UTG 96 (unleaded test gasoline)

Version 3.4 Revision Date 2026-08-19

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

Product information

Product Name	:	UTG 96 (unleaded test gasoline)
Material	:	1021671, 1032452, 1021667, 1021669, 1021670, 1021668
Use	:	Reference Fuel
Uses advised against	:	This material should not be used for purposes other than the identified uses in section 1 without expert advice.
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
GHS Classification and labelling according to JIS Z 7252-2019 and JIS Z 7253-2019 (GHS 2015)

Classification

: Flammable liquids, Category 1
Acute toxicity, Category 4, Inhalation
Skin corrosion/irritation, Category 2
Serious eye damage/eye irritation, Category 2
Carcinogenicity, Category 1A
Reproductive toxicity, Category 1A
Effects on or via lactation
Specific target organ toxicity - single exposure, Category 1, Central nervous system
Specific target organ toxicity - single exposure, Category 3, respiratory tract irritation, Narcotic effects
Specific target organ toxicity - repeated exposure, Category 1, Central nervous system, Kidney, Nervous system
Specific target organ toxicity - repeated exposure, Category 2, Inhalation, Auditory organs, color vision
Aspiration hazard, Category 1
Short-term (acute) aquatic hazard, Category 1
Long-term (chronic) aquatic hazard, Category 1

Labeling

Symbol(s) :

Signal Word : Danger

Hazard Statements : H224: Extremely 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.
H350: May cause cancer.
H360: May damage fertility or the unborn child.
H362: May cause harm to breast-fed children.
H370: Causes damage to organs (Central nervous system).
H372: Causes damage to organs (Central nervous system, Kidney, Nervous system) through prolonged or repeated exposure.
H373: May cause damage to organs (Auditory organs, color vision) through prolonged or repeated exposure if inhaled.
H410: Very toxic to aquatic life with long lasting effects.

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.
P263: Avoid contact during pregnancy and while nursing.
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.
P273: Avoid release to the environment.
P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
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 + P311: IF exposed or concerned: Call a POISON

CENTER/ doctor.
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.
P370 + P378: In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
P391: Collect spillage.
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.

SECTION 3: Composition/information on ingredients

Synonyms : Unleaded Test Gasoline-96 RON

Molecular formula : Mixture

Chemical name	CAS-No.	Concentration	ENCS/ISHL number
Naphtha, Petroleum, Heavy Catalytic Cracked	64741-54-4	0 % - 100%	(9)-1689
Naphtha (petroleum), light catalytic reformed	64741-63-5	0 % - 100%	(9)-1702
Hydrocarbons, C3-11, catalytic cracker distillates	68476-46-0	0 % - 100%	(9)-1702
Naphtha (petroleum), light alkylate	64741-66-8	0 % - 60%	(9)-1704
Toluene	108-88-3	0 % - 60%	3-2 3-60
Isopentane	78-78-4	0 % - 40%	2-5
3,3-Dimethylpentane	562-49-2	0 % - 60%	2-7
2,2,4-Trimethylpentane (Isooctane)	540-84-1	0 % - 30%	2-8
Xylenes	1330-20-7	0 % - 25%	3-3 3-60
C9-C11 Isoalkanes	68551-16-6	0 % - 20%	(9)-1699 2-9 2-10
Isoalkanes C7-8	70024-92-9	0 % - 20%	(2)-7 & (2)-8
Heptane, branched, cyclic and linear	426260-76-6	0 % - 20%	(9)-1694
Cyclopentane	287-92-3	0 % - 20%	3-4166 3-(3)-25
n-Heptane	142-82-5	0 % - 20%	2-7
n-Butane	106-97-8	0 % - 20%	2-4

n-hexane	110-54-3	0 % - 20%	2-6
1-Hexene	592-41-6	0 % - 10%	2-31 2-22
Ethylbenzene	100-41-4	0 % - 10%	3-28 3-60
1,2,4-Trimethylbenzene	95-63-6	0 % - 10%	3-7 3-3427
2,2-Dimethylbutane	75-83-2	0 % - 10%	2-6
2-Methylpentane	107-83-5	0 % - 10%	2-6
Naphthalene	91-20-3	0 % - 10%	4-311
Benzene	71-43-2	0 % - 5%	3-1
3-Methylpentane	96-14-0	0 % - 5%	2-6
2-Methylhexane	591-76-4	0 % - 5%	2-7
Methylcyclopentane	96-37-7	0 % - 5%	3-4669 (3)-4669
3-Methylhexane	589-34-4	0 % - 5%	2-7
2-methyl-2-butene	513-35-9	0 % - 5%	2-19
Cyclohexane	110-82-7	0 % - 5%	3-2233
2,3-Dimethylbutane	79-29-8	0 % - 5%	2-6
2,3-Dimethylpentane	565-59-3	0 % - 5%	2-7
2,4-Dimethylpentane	108-08-7	0 % - 5%	2-7
n-Pentane	109-66-0	0 % - 5%	2-5
Methylcyclohexane	108-87-2	0 % - 5%	3-2230
2,3,4-Trimethylpentane	565-75-3	0 % - 5%	2-8
Hydrogen Sulfide	7783-06-4	0 % - 1%	1-434
Isoprene	78-79-5	0 % - 1%	2-20 2-(1)-15

SECTION 4: First aid measures

General advice : Move out of dangerous area. Show this material safety data sheet to the doctor in attendance. Material may produce a serious, potentially fatal pneumonia if swallowed or vomited.

If inhaled : Consult a physician after significant exposure. If unconscious, place in recovery position and seek medical advice.

In case of skin contact : If skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes.

