Tier III E-10 Gasoline

Version 1.1 Revision Date 2026-09-01

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 9500 Lakeside Blvd. The Woodlands, TX 77381

Emergency telephone:

Health:
866.442.9628 (North America)
1.832.813.4984 (International)
Transport:
CHEMTREC 800.424.9300 or 703.527.3887(int'l)
Asia: CHEMWATCH (+612 9186 1132) China: 0532 8388 9090
Mexico CHEMTREC 01-800-681-9531 (24 hours)
South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600
Argentina: +(54)-1159839431
EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Austria: VIZ +43 1 406 43 43 (24 hours/day, 7 days/week)
Belgium: 070 245 245 (24 hours/day, 7 days/week)
Bulgaria: +359 2 9154 233
Croatia: +3851 2348 342 (24 hours/day, 7 days/week)
Cyprus: 1401
Czech Republic: Toxicological Information Center +420 224 919 293, +420 224 915 402
Denmark: Danish Poison Center (Giftlinjen): +45 8212 1212
Estonia: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Finland: 0800 147 111 09 471 977 (24 hours/day)
France: ORFILA number (INRS): + 33 (0) 1 45 42 59 59 (24 hours/day, 7 days/week)
Germany: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Greece: (0030) 2107793777 (24 hours/day, 7 days/week)
Hungary: +36-80-201-199 (24 hours/day, 7 days/week)
Iceland: 543 2222 (24 hours/day, 7 days/week)
Ireland: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Italy: POISON CENTER MILAN – Azienda Ospedaliera Niguarda Ca` Grande Tel. +39 02 66101029; POISON CENTER ROME – Policlinico “Agostino Gemelli”, Servizio di tossicologia clinica Tel. +39 06 3054343; POISON CENTER ROME – Ospedale Pediatrico Bambino Gesù Tel. +39 06 68593726;POISON CENTER ROME – Policlinico “Umberto I” Tel. +39 06 4997 8000; POISON CENTER FOGGIA – Azienda Ospedaliera Universitaria Riuniti Tel. +39 0881 732326; POISON CENTER NAPLES – Azienda Ospedaliera “Antonio Cardarelli” Tel. +39 081 7472870; POISON CENTER FLORENCE – Azienda Ospedaliera universitaria Careggi Tel. +39 055 7947819; POISON CENTER PAVIA – IRCCS Fondazione Salvatore Maugeri Tel. +39 0382 24444; POISON CENTER BERGAMO – Azienda Ospedaliera “Papa Giovanni XXIII” Tel. 800 883 300; POISON CENTER VERONA – Azienda Ospedaliera Universitaria integrata Tel. 800 011 858;

Latvia: State Fire and Rescue Service, phone number: 112; Toxicology and Sepsis Clinic Poisoning and Drug Information Center, Hipokrāta 2, Riga, Latvia, LV-1038, phone number +371 67042473. (24 hours.)
Liechtenstein: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Lithuania: +370 (85) 2362052
Luxembourg: (+352) 8002 5500 (24 hours/day, 7 days/week)
Malta: +356 2395 2000
The Netherlands: NVIC: +31 (0)88 755 8000
Norway: 22 59 13 00 (24 hours/day, 7 days/week)
Poland: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Portugal: CIAV phone number: +351 800 250 250
Romania: +40213183606
Slovakia: +421 2 5477 4166
Slovenia: Phone number: 112
Spain: National Emergency Telephone Number of Spanish Poison Centre: +34 91 562 04 20 (24 hours/day, 7 days/week)
Sweden: 112 – ask for Poisons Information

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

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
Acute toxicity, Category 4, Inhalation
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, Respiratory system, Central nervous system
Specific target organ toxicity - repeated exposure, Category 1, Blood
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.
H319: Causes serious eye irritation.
H332: Harmful if inhaled.

H335: May cause respiratory 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.
H372: Causes damage to organs (Blood) through prolonged or repeated exposure.
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, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P240 Ground and bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use non-sparking tools.
P243 Take action to prevent static discharges.
P260 Do not breathe mist or vapors.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing 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.
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 + P364 Take off contaminated clothing and wash it 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 tightly closed.
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Carcinogenicity:

IARC	Group 1: Carcinogenic to humans	
	Benzene	71-43-2
	Gasoline, Natural Stream	8006-61-9
	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
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

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
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 on skin, rinse well with water. If on clothes, remove clothes.

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

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

Notes to physician

Risks : May be harmful if swallowed. May be fatal if swallowed and enters airways. Causes skin irritation and serious eye irritation. Harmful if inhaled. May cause respiratory irritation. May cause drowsiness or dizziness. May cause genetic defects. May cause cancer. Suspected of damaging fertility or the unborn child. Causes damage to organs through prolonged or repeated exposure.
May be fatal if swallowed and enters airways. Causes skin irritation. Causes serious eye irritation. Harmful if inhaled. May cause respiratory irritation. May cause drowsiness or dizziness. May cause genetic defects. May cause cancer. Suspected of damaging fertility or the unborn child. Causes damage to organs through prolonged or repeated exposure.

Treatment : Treat symptomatically.

