UTG 91

Version 1.1 Revision Date 2010-08-31

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product information

Trade name : UTG 91
Material : 1094355, 1094313, 1021662, 1021659, 1021660, 1021661, 1021658, 1104987, 1104975, 1104976

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

Emergency telephone:

Health:
866.442.9628 (North America)
1.832.813.4984 (International)

Transport:
North America: CHEMTREC 800.424.9300 or 703.527.3887
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EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600

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

2. HAZARDS IDENTIFICATION

Emergency Overview

Danger

Form: Liquid **Physical state**: Liquid **Color**: clear **Odor**: Mild

OSHA Hazards : Flammable Liquid, Moderate skin irritant, Moderate eye irritant, Carcinogen

GHS-Classification

: Flammable liquids, Category 1
Carcinogenicity, Category 1A
Reproductive toxicity, Category 2
Eye irritation, Category 2A
Skin irritation, Category 2
Germ cell mutagenicity, Category 1B
Specific target organ systemic toxicity - single exposure, Category 3, Respiratory Tract, Central nervous system
Acute aquatic toxicity, Category 2
Chronic aquatic toxicity, Category 2
Specific target organ systemic toxicity - single exposure, Category 1, Inhalation, Heart
Specific target organ systemic toxicity - repeated exposure, Category 1, Eyes, Blood, Hematopoietic system

GHS-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.
H335: May cause respiratory irritation.
H336: May cause drowsiness or dizziness.
H340: May cause genetic defects.
H350: May cause cancer.
H361: Suspected of damaging fertility or the unborn child.
H372: Causes damage to organs through prolonged or repeated exposure.
H411: 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/sparks/open flames/hot surfaces. - No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
Do not breathe dust/fume/gas/mist/vapor/spray.
P264 Wash face, hands and any exposed 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 or doctor/ physician.
P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P311 Call a POISON CENTER or doctor/ physician.
P331 Do NOT induce vomiting.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.
P370 + P378 In case of fire: Evacuate area. Use manufacturer/supplier or the competent authority to specify appropriate media for extinction.

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.

Carcinogenicity:

IARC
Group 1: Carcinogenic to humans
Benzene 71-43-2
Group 2B: Possibly carcinogenic to humans
Naphthalene 91-20-3
Ethylbenzene 100-41-4

OSHA
Benzene 71-43-2

NTP
Known to be human carcinogen
Benzene 71-43-2
Reasonably anticipated to be a human carcinogen
Naphthalene 91-20-3

ACGIH
Confirmed human carcinogen: The agent is carcinogenic to humans based on the weight of evidence from epidemiologic studies.
Benzene 71-43-2

Confirmed animal carcinogen with unknown relevance to humans: The agent is carcinogenic in experimental animals at a relatively high dose, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) that may not be relevant to worker exposure. Available epidemiologic studies do not confirm an increased risk of cancer in exposed humans. Available evidence does not suggest that the agent is lilkely to cause cancer in humans except under uncommon or unlikely routes or levels of exposure.
Ethylbenzene 100-41-4

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : Emmision Certification Test Fuel
Octane Specification Test Fuel

Molecular formula : Mixture

Component	CAS-No.	Weight %
Naphtha, Petroleum, Heavy Catalytic Cracked	64741-54-4	30.00 - 60.00
Isopentane	78-78-4	10.00 - 30.00
Toluene	108-88-3	5.00 - 10.00
Cyclopentane	287-92-3	1.00 - 5.00
Naphthalene	91-20-3	1.00 - 5.00
m-xylene	108-38-3	1.00 - 5.00

2-Methylpentane	107-83-5	1.00 - 5.00
n-Heptane	142-82-5	1.00 - 5.00
n-Butane	106-97-8	1.00 - 5.00
p-Xylene	106-42-3	1.00 - 5.00
2-Methylhexane	591-76-4	1.00 - 5.00
3-Methylhexane	589-34-4	1.00 - 5.00
2,2,4-Trimethylpentane (Isooctane)	540-84-1	1.00 - 5.00
Decane	124-18-5	1.00 - 5.00
Benzene	71-43-2	1.00 - 5.00
3-Methylpentane	96-14-0	1.00 - 5.00
Ethylbenzene	100-41-4	0.10 - 1.00

4. FIRST AID MEASURES

General advice : Move out of dangerous area. Show this material safety data sheet to the doctor in attendance. Symptoms of poisoning may only appear several hours later. Do not leave the victim unattended.

If inhaled : Move to fresh air. If unconscious place in recovery position and seek medical advice. If symptoms persist, call a physician.

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

In case of eye contact : Immediately flush eye(s) with plenty of water. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.