In case of eye contact	:	Flush eyes with water as a precaution. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
If swallowed	:	Keep respiratory tract clear. 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 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 cancer. May damage fertility or the unborn child. May cause harm to breast-fed children. Causes damage to organs. Causes damage to organs through prolonged or repeated exposure.
Treatment	:	Treat symptomatically.

SECTION 5: Firefighting measures

Flash point	:	-37°C (-35°F) Method: PMCC
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 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.
Uses advised against	:	This material should not be used for purposes other than the identified uses in section 1 without expert advice.
Use	:	Reference Fuel

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

JP

Components	Basis	Value	Control parameters	Note

Naphtha (petroleum), light alkylate	JP OEL JSOH	OEL-M	3 mg/m3	1, Mist
Toluene	JP OEL ISHL	ACL	20 ppm,	
	JP OEL JSOH	OEL-M	50 ppm, 188 mg/m3	1, S,
Xylenes	JP OEL JSOH	OEL-M	50 ppm, 217 mg/m3	
	JP OEL ISHL	ACL	50 ppm,	
	JP OEL JSOH	OEL-M	50 ppm, 217 mg/m3	2,
n-Heptane	JP OEL JSOH	OEL-M	200 ppm, 820 mg/m3	
	JP ISHL OEL 577-2(2)	8h-OEL-M	500 ppm,	
n-Butane	JP OEL JSOH	OEL-M	500 ppm, 1,200 mg/m3	
n-hexane	JP OEL ISHL	ACL	40 ppm,	
	JP OEL JSOH	OEL-M	40 ppm, 140 mg/m3	S,
1,2,4-Trimethylbenzene	JP OEL JSOH	OEL-M	25 ppm, 120 mg/m3	
Ethylbenzene	JP OEL JSOH	OEL-M	20 ppm, 87 mg/m3	2, S, 2B,
	JP OEL ISHL	ACL	20 ppm,	
Naphthalene	JP OEL ISHL	ACL	10 ppm,	
Benzene	JP OEL ISHL	ACL	1 ppm,	
	JP OEL JSOH	REF-Carc	1 ppm,	S, 1,
	JP OEL JSOH	REF-Carc	0.1 ppm,	S, 1,
Cyclohexane	JP OEL JSOH	OEL-M	150 ppm, 520 mg/m3	
	JP ISHL OEL 577-2(2)	8h-OEL-M	100 ppm,	
n-Pentane	JP OEL JSOH	OEL-M	300 ppm, 880 mg/m3	
Methylcyclohexane	JP OEL JSOH	OEL-M	400 ppm, 1,600 mg/m3	
Hydrogen Sulfide	JP OEL ISHL	ACL	1 ppm,	
	JP OEL JSOH	OEL-M	5 ppm, 7 mg/m3	
Isoprene	JP OEL JSOH	OEL-M	3 ppm, 8.4 mg/m3	2B,
	JP ISHL OEL 577-2(2)	8h-OEL-M	3 ppm,	
Isobutane	JP OEL JSOH	OEL-M	500 ppm, 1,200 mg/m3	
Cumene	JP OEL JSOH	OEL-M	10 ppm, 50 mg/m3	S, 2B,
	JP ISHL OEL 577-2(2)	8h-OEL-M	10 ppm,	

1 Group 1: carcinogenic to humans
2 Group 2: Substances presumed to cause reproductive toxicity in humans
2B Group 2B: possibly carcinogenic to humans
S Skin absorption

Biological exposure indices

JP

Substance name	CAS-No.	Control parameters	Sampling time	Update
Toluene	108-88-3	Toluene: 0.6 mg/l In setting OEL-B, consideration is given to the relationship between biological monitoring values and OEL-Ms. (Blood)	Within 2 h prior to end of shift at end of work week	2023-09-25
		Toluene: 0.06 mg/l In setting OEL-B, consideration is given to the relationship between biological monitoring values and OEL-Ms. (Urine)	Within 2 h prior to end of shift at end of work week	2023-09-25
Xylenes	1330-20-7	total (o-, m-, p-)methylhippuric acid: 800 mg/l In setting OEL-B, consideration is given to the relationship between biological monitoring values and OEL-Ms. (Urine)	End of shift at end of workweek	2023-09-25
n-hexane	110-54-3	2,5-Hexanedione - after acid hydrolysis: 3 mg/g creatinine (Urine)	End of shift at weekend	2011-05-18
		2,5-Hexanedione - after acid hydrolysis: 0.3 mg/g creatinine (Urine)	End of shift at weekend	2011-05-18
		2,5-Hexanedione - after acid hydrolysis: 3 mg/g creatinine After acid hydrolysis (Urine) In setting OEL-B, consideration is given to the relationship between biological monitoring values and OEL-Ms. ()	End of shift at weekend	2023-09-25