SECTION 5: Firefighting measures

Flash point : -37°C (-35°F)

		estimated
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 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 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

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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	
	OSHA Z-1	TWA	5 mg/m3	Mist
	OSHA Z-1-A	TWA	5 mg/m3	Mist
	NIOSH REL	TWA	5 mg/m3	Mist
	NIOSH REL	ST	10 mg/m3	Mist
	CAL PEL	PEL	5 mg/m3	particulate
3,3-Dimethylpentane	ACGIH	TWA	400 ppm,	
	ACGIH	STEL	500 ppm,	
Toluene	ACGIH	TWA	20 ppm,	OTO, 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	20 ppm,	OTO, 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	200 ppm,	OTO,
	ACGIH	STEL	400 ppm,	OTO,
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,	
1,2,4-Trimethylbenzene	ACGIH	TWA	25 ppm,	
	OSHA Z-1-A	TWA	25 ppm, 125 mg/m3	
	ACGIH	TWA	10 ppm,	A4,
Isoprene	US WEEL	TWA	2 ppm,	
2,3,4-Trimethylpentane	ACGIH	TWA	300 ppm,	
Benzene	ACGIH	TWA	0.02 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,	
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,	
Methylcyclohexane	ACGIH	TWA	100 ppm,	
	OSHA Z-1	TWA	500 ppm, 2,000 mg/m3	
	OSHA Z-1-A	TWA	400 ppm, 1,600 mg/m3	
2,4-Dimethylpentane	ACGIH	TWA	200 ppm,	OTO,
	ACGIH	STEL	400 ppm,	OTO,
2,3-Dimethylpentane	ACGIH	TWA	200 ppm,	OTO,
	ACGIH	STEL	400 ppm,	OTO,
2,3-Dimethylbutane	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	200 ppm,	A3,
2-methyl-2-butene	ACGIH	TWA	10 ppm,	
3-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	
2-Methylhexane	ACGIH	TWA	400 ppm,	
	ACGIH	STEL	500 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	200 ppm,	A3,
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	
Naphthalene	ACGIH	TWA	10 ppm,	A3, Skin,
	ACGIH	STEL	15 ppm,	hematologic eff, URT irr, eye irr, eye dam, (), A4, Skin,
	OSHA Z-1	TWA	10 ppm, 50 mg/m3	
	OSHA Z-1-A	TWA	10 ppm, 50 mg/m3	
	OSHA Z-1-A	STEL	15 ppm, 75 mg/m3	
2-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	200 ppm,	A3,
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,	OTO, A3,
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	

() 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
eye dam Eye damage
eye irr Eye irritation
hematologic eff Hematologic effects
OTO Ototoxicant
Skin Danger of cutaneous absorption
URT irr Upper Respiratory Tract irritation

Immediately Dangerous to Life or Health Concentrations (IDLH)

Substance name	CAS-No.	Control parameters	Update
Naphtha (petroleum), light alkylate	64741-66-8	Immediately Dangerous to Life or Health Concentration Value 2500 mg/m³	2020-07-01
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
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
Naphtha (petroleum), light alkylate	64741-66-8	Immediately Dangerous to Life or Health Concentration Value 2500 mg/m³	2020-07-01
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

Benzene	71-43-2	Immediately Dangerous to Life or Health Concentration Value 500 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
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
Naphthalene	91-20-3	Immediately Dangerous to Life or Health Concentration Value 250 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
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: 0.3 g/g creatinine 2024 Adoption (Urine) Commercial or technical grade xylenes consist of mixtures of isomers and significant amounts of ethyl benzene as indicated under 'Properties.' Because ethyl benzene is known to reduce the metabolism of xylenes to methylhippuric acids, the BEI applies to technical or commercial grades of xylenes only. () The determinants refer to the total of all isomers of methylhippuric acids. () Adopted values or notations enclosed are those for which changes are proposed in the NIC ()	End of shift (As soon as possible after exposure ceases)	2024-01-01
Ethylbenzene	100-41-4	Sum of mandelic acid and phenyl glyoxylic acid: 150 mg/g creatinine 2024 Adoption (Urine) Nonspecific ()	End of shift (As soon as possible after exposure ceases)	2024-01-01
n-hexane	110-54-3	2,5-Hexanedione: 0.5 mg/l Without hydrolysis (Urine)	End of shift	2020-02-01
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

Engineering measures

Adequate ventilation to control airborned concentrations below the exposure guidelines/limits.

Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

Personal protective equipment

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

Reactivity : Stable under recommended storage conditions.

Chemical stability : This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Possibility of hazardous reactions

Hazardous reactions : Hazardous reactions: 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.

Hazardous decomposition products : Carbon Dioxide
Carbon oxides

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

SECTION 11: Toxicological information

Tier III E-10 Gasoline
Acute oral toxicity : Acute toxicity estimate: 2,792 mg/kg
Method: Calculation method

Acute toxicity estimate: 2,145 mg/kg
Method: Calculation method

Tier III E-10 Gasoline
Acute inhalation toxicity : Acute toxicity estimate: 11 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Method: Calculation method

Acute toxicity estimate: 11 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Method: Calculation method

Tier III E-10 Gasoline
Acute dermal toxicity : Acute toxicity estimate: > 5,000 mg/kg
Method: Calculation method

