Oxygenated Test Fuel - Ethanol

Version 5.1 Revision Date 2020-07-15

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

Product information

Product Name : Oxygenated Test Fuel - Ethanol
Material : 1032211, 1021645, 1021643, 1021646, 1021647, 1021644

Use : Fuel

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

Emergency telephone:

Health:
866.442.9628 (North America)
1.832.813.4984 (International)
Transport:
CHEMTREC 800.424.9300 or 703.527.3887(int'l)
Asia: CHEMWATCH (+612 9186 1132) China: 0532 8388 9090
EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Mexico CHEMTREC 01-800-681-9531 (24 hours)
South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600
Argentina: +(54)-1159839431

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

SECTION 2: Hazards identification

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

Classification

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

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

Labeling

Symbol(s) :

Signal Word : Danger

Hazard Statements : 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.
H361f: Suspected of damaging fertility.
H372: Causes damage to organs (Eyes, Blood) through prolonged or repeated exposure.
H373: May cause damage to organs (Auditory organs, color vision, Nervous system) through prolonged or repeated exposure if inhaled.

Precautionary Statements : **Prevention:**
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P260 Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P331 Do NOT induce vomiting.
P337 + P313 If eye irritation persists: Get medical advice/ attention.

P362 Take off contaminated clothing and wash before reuse.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.
Storage:
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P403 + P235 Store in a well-ventilated place. Keep cool.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Carcinogenicity:

IARC	Group 1: Carcinogenic to humans	
	Benzene	71-43-2
	Group 2B: Possibly carcinogenic to humans	
	Naphtha (petroleum), light alkylate	64741-66-8
	Naphtha, Petroleum, Heavy Catalytic Cracked	64741-54-4
	Naphtha (petroleum), full-range reformed	68919-37-9
	Naphthalene	91-20-3
	Ethylbenzene	100-41-4
NTP	Known to be human carcinogen	
	Benzene	71-43-2
	Reasonably anticipated to be a human carcinogen	
	Naphthalene	91-20-3

SECTION 3: Composition/information on ingredients

Synonyms : Oxygenated Test Fuel - Ethanol
Oxygenated Test fuel - Ethanol (E25)
Gasolina 24

Molecular formula : Mixture

Component	CAS-No.	Weight %
Naphtha (petroleum), light alkylate	64741-66-8	0 - 90
Naphtha, Petroleum, Heavy Catalytic Cracked	64741-54-4	0 - 80
Ethanol	64-17-5	10 - 90
Toluene	108-88-3	0 - 70
Heptane, branched, cyclic and linear	426260-76-6	0 - 50
Naphtha (petroleum), hydrotreated heavy	64742-48-9	0 - 50
Isopentane	78-78-4	0 - 35
Cyclopentane	287-92-3	0 - 20
n-Heptane	142-82-5	0 - 30
1-Hexene	592-41-6	0 - 30
n-Butane	106-97-8	0 - 30
2-Methylpentane	107-83-5	0 - 30
Naphtha (petroleum), full-range	68919-37-9	0 - 25

reformed		
3,3-Dimethylpentane	562-49-2	50 - 70
Distillates (petroleum), Hydrotreated light	64742-47-8	0 - 15
Naphthalene	91-20-3	5 - 10
m-xylene	108-38-3	5 - 10
2,2,4-Trimethylpentane (Isooctane)	540-84-1	0 - 30
Benzene	71-43-2	1 - 5
2-Methylhexane	591-76-4	1 - 5
3-Methylhexane	589-34-4	1 - 5
n-Pentane	109-66-0	0 - 5
Ethylbenzene	100-41-4	0 - 5
3-Methylpentane	96-14-0	0 - 5
n-hexane	110-54-3	0 - 5
2,3-Dimethylpentane	565-59-3	0 - 5
2,4-Dimethylpentane	108-08-7	0 - 5
2-Methylheptane	592-27-8	0 - 5
1,2,4-Trimethylbenzene	95-63-6	0 - 5
2,3-Dimethylbutane	79-29-8	0 - 5
n-Octane	111-65-9	0 - 5
2-methyl-2-butene	513-35-9	0 - 5
Methylcyclohexane	108-87-2	0 - 5
2,3,4-Trimethylpentane	565-75-3	0 - 5
2,3,3-Trimethylpentane	560-21-4	0 - 5
p-xylene	106-42-3	0 - 5
o-xylene	95-47-6	0 - 5
Cyclohexane	110-82-7	0 - 5
Methylcyclopentane	96-37-7	0 - 5
4-Methylheptane	589-53-7	0 - 5
2-methyl-1-butene	563-46-2	0 - 5
Xylenes	1330-20-7	0 - 5
trans-2-Pentene	646-04-8	0 - 5
Hydrogen Sulfide	7783-06-4	0.1 - 1