		2,5-Hexanedione - without acid hydrolysis: 0.3 mg/g creatinine Without acid hydrolysis (Urine) In setting OEL-B, consideration is given to the relationship between biological monitoring values and OEL-Ms. ()	End of shift at weekend	2023-09-25
Ethylbenzene	100-41-4	Mandelic acid + Phenylglyoxylic acid: 200 mg/g creatinine In setting OEL-B, consideration is given to the relationship between biological monitoring values and OEL-Ms. (Urine)	End of shift at end of workweek	2023-09-25
		Mandelic acid: 150 mg/g creatinine In setting OEL-B, consideration is given to the relationship between biological monitoring values and OEL-Ms. (Urine)	End of shift	2023-09-25
		Ethylbenzene: 15 µg/l In setting OEL-B, consideration is given to the relationship between biological monitoring values and OEL-Ms. (Urine)	End of shift	2023-09-25
2,2-Dimethylbutane	75-83-2	2,5-Hexanedione - after acid hydrolysis: 3 mg/g creatinine (Urine)	End of shift at weekend	2011-05-18
		2,5-Hexanedione - after acid hydrolysis: 0.3 mg/g creatinine (Urine)	End of shift at weekend	2011-05-18
2-Methylpentane	107-83-5	2,5-Hexanedione - after acid hydrolysis: 3 mg/g creatinine (Urine)	End of shift at weekend	2011-05-18
		2,5-Hexanedione - after acid hydrolysis: 0.3 mg/g creatinine (Urine)	End of shift at weekend	2011-05-18
3-Methylpentane	96-14-0	2,5-Hexanedione - after acid hydrolysis: 3 mg/g creatinine (Urine)	End of shift at weekend	2011-05-18
		2,5-Hexanedione - after acid hydrolysis: 0.3 mg/g creatinine (Urine)	End of shift at weekend	2011-05-18
Methylcyclopentane	96-37-7	2,5-Hexanedione - after acid hydrolysis: 3 mg/g creatinine (Urine)	End of shift at weekend	2011-05-18
		2,5-Hexanedione - after acid hydrolysis: 0.3 mg/g creatinine (Urine)	End of shift at weekend	2011-05-18
2,3-Dimethylbutane	79-29-8	2,5-Hexanedione - after acid hydrolysis: 3 mg/g creatinine (Urine)	End of shift at weekend	2011-05-18
		2,5-Hexanedione - after acid hydrolysis: 0.3 mg/g creatinine (Urine)	End of shift at weekend	2011-05-18

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	:	Yellow, pale
Odor	:	Mild

Safety data

Flash point	:	-37°C (-35°F) Method: PMCC
Lower explosion limit	:	No data available
Upper explosion limit	:	No data available
Molecular formula	:	Mixture
Molecular weight	:	Not applicable
pH	:	Not applicable
Pour point	:	No data available
Boiling point/boiling range	:	33.8-204°C (92.8-399°F)
Vapor pressure	:	9.00 PSI

		at 38°C (100°F)
Relative density	:	0.74 at 16 °C (61 °F)
Water solubility	:	negligible
Partition coefficient: n-octanol/water	:	No data available
Viscosity, kinematic	:	No data available
Relative vapor density	:	3.8 (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 : No data available.

Hazardous decomposition products : Carbon oxides

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

SECTION 11: Toxicological information

Acute oral toxicity

Naphtha, Petroleum, Heavy Catalytic Cracked	:	LD50: > 5,000 mg/kg Species: Rat Sex: male and female Method: OECD Test Guideline 401
Naphtha (petroleum), light catalytic reformed		LD50: > 5,000 mg/kg Species: Rat Sex: male and female
Hydrocarbons, C3-11,		LD50: > 5,000 mg/kg

catalytic cracker distillates	Species: Rat
Naphtha (petroleum), light alkylate	LD50: > 5,000 mg/kg Species: Rat Information given is based on data obtained from similar substances.
Toluene	LD50: 6,500 mg/kg Species: Rat Sex: Not Specified
Isopentane	LD50: > 2,000 mg/kg Species: Rat Sex: male and female Method: OECD Test Guideline 401 Information given is based on data obtained from similar substances.
3,3-Dimethylpentane	LD50: > 17,000 mg/kg Species: Rat
2,2,4-Trimethylpentane (Isooctane)	LD50: > 5,000 mg/kg Species: Rat Sex: male and female Method: OECD Test Guideline 401 Symptoms: Salivation
Xylenes	LD50: 3,523 - 8,600 mg/kg Species: Rat
C9-C11 Isoalkanes	LD50: > 5,000 mg/kg Species: Rat Sex: male and female Method: OECD Test Guideline 401 Information given is based on data obtained from similar substances.
Isoalkanes C7-8	LD50: > 7,100 - 7,800 mg/kg Species: Rat Sex: male Method: OECD Test Guideline 401 Information given is based on data obtained from similar substances.
Cyclopentane	LD50: > 5,000 mg/kg Species: Rat
n-Heptane	LD50: > 5,000 mg/kg Species: Rat Method: OECD Test Guideline 401 Information given is based on data obtained from similar substances.
n-Butane	Negligible or unlikely exposure pathways
n-hexane	LD50: 16 g/kg Species: Rat Sex: male and female

1-Hexene	LD50: > 5,600 mg/kg Species: Rat Sex: male and female Method: Fixed Dose Method
Ethylbenzene	LD50: 3,500 mg/kg Species: Rat
1,2,4-Trimethylbenzene	LD50 Oral: 6,000 mg/kg Species: Rat Sex: male
Naphthalene	LD50: 500 mg/kg Method: Converted acute toxicity point estimate
Benzene	LD50: > 2,000 mg/kg Species: Rat Sex: female
Methylcyclopentane	LD50: > 15,840 mg/kg Species: Rat Information given is based on data obtained from similar substances.
2-methyl-2-butene	LD50: 1,000 - 1,700 mg/kg Species: Rat
Cyclohexane	LD50: > 5,000 mg/kg Species: Rat Sex: male and female Method: OECD Test Guideline 401
2,3-Dimethylpentane	LD50: > 5,000 mg/kg Species: Rat
2,4-Dimethylpentane	LD50: > 5,000 mg/kg Species: Rat
n-Pentane	LD50: > 2,000 mg/kg Species: Rat LD50: > 5,000 mg/kg Species: Rat Method: Expert judgment
Methylcyclohexane	LD50: 4,000 - 4,500 mg/kg Species: Rabbit
Isoprene	LD50: 2,043 - 2,210 mg/kg Species: Rat