Acute toxicity estimate: 2,500 mg/kg
Method: Calculation method

Skin irritation

Naphtha, Petroleum, Heavy Catalytic Cracked	:	Skin irritation
Naphtha (petroleum), light catalytic reformed		Skin irritation
Hydrocarbons, C3-11, catalytic cracker distillates		Skin irritation
2,2,4-Trimethylpentane (Isooctane)		Skin irritation
Naphtha (petroleum), light alkylate		Skin irritation Information given is based on data obtained from similar substances.
3,3-Dimethylpentane		Skin irritation Information given is based on data obtained from similar substances.
Toluene		Skin irritation
Isopentane		No skin irritation Information given is based on data obtained from similar substances.
Xylenes		Skin irritation
C9-C11 Isoalkanes		May irritate skin. Information given is based on data obtained from similar substances.
Isoalkanes C7-8		Skin irritation Information given is based on data obtained from similar substances.
Heptane, branched, cyclic and linear		Skin irritation
n-Heptane		Skin irritation Information given is based on data obtained from similar substances.
Ethanol		No skin irritation
Ethylbenzene		Skin irritation
2-Methylpentane		Skin irritation Information given is based on data obtained from similar substances.
Naphthalene		No skin irritation
n-hexane		Irritating to skin.
3-Methylpentane		Skin irritation
2-Methylhexane		Skin irritation
Methylcyclopentane		Skin irritation Information given is based on data obtained from similar substances.
3-Methylhexane		Skin irritation
1,2,4-Trimethylbenzene		Skin irritation
2-methyl-2-butene		Skin irritation May cause skin irritation in susceptible persons.
2,3-Dimethylbutane		Skin irritation
2,3-Dimethylpentane		Skin irritation

2,4-Dimethylpentane	Skin irritation May cause skin irritation in susceptible persons.
Methylcyclohexane	Skin irritation
n-Pentane	No skin irritation Non persistent irritation.
Benzene	Skin irritation Vapors may cause irritation to the eyes, respiratory system and the skin.
2,3,4-Trimethylpentane	Skin irritation
Isoprene	May cause skin irritation.
Gasoline, Natural Stream	Skin irritation May irritate skin.

Tier III E-10 Gasoline
Eye irritation : Vapors may cause irritation to the eyes, respiratory system and the skin.

Sensitization

Naphtha, Petroleum, Heavy Catalytic Cracked	: Not a skin sensitizer.
Naphtha (petroleum), light catalytic reformed	Did not cause sensitization on laboratory animals.
Hydrocarbons, C3-11, catalytic cracker distillates	Not a skin sensitizer.
2,2,4-Trimethylpentane (Isooctane)	Did not cause sensitization on laboratory animals.
Naphtha (petroleum), light alkylate	Did not cause sensitization on laboratory animals. Information given is based on data obtained from similar substances.
Toluene	Did not cause sensitization on laboratory animals.
Isopentane	Did not cause sensitization on laboratory animals.
Xylenes	Classification: Contains no substance or substances classified as sensitizing.
C9-C11 Isoalkanes	Not a skin sensitizer. Information given is based on data obtained from similar substances.
Isoalkanes C7-8	Did not cause sensitization on laboratory animals. Information given is based on data obtained from similar substances.
n-Heptane	Did not cause sensitization on laboratory animals. Information given is based on data obtained from similar substances.
Ethylbenzene	Did not cause sensitization on laboratory animals.
Naphthalene	Classification: Did not cause sensitization on laboratory animals. Did not cause sensitization on laboratory animals.
n-hexane	Did not cause sensitization on laboratory animals. Does not cause skin sensitization.

Methylcyclopentane	Did not cause sensitization on laboratory animals. Information given is based on data obtained from similar substances.
2-methyl-2-butene	Did not cause sensitization on laboratory animals.
Methylcyclohexane	Did not cause sensitization on laboratory animals.
n-Pentane	Did not cause sensitization on laboratory animals.
Benzene	Did not cause sensitization on laboratory animals.
Gasoline, Natural Stream	No adverse effects expected.

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 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 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
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/l Species: 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 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.
Naphtha (petroleum), light alkylate	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. 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. Species: Rat, male and female Sex: male and female Application Route: Inhalation Dose: 322, 1402, 9869 mg/m3 Exposure time: 107 - 109 wk Number of exposures: 6 h/d 5 d/wk NOEL: 1402 mg/m3 Method: OECD Test Guideline 453 Information given is based on data obtained from similar substances. Species: Mouse, male and female Sex: male and female Application Route: Inhalation Dose: 322, 1402, 9869 mg/m3 Exposure time: 107- 113 wk Number of exposures: 6 h/d 5 d/wk NOEL: 1402 mg/m3 Method: OECD Test Guideline 453 Information given is based on data obtained from similar substances.
Toluene	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

	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
Isopentane	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.
Xylenes	Species: Rat Application Route: oral gavage Dose: 0, 62.5, 125, 250, 500, 100... Exposure time: 13 wk Number of exposures: daily, 5 d/wk NOEL: 1,000 mg/kg Species: Rat Application Route: Inhalation Dose: 0, 180, 460, 810 ppm Exposure time: 13 wk Number of exposures: 6 h/d, 5 d/wk NOEL: > 810 ppm Species: Rat Application Route: Inhalation Dose: 0, 450, 900, 1800 ppm Exposure time: 13 wk Number of exposures: 6 h/d, 6 d/wk Lowest observable effect level: 900 ppm
C9-C11 Isoalkanes	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: > 10,400 mg/m3 Method: OECD Test Guideline 413 No significant adverse effects were reported Information given is based on data obtained from similar substances.
Isoalkanes C7-8	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