SECTION 4: First aid measures

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

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

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

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

If swallowed : Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

SECTION 5: Firefighting measures

Flash point	:	-37°C (-35°F) estimated
Autoignition temperature	:	No data available
Suitable extinguishing media	:	Alcohol-resistant foam. Carbon dioxide (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 an open flame or any other 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 an open flame or any other incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.

Storage

Requirements for storage areas and containers	:	No smoking. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.
Use	:	Fuel

SECTION 8: Exposure controls/personal protection

Ingredients with workplace control parameters

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Components	Basis	Value	Control parameters	Note
Naphtha (petroleum), light alkylate	OSHA Z-1-A	TWA	400 ppm, 1,600 mg/m3	
	OSHA Z-1	TWA	500 ppm, 2,000 mg/m3	
Ethanol	OSHA Z-1	TWA	1,000 ppm, 1,900 mg/m3	
	OSHA Z-1-A	TWA	1,000 ppm, 1,900 mg/m3	
	ACGIH	STEL	1,000 ppm,	A3,
Naphtha, Petroleum, Heavy Catalytic Cracked	OSHA Z-1-A	TWA	400 ppm, 1,600 mg/m3	
	OSHA Z-1	TWA	500 ppm, 2,000 mg/m3	
Toluene	ACGIH	TWA	20 ppm,	A4,
	OSHA Z-2	TWA	200 ppm,	
	OSHA Z-2	CEIL	300 ppm,	
	OSHA Z-2	Peak	500 ppm,	
	OSHA Z-1-A	TWA	100 ppm, 375 mg/m3	
	OSHA Z-1-A	STEL	150 ppm, 560 mg/m3	
3,3-Dimethylpentane	ACGIH	TWA	400 ppm,	
	ACGIH	STEL	500 ppm,	
Heptane, branched, cyclic and linear	ACGIH	TWA	400 ppm,	
	ACGIH	STEL	500 ppm,	
Naphtha (petroleum), hydrotreated heavy	OSHA Z-1	TWA	500 ppm, 2,000 mg/m3	
	OSHA Z-1-A	TWA	400 ppm, 1,600 mg/m3	
Isopentane	ACGIH	TWA	1,000 ppm,	
n-Heptane	OSHA Z-1	TWA	500 ppm, 2,000 mg/m3	
	OSHA Z-1-A	TWA	400 ppm, 1,600 mg/m3	
	OSHA Z-1-A	STEL	500 ppm, 2,000 mg/m3	
	ACGIH	TWA	400 ppm,	
	ACGIH	STEL	500 ppm,	
1-Hexene	ACGIH	TWA	50 ppm,	
Naphtha (petroleum), full-range reformed	OSHA Z-1	TWA	500 ppm, 2,000 mg/m3	(b),
	OSHA Z-1-A	TWA	400 ppm, 1,600 mg/m3	
n-Butane	OSHA Z-1-A	TWA	800 ppm, 1,900 mg/m3	