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

5. FIRE-FIGHTING MEASURES

Flash point : < -37 °C (< -35 °F)

Autoignition temperature : 260 °C (500 °F)

Unsuitable extinguishing media : High volume water jet.

Specific hazards during fire fighting : Do not allow run-off from fire fighting to enter drains or water courses.

Special protective equipment for fire-fighters : Wear self contained breathing apparatus for fire fighting 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 an open flame or any other incandescent material. Use only explosion-proof equipment. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Keep away from open flames, hot surfaces and sources of ignition.
Hazardous decomposition products	:	Hydrocarbons. Carbon oxides.

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).

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 an open flame or any other incandescent material. Use only explosion-proof equipment. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). 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.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Chevron Phillips Chemical Company LP

Ingredients	Basis	Value	Control parameters	Note
2,2,4-Trimethylpentane (Isooctane)	Manufacturer	TWA	300 ppm,	
Benzene	Manufacturer	STEL	2.5 ppm,	
	Manufacturer	TWA	0.5 ppm,	

Ingredients	Basis	Value	Control parameters	Note
Isopentane	ACGIH	TWA	600 ppm,	
Toluene	ACGIH	TWA	20 ppm,	*, BEI, A4,
	OSHA Z2	TWA	200 ppm,	
	OSHA Z2	CEIL	300 ppm,	
	OSHA Z2	Peak	500 ppm,	
	OSHA Z1A	TWA	100 ppm, 375 mg/m3	
	OSHA Z1A	STEL	150 ppm, 560 mg/m3	
Cyclopentane	ACGIH	TWA	600 ppm,	
	OSHA Z1A	TWA	600 ppm, 1,720 mg/m3	
Naphthalene	ACGIH	TWA	10 ppm,	A4, Skin,
	ACGIH	STEL	15 ppm,	A4, Skin,
	OSHA Z1B	TWA	10 ppm, 50 mg/m3	(b),
	OSHA Z1A	TWA	10 ppm, 50 mg/m3	
	OSHA Z1A	STEL	15 ppm, 75 mg/m3	
m-xylene	ACGIH	TWA	100 ppm,	BEI, A4,
	ACGIH	STEL	150 ppm,	BEI, A4,
2-Methylpentane	ACGIH	TWA	500 ppm,	
	ACGIH	STEL	1,000 ppm,	
	OSHA Z1A	TWA	500 ppm, 1,800 mg/m3	
	OSHA Z1A	STEL	1,000 ppm, 3,600 mg/m3	
n-Heptane	OSHA Z1B	TWA	500 ppm, 2,000 mg/m3	(b),
	OSHA Z1A	TWA	400 ppm, 1,600 mg/m3	
	OSHA Z1A	STEL	500 ppm, 2,000 mg/m3	
	ACGIH	TWA	400 ppm,	
	ACGIH	STEL	500 ppm,	
n-Butane	OSHA Z1A	TWA	800 ppm, 1,900 mg/m3	
	ACGIH	TWA	1,000 ppm,	
p-Xylene	ACGIH	TWA	100 ppm,	BEI, A4,
	ACGIH	STEL	150 ppm,	BEI, A4,
2-Methylhexane	ACGIH	TWA	400 ppm,	
	ACGIH	STEL	500 ppm,	
3-Methylhexane	ACGIH	TWA	400 ppm,	
	ACGIH	STEL	500 ppm,	
Benzene	ACGIH	TWA	0.5 ppm,	BEI, A1, Skin,
	ACGIH	STEL	2.5 ppm,	BEI, A1, Skin,
	OSHA Z2	TWA	10 ppm,	
	OSHA Z2	CEIL	25 ppm,	
	OSHA Z2	Peak	50 ppm,	
3-Methylpentane	ACGIH	TWA	500 ppm,	
	ACGIH	STEL	1,000 ppm,	
	OSHA Z1A	TWA	500 ppm, 1,800 mg/m3	
	OSHA Z1A	STEL	1,000 ppm, 3,600 mg/m3	
Ethylbenzene	ACGIH	TWA	100 ppm,	BEI, A3,
	ACGIH	STEL	125 ppm,	BEI, A3,
	OSHA Z1B	TWA	100 ppm, 435 mg/m3	(b),
	OSHA Z1A	TWA	100 ppm, 435 mg/m3	
	OSHA Z1A	STEL	125 ppm, 545 mg/m3	