	Method: OECD Test Guideline 413 Target Organs: Kidney Information given is based on data obtained from similar substances.
n-Heptane	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. 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.
Ethanol	Species: Rat Application Route: Oral diet Dose: 5% Exposure time: 13 wk Number of exposures: in drinking water NOEL: < 5% Lowest observable effect level: 5% Target Organs: Liver
n-Butane	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
Ethylbenzene	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
n-hexane	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

	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

	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
n-Pentane	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
Benzene	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: < 25 mg/kg Lowest observable effect level: 25 mg/kg 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 Species: Mouse Application Route: oral gavage Dose: 0, 25, 50,100 mg/kg Exposure time: 103 wk NOEL: < 25 mg/kg
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

Genotoxicity in vitro

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

	Test Type: Sister Chromatid Exchange Assay Result: negative Test Type: Mouse lymphoma assay Result: negative Test Type: Cytogenetic assay Result: negative
Isopentane	Test Type: Ames test Concentration: 1, 2, 5, 8, 10% Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative 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. 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. Test Type: In vitro mammalian cell gene mutation test 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.
Xylenes	Test Type: Ames test Result: negative Test Type: Mouse lymphoma assay Result: negative
C9-C11 Isoalkanes	Test Type: E. Coli bacterial reverse mutation assay Result: negative Remarks: Information given is based on data obtained from similar substances. Test Type: Ames test Metabolic activation: with and without metabolic activation Result: negative Remarks: Information given is based on data obtained from similar substances. Test Type: Bacterial DNA repair test Result: negative Remarks: Information given is based on data obtained from similar substances.
Isoalkanes C7-8	Test Type: Ames test

	Result: negative
n-Heptane	Test Type: Ames test Method: Mutagenicity (Escherichia coli - reverse mutation assay) Result: negative
	Test Type: Mammalian cell gene mutation assay Method: OECD Guideline 476 Result: negative
	Test Type: Chromosome aberration test in vitro Method: OECD Guideline 473 Result: negative
	Test Type: Mitotic recombination Result: negative
Ethanol	Test Type: Ames test Result: negative
	Test Type: Forward mutation assay Result: positive
	Test Type: Sister Chromatid Exchange Assay Result: positive
n-Butane	Test Type: Ames test Result: negative
Ethylbenzene	Test Type: Ames test Result: negative
	Test Type: Unscheduled DNA synthesis assay Result: negative
Naphthalene	Test Type: Ames test Result: negative
	Test Type: Sister Chromatid Exchange Assay Result: negative
	Test Type: Unscheduled DNA synthesis assay Result: negative
n-hexane	Test Type: Ames test Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative

	Test Type: Mouse lymphoma assay Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476 Result: negative Test Type: 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.
2-methyl-2-butene	Test Type: Ames test Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative 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

Genotoxicity in vivo

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/m3 Method: OECD Test Guideline 475 Result: negative Remarks: Information given is based on data obtained from similar substances.
Toluene	Test Type: Cytogenetic assay 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) Exposure time: 13 wk Dose: 5000, 10,000, 20,000 mg/m3 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 Remarks: Information given is based on data obtained from similar substances. Test Type: Mouse micronucleus assay Result: negative Remarks: Information given is based on data obtained from similar substances.
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

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 Species: Mouse Sex: female Dose: 2.5, 5% Exposure time: 2 yrs Number of exposures: in drinking water Remarks: no increase in tumors Species: Rat Dose: 5% Exposure time: 30 mo Number of exposures: in drinking water Remarks: increase number of liver, pituitary, adrenal, and pancreatic tumors
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 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 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 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.

	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.
Benzene	Species: Rat Sex: female 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/m3 Method: OECD Test Guideline 416 NOAEL Parent: > 20,000 mg/m3 NOAEL F1: > 20,000 mg/m3
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.
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. Reduced fetal weight.
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/m3 NOAEL F1: 31,680 mg/m3 NOAEL F2: 31,680 mg/m3 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 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: 3000ppm NOAEL F1: 3000 ppm NOAEL F2: 3000 ppm Information given is based on data obtained from similar substances.
n-hexane	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
2-methyl-2-butene	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
Methylcyclohexane	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

	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

	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.

	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.
Xylenes	Species: Rat Application Route: Inhalation Dose: 0, 805, 1610 ppm Number of exposures: 6 h/d Test period: GD 7-16 NOAEL Maternal: 1610 ppm Species: Mouse Application Route: oral gavage Dose: 0, 780, 1960, 2619 mg/kg Number of exposures: 3 times/d Test period: GD 6-15 NOAEL Teratogenicity: 780 mg/kg NOAEL Maternal: 780 mg/kg
C9-C11 Isoalkanes	Species: Rat Application Route: Inhalation Dose: 0, 291, 817 ppm Number of exposures: 6 h/d Test period: GD 6-15 NOAEL Teratogenicity: > 817 ppm NOAEL Maternal: > 817 ppm
Isoalkanes C7-8	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: > 21,000 mg/m3 NOAEL Maternal: > 21,000 mg/m3 Animal testing did not show any effects on fetal development. Information given is based on data obtained from similar substances.
n-Heptane	Species: Rat Application Route: Inhalation Dose: 0, 900, 3000, 9000 ppm Exposure time: GD6-15

	Number of exposures: 6 hrs/d NOAEL Teratogenicity: 9000 ppm NOAEL Maternal: 3000 ppm
Ethanol	Species: Mouse Application Route: oral gavage Dose: 17, 25, 30 % NOAEL Teratogenicity: 17%
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
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
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.
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.