	ACGIH	STEL	1,000 ppm,	CNS impair, EX,
	ACGIH	STEL	1,000 ppm,	
2-Methylpentane	ACGIH	TWA	500 ppm,	
	ACGIH	STEL	1,000 ppm,	
	OSHA Z-1-A	TWA	500 ppm, 1,800 mg/m3	
	OSHA Z-1-A	STEL	1,000 ppm, 3,600 mg/m3	
Cyclopentane	ACGIH	TWA	600 ppm,	
	OSHA Z-1-A	TWA	600 ppm, 1,720 mg/m3	
Distillates (petroleum), Hydrotreated light	OSHA Z-1	TWA	500 ppm, 2,000 mg/m3	(b),
	OSHA Z-1-A	TWA	400 ppm, 1,600 mg/m3	
	ACGIH	TWA	200 mg/m3	A3, Skin,
	OSHA Z-1	TWA	5 mg/m3	Mist
	OSHA Z-1-A	TWA	5 mg/m3	Mist
2,2,4-Trimethylpentane (Isooctane)	ACGIH	TWA	300 ppm,	
Naphthalene	ACGIH	TWA	10 ppm,	A3, Skin,
	ACGIH	STEL	15 ppm,	hematologic eff, URT irr, eye irr, eye dam, (), A4, Skin,
	OSHA Z-1	TWA	10 ppm, 50 mg/m3	
	OSHA Z-1-A	TWA	10 ppm, 50 mg/m3	
	OSHA Z-1-A	STEL	15 ppm, 75 mg/m3	
m-xylene	OSHA Z-1	TWA	100 ppm, 435 mg/m3	
	OSHA Z-1-A	STEL	150 ppm, 655 mg/m3	
	OSHA Z-1-A	TWA	100 ppm, 435 mg/m3	
	ACGIH	TWA	100 ppm,	A4,
	ACGIH	STEL	150 ppm,	A4,
Benzene	ACGIH	TWA	0.5 ppm,	A1, Skin,
	ACGIH	STEL	2.5 ppm,	A1, Skin,
	OSHA Z-1-A	TWA	1 ppm,	
	OSHA Z-1-A	CEIL	5 ppm,	
	OSHA Z-2	Peak	50 ppm,	
	OSHA 29 CFR 1910.1028(c)	TWA	1 ppm,	
	OSHA 29 CFR 1910.1028(c)	STEL	5 ppm,	
	OSHA CARC	PEL	1 ppm,	
	OSHA CARC	STEL	5 ppm,	
p-xylene	OSHA Z-1	TWA	100 ppm, 435 mg/m3	
	OSHA Z-1-A	STEL	150 ppm, 655 mg/m3	
	OSHA Z-1-A	TWA	100 ppm, 435 mg/m3	
	ACGIH	TWA	100 ppm,	A4,
	ACGIH	STEL	150 ppm,	A4,
2-Methylhexane	ACGIH	TWA	400 ppm,	
	ACGIH	STEL	500 ppm,	
3-Methylhexane	ACGIH	TWA	400 ppm,	
	ACGIH	STEL	500 ppm,	
n-Pentane	OSHA Z-1	TWA	1,000 ppm, 2,950 mg/m3	
	OSHA Z-1-A	TWA	600 ppm, 1,800 mg/m3	
	OSHA Z-1-A	STEL	750 ppm, 2,250 mg/m3	
	ACGIH	TWA	1,000 ppm,	
Ethylbenzene	OSHA Z-1	TWA	100 ppm, 435 mg/m3	
	OSHA Z-1-A	TWA	100 ppm, 435 mg/m3	
	OSHA Z-1-A	STEL	125 ppm, 545 mg/m3	
	ACGIH	TWA	20 ppm,	A3,
3-Methylpentane	ACGIH	TWA	500 ppm,	
	ACGIH	STEL	1,000 ppm,	
	OSHA Z-1-A	TWA	500 ppm, 1,800 mg/m3	
	OSHA Z-1-A	STEL	1,000 ppm, 3,600 mg/m3	
n-hexane	ACGIH	TWA	50 ppm,	Skin,
	OSHA Z-1	TWA	500 ppm, 1,800 mg/m3	
	OSHA Z-1-A	TWA	50 ppm, 180 mg/m3	
2,3-Dimethylpentane	ACGIH	TWA	400 ppm,	
	ACGIH	STEL	500 ppm,	
2,4-Dimethylpentane	ACGIH	TWA	400 ppm,	
	ACGIH	STEL	500 ppm,	
o-xylene	OSHA Z-1	TWA	100 ppm, 435 mg/m3	
	OSHA Z-1-A	STEL	150 ppm, 655 mg/m3	
	OSHA Z-1-A	TWA	100 ppm, 435 mg/m3	
	ACGIH	TWA	100 ppm,	A4,
	ACGIH	STEL	150 ppm,	A4,
Methylcyclopentane	ACGIH	TWA	500 ppm,	CNS impair, URT irr, eye irr,
	ACGIH	STEL	1,000 ppm,	CNS impair, URT irr, eye irr,
	OSHA Z-1-A	TWA	500 ppm, 1,800 mg/m3	
	OSHA Z-1-A	STEL	1,000 ppm, 3,600 mg/m3	
2-Methylheptane	ACGIH	TWA	300 ppm,	