(b) The value in mg/m3 is approximate.
* 2008 Adoption
A1 Confirmed human carcinogen: The agent is carcinogenic to humans based on the weight of evidence from epidemiologic studies.
A3 Confirmed animal carcinogen with unknown relevance to humans: The agent is carcinogenic in experimental animals at a relatively high dose, by route(s) of administration, at site(s), of histologic type(s), or by mechanism(s) that may not be relevant to worker exposure. Available epidemiologic studies do not confirm an increased risk of cancer in exposed humans. Available evidence does not suggest that the agent is lilkely to cause cancer in humans except under uncommon or unlikely routes or levels of exposure.
A4 Not classifiable as a human carcinogen: Agents which cause concern that they could be carcinogenic for humans but which cannot be assessed conclusively because of a lack of data. In vitro or animal studies do not provide indications of carcinogenicity which are sufficient to classify the agent into one of the other categories.
BEI Substances for which there is a Biological Exposure Index or Indices (see BEI® section)
Skin Danger of cutaneous absorption

Personal protective equipment

Respiratory protection	:	In the case of vapor formation use a respirator with an approved filter.
Hand protection	:	The suitability for a specific workplace should be discussed with the producers of the protective gloves.
Eye protection	:	Eye wash bottle with pure water. Tightly fitting safety goggles. Wear face-shield and protective suit for abnormal processing problems.
Skin and body protection	:	Impervious clothing. Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Hygiene measures	:	When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance

Form	:	Liquid
Color	:	clear
Odor	:	Mild

Safety data

Flash point	:	< -37 °C (< -35 °F)
Lower explosion limit	:	1.5 %(V)
Upper explosion limit	:	7.6 %(V)
Oxidizing properties	:	no
Autoignition temperature	:	260 °C (500 °F)
Molecular formula	:	Mixture
Molecular Weight	:	not applicable
pH	:	not applicable
Freezing point	:	No data available
Pour point	:	No data available
Boiling point/boiling range	:	27.78 °C (82.00 °F)
Vapor pressure	:	9.00 PSI at 38 °C (100 °F)

Density	:	737 G/L
Water solubility	:	Negligible
Partition coefficient: n-octanol/water	:	No data available
Viscosity, kinematic	:	not applicable
Relative vapor density	:	3 (Air = 1.0)
Evaporation rate	:	1
Percent volatile	:	No data available

10. STABILITY AND REACTIVITY

Possibility of hazardous reactions

Conditions to avoid	:	Heat, flames and sparks.
Materials to avoid	:	May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Other data	:	This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure. No decomposition if stored and applied as directed.

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity

Naphtha, Petroleum, Heavy Catalytic Cracked	:	LD50: > 5,000 mg/kg
Naphtha, Petroleum, Light Catalytic Reformed	:	LD50: > 5,000 mg/kg Species: rat
Isopentane	:	LD50: > 2,000 mg/kg
Naphtha, Petroleum, Light Alkylate	:	LD50: > 7,000 mg/kg Species: rat
3,3-Dimethylpentane	:	LD50: > 17,000 mg/kg Species: rat
Toluene	:	LD50: 5,500 - 7,530 mg/kg Species: rat
Cyclopentane	:	LD50: > 5,000 mg/kg Species: rat

Naphthalene	:	LD50: 2,300 mg/kg Species: rat
m-xylene	:	LD50 Oral: 5,010 mg/kg Species: rat
n-Heptane	:	LD50: > 15,000 mg/kg Species: rat
n-Butane	:	LD50: PNT
p-Xylene	:	LD50: 4,029 mg/kg Species: rat
2,2,4-Trimethylpentane (Isooctane)	:	LD50: > 5,000 mg/kg Species: rat
Decane	:	LD50: > 5,000 mg/kg Species: rat
Benzene	:	LD50: 810 mg/kg Species: rat
3-Methylpentane	:	LD50: unknown
o-Xylene	:	LD50: 3,580 mg/kg Species: rat
Hexane	:	LD50: > 5,000 mg/kg Species: rat
Ethylbenzene	:	LD50: 3,500 mg/kg Species: rat
Cyclohexane	:	LD50: > 5,000 mg/kg Species: rat

Acute inhalation toxicity

Naphtha, Petroleum, Heavy Catalytic Cracked	:	LC50: > 5.7 mg/l Exposure time: 4 HR Species: rat
Naphtha, Petroleum, Light Catalytic Reformed	:	LC50: > 5.05 mg/l Exposure time: 4 HR Species: rat
Isopentane	:	LC50: > 12.1 mg/l Exposure time: 4 HR Species: rat
Naphtha, Petroleum, Light Alkylate	:	LC50: > 5.04 mg/l Exposure time: 4 HR Species: rat
3,3-Dimethylpentane	:	LC50: 103 mg/l Exposure time: 4 HR Species: rat