UTG 96 (unleaded test gasoline)

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

Acute dermal toxicity

Naphtha, Petroleum, Heavy Catalytic Cracked	:	LD50: > 2,000 mg/kg Species: Rabbit Sex: male and female Method: OECD Test Guideline 402
Naphtha (petroleum), light catalytic reformed		LD50: > 2,000 mg/kg Species: Rabbit
Naphtha (petroleum), light alkylate		LD50: > 2,000 mg/kg Species: Rabbit Information given is based on data obtained from similar substances.
Toluene		LD50: 12,400 mg/kg Species: Rabbit Sex: Not Specified
2,2,4-Trimethylpentane (Isooctane)		LD50: > 2,000 mg/kg Species: Rabbit Sex: male and female Method: OECD Test Guideline 402
Xylenes		LD50: > 2,000 mg/kg Species: Rabbit Information given is based on data obtained from similar substances.
C9-C11 Isoalkanes		LD50: > 5,000 mg/kg Species: Rabbit Sex: male and female Method: OECD Test Guideline 402 Information given is based on data obtained from similar substances.
Isoalkanes C7-8		LD50: > 2,200 - 2,500 mg/kg Species: Rat Method: OECD Test Guideline 402 Information given is based on data obtained from similar substances.
Cyclopentane		No data available
n-Heptane		LD50: > 2,000 mg/kg Species: Rabbit Sex: male and female Method: OECD Test Guideline 402 Information given is based on data obtained from similar substances.
n-hexane		LD50: > 3,350 mg/kg Species: Rabbit Sex: male and female Information given is based on data obtained from similar substances.
1-Hexene		LD50: > 2,000 mg/kg Species: Rabbit Sex: male and female

Ethylbenzene	LD50: 15,415 mg/kg Species: Rabbit
1,2,4-Trimethylbenzene	LD50 Dermal: > 3440 milligram per kilogram Species: Rat Sex: male and female Test substance: no Information given is based on data obtained from similar substances.
Benzene	LD50: > 8,260 mg/kg Species: Rabbit
2-methyl-2-butene	LD50: > 2,000 mg/kg Species: Rat
2,3-Dimethylpentane	LD50: > 5,000 mg/kg Species: Rabbit Method: Expert judgment
n-Pentane	LD50: unknown
Isoprene	LD50: >1 ML/KG Species: Rat

UTG 96 (unleaded test gasoline)
Skin irritation : May cause skin irritation in susceptible persons.

UTG 96 (unleaded test 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.
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.
2,2,4-Trimethylpentane (Isooctane)	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.

Cyclopentane	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.
n-hexane	Did not cause sensitization on laboratory animals. Does not cause skin sensitization.
1-Hexene	Did not cause sensitization on laboratory animals.
Ethylbenzene	Did not cause sensitization on laboratory animals.
Naphthalene	Classification: Did not cause sensitization on laboratory animals. Did not cause sensitization on laboratory animals.
Benzene	Did not cause sensitization on laboratory animals.
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.
Cyclohexane	Did not cause sensitization on laboratory animals.
n-Pentane	Did not cause sensitization on laboratory animals.
Methylcyclohexane	Did not cause sensitization on laboratory animals.

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
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.
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.
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.
Cyclopentane	Species: Rat, males Sex: males

	Dose: 0, 0.22, 1.12, 5.29 mg/l Exposure time: 28 d Number of exposures: 6 h/d NOEL: 1.12 mg/l Lowest observable effect level: 5.29 mg/l Method: OECD Test Guideline 412 Species: Rat, females Sex: females Dose: 0, 0.22, 1.12, 5.29 mg/l Exposure time: 28 d Number of exposures: 6 h/d NOEL: 5.29 mg/l Lowest observable effect level: > 5.29 mg/l Method: OECD Test Guideline 412 Species: Rat, male and female Sex: male and female Dose: 5, 10, 30 mg/l Exposure time: 90 d Number of exposures: 6 h/d NOEL: 30 mg/l Method: OECD Test Guideline 413 No adverse effects expected
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.
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
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
1-Hexene	Species: Rat, male Sex: male Application Route: oral gavage Dose: 0, 10, 101, 1010, 3365 mg/kg Exposure time: 28 day Number of exposures: daily NOEL: 101 mg/kg Lowest observable effect level: 1,010 mg/kg Test substance: yes Method: OECD Test Guideline 407 Species: Rat, female Sex: female Application Route: oral gavage Dose: 0, 10, 101, 1010, 3365 mg/kg Exposure time: 28 day Number of exposures: daily NOEL: 1,010 mg/kg Lowest observable effect level: 3,365 mg/kg Test substance: yes Method: OECD Test Guideline 407 Species: Rat Application Route: Inhalation Dose: 0, 300, 1000, 3000 ppm Exposure time: 90 day Number of exposures: 6 h/d, 5 d/wk, 13 wk NOEL: 3000 ppm Test substance: yes
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
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
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
Cyclohexane	Species: Rat Application Route: Inhalation Dose: 0, 500, 2000, 7000 ppm Exposure time: 90 day Number of exposures: 6 h/d, 5 d/wk NOEL: 2000 ppm