1,2,4-Trimethylbenzene	ACGIH	TWA	25 ppm,	
	OSHA Z-1-A	TWA	25 ppm, 125 mg/m3	
2,3-Dimethylbutane	ACGIH	TWA	500 ppm,	
	ACGIH	STEL	1,000 ppm,	
	OSHA Z-1-A	TWA	500 ppm, 1,800 mg/m3	
	OSHA Z-1-A	STEL	1,000 ppm, 3,600 mg/m3	
n-Octane	OSHA Z-1	TWA	500 ppm, 2,350 mg/m3	
	OSHA Z-1-A	TWA	300 ppm, 1,450 mg/m3	
	OSHA Z-1-A	STEL	375 ppm, 1,800 mg/m3	
	ACGIH	TWA	300 ppm,	
4-Methylheptane	ACGIH	TWA	300 ppm,	
2,3,4-Trimethylpentane	ACGIH	TWA	300 ppm,	
2,3,3-Trimethylpentane	ACGIH	TWA	300 ppm,	
Methylcyclohexane	ACGIH	TWA	400 ppm,	
	OSHA Z-1	TWA	500 ppm, 2,000 mg/m3	
	OSHA Z-1-A	TWA	400 ppm, 1,600 mg/m3	

() Adopted values or notations enclosed are those for which changes are proposed in the NIC
(b) The value in mg/m3 is approximate.
A1 Confirmed human carcinogen
A3 Confirmed animal carcinogen with unknown relevance to humans
A4 Not classifiable as a human carcinogen
CNS impair Central Nervous System impairment
EX Explosion hazard: the substance is a flammable asphyxiant or excursions above the TLV ® could approach 10% of the lower explosive limit.
eye dam Eye damage
eye irr Eye irritation
hematologic eff Hematologic effects
Skin Danger of cutaneous absorption
URT irr Upper Respiratory Tract irritation

Immediately Dangerous to Life or Health Concentrations (IDLH)

Substance name	CAS-No.	Control parameters	Update
Ethanol	64-17-5	Immediately Dangerous to Life or Health Concentration Value 3300 parts per million	1995-03-01
Toluene	108-88-3	Immediately Dangerous to Life or Health Concentration Value 500 parts per million	1995-03-01
n-Heptane	142-82-5	Immediately Dangerous to Life or Health Concentration Value 750 parts per million	1995-03-01
n-Butane	106-97-8	Immediately Dangerous to Life or Health Concentration Value 1600 parts per million	2017-02-03
Distillates (petroleum), Hydrotreated light	64742-47-8	Immediately Dangerous to Life or Health Concentration Value 2500 mg/m³	2017-09-01
Naphthalene	91-20-3	Immediately Dangerous to Life or Health Concentration Value 250 parts per million	1995-03-01
m-xylene	108-38-3	Immediately Dangerous to Life or Health Concentration Value 900 parts per million	2017-09-01
Benzene	71-43-2	Immediately Dangerous to Life or Health Concentration Value 500 parts per million	1995-03-01
p-xylene	106-42-3	Immediately Dangerous to Life or Health Concentration Value 900 parts per million	2017-09-01
n-Pentane	109-66-0	Immediately Dangerous to Life or Health Concentration Value 1500 parts per million	1995-03-01
Ethylbenzene	100-41-4	Immediately Dangerous to Life or Health Concentration Value 800 parts per million	1995-03-01
n-hexane	110-54-3	Immediately Dangerous to Life or Health Concentration Value 1100 parts per million	1995-03-01
o-xylene	95-47-6	Immediately Dangerous to Life or Health Concentration Value 900 parts per million	2017-09-01

n-Octane	111-65-9	Immediately Dangerous to Life or Health Concentration Value 1000 parts per million	1995-03-01
Methylcyclohexane	108-87-2	Immediately Dangerous to Life or Health Concentration Value 1200 parts per million	1995-03-01
Hydrogen Sulfide	7783-06-4	Immediately Dangerous to Life or Health Concentration Value 100 parts per million	1995-03-01