Toluene	:	LC50: 25.7-30 mg/lExposure time: 4 HR Species: rat
Cyclopentane	:	LC50: > 5.62 mg/l Exposure time: 4 HR Species: rat
Naphthalene	:	LC50: >0.38 mg/m3Exposure time: 4 HR
m-xylene	:	LC50: 5984 ppm Exposure time: 4 HR Species: rat
2-Methylpentane	:	LC50: > 3125 ppm Exposure time: 4 HR Species: rat
n-Heptane	:	LC50: 103 mg/l Exposure time: 4 HR Species: rat
n-Butane	:	LC50: 658 mg/l Exposure time: 4 HR Species: rat Symptoms: Drowsiness
p-Xylene	:	LC50: 4740 ppm Exposure time: 4 HR Species: rat
2,2,4-Trimethylpentane (Isooctane)	:	LC50: > 14.4 mg/l Exposure time: 4 HR Species: rat
Decane	:	LC50: 72.3 mg/l Exposure time: 2 HR Species: mouse
Benzene	:	LC50: 13700 ppm Exposure time: 4 HR Species: rat
3-Methylpentane	:	LD50: unknown
o-Xylene	:	LC50: 18.8 mg/l Exposure time: 4 HR Species: rat
Hexane	:	LC50: > 3367 ppm Exposure time: 4 HR Species: rat
Ethylbenzene	:	LC50: 17.4 mg/l Exposure time: 4 HR Species: rat
Cyclohexane	:	LC50: > 14.11 mg/l Exposure time: 4 HR Species: rat

Acute dermal toxicity

Naphtha, Petroleum, Heavy Catalytic Cracked	:	LD50: > 2,000 mg/kg
Naphtha, Petroleum, Light Catalytic Reformed	:	LD50: > 2,000 mg/kg Species: rabbit
Isopentane	:	LD50: unknown
Naphtha, Petroleum, Light Alkylate	:	LD50: > 2,000 mg/kg Species: rabbit
Toluene	:	LD50: 12,400 mg/kg Species: rabbit
Cyclopentane	:	LD50: unknown
Naphthalene	:	LD50: > 2,000 mg/kg Species: rabbit
m-xylene	:	LD50: 12,180 mg/kg Species: rabbit
n-Butane	:	LD50: PNT
2,2,4-Trimethylpentane (Isooctane)	:	LD50: > 2,000 mg/kg Species: rabbit
Decane	:	LD50: > 2,000 mg/kg Species: rat
Benzene	:	LD50: > 8,260 mg/kg Species: rabbit
3-Methylpentane	:	LD50: unknown
o-Xylene	:	LD50: > 20,000 mg/kg Species: rabbit
Hexane	:	LD50: > 2,000 mg/kg Species: rabbit
Ethylbenzene	:	LD50: 15,400 mg/kg Species: rabbit
Cyclohexane	:	LD50: > 2,000 mg/kg Species: rabbit

Product
Skin irritation : Irritating to skin.

Product
Eye irritation : Eye irritation

Sensitization

Naphtha, Petroleum, Light Alkylate	:	Did not cause sensitization on laboratory animals.
Toluene	:	Did not cause sensitization on laboratory animals.
Cyclopentane	:	Did not cause sensitization on laboratory animals.
Naphthalene	:	Classification: Did not cause sensitization on laboratory animals.
Benzene	:	Did not cause sensitization on laboratory animals.
Hexane	:	Did not cause sensitization on laboratory animals.
Ethylbenzene	:	Did not cause sensitization on laboratory animals.
Cyclohexane	:	Did not cause sensitization on laboratory animals.

Repeated dose toxicity

Naphtha, Petroleum, Heavy Catalytic Cracked	:	Species: rat Application Route: oral gavage Dose: 0, 500, 2000 mg/kg Exposure time: 28 day Number of exposures: daily, 5 d/w Lowest observable effect level: 500 mg/kg
	:	Species: rabbit Application Route: Dermal Dose: 1, 200, 1000, 3000 mg/kg Exposure time: 28 day Number of exposures: 3 times/wk Lowest observable effect level: 200 mg/kg
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
Isopentane	:	Species: rat Application Route: Inhalation Dose: 1, 1000, 4500 ppm Exposure time: 13 wk Number of exposures: 6 h/d, 5 d/wk NOEL: 2250 ppm
Naphtha, Petroleum, Light Alkylate	:	Species: rabbit 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
	:	Species: rat Application Route: Inhalation Dose: 0, 668, 2220, 6646 ppm Exposure time: 12 wk Number of exposures: 5 d/wk NOEL: 6,646 ppm
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