	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-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

Aspiration toxicity

Naphtha, Petroleum, Heavy Catalytic Cracked	:	May be fatal if swallowed and enters airways.
Naphtha (petroleum), light catalytic reformed		May be fatal if swallowed and enters airways.
Hydrocarbons, C3-11, catalytic cracker distillates		May be fatal if swallowed and enters airways.
2,2,4-Trimethylpentane (Isooctane)		May be fatal if swallowed and enters airways.
Naphtha (petroleum), light alkylate		May be fatal if swallowed and enters airways.
3,3-Dimethylpentane		May be fatal if swallowed and enters airways.
Toluene		May be fatal if swallowed and enters airways.
Isopentane		May be fatal if swallowed and enters airways.
Xylenes		May be fatal if swallowed and enters airways.
C9-C11 Isoalkanes		May be fatal if swallowed and enters airways.
Isoalkanes C7-8		May be fatal if swallowed and enters airways.
Heptane, branched, cyclic and linear		May be fatal if swallowed and enters airways.
n-Heptane		May be fatal if swallowed and enters airways.
Ethylbenzene		May be fatal if swallowed and enters airways.
2-Methylpentane		May be fatal if swallowed and enters airways.
n-hexane		May be fatal if swallowed and enters airways.
3-Methylpentane		May be fatal if swallowed and enters airways.
2-Methylhexane		May be fatal if swallowed and enters airways.
Methylcyclopentane		May be fatal if swallowed and enters airways.
3-Methylhexane		May be fatal if swallowed and enters airways.
1,2,4-Trimethylbenzene		May be fatal if swallowed and enters airways.
2-methyl-2-butene		May be fatal if swallowed and enters airways.
2,3-Dimethylbutane		May be fatal if swallowed and enters airways.
2,3-Dimethylpentane		May be fatal if swallowed and enters airways.
2,4-Dimethylpentane		May be fatal if swallowed and enters airways.
Methylcyclohexane		May be fatal if swallowed and enters airways.
n-Pentane		May be fatal if swallowed and enters airways.
Benzene		May be fatal if swallowed and enters airways.
2,3,4-Trimethylpentane		May be fatal if swallowed and enters airways.
Isoprene		May be fatal if swallowed and enters airways.
Gasoline, Natural Stream		May be fatal if swallowed and enters airways.

CMR effects

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.
Isopentane		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.
Xylenes		Carcinogenicity: Not classifiable as a human carcinogen. Mutagenicity: Did not show mutagenic effects in animal experiments. Teratogenicity: Damage to fetus not classifiable
Isoalkanes C7-8		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.
n-Heptane		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
n-Butane	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
Ethylbenzene	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
Naphthalene	Carcinogenicity: Limited evidence of carcinogenicity in animal studies
n-hexane	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.
2-methyl-2-butene	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 on fertility.
Methylcyclohexane	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.
Benzene	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.
Isoprene	Carcinogenicity: Possible human carcinogen Mutagenicity: In vitro tests showed mutagenic effects
Gasoline, Natural Stream	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.

Tier III E-10 Gasoline
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

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)
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. LL50: 34.3 mg/l Exposure time: 96 h Species: Oncorhynchus mykiss (rainbow trout) Method: QSAR modeled data The value is given based on a SAR/AAR approach using OECD Toolbox, DEREK, VEGA QSAR models (CAESAR models), etc.
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: 3 - 10 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	LL50: 18.27 mg/l Exposure time: 96 h Species: Fish Method: QSAR
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
Methylcyclohexane	LC50: 2.07 mg/l Exposure time: 96 h Species: Fish semi-static test
n-Pentane	LL50: 10.6 mg/l Exposure time: 96 h Species: Oncorhynchus mykiss (rainbow trout) Method: QSAR modeled data

	The value is given based on a SAR/AAR approach using OECD Toolbox, DEREK, VEGA QSAR models (CAESAR models), etc.
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
	EL50: 59.9 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) Method: QSAR modeled data The value is given based on a SAR/AAR approach using OECD Toolbox, DEREK, VEGA QSAR models (CAESAR models), etc.
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 substances.
Isoalkanes C7-8	EL50: 4.6 - 10 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 substances.
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	LC50: 4.45 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) Method: QSAR
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 Exposure time: 48 h Species: Daphnia magna (Water flea) semi-static test
n-Pentane	EL50: 18.5 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) Method: QSAR modeled data The value is given based on a SAR/AAR approach using OECD Toolbox, DEREK, VEGA QSAR models (CAESAR models), etc.
Benzene	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