Biological exposure indices

US

Substance name	CAS-No.	Control parameters	Sampling time	Update
Toluene	108-88-3	Toluene: 0.02 mg/l (In blood)	Prior to last shift of workweek	2010-03-01
		Toluene: 0.03 mg/l (Urine)	End of shift (As soon as possible after exposure ceases)	2010-03-01
		o-Cresol: 0.3 mg/g Creatinine Background (Urine) With hydrolyses ()	End of shift (As soon as possible after exposure ceases)	2010-03-01
m-xylene	108-38-3	Methylhippuric acids: 1.5 g/g creatinine (Urine)	End of shift (As soon as possible after exposure ceases)	2013-03-01
Benzene	71-43-2	S-Phenylmercapturic acid: 25 µg/g creatinine Background (Urine)	End of shift (As soon as possible after exposure ceases)	2010-03-01
		t,t-Muconic acid: 500 µg/g creatinine Background (Urine)	End of shift (As soon as possible after exposure ceases)	2010-03-01
p-xylene	106-42-3	Methylhippuric acids: 1.5 g/g creatinine (Urine)	End of shift (As soon as possible after exposure ceases)	2013-03-01
Ethylbenzene	100-41-4	Sum of mandelic acid and phenyl glyoxylic acid: 0.15 g/g creatinine Nonspecific (Urine)	End of shift (As soon as possible after exposure ceases)	2016-03-01
n-hexane	110-54-3	2,5-Hexanedione: 0.5 mg/l 2019 adoption (Urine) Without hydrolysis ()	End of shift	2019-03-05
o-xylene	95-47-6	Methylhippuric acids: 1.5 g/g creatinine (Urine)	End of shift (As soon as possible after exposure ceases)	2013-03-01

Engineering measures

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

Personal protective equipment

Respiratory protection : Wear a supplied-air NIOSH approved respirator unless ventilation or other engineering controls are adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure. Wear a NIOSH approved

respirator that provides protection when working with this material if exposure to harmful levels of airborne material may occur, such as:. Full-Face Supplied-Air Respirator. Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.

Hand protection	:	The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
Eye protection	:	Eye wash bottle with pure water. Tightly fitting safety goggles.
Skin and body protection	:	Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Wear as appropriate:. Flame retardant antistatic protective clothing. Workers should wear antistatic footwear.
Hygiene measures	:	When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

Appearance

Form	:	Liquid
Physical state	:	Liquid
Color	:	Clear to amber
Odor	:	Mild

Safety data

Flash point	:	-37°C (-35°F) estimated
Lower explosion limit	:	1.5 %(V)
Oxidizing properties	:	no
Autoignition temperature	:	No data available
Molecular formula	:	Mixture
Molecular weight	:	Not applicable
pH	:	5.9
Pour point	:	No data available

Boiling point/boiling range	:	27.2-214°C (81.0-417°F)
Vapor pressure	:	7.00 - 10.00 PSI at 38°C (100°F)
Relative density	:	0.75 at 16 °C (61 °F)
Density	:	742.9 g/l
Water solubility	:	slightly soluble
Partition coefficient: n-octanol/water	:	No data available
Viscosity, kinematic	:	No data available
Relative vapor density	:	3 (Air = 1.0)
Evaporation rate	:	No data available
Percent volatile	:	> 99 %

SECTION 10: Stability and reactivity

Reactivity : Stable under recommended storage conditions.

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

Possibility of hazardous reactions

Hazardous reactions : Hazardous reactions: Hazardous polymerization does not occur.

Further information: No decomposition if stored and applied as directed.

Hazardous reactions: Vapors may form explosive mixture with air.

Conditions to avoid : Heat, flames and sparks.

Hazardous decomposition products : Carbon oxides

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

SECTION 11: Toxicological information

Oxygenated Test Fuel - Ethanol

Acute oral toxicity : Acute toxicity estimate: 3,412 mg/kg
Method: Calculation method

Acute toxicity estimate: 3,881 mg/kg
Method: Calculation method

Oxygenated Test Fuel - Ethanol
Acute inhalation toxicity : Acute toxicity estimate: > 20 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Method: Calculation method

Acute toxicity estimate: 20.01 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Method: Calculation method

Oxygenated Test Fuel - Ethanol
Acute dermal toxicity : Acute toxicity estimate: > 2,000 mg/kg
Method: Calculation method

Oxygenated Test Fuel - Ethanol
Skin irritation : Skin irritation
largely based on animal evidence.

Oxygenated Test Fuel - Ethanol
Eye irritation : Eye irritation
largely based on animal evidence.

Oxygenated Test Fuel - Ethanol
Sensitization : Did not cause sensitization on laboratory animals.
Estimated based on individual component values.