Cyclopentane	:	Species: rat, males Dose: 0, 0.22, 1.12, 5.29 mg/l Exposure time: 28 DAYS Number of exposures: 6 h/d NOEL: 1.12 mg/l Lowest observable effect level: 5.29 mg/l
	:	Species: rat, females Dose: 0, 0.22, 1.12, 5.29 mg/l Exposure time: 28 DAYS Number of exposures: 6 h/d NOEL: 5.29 mg/l Lowest observable effect level: > 5.29 mg/l
m-xylene	:	Species: rat Application Route: oral gavage Dose: 0, 500, 2000 mg/kg Exposure time: 4 wk Number of exposures: 5 d/wk Lowest observable effect level: 500 mg/kg
n-Heptane	:	Species: rat Application Route: Inhalation Dose: 0, 398, 2970 ppm Exposure time: 26 wk Number of exposures: 6 h/d, 5 d/wk NOEL: 2970 ppm
n-Butane	:	Species: rat Application Route: Inhalation Dose: 0, 1017, 4489 ppm Exposure time: 90 day Number of exposures: 6 h/d, 5 d/wk NOEL: 4489 ppm
p-Xylene	:	Species: rat Application Route: oral gavage Dose: 0, 100, 200, 800 mg/kg Exposure time: 13 wk Number of exposures: once daily Lowest observable effect level: 800 mg/kg
	:	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
2,2,4-Trimethylpentane (Isooctane)	:	Species: rat Application Route: oral gavage Dose: 0, 50, 100, 200, 500 mg/kg Exposure time: 21 day Number of exposures: daily
Decane	:	Species: rat Application Route: Inhalation Dose: 0, 540 ppm Exposure time: 91 day Number of exposures: 18 h/d, 7 d/wk

NOEL: 540 ppm

Benzene : Species: rat, 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
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

o-Xylene : Species: rat
Application Route: Inhalation
Dose: 0, 3500 ppm
Exposure time: 6 wk
Lowest observable effect level: 3500 ppm

Hexane : Species: rat
Application Route: Inhalation
Dose: 0, 3000, 6500, 10000 ppm
Exposure time: 13 wk
Number of exposures: 6 h/d, 5 d/wk
Lowest observable effect level: 6500 ppm

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

Carcinogenicity

Naphtha, Petroleum, Heavy Catalytic Cracked	:	Species: mouse Dose: 0, 50 ul Exposure time: 2 yrs Number of exposures: 2 times/wk Remarks: weak dermal carcinogen
Naphtha, Petroleum, Light Alkylate	:	Species: mouse Dose: 50 uL Exposure time: 2 yrs Number of exposures: twice/wk Remarks: no increase incidence of tumors
Toluene	:	Species: rat Dose: 0, 600, 1200 ppm Exposure time: 2 yrs Number of exposures: 6.5 h/d, 5 d/wk Remarks: no evidence of carcinogenicity
	:	Species: mouse Dose: 0, 600, 1200 ppm Exposure time: 2 yrs Number of exposures: 6.5 h/d, 5 d/wk Remarks: no evidence of carcinogenicity
Naphthalene	:	Species: mouse Dose: 10, 30 ppm Exposure time: 2 yrs
	:	Species: mouse Dose: 10, 30 ppm Exposure time: 2 yrs Remarks: increased incidence of alveolar/bronchiolar adenomas
	:	Species: rat Dose: 10, 30, 60 ppm Exposure time: 2 yrs
	:	Species: rat Dose: 10, 30, 60 ppm Exposure time: 2 yrs
p-Xylene	:	Species: rat Dose: 0, 250, 500 mg/kg Exposure time: 103 wks Number of exposures: 5 d/wk
	:	Species: mouse Dose: 0, 500, 1000 mg/kg Exposure time: 103 wks Number of exposures: 5 d/wk
Decane	:	Species: mouse Dose: 4 mg in cyclohexane Exposure time: 60 wks Number of exposures: 3 times/wk Remarks: no increase incidence of tumors
Benzene	:	Species: rat Dose: 0, 50, 250 mg/kg

Exposure time: 52 wks
Number of exposures: daily
Remarks: zymbal gland carcinomas, mammary gland carcinomas and leukemia

: Species: rat
Dose: 0, 50, 100, 200 mg/kg
Exposure time: 103 wks
Number of exposures: 5 d/wk

: Species: rat
Dose: 0, 25, 50, 100 mg/kg
Exposure time: 103 wks
Number of exposures: 5 d/wk
Remarks: zymbal gland carcinomas, squamous cell papillomas

o-Xylene : 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

Hexane : Species: rabbit
Dose: 0, 3000 ppm
Exposure time: 24 wks
Number of exposures: 8 h/d, 5 d/wk

