2	Peak	500 ppm,	
	OSHA Z-1-A	TWA	100 ppm, 375 mg/m3	
	OSHA Z-1-A	STEL	150 ppm, 560 mg/m3	
Isopentane	ACGIH	TWA	1,000 ppm,	
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	100 ppm,	A4,
	ACGIH	STEL	150 ppm,	A4,
Heptane, branched, cyclic and linear	ACGIH	TWA	400 ppm,	
	ACGIH	STEL	500 ppm,	
n-Heptane	OSHA Z-1	TWA	500 ppm, 2,000 mg/m3	
	OSHA Z-1-A	TWA	400 ppm, 1,600 mg/m3	
	OSHA Z-1-A	STEL	500 ppm, 2,000 mg/m3	
	ACGIH	TWA	400 ppm,	
	ACGIH	STEL	500 ppm,	
Ethanol	OSHA Z-1	TWA	1,000 ppm, 1,900 mg/m3	
	OSHA Z-1-A	TWA	1,000 ppm, 1,900 mg/m3	
	ACGIH	STEL	1,000 ppm,	A3,
n-Butane	OSHA Z-1-A	TWA	800 ppm, 1,900 mg/m3	
	ACGIH	STEL	1,000 ppm,	CNS impair, EX,
Ethylbenzene	OSHA Z-1	TWA	100 ppm, 435 mg/m3	
	OSHA Z-1-A	TWA	100 ppm, 435 mg/m3	
	OSHA Z-1-A	STEL	125 ppm, 545 mg/m3	
	ACGIH	TWA	20 ppm,	A3,
2-Methylpentane	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	
n-hexane	ACGIH	TWA	50 ppm,	Skin,

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	OSHA Z-1	TWA	500 ppm, 1,800 mg/m3	
	OSHA Z-1-A	TWA	50 ppm, 180 mg/m3	
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	
Benzene	ACGIH	TWA	0.5 ppm,	A1, Skin,
	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,	
	OSHA 29 CFR 1910.1028(c)	STEL	5 ppm,	
	OSHA CARC	PEL	1 ppm,	
	OSHA CARC	STEL	5 ppm,	
3-Methylpentane	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	
2-Methylhexane	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	
3-Methylhexane	ACGIH	TWA	400 ppm,	
	ACGIH	STEL	500 ppm,	
1,2,4-Trimethylbenzene	ACGIH	TWA	25 ppm,	
	OSHA Z-1-A	TWA	25 ppm, 125 mg/m3	
2,3-Dimethylbutane	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	
2,3-Dimethylpentane	ACGIH	TWA	400 ppm,	
	ACGIH	STEL	500 ppm,	
2,4-Dimethylpentane	ACGIH	TWA	400 ppm,	
	ACGIH	STEL	500 ppm,	
Methylcyclohexane	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-Pentane	OSHA Z-1	TWA	1,000 ppm, 2,950 mg/m3	
	OSHA Z-1-A	TWA	600 ppm, 1,800 mg/m3	
	OSHA Z-1-A	STEL	750 ppm, 2,250 mg/m3	
	ACGIH	TWA	1,000 ppm,	
2,3,4-Trimethylpentane	ACGIH	TWA	300 ppm,	
Isoprene	US WEEL	TWA	2 ppm,	
Hydrogen Sulfide	ACGIH	TWA	1 ppm,	
	ACGIH	STEL	5 ppm,	
	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	
Gasoline, Natural Stream	OSHA Z-1-A	TWA	300 ppm, 900 mg/m3	
	OSHA Z-1-A	STEL	500 ppm, 1,500 mg/m3	
	OSHA Z-1	TWA	500 ppm, 2,000 mg/m3	
Cumene	ACGIH	TWA	50 ppm,	
	OSHA Z-1	TWA	50 ppm, 245 mg/m3	X,
	OSHA Z-1-A	TWA	50 ppm, 245 mg/m3	X,

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

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**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
Xylenes	1330-20-7	Immediately Dangerous to Life or Health Concentration Value 900 parts per million	2017-09-01
n-Heptane	142-82-5	Immediately Dangerous to Life or Health Concentration Value 750 parts per million	1995-03-01
Ethanol	64-17-5	Immediately Dangerous to Life or Health Concentration Value 3300 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
Ethylbenzene	100-41-4	Immediately Dangerous to Life or Health Concentration Value 800 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
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-Pentane	109-66-0	Immediately Dangerous to Life or Health Concentration Value 1500 parts per million	1995-03-01
Benzene	71-43-2	Immediately Dangerous to Life or Health Concentration Value 500 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
Toluene	108-88-3	Immediately Dangerous to Life or Health Concentration Value 500 parts per million	1995-03-01
Xylenes	1330-20-7	Immediately Dangerous to Life or Health Concentration Value 900 parts per million	2017-09-01
n-Heptane	142-82-5	Immediately Dangerous to Life or Health Concentration Value 750 parts per million	1995-03-01
Ethanol	64-17-5	Immediately Dangerous to Life or Health Concentration Value 3300 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
Ethylbenzene	100-41-4	Immediately Dangerous to Life or Health Concentration Value 800 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
Naphthalene	91-20-3	Immediately Dangerous to Life or Health Concentration Value 250 parts per million	1995-03-01
Benzene	71-43-2	Immediately Dangerous to Life or Health Concentration Value 500 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



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n-Pentane	109-66-0	Immediately Dangerous to Life or Health Concentration Value 1500 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
Cumene	98-82-8	Immediately Dangerous to Life or Health Concentration Value 900 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
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
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
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: 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.