	Species: Rat, Male and female Sex: Male and female Application Route: Inhalation Dose: 0, 500, 2,000, 7000 ppm Exposure time: 13-14 wk Number of exposures: 6 hr/d, 5 d/wk NOEL: 7000 ppm Species: Mouse, Male and female Sex: Male and female Application Route: Inhalation Dose: 0, 500, 2000, 7000 ppm Exposure time: 13-14 wk Number of exposures: 6 hr/d, 5 d/wk NOEL: 2000 ppm Target Organs: Blood
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
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
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
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
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.
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
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
Cyclopentane	Test Type: Modified Ames test Concentration: 1250 microgram/plate Metabolic activation: with and without metabolic activation Result: negative Test Type: Mouse lymphoma assay Concentration: 200 microgram/mililiter Metabolic activation: with and without metabolic activation 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
n-Butane	Test Type: Ames test 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.
1-Hexene	Test Type: Ames test Metabolic activation: with and without metabolic activation

	Method: Mutagenicity (Escherichia coli - reverse mutation assay) Result: negative Test Type: Unscheduled DNA synthesis assay Result: negative Test Type: Mouse lymphoma assay Result: negative Test Type: Chromosome aberration test in vitro Method: OECD Guideline 473 Result: negative
Ethylbenzene	Test Type: Ames test Result: negative Test Type: Unscheduled DNA synthesis assay Result: negative
2,2-Dimethylbutane	Test Type: Ames test 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
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
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
Cyclohexane	Test Type: Ames test Metabolic activation: with and without metabolic activation Method: Mutagenicity (Escherichia coli - reverse mutation assay) Result: negative

	Test Type: Mouse lymphoma assay Metabolic activation: with and without metabolic activation Result: negative Test Type: Mouse lymphoma assay Metabolic activation: with and without metabolic activation Method: OECD Guideline 476 Result: negative
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
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.
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.
2,2,4-Trimethylpentane		Test Type: Unscheduled DNA synthesis assay

(Isooctane)	Species: Mouse Dose: 500 mg/kg Result: negative Test Type: Unscheduled DNA synthesis assay Species: Rat Dose: 500 mg/kg Result: negative
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.
Cyclopentane	Test Type: Micronucleus test Species: Mouse Route of Application: inhalation (vapor) Dose: 10,000 ppm 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
1-Hexene	Test Type: Mouse micronucleus assay Species: Mouse Method: Mutagenicity (micronucleus test) Result: negative
Ethylbenzene	Test Type: Mouse micronucleus assay Species: Mouse Result: negative
Naphthalene	Test Type: Mouse micronucleus assay Result: negative
Benzene	Test Type: Mouse micronucleus assay Result: positive
2-methyl-2-butene	Test Type: Mouse micronucleus assay Species: Rat Cell type: Bone marrow Route of Application: Inhalation Exposure time: 6 h/d 2d Method: OECD Test Guideline 474 Result: positive

Cyclohexane	Test Type: Cytogenetic assay Species: Rat Cell type: Bone marrow Dose: 96.6, 307.2, 10141.6 ppm Result: negative
n-Pentane	Test Type: Micronucleus test Species: Rat Cell type: Bone marrow Result: negative
Isoprene	Result: negative Test Type: Micronucleus test Result: positive

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
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.
Naphthalene	Species: Mouse Sex: male Dose: 10, 30 ppm Exposure time: 105 weeks Number of exposures: 6 hours/day, 5 days/week Test substance: yes Print Date: No information available. Remarks: No evidence of carcinogenicity Species: Mouse Sex: female Dose: 10, 30 ppm Exposure time: 105 weeks Number of exposures: 6 hours/day, 5 days/week Test substance: yes Print Date: No information available. Remarks: increased incidence of alveolar/bronchiolar adenomas Species: Rat Sex: male and female Dose: 10, 30, 60 ppm Exposure time: 105 weeks Number of exposures: 6 hours/day, 5 days/week Test substance: yes Print Date: No information available. Remarks: nose respiratory epithelial adenoma, increased incidence of olfactory neuroblastomas
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
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.
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.
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.
Cyclopentane	Species: Rat Sex: males Application Route: Inhalation Dose: 0, 500, 2000, 7000 ppm Number of exposures: 6 h/day NOAEL Parent: 2000 ppm NOAEL F1: 2000 ppm NOAEL F2: 2000 ppm Reduced fetal weight. 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
1-Hexene	Species: Rat Sex: males Application Route: oral gavage Dose: 0, 100, 500, 1000 mg/kg Number of exposures: daily Test period: 44 d Test substance: yes Method: OECD Guideline 421 NOAEL Parent: 1,000 mg/kg NOAEL F1: 1,000 mg/kg Species: Rat Sex: females Application Route: oral gavage Dose: 0, 100, 500, 1000 mg/kg Number of exposures: daily Test period: 41-51 d Test substance: yes Method: OECD Guideline 421 NOAEL Parent: 1,000 mg/kg NOAEL F1: 1,000 mg/kg
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
Cyclohexane	Species: Rat Application Route: Inhalation Dose: 0, 500, 2000, 7000 ppm Number of exposures: 6 hr/d, 5 d/wk Method: OECD Test Guideline 416 NOAEL Parent: 500 ppm NOAEL F1: 7000 ppm NOAEL F2: 7000 ppm
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
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.

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
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.
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.
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.
Cyclopentane	Species: Rat Application Route: oral gavage Dose: 0, 100, 500, 1000 mg/kg Exposure time: GD 6 - 15 Number of exposures: daily NOAEL Teratogenicity: 1,000 mg/kg NOAEL Maternal: 1,000 mg/kg 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
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
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
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.
Cyclohexane	Species: Rat Application Route: Inhalation Dose: 0, 500, 2,000, 7,000 PPM Number of exposures: 6 hr/d Test period: GD 6-15 Method: OECD Guideline 414 NOAEL Teratogenicity: 7,000 ppm NOAEL Maternal: 500 ppm Species: Rabbit Application Route: Inhalation Dose: 0, 500, 2,000, 7,000 PPM Number of exposures: 6 hr/d Test period: GD 6-18 Method: OECD Guideline 414 NOAEL Teratogenicity: 7,000 ppm NOAEL Maternal: 500 ppm
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
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.