Reproductive toxicity

Naphtha, Petroleum, Light Alkylate	:	Species: rat Application Route: Inhalation Dose: 0, 5.1, 12.5, 24.7 mg/L Number of exposures: 6 h/d, 7 d/wk Test period: 7 wks
	:	Species: rat Application Route: Inhalation Dose: 0, 5.1, 12.5, 24.7 mg/L Number of exposures: 6 h/d, 7 d/wk Test period: 8 wks
Toluene	:	Species: rat Application Route: Inhalation Dose: 0, 100, 500, 2000 ppm Test period: 95 d
Cyclopentane	:	Species: rat Application Route: Inhalation Dose: 0, 500, 2000, 7000 ppm Number of exposures: 6 h/day
Hexane	:	Species: rat Application Route: Inhalation Dose: 0, 1000 ppm Test period: 61 d
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

Teratogenicity

Toluene	:	Species: rat Application Route: Inhalation Dose: 0, 100, 500, 2000 ppm Test period: 95 d
Naphthalene	:	Species: rabbit Application Route: oral gavage Dose: 40, 200, 400 mg/kg Test period: 29 d, GD 6-18
m-xylene	:	Species: rat Application Route: Inhalation Dose: 0, 150, 1500, 3000 ppm Number of exposures: 24 h/d Test period: GD 7-14
	:	Species: rat Application Route: Inhalation Dose: 0, 1, 100, 500, 1000, 2000 ppm Number of exposures: 6 h/d, 7 d/wk Test period: GD 6-20
p-Xylene	:	Species: mouse Application Route: oral gavage Dose: 0, 780, 1960, 2619 mg/kg Number of exposures: 3 times/d Test period: GD 6-15
o-Xylene	:	Species: rat Application Route: Inhalation Dose: 0, 100, 500, 1000, 2000 ppm Number of exposures: 6 h/d, 7 d/wk Test period: GD 6-20
Cyclohexane	:	Species: rat Application Route: Inhalation Dose: 0, 500, 2000, 7000 ppm Number of exposures: 6 h/d, 5 d/wk Test period: GD 7-16

Product

Aspiration toxicity	:	May be fatal if swallowed and enters airways. Substances known to cause human aspiration toxicity hazards or to be regarded as if they cause human aspiration toxicity hazard.

Product

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

12. ECOLOGICAL INFORMATION

Toxicity to fish

Isopentane	:	LC50: 3.1 mg/l Exposure time: 96 HR Species: Oncorhynchus mykiss (rainbow trout)
Naphtha, Petroleum, Light Alkylate	:	LC50: 8.2 mg/l Exposure time: 96 HR Species: Pimephales promelas (fathead minnow)
Toluene	:	LC50: 18 - 36 mg/l Exposure time: 96 HR Species: Pimephales promelas (fathead minnow)
Cyclopentane	:	NOEC: > 100 mg/l Exposure time: 24 HR Species: Oncorhynchus kisutch (Marine, fresh water)
Naphthalene	:	LC50: 3.2 mg/l Exposure time: 96 HR Species: Pimephales promelas (fathead minnow)
m-xylene	:	LC50: 8.4 mg/l Exposure time: 96 HR Species: Oncorhynchus mykiss (rainbow trout)
n-Heptane	:	375 mg/l Exposure time: 96 HR Species: Tilapia mosambica (Fish)
p-Xylene	:	LC50: 2.0 mg/l Exposure time: 96 HR Species: Marone saxatilis (striped bass)
2,2,4-Trimethylpentane (Isooctane)	:	LC50: 0.9 mg/l Exposure time: 96 HR
Decane	:	NOEC: 500 mg/l Exposure time: 96 HR Species: Cyprinodon variegatus (sheepshead minnow)
Benzene	:	LC50: 5.3 mg/l Exposure time: 96 HR Species: Marone saxatilis (striped bass)
3-Methylpentane	:	No data available
o-Xylene	:	LC50: 7.6 mg/l Exposure time: 96 HR Species: Salmo gairdneri (Rainbow trout)
Hexane	:	LC50: 2.5 mg/l Exposure time: 96 HR Species: Pimephales promelas (fathead minnow)
Ethylbenzene	:	LC50: 4.3 mg/l Exposure time: 96 HR Species: Marone saxatilis (striped bass)
Cyclohexane	:	LC50: 4.53 mg/l Exposure time: 96 HR Species: Pimephales promelas (fathead minnow)

Toxicity to daphnia and other aquatic invertebrates.