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- Hand protection : The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
- Eye protection : Eye wash bottle with pure water. Tightly fitting safety goggles.
- Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Wear as appropriate: 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**

- Form : liquid  
 Physical state : liquid  
 Color : Clear to amber  
 Odor : Mild

**Safety data**

- Flash point : -37°C (-35°F)  
 estimated
- Lower explosion limit : 1.5 %(V)
- Upper explosion limit : 7.6 %(V)
- Oxidizing properties : No
- Autoignition temperature : No data available
- Molecular weight : Not applicable
- pH : Not applicable
- Pour point : No data available
- Boiling point/boiling range : 51°C (124°F)
- Vapor pressure : 6.90 PSI  
 at 38°C (100°F)
- Relative density : 0.75  
 at 38 °C (100 °F)

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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	: No data available

**SECTION 10: Stability and reactivity**

<b>Reactivity</b>	: Stable under recommended storage conditions.
<b>Chemical stability</b>	: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
<b>Possibility of hazardous reactions</b>	
<b>Hazardous reactions</b>	: Hazardous reactions: Vapors may form explosive mixture with air.
<b>Conditions to avoid</b>	: Heat, flames and sparks.
<b>Materials to avoid</b>	: May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
<b>Hazardous decomposition products</b>	: Carbon Dioxide Carbon oxides
<b>Other data</b>	: No decomposition if stored and applied as directed.

**SECTION 11: Toxicological information**

<b>Tier III E-10 Gasoline Acute oral toxicity</b>	: Acute toxicity estimate: > 5,000 mg/kg Method: Calculation method
<b>Tier III E-10 Gasoline Acute inhalation toxicity</b>	: Acute toxicity estimate: > 40 mg/l Exposure time: 4 h Test atmosphere: vapor Method: Calculation method
<b>Tier III E-10 Gasoline Acute dermal toxicity</b>	: Acute toxicity estimate: > 2,000 mg/kg

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**Tier III E-10 Gasoline  
Skin irritation**: Skin irritation  
largely based on animal evidence.**Tier III E-10 Gasoline  
Eye irritation**: Eye irritation  
largely based on animal evidence.**Tier III E-10 Gasoline  
Sensitization**: Not a skin sensitizer.  
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/kgSpecies: 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 410Species: Rat, male and female  
Sex: male and female  
Application Route: Inhalation  
Dose: 2000, 10000, 20000 mg/m<sup>3</sup>  
Exposure time: 90 d  
Number of exposures: 6h/d 5d/wk  
NOEL: > 20000 mg/m<sup>3</sup>  
Method: OECD Test Guideline 413**Naphtha (petroleum), light  
catalytic reformed**: Species: Rat  
Application Route: Inhalation  
Dose: 0, 2.00, 5.85, 20.3 mg/l  
Exposure time: 21 day  
Number of exposures: 6 h/d, 5 d/wk  
NOEL: 20.3 mg/lSpecies: Rabbit  
Application Route: Dermal  
Dose: 0, 200, 1000, 2000 mg/l  
Exposure time: 28 day  
Number of exposures: 3 times/wk  
Lowest observable effect level: 1000 mg/l**2,2,4-Trimethylpentane  
(Isooctane)**: Species: Rat, Male and female  
Sex: Male and female  
Application Route: Inhalation  
Dose: 0, 668, 2220, 6646 ppm

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Naphtha (petroleum), light alkylate	<p>Exposure time: 13 weeks  Number of exposures: 6 hr/day 5 d/wk  NOEL: 8.117 mg/l 2220 ppm  Method: OECD Guideline 413  Information given is based on data obtained from similar substances.</p> <p>Species: Rat, male  Sex: male  Application Route: oral gavage  Dose: 500, 2000 mg/kg  Exposure time: 4 wk  Number of exposures: once daily, 5 d/wk  Target Organs: Kidney  Information given is based on data obtained from similar substances.</p> <p>Species: Rabbit, male and female  Sex: male and female  Application Route: Dermal  Dose: 0, 200, 1000, 2000 mg/kg  Exposure time: 4 wk  Number of exposures: 3 times/wk  NOEL: 1,000 mg/kg  Lowest observable effect level: 2,000 mg/kg  Method: OECD Test Guideline 410  Target Organs: Skin  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: 322, 1402, 9869 mg/m<sup>3</sup>  Exposure time: 107 - 109 wk  Number of exposures: 6 h/d 5 d/wk  NOEL: 1402 mg/m<sup>3</sup>  Method: OECD Test Guideline 453  Information given is based on data obtained from similar substances.</p> <p>Species: Mouse, male and female  Sex: male and female  Application Route: Inhalation  Dose: 322, 1402, 9869 mg/m<sup>3</sup>  Exposure time: 107- 113 wk  Number of exposures: 6 h/d 5 d/wk  NOEL: 1402 mg/m<sup>3</sup>  Method: OECD Test Guideline 453  Information given is based on data obtained from similar substances.</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>

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	<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>
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: &gt; 2220 ppm  Lowest observable effect level: &gt; = 6646 ppm  Method: OECD Guideline 413  Target Organs: Kidney  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, 1000...  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: &gt; 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>
C9-C11 Isoalkanes	<p>Species: Rat, male and female  Sex: male and female  Application Route: Inhalation  Dose: 0, 2600, 5200, 10400 mg/3  Exposure time: 13 wk  Number of exposures: 6 h/d, 5 d/wk  NOEL: &gt; 10,400 mg/m<sup>3</sup>  Method: OECD Test Guideline 413  No significant adverse effects were reported  Information given is based on data obtained from similar substances.</p>
Isoalkanes C7-8	<p>Species: Rat, male and female  Sex: male and female  Application Route: Inhalation  Dose: 0, 400, 1200 ppm  Exposure time: 12 wk  Number of exposures: 6 hr/d, 5 d/wk  NOEL: 1200 ppm</p>

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	<p>Method: OECD Test Guideline 413 Target Organs: Kidney Information given is based on data obtained from similar substances.</p>
n-Heptane	<p>Species: Rat, male Sex: male Application Route: Inhalation Dose: 12.47 mg/l Exposure time: 16 wk Number of exposures: 12 h/d, 7 d/wk NOEL: 12.47 mg/l No adverse effect has been observed in chronic toxicity tests.</p>
	<p>Species: Rat, Male and female Sex: Male and female Application Route: Inhalation Dose: 12.35 mg/l Exposure time: 26 wk Number of exposures: 6 h/d, 5 d/wk Method: OECD Test Guideline 413 No adverse effect has been observed in chronic toxicity tests.</p>
Ethanol	<p>Species: Rat Application Route: Oral diet Dose: 5% Exposure time: 13 wk Number of exposures: in drinking water NOEL: &lt; 5% Lowest observable effect level: 5% Target Organs: Liver</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>
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>
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>

