JP-4 Fuel (MIL-T-5624)

Version 1.5 Revision Date 2021-07-19

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

Product information

Product Name : JP-4 Fuel (MIL-T-5624)
Material : 1028366, 1024270

Use : Fuel

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:
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
Germ cell mutagenicity, Category 1B
Carcinogenicity, Category 1B
Reproductive toxicity, Category 2
Specific target organ toxicity - single exposure, Category 3,

Central 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.
H336: May cause drowsiness or dizziness.
H340: May cause genetic defects.
H350: May cause cancer.
H361: Suspected of damaging fertility or the unborn child.

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.
P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
P264 Wash skin thoroughly after handling.
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.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P331 Do NOT induce vomiting.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
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.
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	
	Naphtha (petroleum), light catalytic reformed	64741-63-5
	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 : Petroleum Naphtha
JP-4 AVIATION TURBINE FUEL
JP-4 (MIL-T-5624)

Molecular formula : Mixture

Component	CAS-No.	Weight %
Distillates (petroleum), Hydrotreated light	64742-47-8	0 - 70
Kerosene C9-C16	8008-20-6	0 - 70
Kerosine, petroleum, hydrosulfurized	64742-81-0	0 - 70
Naphtha (petroleum), light catalytic reformed	64741-63-5	0 - 15
Isopentane	78-78-4	5 - 15
Isoalkanes C7-8	70024-92-9	5 - 15
Toluene	108-88-3	0 - 5
Xylenes	1330-20-7	0 - 5
Naphthalene	91-20-3	0 - 5
Ethylbenzene	100-41-4	0 - 5
Benzene	71-43-2	0 - 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	:	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. 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	:	-23°C (-9°F) estimated
Autoignition temperature	:	No data available
Suitable extinguishing media	:	Alcohol-resistant foam. Carbon dioxide (CO2). Dry chemical.
Unsuitable extinguishing media	:	High volume water jet.
Specific hazards during fire fighting	:	Do not allow run-off from fire fighting to enter drains or water courses.
Special protective equipment for fire-fighters	:	Wear self-contained breathing apparatus for firefighting if necessary.
Further information	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.
Fire and explosion protection	:	Do not spray on a naked flame or any incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.
Hazardous decomposition products	:	Carbon 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.

Use : Fuel

SECTION 8: Exposure controls/personal protection

Ingredients with workplace control parameters

Chevron Phillips Chemical Company LP

Components	Basis	Value	Control parameters	Note
Isoalkanes C7-8	Manufacturer	TWA	300 ppm,	

US

Components	Basis	Value	Control parameters	Note
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
Kerosene C9-C16	ACGIH	TWA	200 mg/m3	A3, Skin,
	OSHA Z-1	TWA	500 ppm, 2,000 mg/m3	
	OSHA Z-1-A	TWA	400 ppm, 1,600 mg/m3	
Kerosine, petroleum, hydrosulfurized	ACGIH	TWA	200 mg/m3	A3, Skin,
Naphtha (petroleum), light catalytic reformed	OSHA Z-1-A	TWA	400 ppm, 1,600 mg/m3	
	OSHA Z-1	TWA	500 ppm, 2,000 mg/m3	
Isopentane	ACGIH	TWA	1,000 ppm,	

Toluene	ACGIH	TWA	20 ppm,	A4,
	OSHA Z-2	TWA	200 ppm,	
	OSHA Z-2	CEIL	300 ppm,	
	OSHA Z-2	Peak	500 ppm,	
	OSHA Z-1-A	TWA	100 ppm, 375 mg/m3	
	OSHA Z-1-A	STEL	150 ppm, 560 mg/m3	
Xylenes	OSHA Z-1	TWA	100 ppm, 435 mg/m3	
	OSHA Z-1-A	STEL	150 ppm, 655 mg/m3	
	OSHA Z-1-A	TWA	100 ppm, 435 mg/m3	
	ACGIH	TWA	100 ppm,	A4,
	ACGIH	STEL	150 ppm,	A4,
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	
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,
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,	