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.
Naphtha (petroleum), light alkylate		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.
3,3-Dimethylpentane		May be fatal if swallowed and enters airways.
2,2,4-Trimethylpentane (Isooctane)		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.
Cyclopentane		May be fatal if swallowed and enters airways.
n-Heptane		May be fatal if swallowed and enters airways.
n-hexane		May be fatal if swallowed and enters airways.
1-Hexene		May be fatal if swallowed and enters airways.
Ethylbenzene		May be fatal if swallowed and enters airways.
1,2,4-Trimethylbenzene		May be fatal if swallowed and enters airways.
2,2-Dimethylbutane		May be fatal if swallowed and enters airways.
2-Methylpentane		May be fatal if swallowed and enters airways.
Benzene		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.
2-methyl-2-butene		May be fatal if swallowed and enters airways.
Cyclohexane		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.
n-Pentane		May be fatal if swallowed and enters airways.
Methylcyclohexane		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.

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.
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.
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.
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
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.
1-Hexene	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.
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
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.
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.
Cyclohexane	Carcinogenicity: Weight of evidence does not support classification as a carcinogen Mutagenicity: Did not show mutagenic effects in animal experiments. Teratogenicity: Did not show teratogenic effects in animal experiments. Reproductive toxicity: No toxicity to reproduction
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.
Isoprene	Carcinogenicity: Possible human carcinogen Mutagenicity: In vitro tests showed mutagenic effects

UTG 96 (unleaded test 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.
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.
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.
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.
Cyclopentane	LL50: 29.3 mg/l Exposure time: 96 h Species: Fish Method: QSAR modeled data
n-Heptane	LL50: 5.738 mg/l Exposure time: 96 h Species: Oncorhynchus mykiss (rainbow trout) Method: QSAR modeled data
n-hexane	LL50: 12.51 mg/l Exposure time: 96 h Species: Oncorhynchus mykiss (rainbow trout) Method: QSAR modeled data
1-Hexene	LC50: 5.6 mg/l Exposure time: 96 h Species: Oncorhynchus mykiss (rainbow trout) semi-static test Test substance: yes Method: OECD Test Guideline 203
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)
Benzene	LC50: 5.3 mg/l Exposure time: 96 h Species: Oncorhynchus mykiss (rainbow trout) flow-through test Test substance: yes Method: OECD Test Guideline 203
3-Methylpentane	No data available
Methylcyclopentane	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
Cyclohexane	LC50: 4.53 mg/l Exposure time: 96 h Species: Pimephales promelas (fathead minnow) Method: OECD Test Guideline 203
2,3-Dimethylbutane	LC50: 6.68 mg/l Exposure time: 96 h

	Species: Fish Method: QSAR modeled data
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.
Methylcyclohexane	LC50: 2.07 mg/l Exposure time: 96 h Species: Fish semi-static test
Isoprene	LC50: 7.43 mg/l Exposure time: 96 h Species: Oncorhynchus mykiss (rainbow trout) semi-static test Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates

Naphtha, Petroleum, Heavy Catalytic Cracked	:	EL50: 4.5 mg/l Exposure time: 48 h Species: 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
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.
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.
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.
Cyclopentane	EC50: 2.3 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) 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.
n-hexane	EL50: 21.85 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) Method: QSAR modeled data
1-Hexene	EC50: 4.4 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) static test Test substance: no Method: OECD Test Guideline 202 Information given is based on data obtained from similar substances.
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)

Benzene	EC50: 10 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) static test Test substance: yes Method: OECD Test Guideline 202
3-Methylpentane	No data available
Methylcyclopentane	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
Cyclohexane	EC50: 0.9 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) 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
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.
Methylcyclohexane	EC50: 0.326 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) semi-static test
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
Isoprene	EC50: 5.77 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea)

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.
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.
2,2,4-Trimethylpentane (Isooctane)	EL50: 2.943 mg/l Exposure time: 72 h Method: QSAR modeled data
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
Cyclopentane	EC50: 2.04 mg/l Exposure time: 72 h Species: Scenedesmus capricornutum (fresh water algae) static test Method: OECD Test Guideline 201 Information given is based on data obtained from similar substances.
n-Heptane	EL50: 4.338 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (microalgae) Method: QSAR
n-hexane	EL50: 9.29 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (green algae) Method: QSAR modeled data

1-Hexene	NOEC: 1.8 mg/l Exposure time: 96 h Species: Pseudokirchneriella subcapitata (green algae) Growth inhibition Method: OECD Test Guideline 201 Information given is based on data obtained from similar substances. EC50: > 5.5 mg/l Exposure time: 96 h Species: Pseudokirchneriella subcapitata (green algae) Growth inhibition Method: OECD Test Guideline 201 Information given is based on data obtained from similar substances.
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)
Benzene	ErC50: 100 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (green algae) Test substance: yes Method: OECD Test Guideline 201
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
Cyclohexane	EbC50: 3.4 mg/l Exposure time: 72 h Species: Selenastrum capricornutum (algae) NOEC: 0.925 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (microalgae) Method: OECD Test Guideline 201
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.
Methylcyclohexane	EC50: 0.134 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (green algae) static test
Hydrogen Sulfide	EC50: 1.87 mg/l Exposure time: 24 h Species: Selenastrum capricornutum (algae) static test Test substance: yes
Isoprene	EC50: > 35.2 mg/l Exposure time: 96 h Species: Pseudokirchneriella subcapitata (green algae)

M-Factor

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

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
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.
2,2,4-Trimethylpentane	:	NOEL: 0.17 mg/l

(Isooctane)		Exposure time: 21 d Species: Daphnia magna (Water flea) Method: OECD Test Guideline 211 Information given is based on data obtained from similar substances.
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.