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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

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

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

**2-methyl-2-butene**

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

**2,3-Dimethylbutane**

Species: Rat  
 Application Route: oral gavage  
 Dose: 0, 500, 2000 mg/kg  
 Exposure time: 4 wk  
 Number of exposures: once a day, 5 d/wk  
 Lowest observable effect level: 500 mg/kg  
 Target Organs: Kidney

**Methylcyclohexane**

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



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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-Pentane	<p>Species: Rat, Male and female  Sex: Male and female  Application Route: inhalation (gas)  Dose: 0, 5000, 10,000, 20,000 mg/m<sup>3</sup>  Exposure time: 13 wk  Number of exposures: 6 h/d, 5 d/wk  NOEL: 20,000 mg/m<sup>3</sup>  Method: OECD Test Guideline 413</p>
Benzene	<p>Species: Rat, female  Sex: female  Application Route: oral gavage  Dose: 0, 25, 50, 100 mg/kg  Exposure time: 103 wk  Number of exposures: 5 d/wk  NOEL: &lt; 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: &lt; 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: &lt; 25 mg/kg</p>
Isoprene	<p>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</p> <p>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</p>

**Genotoxicity in vitro**

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Naphtha, Petroleum, Heavy Catalytic Cracked	: Test Type: Mouse lymphoma assay Result: positive
Naphtha (petroleum), light catalytic reformed	Test Type: Ames test Result: negative  Test Type: Cytogenetic assay Result: negative
Hydrocarbons, C3-11, catalytic cracker distillates	Result: May cause genetic defects. Remarks: In vitro tests showed mutagenic effects
2,2,4-Trimethylpentane (Isooctane)	Test Type: Ames test Method: Mutagenicity (Escherichia coli - reverse mutation assay) Result: negative  Test Type: Mouse lymphoma assay Method: OECD Guideline 476 Result: negative  Test Type: Sister Chromatid Exchange Assay Result: negative  Test Type: Unscheduled DNA synthesis assay Result: negative
Naphtha (petroleum), light alkylate	Test Type: Mouse lymphoma assay Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476 Result: negative Remarks: Information given is based on data obtained from similar substances.  Test Type: Sister chromatid exchange Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 479 Result: negative Remarks: Information given is based on data obtained from similar substances.  Test Type: Ames test 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.
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>
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>
Xylenes	<p>Test Type: Ames test Result: negative</p> <p>Test Type: Mouse lymphoma assay Result: negative</p>
C9-C11 Isoalkanes	<p>Test Type: E. Coli bacterial reverse mutation assay Result: negative</p> <p>Test Type: Ames test Result: negative</p> <p>Test Type: Bacterial DNA repair test Result: negative</p>
Isoalkanes C7-8	<p>Test Type: Ames test Result: negative</p>
n-Heptane	<p>Test Type: Ames test Method: Mutagenicity (Escherichia coli - reverse mutation assay) Result: negative</p>

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	<p>Test Type: Mammalian cell gene mutation assay Method: OECD Guideline 476 Result: negative</p>
	<p>Test Type: Chromosome aberration test in vitro Method: OECD Guideline 473 Result: negative</p>
	<p>Test Type: Mitotic recombination Result: negative</p>
Ethanol	<p>Test Type: Ames test Result: negative</p>
	<p>Test Type: Forward mutation assay Result: positive</p>
	<p>Test Type: Sister Chromatid Exchange Assay Result: positive</p>
n-Butane	<p>Test Type: Ames test 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>
2-methyl-2-butene	<p>Test Type: Ames test Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative</p>

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	Method: OECD Test Guideline 480 Result: negative
2,3-Dimethylbutane	Test Type: Ames test Result: negative
n-Pentane	Test Type: Ames test Metabolic activation: with and without metabolic activation Result: negative
	Test Type: Chromosome aberration test in vitro Metabolic activation: with and without metabolic activation Result: Ambiguous
Benzene	Test Type: Ames test Result: negative
	Test Type: Cytogenetic assay Result: positive
	Test Type: Mouse lymphoma assay Result: positive
	Test Type: Sister Chromatid Exchange Assay Result: negative
Isoprene	Test Type: Ames test Result: negative
	Test Type: Sister Chromatid Exchange Assay Result: positive
<b>Genotoxicity in vivo</b>	
Naphtha (petroleum), light catalytic reformed	: Test Type: Cytogenetic assay Result: negative
Hydrocarbons, C3-11, catalytic cracker distillates	Result: May cause genetic defects.
2,2,4-Trimethylpentane (Isooctane)	Test Type: Unscheduled DNA synthesis assay Species: Mouse Dose: 500 mg/kg Result: negative
	Test Type: Unscheduled DNA synthesis assay Species: Rat Dose: 500 mg/kg Result: negative
Naphtha (petroleum), light alkylate	Test Type: In vivo micronucleus test Species: Rat Cell type: Bone marrow Dose: 2000, 10,000, 20,000 mg/m <sup>3</sup> Method: OECD Test Guideline 475 Result: negative Remarks: Information given is based on data obtained from similar substances.
Toluene	Test Type: Cytogenetic assay

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	Result: negative
	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.
Xylenes	Test Type: Mouse micronucleus assay Result: negative
C9-C11 Isoalkanes	Test Type: Dominant lethal assay Result: negative
	Test Type: Mouse micronucleus assay Result: negative
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 Result: negative
	Test Type: Cytogenetic assay Species: Rat Dose: 900, 3000, 9000 ppm Result: negative
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
n-Pentane	Test Type: Micronucleus test Species: Rat Cell type: Bone marrow Result: negative
Benzene	Test Type: Mouse micronucleus assay Result: positive
Isoprene	Result: negative
	Test Type: Micronucleus test Result: positive

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**Carcinogenicity**

Naphtha, 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

Hydrocarbons, C3-11,  
catalytic cracker distillates Species: Rat  
Exposure time: 2 years  
Print Date: OECD Test Guideline 451

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

Ethanol Species: Mouse  
Sex: male  
Dose: 2.5, 5%  
Exposure time: 2 yrs  
Number of exposures: in drinking water  
Remarks: Increase in liver tumors

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	<p>Species: Mouse Sex: female Dose: 2.5, 5% Exposure time: 2 yrs Number of exposures: in drinking water Remarks: no increase in tumors</p> <p>Species: Rat Dose: 5% Exposure time: 30 mo Number of exposures: in drinking water Remarks: increase number of liver, pituitary, adrenal, and pancreatic tumors</p>
Naphthalene	<p>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</p> <p>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</p> <p>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</p>
n-hexane	<p>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.</p> <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>
Benzene	<p>Species: Rat Sex: female</p>



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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.