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
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. EL50: 25.3 mg/l Exposure time: 72 h Species: Raphidocellus subcapitata (algae) Method: QSAR modeled data The value is given based on a SAR/AAR approach using OECD Toolbox, DEREK, VEGA QSAR models (CAESAR models), etc.
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
Methylcyclopentane	EC50: 5.048 mg/l Exposure time: 96 h Species: green algae Method: QSAR
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	EL50: 7.79 mg/l Exposure time: 72 h Species: Raphidocellus subcapitata (algae) Method: QSAR modeled data The value is given based on a SAR/AAR approach using OECD Toolbox, DEREK, VEGA QSAR models (CAESAR models), etc.
Benzene	ErC50: 100 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (green algae) Test substance: yes 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

Toxicity to fish (Chronic toxicity)

Hydrocarbons, C3-11, catalytic cracker distillates	:	NOEL: 2.6 mg/l Toxic effects on fish and plankton
Isopentane		EL10: 6.57 mg/l Exposure time: 60 d Species: Oncorhynchus mykiss (rainbow trout) Method: QSAR modeled data The value is given based on a SAR/AAR approach using OECD Toolbox, DEREK, VEGA QSAR models (CAESAR models), etc.
C9-C11 Isoalkanes		NOELR: 0.132 mg/l Species: Oncorhynchus mykiss (rainbow trout) Method: QSAR modeled data
Isoalkanes C7-8		EL10: 0.38 mg/l Exposure time: 60 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
n-Pentane		EL10: 2.03 mg/l Exposure time: 60 d Species: Oncorhynchus mykiss (rainbow trout) Method: QSAR modeled data The value is given based on a SAR/AAR approach using OECD Toolbox, DEREK, VEGA QSAR models (CAESAR models), etc.

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, catalytic cracker distillates	:	NOEL: 2.6 mg/l 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

Isopentane	:	EL10: 11.5 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) The value is given based on a SAR/AAR approach using OECD Toolbox, DEREK, VEGA QSAR models (CAESAR models), etc.
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
n-Pentane	:	EL10: 3.54 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) The value is given based on a SAR/AAR approach using OECD Toolbox, DEREK, VEGA QSAR models (CAESAR models), etc.
Hydrogen Sulfide	:	Not classified due to data which are conclusive although insufficient for classification.
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

Naphtha, Petroleum, Heavy Catalytic Cracked	:	aerobic Result: Inherently biodegradable. 96 % Testing period: 56 d Method: ISO/DIS 14593
Naphtha (petroleum), light catalytic reformed	:	aerobic 96.17 % Method: ISO/DIS 14593 Expected to be inherently biodegradable.
Hydrocarbons, C3-11, catalytic cracker distillates	:	96.17 % Testing period: 28 d Expected to be inherently biodegradable.
2,2,4-Trimethylpentane (Isooctane)	:	Result: Not readily biodegradable. Method: OECD Test Guideline 301 Expected to be inherently biodegradable. Information given is based on data obtained from similar substances.

Naphtha (petroleum), light alkylate	:	This material is not expected to be readily biodegradable. Expected to be inherently biodegradable.
Toluene	:	This material is expected to be readily biodegradable.
Isopentane	:	aerobic Result: Readily biodegradable. 71.43 % Testing period: 28 d Method: OECD Test Guideline 301F
Xylenes	:	This material is expected to be readily biodegradable.
C9-C11 Isoalkanes	:	aerobic 53 % Testing period: 28 d Method: OECD Test Guideline 301F This material is not expected to be readily biodegradable. Expected to be inherently biodegradable. Information given is based on data obtained from similar substances.
Isoalkanes C7-8	:	Result: Not readily biodegradable. 60 % Testing period: 60 d Method: OECD Test Guideline 301F Expected to be inherently biodegradable. Information given is based on data obtained from similar substances.
n-Heptane	:	Result: Readily biodegradable. 70 % Testing period: 10 d
Ethanol	:	74 % Testing period: 5 d According to the results of tests of biodegradability this product is considered as being readily biodegradable.
n-Butane	:	This material is expected to be readily biodegradable.
Ethylbenzene	:	This material is expected to be readily biodegradable.
2-Methylpentane	:	Expected to be biodegradable Information given is based on data obtained from similar substances.
n-hexane	:	This material is expected to be readily biodegradable.
Methylcyclopentane	:	aerobic Result: Readily biodegradable. 93 - 94 % Testing period: 28 d Method: OECD Test Guideline 301C Information given is based on data obtained from similar substances.
2-methyl-2-butene	:	aerobic 7 %

		Testing period: 28 d Method: OECD Test Guideline 301D This material is not expected to be readily biodegradable.
Methylcyclohexane	:	aerobic 0 % Testing period: 28 d Method: OECD Test Guideline 301D
n-Pentane	:	Result: Readily biodegradable. 87 % Method: OECD Test Guideline 301F
Benzene	:	According to the results of tests of biodegradability this product is considered as being readily biodegradable.
Isoprene	:	Expected to be biodegradable
Hydrogen Sulfide	:	The methods for determining biodegradability are not applicable to inorganic substances. This material is expected to be readily biodegradable.
Gasoline, Natural Stream	:	74 % Testing period: 28 d Method: ISO/DIS 14593 Expected to be inherently biodegradable.