Isopentane	:	EC50: 2.3 mg/l Exposure time: 48 HR Species: Daphnia magna (Water flea)
Naphtha, Petroleum, Light Alkylate	:	LC50: 10 mg/l Exposure time: 48 HR Species: Daphnia magna (Water flea)
Toluene	:	EC50: 3.78 mg/l Exposure time: 48 HR Species: Daphnia magna (Water flea)
Cyclopentane	:	EL50: 10.5 mg/l Exposure time: 24 HR Species: Daphnia magna (Water flea)
Naphthalene	:	LC50: 2.16 mg/l Exposure time: 48 HR Species: Daphnia magna (Water flea)
m-xylene	:	EC50: 9.56 mg/l Exposure time: 48 HR Species: Daphnia
p-Xylene	:	3.6 mg/l Exposure time: 24 HR Species: Daphnia
2,2,4-Trimethylpentane (Isooctane)	:	1.1 mg/l Exposure time: 48 HR Species: Daphnia magna (Water flea)
Decane	:	EC50: 18 mg/l Exposure time: 48 HR Species: Daphnia magna (Water flea)
Benzene	:	EC50: 120 mg/l Exposure time: 48 HR Species: Daphnia magna (Water flea)
3-Methylpentane	:	No data available
o-Xylene	:	EC50: 0.5 mg/l Exposure time: 48 HR Species: Daphnia magna (Water flea)
Hexane	:	LC50: 2.1 mg/l Exposure time: 48 HR Species: Daphnia magna (Water flea)
Ethylbenzene	:	LC50: 2.6 mg/l Exposure time: 96 HR Species: Mysidopsis bahia (mysid shrimp)
Cyclohexane	:	LC50: 1 mg/l Exposure time: 48 HR Species: Eisenia fetida (earthworms)
	:	LC50: 0.9 mg/l Exposure time: 48 HR

Species: Daphnia magna (Water flea)

Toxicity to algae

Naphtha, Petroleum, Light Alkylate	:	EC50: 45 mg/l Exposure time: 96 HR Species: Selenastrum capricornutum (algae)
Toluene	:	EC50: 134 mg/l Exposure time: 72 HR Species: Chlamydomonas angulosa (Green algae)
Naphthalene	:	EC50: 2.96 mg/l Exposure time: 48 HR Species: Selenastrum capricornutum (algae)
m-xylene	:	EC50: 4.9 mg/l Exposure time: 72 HR Species: Selenastrum capricornutum (algae)
n-Heptane	:	EC50: 1.5 mg/l Exposure time: 8 HR Species: Raphidocellus subcapitata (algae)
p-Xylene	:	EC50: 45 mg/l Exposure time: 3 HR Species: Chlamydomonas angulosa (Green algae)
2,2,4-Trimethylpentane (Isooctane)	:	EC50: 0.8 mg/l Exposure time: 96 HR
Decane	:	NOEC: 0.05 mg/l Exposure time: 72 HR Species: Selenastrum capricornutum (algae)
Benzene	:	EC50: 41 mg/l Exposure time: 192 HR Species: Chlamydomonas angulosa (Green algae)
o-Xylene	:	EC50: 4.3 mg/l Exposure time: 8 DAY Species: Selenastrum capricornutum (algae)
Ethylbenzene	:	EC50: 3.6 mg/l Exposure time: 96 HR Species: Selenastrum capricornutum (algae)
	:	IC50: 7.7 mg/l Exposure time: 96 HR Species: Skeletonema costatum (Marine Algae)
Cyclohexane	:	EbC50: 3.4 mg/l Exposure time: 72 HR Species: Selenastrum capricornutum (algae)

Toxicity to daphnia and other aquatic invertebrates. (Chronic toxicity)

Decane	:	NOEC: 100 mg/l Exposure time: 30 D Species: Lamellibranchia (mussel)

Elimination information (persistence and degradability)

Bioaccumulation

Isopentane	:	Accumulation in aquatic organisms is unlikely.
Cyclopentane	:	Accumulation in aquatic organisms is unlikely.
m-xylene	:	Does not significantly accumulate in organisms.
2-Methylpentane	:	Does not significantly accumulate in organisms.
p-Xylene	:	Does not significantly accumulate in organisms.
o-Xylene	:	Does not significantly accumulate in organisms.
Biodegradability	:	This material is not expected to be readily biodegradable.

Further information on ecology

Results of PBT assessment

n-Heptane	:	Non-classified PBT substance, Non-classified vPvB substance
Additional ecological information	:	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

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.

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 MSDS and the bill of lading.