**Isoprene**

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

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

**Reproductive toxicity**

Hydrocarbons, C3-11,  
 catalytic cracker distillates

: Species: Rat  
 Sex: male and female  
 Application Route: inhalation (vapor)  
 Dose: 0, 5000, 10000, 20000 mg/m<sup>3</sup>  
 Method: OECD Test Guideline 416  
 NOAEL Parent: > 20,000 mg/m<sup>3</sup>  
 NOAEL F1: > 20,000 mg/m<sup>3</sup>

2,2,4-Trimethylpentane  
 (Isooctane)

Species: Rat  
 Sex: male and female  
 Application Route: Inhalation  
 Dose: 0, 900, 3000, 9000 ppm  
 Number of exposures: 6 h/d 5 d/wk  
 Method: OECD Test Guideline 416  
 NOAEL Parent: 3000 ppm  
 NOAEL F1: 3000 ppm  
 NOAEL F2: 3000 ppm  
 Information given is based on data obtained from similar substances.

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Naphtha (petroleum), light alkylate

Species: Rat  
 Sex: male and female  
 Application Route: Inhalation  
 Dose: 5,000, 10,000, 20,000 mg/L  
 Number of exposures: 6 h/d, 7 d/wk  
 Method: OECD Test Guideline 416  
 NOAEL Parent: 24.7 mg/l  
 NOAEL F1: 24.7 mg/l  
 No adverse effects expected  
 Information given is based on data obtained from similar substances.

Toluene

Species: Rat  
 Application Route: Inhalation  
 Dose: 0, 100, 500, 2000 ppm  
 Test period: 95 d  
 NOAEL Parent: 2000 ppm

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.

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

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

Isoalkanes C7-8

Species: Rat  
 Sex: male and female  
 Application Route: inhalation (vapor)  
 Number of exposures: 6 hr/d; 5 d/wk  
 Method: OECD Test Guideline 416  
 NOAEL Parent: 10,560 mg/m<sup>3</sup>  
 NOAEL F1: 31,680 mg/m<sup>3</sup>  
 NOAEL F2: 31,680 mg/m<sup>3</sup>  
 Fertility and developmental toxicity tests did not reveal any effect on reproduction.  
 Information given is based on data obtained from similar substances.

n-Heptane

Species: Rat  
 Sex: male and female

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	<p>Application Route: Inhalation Dose: 0, 900, 3000, 9000 ppm Number of exposures: 6 hr/d, 5 d/wk Test period: 13 wk Method: OECD Test Guideline 416 NOAEL Parent: 9000 ppm NOAEL F1: 3000 ppm NOAEL F2: 3000 ppm Information given is based on data obtained from similar substances.</p>
n-hexane	<p>Species: Rat 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>
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>

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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

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.

n-Pentane

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

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

**Developmental Toxicity**Hydrocarbons, C3-11,  
catalytic cracker distillates

: Species: Rat  
 Exposure time: GD6-GD19  
 Number of exposures: 6 h/d  
 Test period: Day 20 of Gestation  
 Method: OECD Guideline 414  
 NOAEL Teratogenicity: 23900 mg/m3  
 NOAEL Maternal: 23900 mg/m3

2,2,4-Trimethylpentane  
(Isooctane)

Species: Rat  
 Application Route: Inhalation  
 Dose: 0, 400, 1200 ppm  
 Number of exposures: 6h/d  
 Test period: GD6-15  
 NOAEL Teratogenicity: 1200 ppm  
 NOAEL Maternal: 1200 ppm  
 Information given is based on data obtained from similar

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substances.

Species: Rat  
 Application Route: Inhalation  
 Dose: 0, 900, 3000, 9000 ppm  
 Number of exposures: 6h/d  
 Test period: GD6-15  
 Method: OECD Guideline 414  
 NOAEL Teratogenicity: 9000 ppm  
 NOAEL Maternal: 3000 ppm  
 Information given is based on data obtained from similar substances.

Naphtha (petroleum), light alkylate

Species: Rat  
 Application Route: Dermal  
 Dose: 30, 125, 500 mg/kg/d  
 Exposure time: GD 0 - 19  
 Number of exposures: Daily  
 Test period: 19 d  
 NOAEL Teratogenicity: 500 mg/kg  
 NOAEL Maternal: 500 mg/kg  
 Animal testing did not show any effects on fetal development.  
 Information given is based on data obtained from similar substances.

Toluene

Species: Rat  
 Application Route: Inhalation  
 Dose: 0, 100, 500, 2000 ppm  
 Test period: 95 d  
 NOAEL Teratogenicity: 400-750 ppm

Isopentane

Species: Rat  
 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.