Physico-chemical removability

Hydrogen Sulfide	:	The product can be degraded by abiotic (e.g. chemical or photolytic) processes. Readily eliminated from water

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.
C9-C11 Isoalkanes	:	This material is not expected to bioaccumulate. Information given is based on data obtained from similar substances.
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.
Methylcyclopentane	:	This material is not expected to bioaccumulate.
Methylcyclohexane	:	No data available
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	:	The product may be accumulated in 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.
Isopentane	:	No data available
C9-C11 Isoalkanes	:	The product will be dispersed amongst the various environmental compartments (soil/ water/ air).
Isoalkanes C7-8	:	Medium: Air Method: Calculation, Mackay Level III Fugacity Model Content: 100 %
n-Heptane	:	Medium: Air Method: Calculation, Mackay Level I Fugacity Model Content: 100 % 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-hexane	:	Method: Calculation, Mackay Level III Fugacity Model The product will be dispersed amongst the various environmental compartments (soil/ water/ air).
Methylcyclopentane	:	No data available
n-Pentane	:	After release, disperses into the air.
Benzene	:	No data available
Hydrogen Sulfide	:	No data available The product evaporates readily.
Gasoline, Natural Stream	:	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	:	Not persistent, bioaccumulative, and toxic (PBT)., Not very persistent and very bioaccumulative (vPvB).
Ethylbenzene	:	Non-classified vPvB substance, Non-classified PBT substance
n-hexane	:	Non-classified vPvB substance, Non-classified PBT substance
Methylcyclopentane	:	Non-classified PBT substance, Non-classified vPvB substance
2-methyl-2-butene	:	Non-classified PBT substance, Non-classified vPvB substance
Methylcyclohexane	:	Non-classified PBT substance, Non-classified vPvB substance
Benzene	:	Not persistent, bioaccumulative, and toxic (PBT)., Not very persistent and very bioaccumulative (vPvB).
Gasoline, Natural Stream	:	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., Very toxic to aquatic life with long lasting effects.

Ecotoxicology Assessment

Short-term (acute) aquatic hazard

Naphtha, Petroleum, Heavy	:	Toxic to aquatic life.

Catalytic Cracked Naphtha (petroleum), light catalytic reformed	:	Toxic to aquatic life.
Hydrocarbons, C3-11, catalytic cracker distillates	:	Toxic to aquatic life.
2,2,4-Trimethylpentane (Isooctane)	:	Very toxic to aquatic life.
Naphtha (petroleum), light alkylate	:	Toxic to aquatic life.
3,3-Dimethylpentane	:	Very toxic to aquatic life.
Toluene	:	Toxic to aquatic life.
Isopentane	:	Toxic to aquatic life.
Xylenes	:	Toxic to aquatic life.
C9-C11 Isoalkanes	:	Toxic to aquatic life.
Isoalkanes C7-8	:	Toxic to aquatic life.
Heptane, branched, cyclic and linear	:	Very toxic to aquatic life.
n-Heptane	:	Very toxic to aquatic life.
Ethylbenzene	:	Toxic to aquatic life.
2-Methylpentane	:	Toxic to aquatic life.
Naphthalene	:	Very toxic to aquatic life.
n-hexane	:	Toxic to aquatic life.
3-Methylpentane	:	Toxic to aquatic life.
2-Methylhexane	:	Very toxic to aquatic life.
Methylcyclopentane	:	Toxic to aquatic life.
3-Methylhexane	:	Very toxic to aquatic life.
1,2,4-Trimethylbenzene	:	Toxic to aquatic life.
2-methyl-2-butene	:	Toxic to aquatic life.
2,3-Dimethylbutane	:	Toxic to aquatic life.
2,3-Dimethylpentane	:	Very toxic to aquatic life.
2,4-Dimethylpentane	:	Very toxic to aquatic life.
Methylcyclohexane	:	Very toxic to aquatic life.
n-Pentane	:	Toxic to aquatic life.
Benzene	:	Toxic to aquatic life.
2,3,4-Trimethylpentane	:	Very toxic to aquatic life.
Isoprene	:	Toxic to aquatic life.

Hydrogen Sulfide	:	Very toxic to aquatic life.
Gasoline, Natural Stream	:	Toxic to aquatic life.

Long-term (chronic) aquatic hazard

Naphtha, Petroleum, Heavy Catalytic Cracked	:	Toxic to aquatic life with long lasting effects.
Naphtha (petroleum), light catalytic reformed	:	Toxic to aquatic life with long lasting effects.
Hydrocarbons, C3-11, catalytic cracker distillates	:	Toxic to aquatic life with long lasting effects.
2,2,4-Trimethylpentane (Isooctane)	:	Very toxic to aquatic life with long lasting effects.
Naphtha (petroleum), light alkylate	:	Toxic to aquatic life with long lasting effects.
3,3-Dimethylpentane	:	Very toxic to aquatic life with long lasting effects.
Toluene	:	Harmful to aquatic life with long lasting effects.
Isopentane	:	This material is not expected to be harmful to aquatic organisms.
Xylenes	:	Harmful to aquatic life with long lasting effects.
C9-C11 Isoalkanes	:	Toxic to aquatic life with long lasting effects.
Isoalkanes C7-8	:	Toxic to aquatic life with long lasting effects.
Heptane, branched, cyclic and linear	:	Very toxic to aquatic life with long lasting effects.
n-Heptane	:	Very toxic to aquatic life with long lasting effects.
Ethylbenzene	:	Harmful to aquatic life with long lasting effects.
2-Methylpentane	:	Toxic to aquatic life with long lasting effects.
Naphthalene	:	Very toxic to aquatic life with long lasting effects.
n-hexane	:	Toxic to aquatic life with long lasting effects.
3-Methylpentane	:	Toxic to aquatic life with long lasting effects.
2-Methylhexane	:	Very toxic to aquatic life with long lasting effects.
Methylcyclopentane	:	No data available
3-Methylhexane	:	Very toxic to aquatic life with long lasting effects.
1,2,4-Trimethylbenzene	:	Toxic to aquatic life with long lasting effects.
2-methyl-2-butene	:	Toxic to aquatic life with long lasting effects.
2,3-Dimethylbutane	:	Toxic to aquatic life with long lasting effects.
2,3-Dimethylpentane	:	Very toxic to aquatic life with long lasting effects.
2,4-Dimethylpentane	:	Very toxic to aquatic life with long lasting effects.