USDOT
UN1203, GASOLINE, 3, II

IMO / IMDG
UN1203, GASOLINE, 3, II, MP (2,2,4-TRIMETHYLPENTANE), (< -37 °C)

IATA
UN1203, GASOLINE, 3, II

ADR
UN1203, MOTOR SPIRIT, 3, II

RID
UN1203, GASOLINE, 3, II

15. REGULATORY INFORMATION

National legislation

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard
Chronic Health Hazard

SARA 302 Reportable Quantity :

Hydrogen Sulfide 7783-06-4	500 lbs

SARA 313 Ingredients :

Naphthalene 91-20-3	< 0.1 % by weight
Benzene 71-43-2	< 0.1 % by weight
m-xylene 108-38-3	< 1 % by weight
p-Xylene 106-42-3	< 1 % by weight
Toluene 108-88-3	< 1 % by weight
Ethylbenzene 100-41-4	< 0.1 % by weight

Clean Air Act

Ozone-Depletion Potential : This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 12 (40 CFR 61).

US State Regulations

Massachusetts Right To Know

Ingredients :	Toluene	108-88-3
	3-Methylhexane	589-34-4
	2-Methylpentane	107-83-5
	2,2,4-Trimethylpentane (Isooctane)	540-84-1
	3-Methylpentane	96-14-0
	Hydrogen Sulfide	7783-06-4
	p-Xylene	106-42-3

		m-xylene	108-38-3
		Benzene	71-43-2
		2-Methylhexane	591-76-4
		Naphthalene	91-20-3
		Isopentane	78-78-4
		Cyclopentane	287-92-3
		n-Heptane	142-82-5
		n-Butane	106-97-8

Pennsylvania Right To Know

Ingredients	:	3,3-Dimethylpentane	562-49-2
		Toluene	108-88-3
		3-Methylhexane	589-34-4
		2-Methylpentane	107-83-5
		2,2,4-Trimethylpentane (Isooctane)	540-84-1
		3-Methylpentane	96-14-0
		p-Xylene	106-42-3
		Decane	124-18-5
		m-xylene	108-38-3
		Benzene	71-43-2
		2-Methylhexane	591-76-4
		Naphthalene	91-20-3
		Naphtha, Petroleum, Heavy Catalytic Cracked	64741-54-4
		Commercial n-Heptane	426260-76-6
		Naphtha, Petroleum, Light Alkylate	64741-66-8
		Naphtha, Petroleum, Light Catalytic Reformed	64741-63-5
		Isopentane	78-78-4
		Cyclopentane	287-92-3
		n-Heptane	142-82-5
		n-Butane	106-97-8

New Jersey Right To Know

Ingredients	:	3,3-Dimethylpentane	562-49-2
		Ethylbenzene	100-41-4
		Toluene	108-88-3
		3-Methylhexane	589-34-4
		2-Methylpentane	107-83-5
		2,2,4-Trimethylpentane (Isooctane)	540-84-1
		p-Xylene	106-42-3
		Decane	124-18-5
		m-xylene	108-38-3
		Benzene	71-43-2
		Naphthalene	91-20-3
		Naphtha, Petroleum, Heavy Catalytic Cracked	64741-54-4
		Naphtha, Petroleum, Light Alkylate	64741-66-8
		Naphtha, Petroleum, Light Catalytic Reformed	64741-63-5
		Isopentane	78-78-4
		Cyclopentane	287-92-3
		n-Heptane	142-82-5
		n-Butane	106-97-8

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

Naphthalene	91-20-3
Benzene	71-43-2
Ethylbenzene	100-41-4

WARNING! This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

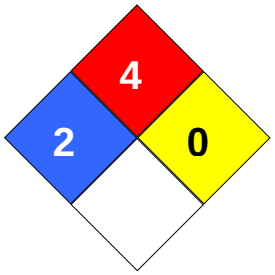
Benzene	71-43-2
Toluene	108-88-3

Notification status

Europe REACH	:	Not in compliance with the inventory
United States of America TSCA	:	On the inventory, or in compliance with the inventory
Canada DSL	:	On the inventory, or in compliance with the inventory
Australia AICS	:	Not in compliance with the inventory
New Zealand NZIoC	:	Not in compliance with the inventory
Japan ENCS	:	Not in compliance with the inventory
Korea KECI	:	Not in compliance with the inventory
Philippines PICCS	:	Not in compliance with the inventory
China IECSC	:	Not in compliance with the inventory

16. OTHER INFORMATION

NFPA Classification : Health Hazard: 2
Fire Hazard: 4
Reactivity Hazard: 0



Further information

Legacy MSDS Number : 34770

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

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.