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	<p>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.</p>
	<p>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.</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>
C9-C11 Isoalkanes	<p>Species: Rat            Application Route: Inhalation            Dose: 0, 291, 817 ppm            Number of exposures: 6 h/d            Test period: GD 6-15            NOAEL Teratogenicity: &gt; 817 ppm            NOAEL Maternal: &gt; 817 ppm</p>
Isoalkanes C7-8	<p>Species: Rat            Application Route: Inhalation            Dose: 500, 2000, 7000 ppm            Exposure time: 6 hr/d            Test period: GD 6-15            Method: OECD Guideline 414            NOAEL Teratogenicity: &gt; 21,000 mg/m<sup>3</sup>            NOAEL Maternal: &gt; 21,000 mg/m<sup>3</sup>            Animal testing did not show any effects on fetal development.            Information given is based on data obtained from similar substances.</p>
n-Heptane	<p>Species: Rat            Application Route: Inhalation            Dose: 0, 900, 3000, 9000 ppm            Exposure time: GD6-15</p>

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	<p>Number of exposures: 6 hrs/d            NOAEL Teratogenicity: 9000 ppm            NOAEL Maternal: 3000 ppm</p>
Ethanol	<p>Species: Mouse            Application Route: oral gavage            Dose: 17, 25, 30 %            NOAEL Teratogenicity: 17%</p>
Naphthalene	<p>Species: Rabbit            Application Route: oral gavage            Dose: 40, 200, 400 mg/kg            Test period: 29 d, GD 6-18            NOAEL Teratogenicity: 400 mg/kg</p>
n-hexane	<p>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</p>
	<p>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</p>
2-methyl-2-butene	<p>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.</p>
Methylcyclohexane	<p>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.</p>

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	<p>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.</p>
n-Pentane	<p>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</p>
<b>Tier III E-10 Gasoline</b>	
<b>Aspiration toxicity</b>	: May be fatal if swallowed and enters airways.
<b>CMR effects</b>	
Naphtha, Petroleum, Heavy Catalytic Cracked	: Carcinogenicity: Possible human carcinogen Mutagenicity: In vivo tests showed mutagenic effects Reproductive toxicity: Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.
Naphtha (petroleum), light catalytic reformed	Carcinogenicity: Possible human carcinogen Mutagenicity: In vivo tests showed mutagenic effects Reproductive toxicity: Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.
Hydrocarbons, C3-11, catalytic cracker distillates	Carcinogenicity: Human carcinogen. Mutagenicity: In vivo tests showed mutagenic effects Teratogenicity: Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments. Reproductive toxicity: Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.
2,2,4-Trimethylpentane (Isooctane)	Mutagenicity: Tests on bacterial or mammalian cell cultures did not show mutagenic effects. Teratogenicity: Animal testing did not show any effects on fetal development. Reproductive toxicity: Animal testing did not show any effects on fertility.
Toluene	Carcinogenicity: Not classifiable as a human carcinogen. Mutagenicity: Animal testing did not show any mutagenic effects. Teratogenicity: Some evidence of adverse effects on development, based on animal experiments. Reproductive toxicity: Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.



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Isopentane	<p>Carcinogenicity: Not available          Mutagenicity: Tests on bacterial or mammalian cell cultures did not show mutagenic effects., In vivo tests did not show mutagenic effects          Teratogenicity: Animal testing did not show any effects on fetal development.          Reproductive toxicity: Animal testing did not show any effects on fertility.</p>
Xylenes	<p>Carcinogenicity: Not classifiable as a human carcinogen.          Mutagenicity: Did not show mutagenic effects in animal experiments.          Teratogenicity: Damage to fetus not classifiable</p>
Isoalkanes C7-8	<p>Carcinogenicity: Not available          Mutagenicity: In vitro tests did not show mutagenic effects          Reproductive toxicity: No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments.</p>
n-Heptane	<p>Mutagenicity: Tests on bacterial or mammalian cell cultures did not show mutagenic effects.          Teratogenicity: Animal testing did not show any effects on fetal development.          Reproductive toxicity: No toxicity to reproduction</p>
n-Butane	<p>Carcinogenicity: Weight of evidence does not support classification as a carcinogen          Mutagenicity: Weight of evidence does not support classification as a germ cell mutagen.          Teratogenicity: Not available          Reproductive toxicity: Weight of evidence does not support classification for reproductive toxicity</p>
Ethylbenzene	<p>Carcinogenicity: Weight of evidence does not support classification as a carcinogen          Mutagenicity: In vivo tests did not show mutagenic effects          Teratogenicity: Did not show teratogenic effects in animal experiments.          Reproductive toxicity: No toxicity to reproduction</p>
Naphthalene	<p>Carcinogenicity: Limited evidence of carcinogenicity in animal studies</p>
n-hexane	<p>Carcinogenicity: Not classifiable as a human carcinogen.          Mutagenicity: Did not show mutagenic effects in animal experiments.          Teratogenicity: Animal testing did not show any effects on fetal development.          Reproductive toxicity: Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.</p>
2-methyl-2-butene	<p>Carcinogenicity: Limited evidence of carcinogenicity in animal studies          Mutagenicity: In vitro tests showed mutagenic effects          Teratogenicity: Animal testing did not show any effects on fetal development.          Reproductive toxicity: Animal testing did not show any effects</p>

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	on fertility.
Methylcyclohexane	<p>Carcinogenicity: Not available          Mutagenicity: Tests on bacterial or mammalian cell cultures did not show mutagenic effects.          Teratogenicity: Animal testing did not show any effects on fetal development.          Reproductive toxicity: Animal testing did not show any effects on fertility.</p>
Benzene	<p>Carcinogenicity: Human carcinogen.          Mutagenicity: In vivo tests showed mutagenic effects          Teratogenicity: Did not show teratogenic effects in animal experiments.          Reproductive toxicity: Animal testing did not show any effects on fertility.</p>
Isoprene	<p>Carcinogenicity: Possible human carcinogen          Mutagenicity: In vitro tests showed mutagenic effects</p>
<b>Tier III E-10 Gasoline Further information</b>	: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Concentrations substantially above the TLV value may cause narcotic effects. Solvents may decrease the skin.