() 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
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
Distillates (petroleum), Hydrotreated light	64742-47-8	Immediately Dangerous to Life or Health Concentration Value 2500 mg/m³	2017-09-01
Toluene	108-88-3	Immediately Dangerous to Life or Health Concentration Value 500 parts per million	1995-03-01
Xylenes	1330-20-7	Immediately Dangerous to Life or Health Concentration Value 900 parts per million	2017-09-01
Naphthalene	91-20-3	Immediately Dangerous to Life or Health Concentration Value 250 parts per million	1995-03-01
Ethylbenzene	100-41-4	Immediately Dangerous to Life or Health Concentration Value 800 parts per million	1995-03-01
Benzene	71-43-2	Immediately Dangerous to Life or Health Concentration Value 500 parts per million	1995-03-01

Biological exposure indices

US

Substance name	CAS-No.	Control parameters	Sampling time	Update
Toluene	108-88-3	Toluene: 0.02 mg/l (In blood)	Prior to last shift of workweek	2010-03-01

		Toluene: 0.03 mg/l (Urine)	End of shift (As soon as possible after exposure ceases)	2010-03-01
		o-Cresol: 0.3 mg/g Creatinine Background (Urine) With hydrolyses ()	End of shift (As soon as possible after exposure ceases)	2010-03-01
Xylenes	1330-20-7	Methylhippuric acids: 1.5 g/g creatinine (Urine)	End of shift (As soon as possible after exposure ceases)	2013-03-01
Ethylbenzene	100-41-4	Sum of mandelic acid and phenyl glyoxylic acid: 0.15 g/g creatinine Nonspecific (Urine)	End of shift (As soon as possible after exposure ceases)	2016-03-01
Benzene	71-43-2	S-Phenylmercapturic acid: 25 µg/g creatinine Background (Urine)	End of shift (As soon as possible after exposure ceases)	2010-03-01
		t,t-Muconic acid: 500 µg/g creatinine Background (Urine)	End of shift (As soon as possible after exposure ceases)	2010-03-01

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:. Air-Purifying Respirator for Organic Vapors. Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, aerosolization, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.

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.

Protective measures : Wear full protective clothing and self-contained breathing apparatus.

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	:	-23°C (-9°F) estimated
Lower explosion limit	:	1.3 %(V)
Upper explosion limit	:	8 %(V)
Oxidizing properties	:	No
Autoignition temperature	:	No data available
Thermal decomposition	:	No data available
Molecular formula	:	Mixture
Molecular weight	:	No data available
pH	:	No data available
Pour point	:	No data available
Boiling point/boiling range	:	22°C (72°F)
Vapor pressure	:	2.00 - 3.00 PSI at 37.8°C (100.0°F)
Relative density	:	0.751 at 15.6 °C (60.1 °F)
Water solubility	:	negligible
Partition coefficient: n-octanol/water	:	No data available
Viscosity, kinematic	:	No data available
Relative vapor density	:	No data available

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.

Hazardous reactions: Vapors may form explosive mixture with air.

Conditions to avoid : Heat, flames and sparks.

Materials to avoid : May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

Thermal decomposition : No data available

Hazardous decomposition products : Carbon oxides

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

SECTION 11: Toxicological information

JP-4 Fuel (MIL-T-5624)
Acute oral toxicity : Acute toxicity estimate: > 5,000 mg/kg
Method: Calculation method

JP-4 Fuel (MIL-T-5624)
Acute inhalation toxicity : Acute toxicity estimate: > 40 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Method: Calculation method

Acute toxicity estimate: 7 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: Calculation method

JP-4 Fuel (MIL-T-5624)
Acute dermal toxicity : Acute toxicity estimate: > 5,000 mg/kg
Method: Calculation method

Acute toxicity estimate: > 5,000 mg/kg
Method: Calculation method

JP-4 Fuel (MIL-T-5624)
Skin irritation : Skin irritation
largely based on animal evidence.
May cause skin irritation in susceptible persons.

JP-4 Fuel (MIL-T-5624)
Eye irritation : No eye irritation
largely based on animal evidence.
Vapors may cause irritation to the eyes, respiratory system and the skin.

JP-4 Fuel (MIL-T-5624)
Sensitization : Not a skin sensitizer.
largely based on animal evidence.