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.
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
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.
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.
Cyclopentane	:	aerobic Result: Not readily biodegradable. 0 % Testing period: 28 d Method: OECD Test Guideline 301F Expected to be inherently biodegradable.
n-Heptane	:	Result: Readily biodegradable. 70 % Testing period: 10 d
n-Butane	:	This material is expected to be readily biodegradable.
n-hexane	:	This material is expected to be readily biodegradable.
1-Hexene	:	67 - 98 % Testing period: 28 d Test substance: yes According to the results of tests of biodegradability this product is considered as being readily biodegradable.
Ethylbenzene	:	This material is expected to be readily biodegradable.
2,2-Dimethylbutane	:	This material is volatile and is expected to partition to air. Expected to be inherently biodegradable.
2-Methylpentane	:	Expected to be biodegradable Information given is based on data obtained from similar substances.
Benzene	:	According to the results of tests of biodegradability this product is considered as being 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.

Cyclohexane : 77 %
Testing period: 28 d
Method: OECD Test Guideline 301
This material is expected to be readily biodegradable.

n-Pentane : Result: Readily biodegradable.
87 %
Method: OECD Test Guideline 301F

Methylcyclohexane : aerobic
0 %
Testing period: 28 d
Method: OECD Test Guideline 301D

Hydrogen Sulfide : The methods for determining biodegradability are not applicable to inorganic substances.
This material is expected to be readily biodegradable.

Isoprene : Expected to be 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

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.

2,2,4-Trimethylpentane (Isooctane) : Bioconcentration factor (BCF): 231
Method: QSAR modeled data
This material is not expected to bioaccumulate.

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.
Cyclopentane	:	Accumulation in aquatic organisms is unlikely.
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.
n-hexane	:	Bioconcentration factor (BCF): 501 Does not significantly accumulate in organisms.
1-Hexene	:	This material is not expected to bioaccumulate.
Ethylbenzene	:	Bioconcentration factor (BCF): 110
2,2-Dimethylbutane	:	Accumulation in aquatic organisms is unlikely.
2-Methylpentane	:	Does not significantly accumulate in organisms.
Benzene	:	Bioconcentration factor (BCF): 13
Methylcyclopentane	:	This material is not expected to bioaccumulate.
Cyclohexane	:	Bioconcentration factor (BCF): 167 This material is not expected to bioaccumulate.
n-Pentane	:	Bioconcentration factor (BCF): 171 Method: QSAR modeled data This material is not expected to bioaccumulate.
Methylcyclohexane	:	No data available
Hydrogen Sulfide	:	This material is not expected to bioaccumulate.

Mobility

Naphtha, Petroleum, Heavy Catalytic Cracked	:	No data available
Naphtha (petroleum), light catalytic reformed	:	No data available
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
2,2,4-Trimethylpentane (Isooctane)	:	Medium: Air Method: Calculation, Mackay Level I Fugacity Model After release, disperses into the air.
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 %
Cyclopentane	:	No data available
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.
n-hexane	:	Method: Calculation, Mackay Level III Fugacity Model The product will be dispersed amongst the various environmental compartments (soil/ water/ air).
1-Hexene	:	No data available
Ethylbenzene	:	Method: Calculation, Mackay Level I Fugacity Model Disperses rapidly in air.
Benzene	:	No data available
Methylcyclopentane	:	No data available
Cyclohexane	:	Not expected to adsorb on soil.
n-Pentane	:	After release, disperses into the air.
Hydrogen Sulfide	:	No data available The product evaporates readily.

Results of PBT assessment

Naphtha, Petroleum, Heavy Catalytic Cracked	:	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
2,2,4-Trimethylpentane (Isooctane)	:	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).
n-hexane	:	Non-classified vPvB substance, Non-classified PBT substance
1-Hexene	:	Non-classified PBT substance, Non-classified vPvB substance
Ethylbenzene	:	Non-classified vPvB substance, Non-classified PBT substance
Benzene	:	Not persistent, bioaccumulative, and toxic (PBT)., Not very persistent and very bioaccumulative (vPvB).
Methylcyclopentane	:	Non-classified PBT substance, Non-classified vPvB substance

2-methyl-2-butene	:	Non-classified PBT substance, Non-classified vPvB substance
Cyclohexane	:	Non-classified PBT substance, Non-classified vPvB substance
Methylcyclohexane	:	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 Catalytic Cracked	:	Toxic to aquatic life.
Naphtha (petroleum), light catalytic reformed	:	Toxic to aquatic life.
Hydrocarbons, C3-11, catalytic cracker distillates	:	Toxic to aquatic life.
Naphtha (petroleum), light alkylate	:	Toxic to aquatic life.
Toluene	:	Toxic to aquatic life.
Isopentane	:	Toxic to aquatic life.
3,3-Dimethylpentane	:	Very toxic to aquatic life.
2,2,4-Trimethylpentane (Isooctane)	:	Very 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.
Cyclopentane	:	Harmful to aquatic life.
n-Heptane	:	Very toxic to aquatic life.
n-hexane	:	Toxic to aquatic life.
1-Hexene	:	Toxic to aquatic life.
Ethylbenzene	:	Toxic to aquatic life.
1,2,4-Trimethylbenzene	:	Toxic to aquatic life.
2,2-Dimethylbutane	:	Toxic to aquatic life.
2-Methylpentane	:	Toxic to aquatic life.
Naphthalene	:	Very toxic to aquatic life.
Benzene	:	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.
2-methyl-2-butene	:	Toxic to aquatic life.
Cyclohexane	:	Very 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.
n-Pentane	:	Toxic to aquatic life.
Methylcyclohexane	:	Very toxic to aquatic life.
2,3,4-Trimethylpentane	:	Very toxic to aquatic life.
Hydrogen Sulfide	:	Very toxic to aquatic life.
Isoprene	:	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.
Naphtha (petroleum), light alkylate	:	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.
3,3-Dimethylpentane	:	Very toxic to aquatic life with long lasting effects.
2,2,4-Trimethylpentane (Isooctane)	:	Very toxic to aquatic life with long lasting effects.
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.
Cyclopentane	:	Harmful to aquatic life with long lasting effects.
n-Heptane	:	Very toxic to aquatic life with long lasting effects.
n-hexane	:	Toxic to aquatic life with long lasting effects.