**SECTION 12: Ecological information****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
Naphtha (petroleum), light catalytic reformed	LL50: 8.2 mg/l Exposure time: 96 h Species: Pimephales promelas (fathead minnow) semi-static test
Hydrocarbons, C3-11, catalytic cracker distillates	1 - 100 mg/l Toxic to fish.
2,2,4-Trimethylpentane (Isooctane)	LC50: 0.11 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.
Naphtha (petroleum), light alkylate	LL50: 8.2 mg/l Exposure time: 96 h Species: Pimephales promelas (fathead minnow) semi-static test
Toluene	LC50: 18 - 36 mg/l Exposure time: 96 h Species: Pimephales promelas (fathead minnow)

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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.
Xylenes	LC50: 8.2 mg/l Exposure time: 96 h Species: Salmo gairdneri (Rainbow trout)
C9-C11 Isoalkanes	LL50: 3.6 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.
Isoalkanes C7-8	LL50: 5.4 mg/l Exposure time: 96 h Species: Oncorhynchus mykiss (rainbow trout) Method: OECD Test Guideline 203 Information given is based on data obtained from similar substances.
n-Heptane	LL50: 5.738 mg/l Exposure time: 96 h Species: Oncorhynchus mykiss (rainbow trout) Method: QSAR modeled data
Ethanol	LC50: 13,480 mg/l Exposure time: 96 h Species: Pimephales promelas (fathead minnow)
Ethylbenzene	LC50: 4.3 mg/l Exposure time: 96 h Species: Marone saxatilis (striped bass)
Naphthalene	LC50: 3.2 mg/l Exposure time: 96 h Species: Pimephales promelas (fathead minnow)
n-hexane	LL50: 12.51 mg/l Exposure time: 96 h Species: Oncorhynchus mykiss (rainbow trout) Method: QSAR modeled data
3-Methylpentane	No data available
Methylcyclopentane	No data available
2-methyl-2-butene	LC50: 4.99 mg/l Exposure time: 96 h Species: Oncorhynchus mykiss (rainbow trout) semi-static test Method: OECD Test Guideline 203
2,3-Dimethylbutane	LC50: 6.68 mg/l Exposure time: 96 h Species: Fish Method: QSAR modeled data

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Methylcyclohexane	LC50: 2.07 mg/l Exposure time: 96 h Species: Fish semi-static test
n-Pentane	LC50: 4.3 mg/l Exposure time: 96 h Species: Oncorhynchus mykiss (rainbow trout) semi-static test
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
Isoprene	LC50: 7.43 mg/l Exposure time: 96 h Species: Oncorhynchus mykiss (rainbow trout) semi-static test Method: OECD Test Guideline 203
Gasoline, Natural Stream	LL50: 8.2 mg/l Exposure time: 96 h Species: Pimephales promelas (fathead minnow) semi-static test

**Toxicity to daphnia and other aquatic invertebrates**

Naphtha, Petroleum, Heavy Catalytic Cracked	: EL50: 4.5 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) static test Method: OECD Test Guideline 202
Hydrocarbons, C3-11, catalytic cracker distillates	1 - 100 mg/l Toxic effects on fish and plankton
2,2,4-Trimethylpentane (Isooctane)	EC50: 0.4 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) static test Information given is based on data obtained from similar substances.
Naphtha (petroleum), light alkylate	EL50: 4.5 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) static test Method: OECD Test Guideline 202
Toluene	EC50: 3.78 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea)
Isopentane	EC50: 2.3 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) static test Method: OECD Test Guideline 202
C9-C11 Isoalkanes	EL50: 22 - 46 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) static test Method: OECD Test Guideline 202 Information given is based on data obtained from similar

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	substances.
Isoalkanes C7-8	EL50: 143 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) static test Method: OECD Test Guideline 202
n-Heptane	EC50: 1.5 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) static test Toxic to aquatic organisms.
	LC50: 0.1 mg/l Exposure time: 96 h Species: Mysidopsis bahia (mysid shrimp) semi-static test Very toxic to aquatic organisms.
Ethanol	LC50: 12,340 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea)
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
2-Methylpentane	3.649 mg/l Exposure time: 48 h Species: Daphnia Method: Value calculated using ECOSAR.
Naphthalene	LC50: 2.16 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea)
n-hexane	EL50: 21.85 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) Method: QSAR modeled data
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
2,3-Dimethylbutane	LC50: 4.21 mg/l Exposure time: 48 h Species: Daphnia Method: QSAR modeled data No data available
Methylcyclohexane	EC50: 0.326 mg/l

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n-Pentane	Exposure time: 48 h Species: Daphnia magna (Water flea) semi-static test EC50: 2.7 mg/l
Benzene	Exposure time: 48 h Species: Daphnia magna (Water flea) static test EC50: 10 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) static test Test substance: yes Method: OECD Test Guideline 202
Isoprene	EC50: 5.77 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea)
Hydrogen Sulfide	EC50: 0.12 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) static test Analytical monitoring: yes Test substance: yes Method: OECD Test Guideline 202
Gasoline, Natural Stream	EL50: 4.5 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) static test Method: OECD Test Guideline 202
<b>Toxicity to algae</b>	
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
Hydrocarbons, C3-11, catalytic cracker distillates	1 - 100 mg/l Toxic to algae.
2,2,4-Trimethylpentane (Isooctane)	EL50: 2.943 mg/l Exposure time: 72 h Method: QSAR modeled data
Naphtha (petroleum), light alkylate	EC50: 3.1 mg/l Exposure time: 96 h Species: Selenastrum capricornutum (algae) static test Method: OECD Test Guideline 201
Toluene	EC50: 134 mg/l Exposure time: 72 h Species: Chlamydomonas angulosa (Green algae)
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.