Repeated dose toxicity

Distillates (petroleum), Hydrotreated light : Species: Rat, male
Sex: male
Application Route: inhalation (vapor)
Dose: 0 , 500, 1000 mg/m3
Exposure time: 13 wks
Number of exposures: 24 h/d
Lowest observable effect level: 500 mg/m3
Method: OECD Guideline 413
Target Organs: Kidney

Species: Rat, female
Sex: female
Application Route: inhalation (vapor)
Dose: 0 , 500, 1000 mg/m3
Exposure time: 13 wks
Number of exposures: 24 h/d
NOEL: > 1000 mg/m3
Method: OECD Guideline 413
No adverse effect has been observed in chronic toxicity tests.

Kerosene C9-C16 Species: Rabbit
Application Route: Dermal
Dose: 0, 200, 1000, 2000 mg/kg
Exposure time: 28 day
Number of exposures: 3 times/wk
Lowest observable effect level: 1,000 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, 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.
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.
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
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
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

Genotoxicity in vitro

Kerosene C9-C16	:	Test Type: Ames test Result: negative Test Type: Mouse lymphoma assay Result: positive
Naphtha (petroleum), light catalytic reformed		Test Type: Ames test 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.
Isoalkanes C7-8	Test Type: Ames test Result: negative
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
Xylenes	Test Type: Ames test Result: negative Test Type: Mouse lymphoma assay Result: negative
Naphthalene	Test Type: Ames test Result: negative Test Type: Sister Chromatid Exchange Assay Result: negative Test Type: Unscheduled DNA synthesis assay Result: negative
Ethylbenzene	Test Type: Ames test 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

Genotoxicity in vivo

Kerosene C9-C16	:	Test Type: Cytogenetic assay Result: negative
Naphtha (petroleum), light catalytic reformed		Test Type: Cytogenetic 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.
Toluene		Test Type: Cytogenetic assay Result: negative
		Test Type: Mouse micronucleus assay Result: negative
Xylenes		Test Type: Mouse micronucleus assay Result: negative
Naphthalene		Test Type: Mouse micronucleus assay Result: negative
Ethylbenzene		Test Type: Mouse micronucleus assay Species: Mouse Result: negative
Benzene		Test Type: Mouse micronucleus assay Result: positive

Carcinogenicity

Kerosene C9-C16	:	Species: Mouse Dose: 0, 28.5, 50, 100% Exposure time: 104 wks Number of exposures: 2, 4, or 7 times/wk
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
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.

Reproductive toxicity

Isopentane : Species: Rat
Sex: male and female
Application Route: inhalation (vapor)
Dose: 0, 500, 2000, 7000 ppm
Number of exposures: 6 h/d 5 d/wk
Method: OECD Test Guideline 416
NOAEL Parent: 7000 ppm
NOAEL F1: 2000 ppm
NOAEL F2: 2000 ppm
Information given is based on data obtained from similar substances.

Species: Rat
Sex: female
Application Route: oral gavage
Dose: 0, 100, 300, 1000 mg/kg/d
Method: OECD Test Guideline 415
NOAEL Parent: >= 1,000 mg/kg
NOAEL F1: >= 1,000 mg/kg

Species: Rat
Sex: male
Application Route: oral gavage
Dose: 0, 100, 300, 1000 mg/kg/d
Method: OECD Test Guideline 415
NOAEL Parent: >= 300 mg/kg

Isoalkanes C7-8 Species: Rat
Sex: male and female
Application Route: inhalation (vapor)
Number of exposures: 6 hr/d; 5 d/wk
Method: OECD Test Guideline 416
NOAEL Parent: 10,560 mg/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.