1-Hexene	:	No data available
Ethylbenzene	:	Harmful to aquatic life with long lasting effects.
1,2,4-Trimethylbenzene	:	Toxic to aquatic life with long lasting effects.
2,2-Dimethylbutane	:	Toxic 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.
Benzene	:	Harmful 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.
2-methyl-2-butene	:	Toxic to aquatic life with long lasting effects.
Cyclohexane	:	Very 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.
n-Pentane	:	Toxic to aquatic life with long lasting effects.
Methylcyclohexane	:	Very toxic to aquatic life with long lasting effects.
2,3,4-Trimethylpentane	:	Very toxic to aquatic life with long lasting effects.
Hydrogen Sulfide	:	Not applicable
Isoprene	:	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), N-HEPTANE)

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

Poisonous and Deleterious Substances Control Law

: Not applicable

Industrial Safety and Health Law

Substances Subject to be Notified Names Law Article 57-2 (Ministerial Order Article 34-2 Appended Table 2)	:	Naphtha (petroleum), light alkylate(330) (168) (127) toluene(1437) xylenes(426) cyclopentane(764) n-hexane(1861) hex-1-ene(1868) 1,2,4-trimethylbenzene(404) ethylbenzene(247) Benzene(589) (1906) naphthalene(1449) 2-methylbut-2-ene(2122) cyclohexane(749) methylcyclohexane(576) isoprene(167) Hydrocarbons, C3-11, catalytic cracker distillates(330) (127) 2,2,4-trimethylpentane(115) 3,3-dimethylpentane(526) 2-methylbutane(1944) butane(1720)
Harmful Substances Required Permission for Manufacture	:	Not applicable
Hazardous Substances Subject to Labeling Requirements Law Article 57 (Ministerial Order Article 30 Appended Table 2)	:	Naphtha (petroleum), light alkylate (330) (168) (127) toluene (1437) xylenes (426) cyclopentane (764) n-hexane (1861) hex-1-ene (1868) 1,2,4-trimethylbenzene (404) ethylbenzene (247)

		Benzene (589) (1906) naphthalene (1449) 2-methylbut-2-ene (2122) cyclohexane (749) methylcyclohexane (576) Hydrocarbons, C3-11, catalytic cracker distillates (330) (127) 2,2,4-trimethylpentane (115) 3,3-dimethylpentane (526) 2-methylbutane (1944) butane (1720)
Organic Solvents Class 2	:	Naphtha (petroleum), heavy catalytic cracked(51) Naphtha (petroleum), light catalytic reformed(51) Hydrocarbons, C3-11, catalytic cracker distillates(51) Naphtha (petroleum), light alkylate(51) toluene(37) xylenes(11) n-hexane(39)
Ordinance on Prevention of Lead Poisoning	:	Not applicable
Harmful Substances Prohibited from Manufacture	:	Not applicable
Ordinance on Prevention of Hazards Due to Specified Chemical Substances Group 2 Substance	:	ethylbenzene(3.3) Benzene(30) naphthalene(23.2)
Ordinance on Prevention of Tetraalkyl Lead Poisoning	:	Not applicable
Mutagens, Existing Chemicals	:	naphthalene, naphthalene (Molten), naphthalene (Refined or crude), naphthalene (Refined), naphthalene (Crude)
	:	Not applicable
Substances Prevented From Impairment of Health	:	ethylbenzene

Chemical Substance Control Law

Priority Assessment Chemical Substance	:	toluene(46) xylenes(125) n-hexane(3) 1,2,4-trimethylbenzene(49) (49) ethylbenzene(50) Benzene(45)

naphthalene(76)
cyclohexane(96)
isoprene(5)
cumene(126)

Act on Confirmation, etc. of Release Amounts of Specific Chemical Substances in the Environment and Promotion of Improvements to the Management Thereof

Class I Designated Chemical Substances	:	toluene(300) (300) xylenes(80) (80) heptane(731) n-hexane(392) (392) hex-1-ene(729) 1,2,4-trimethylbenzene(296) (691) ethylbenzene(53) (53) naphthalene(302) (302) cyclohexane(629)
Specified Class I Designated Chemical Substances	:	Benzene(400) (400)

Other regulations

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	:	On the inventory, or in compliance with the inventory
Korea KECI	:	Not in compliance with the inventory
Philippines PICCS	:	Not in compliance with the inventory
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

Print Date : 2026-08-28

Further information

Legacy SDS Number : 34840

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

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

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

Key or legend to abbreviations and acronyms used in the safety data sheet			
ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AIIC	Australian Inventory of Industrial Chemicals	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%	ATE	Acute toxicity estimate