Methylcyclohexane	:	Very toxic to aquatic life with long lasting effects.
n-Pentane	:	Toxic to aquatic life with long lasting effects.
Benzene	:	Harmful to aquatic life with long lasting effects.
2,3,4-Trimethylpentane	:	Very toxic to aquatic life with long lasting effects.
Isoprene	:	Toxic to aquatic life with long lasting effects.
Hydrogen Sulfide	:	Not applicable
Gasoline, Natural Stream	:	Toxic to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

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

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

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

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)
UN1203, GASOLINE, 3, II, (-37 °C c.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, GASOLINE, 3, II, (D/E), ENVIRONMENTALLY HAZARDOUS, (NAPHTHA, PETROLEUM, HEAVY CATALYTIC CRACKED)

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))
33,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)

Maritime transport in bulk according to IMO instruments

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
CERCLA Reportable Quantity	:	200 lbs Benzene
SARA 302 Reportable Quantity	:	Listed substances in the product are at low enough levels to not be expected to exceed the RQ Hydrogen Sulfide
SARA 302 Threshold Planning Quantity	:	This material does not contain any components with a section 302 EHS TPQ.
SARA 304 Reportable Quantity	:	Listed substances in the product are at low enough levels to not be expected to exceed the RQ 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
1,2,4-Trimethylbenzene - 95-63-6
Ethylbenzene - 100-41-4
Naphthalene - 91-20-3
n-hexane - 110-54-3
Benzene - 71-43-2
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):
: 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
Isoprene - 78-79-5

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489):
: Toluene - 108-88-3
Isopentane - 78-78-4
Xylenes - 1330-20-7
Ethanol - 64-17-5
Ethylbenzene - 100-41-4
n-Pentane - 109-66-0
Isoprene - 78-79-5
Benzene - 71-43-2
Methylcyclohexane - 108-87-2

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
2,2,4-Trimethylpentane (Isooctane) - 540-84-1
Naphtha (petroleum), light alkylate - 64741-66-8
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
1,2,4-Trimethylbenzene - 95-63-6
Ethylbenzene - 100-41-4
Naphthalene - 91-20-3
2,3-Dimethylbutane - 79-29-8
Methylcyclopentane - 96-37-7
n-hexane - 110-54-3
n-Pentane - 109-66-0
2,3-Dimethylpentane - 565-59-3
Isoprene - 78-79-5
2-Methylpentane - 107-83-5
3-Methylpentane - 96-14-0
2,4-Dimethylpentane - 108-08-7
2-methyl-2-butene - 513-35-9
Benzene - 71-43-2
Methylcyclohexane - 108-87-2
2-Methylhexane - 591-76-4
3-Methylhexane - 589-34-4
2,3,4-Trimethylpentane - 565-75-3
Hydrogen Sulfide - 7783-06-4

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.

Ethylbenzene	100-41-4
Naphthalene	91-20-3
Benzene	71-43-2
Isoprene	78-79-5

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.

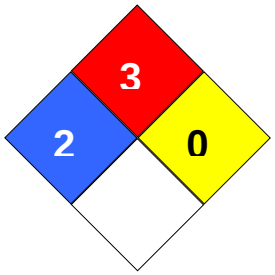
Toluene	108-88-3
n-hexane	110-54-3
Benzene	71-43-2

Notification status

Europe EU 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 NDSL	:	This product contains one or several components listed in the Canadian NDSL.
Australia AU AIIC	:	Not in compliance with the inventory
New Zealand NZIoC	:	Not in compliance with the inventory
Japan ENCS	:	Not in compliance with the inventory
Japan ISHL	:	Not in compliance with the inventory
Korea KECI	:	Not in compliance with the inventory
Philippines PICCS	:	Not in compliance with the inventory
China IECSC	:	Not in compliance with the inventory
Taiwan TW TCSI	:	Not in compliance with the inventory
Other TECI	:	Not in compliance with the inventory

SECTION 16: Other information

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



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Further information

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

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

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

Key or legend to abbreviations and acronyms used in the safety data sheet			
ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AIIC	Australian Inventory of Industrial Chemicals	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances	NFPA	National Fire Protection Agency

	List		
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%	ATE	Acute toxicity estimate