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C9-C11 Isoalkanes	ErL50: > 1,000 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (algae) static test Method: OECD Test Guideline 201 Information given is based on data obtained from similar substances.
Isoalkanes C7-8	EL50: 29.0 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (green algae) Growth inhibition Method: OECD Test Guideline 201
n-Heptane	EL50: 4.338 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (microalgae) Method: QSAR
Ethanol	EC50: 1,000 mg/l Exposure time: 72 h Species: Chlorella vulgaris (Fresh water algae)
Ethylbenzene	ErC50: 5.0 mg/l Exposure time: 96 h Species: Selenastrum capricornutum (algae)
	ErC50: 7.7 mg/l Exposure time: 72 h Species: Skeletonema costatum (Marine Algae)
2-Methylpentane	4.321 mg/l Exposure time: 96 h Species: green algae Method: Value calculated using ECOSAR.
Naphthalene	EC50: 2.96 mg/l Exposure time: 48 h Species: Selenastrum capricornutum (algae)
n-hexane	EL50: 9.29 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (green algae) Method: QSAR modeled data
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
Methylcyclohexane	EC50: 0.134 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (green algae) static test
n-Pentane	EbC50: 10.7 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (green algae) static test
Benzene	ErC50: 100 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (green algae) Test substance: yes

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	Method: OECD Test Guideline 201
Isoprene	EC50: > 35.2 mg/l Exposure time: 96 h Species: Pseudokirchneriella subcapitata (green algae)
Hydrogen Sulfide	EC50: 1.87 mg/l Exposure time: 24 h Species: Selenastrum capricornutum (algae) static test Test substance: yes
Gasoline, Natural Stream	EL50: 3.1 mg/l Exposure time: 96 h Species: Pseudokirchneriella subcapitata (green algae) static test Method: OECD Test Guideline 201

**M-Factor**

methylcyclohexane	:	M-Factor (Acute Aquat. Tox.)	1
		M-Factor (Chron. Aquat. Tox.)	1

**Toxicity to bacteria**

Methylcyclohexane	:	IC50: 29 mg/l Exposure time: 15 h Growth inhibition
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**Toxicity to fish (Chronic toxicity)**

Hydrocarbons, C3-11, catalytic cracker distillates	:	NOEL: 2.6 mg/l Toxic effects on fish and plankton
C9-C11 Isoalkanes		NOELR: 0.132 mg/l Species: Oncorhynchus mykiss (rainbow trout) Method: QSAR modeled data
Isoalkanes C7-8		NOELR: 0.778 mg/l Exposure time: 28 d Species: Oncorhynchus mykiss (rainbow trout) Method: QSAR modeled data
n-Heptane		NOELR: 1.284 mg/l Exposure time: 28 d Species: Oncorhynchus mykiss (rainbow trout) Method: QSAR modeled data

**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
Hydrocarbons, C3-11,	:	NOEL: 2.6 mg/l



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catalytic cracker distillates	Species: Daphnia sp. (Water flea) Toxic effects on fish and plankton
2,2,4-Trimethylpentane (Isooctane)	: NOEL: 0.17 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Method: OECD Test Guideline 211 Information given is based on data obtained from similar substances.
Naphtha (petroleum), light alkylate	: NOELR: 2.6 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) semi-static test Method: OECD Test Guideline 211
Isoalkanes C7-8	: NOELR: 1 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Method: OECD Test Guideline 211 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
Gasoline, Natural Stream	: NOEL: 2.6 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) semi-static test Method: OECD Test Guideline 211
Biodegradability	: This material is not expected to be readily biodegradable. Expected to be inherently biodegradable.
Elimination information (persistence and degradability)	
Bioaccumulation	
Naphtha, Petroleum, Heavy Catalytic Cracked	: The product may be accumulated in organisms.
Naphtha (petroleum), light catalytic reformed	: The product may be accumulated in organisms.
Hydrocarbons, C3-11, catalytic cracker distillates	: No data available
2,2,4-Trimethylpentane (Isooctane)	: Bioconcentration factor (BCF): 231 Method: QSAR modeled data This material is not expected to bioaccumulate.
Naphtha (petroleum), light alkylate	: The product may be accumulated in organisms.
Toluene	: This material is not expected to bioaccumulate.
Isopentane	: Accumulation in aquatic organisms is unlikely.
Xylenes	: This material is not expected to bioaccumulate.

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Isoalkanes C7-8	: This material is not expected to bioaccumulate.
n-Heptane	: Bioconcentration factor (BCF): 552 Method: QSAR modeled data This material is not expected to bioaccumulate.
n-Butane	: This material is not expected to bioaccumulate.
Ethylbenzene	: Bioconcentration factor (BCF): 110
2-Methylpentane	: Does not significantly accumulate in organisms.
n-hexane	: Bioconcentration factor (BCF): 501 Does not significantly accumulate in organisms.
Methylcyclohexane	: Not classified due to data which are conclusive although insufficient for classification.
n-Pentane	: Bioconcentration factor (BCF): 171 Method: QSAR modeled data This material is not expected to bioaccumulate.
Benzene	: Bioconcentration factor (BCF): 13
Hydrogen Sulfide	: This material is not expected to bioaccumulate.
Gasoline, Natural Stream	: Can accumulate in aquatic organisms.
Mobility	
Naphtha, Petroleum, Heavy Catalytic Cracked	: No data available
Naphtha (petroleum), light catalytic reformed	: No data available
2,2,4-Trimethylpentane (Isooctane)	: Medium: Air Method: Calculation, Mackay Level I Fugacity Model After release, disperses into the air.
Naphtha (petroleum), light alkylate	: This product may float or sink in water. After release, disperses into the air.
Toluene	: Not expected to adsorb on soil.
Isoalkanes C7-8	: Medium: Air Method: Calculation, Mackay Level III Fugacity Model
n-Heptane	: Medium: Air Method: Calculation, Mackay Level I Fugacity Model After release, disperses into the air.
n-Butane	: The product evaporates readily.
Ethylbenzene	: Method: Calculation, Mackay Level I Fugacity Model Disperses rapidly in air.
n-Pentane	: After release, disperses into the air.
Benzene	: No data available