Oxygenated Test Fuel - Ethanol
Repeated dose toxicity : Method: Based on product or component testing, long term repeated exposure may cause damage to the following organs:
Target Organs: Ototoxicity, Eyes, Blood, Nervous system
Subchronic toxicity

Genotoxicity in vitro

Naphtha (petroleum), light alkylate	:	Test Type: Mouse lymphoma assay Result: negative
Naphtha, Petroleum, Heavy Catalytic Cracked		Test Type: Mouse lymphoma assay Result: positive
Ethanol		Test Type: Ames test Result: negative

	Test Type: Forward mutation assay Result: positive Test Type: Sister Chromatid Exchange Assay Result: positive
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.
Cyclopentane	Test Type: Modified Ames test Concentration: 1250 microgram/plate Metabolic activation: with and without metabolic activation Method: see user defined free text Result: negative Remarks: In vitro tests did not show mutagenic effects Test Type: Mouse lymphoma assay Concentration: 200 microgram/mililiter Metabolic activation: with and without metabolic activation Result: negative Remarks: In vitro tests did not show mutagenic effects
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
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
n-Butane	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
m-xylene	Test Type: Ames test Result: negative
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
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
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
Ethylbenzene	Test Type: Ames test Result: negative
	Test Type: Unscheduled DNA synthesis assay Result: negative
n-hexane	Test Type: Ames test Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative
	Test Type: Mouse lymphoma assay Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476 Result: negative
	Test Type: Mouse lymphoma assay Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476 Result: Positive results were obtained in some in vitro tests.
2,3-Dimethylbutane	Test Type: Ames test 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
p-xylene	Test Type: Ames test Result: negative
	Test Type: Chromosome aberration test in vitro Result: negative
o-xylene	Test Type: Ames test 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
Xylenes	Test Type: Ames test Result: negative Test Type: Mouse lymphoma assay Result: negative

Genotoxicity in vivo

Naphtha (petroleum), light alkylate	:	Test Type: Cytogenetic assay Species: Rat Cell type: Bone marrow Dose: 300, 1000, 3000 mg/kg Result: negative
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) Method: Directive 67/548/EEC, Annex V, B.12. Remarks: Information given is based on data obtained from similar substances.
Cyclopentane		Test Type: Micronucleus test Species: Mouse Dose: 28.7 mg/l Result: negative
1-Hexene		Test Type: Mouse micronucleus assay Species: Mouse Method: Mutagenicity (micronucleus test) Result: negative
Naphthalene		Test Type: Mouse micronucleus assay Result: negative
2,2,4-Trimethylpentane (Isooctane)		Test Type: Unscheduled DNA synthesis assay Species: Mouse Dose: 500 mg/kg Result: negative

	Test Type: Unscheduled DNA synthesis assay Species: Rat Dose: 500 mg/kg Result: negative
Benzene	Test Type: Mouse micronucleus assay Result: positive
n-Pentane	Test Type: Micronucleus test Species: Rat Cell type: Bone marrow Result: negative
Ethylbenzene	Test Type: Mouse micronucleus assay Species: Mouse Result: negative
n-hexane	Test Type: Dominant lethal assay Species: Mouse Dose: 100 and 400 ppm Result: negative
	Test Type: Cytogenetic assay Species: Rat Dose: 900, 3000, 9000 ppm Result: negative
2-methyl-2-butene	Test Type: Mouse micronucleus assay Species: Rat Cell type: Bone marrow Route of Application: Inhalation Exposure time: 6 h/d 2d Method: OECD Test Guideline 474 Result: positive
p-xylene	Test Type: Micronucleus test Species: Mouse Method: Mutagenicity (micronucleus test) Result: negative
o-xylene	Test Type: Mouse micronucleus assay Result: negative
Cyclohexane	Test Type: Cytogenetic assay Species: Rat Cell type: Bone marrow Dose: 96.6, 307.2, 10141.6 ppm Result: negative
Xylenes	Test Type: Mouse micronucleus assay Result: negative

Oxygenated Test Fuel - Ethanol
Carcinogenicity : Method: Expected to be carcinogenic based on individual component data.

Oxygenated Test Fuel - Ethanol
Reproductive toxicity : Method: Estimated based on individual component values.

Suspected of damaging fertility or the unborn child.

Oxygenated Test Fuel - Ethanol
Developmental Toxicity : Method: Estimated based on individual component values.
No adverse effects expected

Oxygenated Test Fuel - Ethanol
Aspiration toxicity : May be fatal if swallowed and enters airways.
Toxicology Assessment

Oxygenated Test Fuel - Ethanol
CMR effects : Carcinogenicity:
Known or presumed human carcinogen(s)
Teratogenicity:
Suspected of damaging fertility. Suspected of damaging the unborn child.
Reproductive toxicity:
Suspected of damaging fertility. Suspected of damaging the unborn child.

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

SECTION 12: Ecological information

Ecotoxicity effects

Toxicity to fish : LC50: < 1 mg/l
Estimated based on individual component values.

Toxicity to daphnia and other aquatic invertebrates : LC50: < 1 mg/l
Estimated based on individual component values.

Toxicity to algae : EC50: < 1 mg/l
Estimated based on individual component values.

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

M-Factor (Chron. Aquat. Tox.) 1

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

Toxicity to bacteria

Methylcyclohexane	:	IC50: 29 mg/l Exposure time: 15 h Growth inhibition

Toxicity to fish (Chronic toxicity)

n-Heptane	:	NOELR: 1.284 mg/l Exposure time: 28 d Species: Oncorhynchus mykiss (rainbow trout) Method: QSAR modeled data

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)

Naphtha, Petroleum, Heavy Catalytic Cracked	:	NOELR: 2.6 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) semi-static test Method: OECD Test Guideline 211
Distillates (petroleum), Hydrotreated light	:	NOEC: 0.48 mg/l Exposure time: 21 Days Species: Daphnia magna (Water flea) Method: OECD Test Guideline 211
2,2,4-Trimethylpentane (Isooctane)	:	NOEL: 0.17 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Method: OECD Test Guideline 211 Information given is based on data obtained from similar substances.
Ethylbenzene	:	NOEC: 1 mg/l Exposure time: 7 d Species: Daphnia pulex (Water flea) semi-static test Analytical monitoring: yes
Biodegradability	:	This material is not expected to be readily biodegradable. Expected to be inherently biodegradable.

Elimination information (persistence and degradability)

Bioaccumulation	:	Method: Estimated based on individual component values. This material is not expected to bioaccumulate.

Mobility

Naphtha (petroleum), light alkylate	:	This product may float or sink in water. After release, disperses into the air.
1-Hexene	:	No data available
Results of PBT assessment	:	This mixture contains no substance considered to be very persistent and very bioaccumulating (vPvB).

Additional ecological information	:	Very toxic to aquatic life with long lasting effects.

Ecotoxicology Assessment

Short-term (acute) aquatic hazard	:	Very toxic to aquatic life.
Long-term (chronic) aquatic hazard	:	Very toxic to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

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

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

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)
UN3475, ETHANOL AND GASOLINE MIXTURE, 3, II, MARINE POLLUTANT, (HEPTANE, 2,2,4-TRIMETHYLPENTANE (ISOOCTANE))

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)
UN3475, ETHANOL AND GASOLINE MIXTURE, 3, II, (-37°C), MARINE POLLUTANT, (NAPHTHA (PETROLEUM) LIGHT ALKYLATE)

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)
UN3475, ETHANOL AND GASOLINE MIXTURE, 3, II

ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))
UN3475, ETHANOL AND GASOLINE MIXTURE, 3, II, (D/E), ENVIRONMENTALLY HAZARDOUS, (NAPHTHA (PETROLEUM) LIGHT ALKYLATE)

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))
UN3475, ETHANOL AND GASOLINE MIXTURE, 3, II, ENVIRONMENTALLY HAZARDOUS, (NAPHTHA (PETROLEUM) LIGHT ALKYLATE)

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)
UN3475, ETHANOL AND GASOLINE MIXTURE, 3, II, ENVIRONMENTALLY HAZARDOUS, (NAPHTHA (PETROLEUM) LIGHT ALKYLATE)

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

SECTION 15: Regulatory information

National legislation

SARA 311/312 Hazards	:	Flammable (gases, aerosols, liquids, or solids) Acute toxicity (any route of exposure) Skin corrosion or irritation Serious eye damage or eye irritation Germ cell mutagenicity Carcinogenicity Reproductive toxicity Specific target organ toxicity (single or repeated exposure) Aspiration hazard
CERCLA Reportable Quantity	:	211 lbs Benzene Ethylbenzene Ethylbenzene Xylenes
SARA 302 Reportable Quantity	:	Calculated RQ exceeds reasonably attainable upper limit. Hydrogen Sulfide
SARA 302 Threshold Planning Quantity	:	This material does not contain any components with a section 302 EHS TPQ.
SARA 304 Reportable Quantity	:	Calculated RQ exceeds reasonably attainable upper limit. Hydrogen Sulfide 7783-06-4 100 lbs

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

: Toluene - 108-88-3
Naphthalene - 91-20-3
m-xylene - 108-38-3
Benzene - 71-43-2
p-xylene - 106-42-3
Ethylbenzene - 100-41-4
n-hexane - 110-54-3
o-xylene - 95-47-6
1,2,4-Trimethylbenzene - 95-63-6