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Hydrogen Sulfide	: No data available
Results of PBT assessment Naphtha, Petroleum, Heavy Catalytic Cracked	: Non-classified PBT substance, Non-classified vPvB substance
2,2,4-Trimethylpentane (Isooctane)	: Non-classified PBT substance, Non-classified vPvB substance
Toluene	: Non-classified vPvB substance, Non-classified PBT substance
Isopentane	: Non-classified PBT substance, Non-classified vPvB substance
Isoalkanes C7-8	: Non-classified PBT substance, Non-classified vPvB substance
n-Heptane	: Non-classified PBT substance, Non-classified vPvB substance
n-Butane	: This substance is not considered to be persistent, bioaccumulating and toxic (PBT)., This substance is not considered to be very persistent and very bioaccumulating (vPvB).
Ethylbenzene	: Non-classified vPvB substance, Non-classified PBT substance
n-hexane	: Non-classified vPvB substance, Non-classified PBT substance
2-methyl-2-butene	: Non-classified PBT substance, Non-classified vPvB substance
Methylcyclohexane	: Non-classified PBT substance, Non-classified vPvB substance
Benzene	: This substance is not considered to be persistent, bioaccumulating and toxic (PBT)., This substance is not considered to be very persistent and very bioaccumulating (vPvB).
Gasoline, Natural Stream	: This substance is not considered to be persistent, bioaccumulating and toxic (PBT)., This substance is not considered to be very persistent and very bioaccumulating (vPvB).
Additional ecological information	: Very toxic to aquatic life with long lasting effects.
<b>Ecotoxicology Assessment</b>	
Short-term (acute) aquatic hazard	: Very toxic to aquatic life.
Long-term (chronic) aquatic hazard	: Very 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.

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

**SECTION 14: Transport information**

**The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments in non-bulk packages (see regulatory definition).**

Consult the appropriate domestic or international mode-specific and quantity-specific Dangerous Goods Regulations for additional shipping description requirements (e.g., technical name or names, etc.) Therefore, the information shown here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the SDS and the bill of lading.

**US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)**

UN1203, GASOLINE, 3, II, MARINE POLLUTANT, (2,2,4-TRIMETHYLPENTANE (ISOOCTANE), N-HEPTANE)

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

UN1203, GASOLINE, 3, II, (-37°C), MARINE POLLUTANT, (NAPHTHA, PETROLEUM, HEAVY CATALYTIC CRACKED)

**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)

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

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

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

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

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

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

**SARA 311/312 Hazards** : Flammable (gases, aerosols, liquids, or solids)  
 Acute toxicity (any route of exposure)  
 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

**EPCRA - EMERGENCY PLANNING COMMUNITY RIGHT - TO - KNOW**

CERCLA Reportable Quantity : 200 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
- : Ethylbenzene - 100-41-4
- : Benzene - 71-43-2
- : Naphthalene - 91-20-3
- : n-hexane - 110-54-3
- : 1,2,4-Trimethylbenzene - 95-63-6
- : Isoprene - 78-79-5
- : Cumene - 98-82-8

**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).

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The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 112 (40 CFR 61):

- : 2,2,4-Trimethylpentane (Isooctane) - 540-84-1
- Toluene - 108-88-3
- Xylenes - 1330-20-7
- Ethylbenzene - 100-41-4
- Naphthalene - 91-20-3
- n-hexane - 110-54-3
- Benzene - 71-43-2

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):

- : Isopentane - 78-78-4
- n-Butane - 106-97-8
- n-Pentane - 109-66-0
- 2-methyl-1-butene - 563-46-2
- Isoprene - 78-79-5

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
- Isopentane - 78-78-4
- Xylenes - 1330-20-7
- Ethanol - 64-17-5
- Ethylbenzene - 100-41-4
- Benzene - 71-43-2
- Methylcyclohexane - 108-87-2
- n-Pentane - 109-66-0
- Isoprene - 78-79-5

**US State Regulations**

Pennsylvania Right To Know

- : Naphtha, Petroleum, Heavy Catalytic Cracked - 64741-54-4
- Naphtha (petroleum), light catalytic reformed - 64741-63-5
- Hydrocarbons, C3-11, catalytic cracker distillates - 68476-46-0
- Naphtha (petroleum), light alkylate - 64741-66-8
- 2,2,4-Trimethylpentane (Isooctane) - 540-84-1
- 3,3-Dimethylpentane - 562-49-2
- Toluene - 108-88-3
- Isopentane - 78-78-4
- Xylenes - 1330-20-7
- C9-C11 Isoalkanes - 68551-16-6
- Isoalkanes C7-8 - 70024-92-9
- Heptane, branched, cyclic and linear - 426260-76-6
- n-Heptane - 142-82-5
- Ethanol - 64-17-5
- n-Butane - 106-97-8
- Ethylbenzene - 100-41-4

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2-Methylpentane - 107-83-5  
 Naphthalene - 91-20-3  
 n-hexane - 110-54-3  
 Benzene - 71-43-2  
 3-Methylpentane - 96-14-0  
 Related Materials -  
 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  
 2,3-Dimethylbutane - 79-29-8  
 2,3-Dimethylpentane - 565-59-3  
 2,4-Dimethylpentane - 108-08-7  
 Methylcyclohexane - 108-87-2  
 n-Pentane - 109-66-0  
 2-methyl-1-butene - 563-46-2  
 2-Methyl-2-Pentene - 625-27-4  
 Isoprene - 78-79-5  
 Hydrogen Sulfide - 7783-06-4  
 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](http://www.P65Warnings.ca.gov/food).

Ethylbenzene	100-41-4
Benzene	71-43-2
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](http://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	: Not 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	: This product contains one or several components that are not on the Canadian DSL nor NDSL.
Other AIIIC	: Not in compliance with the inventory
New Zealand NZIoC	: Not in compliance with the inventory
Japan ENCS	: Not in compliance with the inventory
Korea KECI	: Not in compliance with the inventory
Philippines PICCS	: Not in compliance with the inventory

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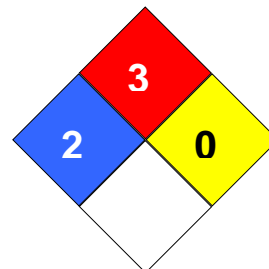
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Taiwan TCSI : Not in compliance with the inventory  
 China IECSC : Not in compliance with the inventory

**SECTION 16: Other information**

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

**Further information**

Significant changes since the last version are highlighted in the margin. This version replaces all previous versions.

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

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

**Key or legend to abbreviations and acronyms used in the safety data sheet**

ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AICS	Australia, Inventory of Chemical Substances	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
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	TSCA	Toxic Substance Control Act



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	New Chemical Substances		
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%		