Clean Air Act

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

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

: Toluene - 108-88-3
2,2,4-Trimethylpentane (Isooctane) - 540-84-1
Naphthalene - 91-20-3
m-xylene - 108-38-3
Benzene - 71-43-2
p-xylene - 106-42-3
Ethylbenzene - 100-41-4
n-hexane - 110-54-3
o-xylene - 95-47-6

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

: Isopentane - 78-78-4
n-Butane - 106-97-8
n-Pentane - 109-66-0
trans-2-Pentene - 646-04-8

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

: Ethanol - 64-17-5
Toluene - 108-88-3
Isopentane - 78-78-4
Benzene - 71-43-2
p-xylene - 106-42-3
n-Pentane - 109-66-0
Ethylbenzene - 100-41-4
o-xylene - 95-47-6
Methylcyclohexane - 108-87-2

US State Regulations

Pennsylvania Right To Know : Naphtha (petroleum), light alkylate - 64741-66-8
Ethanol - 64-17-5
Naphtha, Petroleum, Heavy Catalytic Cracked - 64741-54-4
Hydrocarbons, C7-9 - 68920-06-9
Toluene - 108-88-3
3,3-Dimethylpentane - 562-49-2
Heptane, branched, cyclic and linear - 426260-76-6
Naphtha (petroleum), hydrotreated heavy - 64742-48-9
Isopentane - 78-78-4
n-Heptane - 142-82-5
1-Hexene - 592-41-6
Naphtha (petroleum), full-range reformed - 68919-37-9
n-Butane - 106-97-8
2-Methylpentane - 107-83-5
C9-C11 Isoalkanes - 68551-16-6
Cyclopentane - 287-92-3
C12-C14 Isoalkanes - 68551-19-9
Distillates (petroleum), Hydrotreated light - 64742-47-8
Aromatic hydrocarbons, C9-11 - 70693-06-0
2,2,4-Trimethylpentane (Isooctane) - 540-84-1
Naphthalene - 91-20-3
m-xylene - 108-38-3
Benzene - 71-43-2
p-xylene - 106-42-3
2-Methylhexane - 591-76-4
3-Methylhexane - 589-34-4
Decane - 124-18-5
n-Pentane - 109-66-0
Ethylbenzene - 100-41-4
3-Methylpentane - 96-14-0
n-hexane - 110-54-3
2,3-Dimethylpentane - 565-59-3
2,4-Dimethylpentane - 108-08-7
o-xylene - 95-47-6
Methylcyclopentane - 96-37-7
1,2,4-Trimethylbenzene - 95-63-6
2,3-Dimethylbutane - 79-29-8
n-Octane - 111-65-9
2-methyl-2-butene - 513-35-9
2,3,3-Trimethylpentane - 560-21-4
trans-2-Pentene - 646-04-8
3,3-Diethylpentane - 1067-20-5
Methylcyclohexane - 108-87-2
Hydrogen Sulfide - 7783-06-4
Xylenes - 1330-20-7
Cyclohexane - 110-82-7

California Prop. 65 Components : WARNING WARNING: This product can expose you to chemicals including [listed below], which is [are] known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov/food.

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

WARNING WARNING: This product can expose you to chemicals including [listed below], which is [are] known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

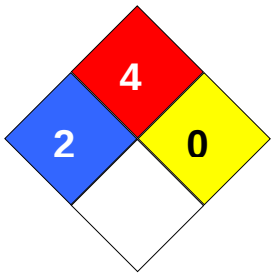
Toluene	108-88-3
Benzene	71-43-2
n-hexane	110-54-3

Notification status

Europe REACH	:	Not in compliance with the inventory
Switzerland CH INV	:	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 AICS	:	Not in compliance with the inventory
New Zealand NZIoC	:	Not in compliance with the inventory
Japan ENCS	:	On the inventory, or in compliance with the inventory
Korea KECI	:	A substance(s) in this product was not registered, notified to be registered, or exempted from registration by CPChem according to K-REACH regulations. Importation or manufacture of this product is still permitted provided the Korean Importer of Record has themselves notified the substance.
Philippines PICCS	:	Not in compliance with the inventory
China IECSC	:	Not in compliance with the inventory
Taiwan TCSI	:	Not in compliance with the inventory

SECTION 16: Other information

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



Further information

Legacy SDS Number : 663570

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

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

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

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