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

Developmental Toxicity

Distillates (petroleum), Hydrotreated light :	Species: Rat Application Route: Inhalation Dose: 0, 106, 364 mg/l Exposure time: 6h/d Test period: GD 6 - 20 NOAEL Teratogenicity: >= 364 mg/l NOAEL Maternal: >= 364 mg/l Species: Rat Application Route: oral gavage Dose: 500, 1000, 1500, 2000 mg/kg/d Exposure time: 10 d Test period: GD 6 - 15 Method: OECD Guideline 414 NOAEL Teratogenicity: 1,000 mg/kg NOAEL Maternal: 500 mg/kg
Kerosene C9-C16	Species: Rat Application Route: Inhalation Dose: 0, 106, 364 ppm Exposure time: 6 hrs/d Test period: GD 6-15 NOAEL Teratogenicity: 364 ppm NOAEL Maternal: 364 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.
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.
Toluene	Species: Rat Application Route: Inhalation Dose: 0, 100, 500, 2000 ppm Test period: 95 d NOAEL Teratogenicity: 400-750 ppm
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
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

JP-4 Fuel (MIL-T-5624)

Aspiration toxicity : May be fatal if swallowed and enters airways.

CMR effects

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.
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.
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.
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.
Xylenes	Carcinogenicity: Not classifiable as a human carcinogen. Mutagenicity: Did not show mutagenic effects in animal experiments. Teratogenicity: Damage to fetus not classifiable
Naphthalene	Carcinogenicity: Limited evidence of carcinogenicity in animal studies
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
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.

JP-4 Fuel (MIL-T-5624)

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

Distillates (petroleum), Hydrotreated light	: NOEC: 2 mg/l Exposure time: 96 h Species: Salmo gairdneri (Rainbow trout) Method: OECD Test Guideline 203
Kerosene C9-C16	LL50: 2 - 5 mg/l Exposure time: 96 h Species: Oncorhynchus mykiss (rainbow trout) 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
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.
Isoalkanes C7-8	LL50: 5.4 mg/l Exposure time: 96 h Species: Oncorhynchus mykiss (rainbow trout) Method: OECD Test Guideline 203 Information given is based on data obtained from similar substances.
Toluene	LC50: 18 - 36 mg/l Exposure time: 96 h Species: Pimephales promelas (fathead minnow)
Xylenes	LC50: 8.2 mg/l Exposure time: 96 h Species: Salmo gairdneri (Rainbow trout)
Naphthalene	LC50: 3.2 mg/l Exposure time: 96 h Species: Pimephales promelas (fathead minnow)
Ethylbenzene	LC50: 4.3 mg/l Exposure time: 96 h Species: Marone saxatilis (striped bass)
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

Toxicity to daphnia and other aquatic invertebrates

Distillates (petroleum), Hydrotreated light	:	EL50: 1.4 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) static test Method: OECD Test Guideline 202
Kerosene C9-C16		EL50: 1.4 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) Method: OECD Test Guideline 202
Isopentane		EC50: 2.3 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) static test Method: OECD Test Guideline 202
Isoalkanes C7-8		EL50: 143 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)
Naphthalene		LC50: 2.16 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea)
Ethylbenzene		LC50: 2.6 mg/l Exposure time: 96 h Species: Mysidopsis bahia (mysid shrimp) EC50: 2.2 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) Method: OECD Test Guideline 202
Benzene		EC50: 10 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea) static test Test substance: yes Method: OECD Test Guideline 202

Toxicity to algae

Distillates (petroleum), Hydrotreated light	:	EL50: 1 - 3 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (green algae) Method: OECD Test Guideline 201
Kerosene C9-C16		EL50: 1 - 3 mg/l Exposure time: 72 h Species: Raphidocellus subcapitata (algae) Method: OECD Test Guideline 201

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.
Isoalkanes C7-8	EL50: 29.0 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (green algae) Growth inhibition Method: OECD Test Guideline 201
Toluene	EC50: 134 mg/l Exposure time: 72 h Species: Chlamydomonas angulosa (Green algae)
Naphthalene	EC50: 2.96 mg/l Exposure time: 48 h Species: Selenastrum capricornutum (algae)
Ethylbenzene	ErC50: 5.0 mg/l Exposure time: 96 h Species: Selenastrum capricornutum (algae) ErC50: 7.7 mg/l Exposure time: 72 h Species: Skeletonema costatum (Marine Algae)
Benzene	ErC50: 100 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (green algae) Test substance: yes Method: OECD Test Guideline 201

Toxicity to fish (Chronic toxicity)

Isoalkanes C7-8	:	NOELR: 0.778 mg/l Exposure time: 28 d Species: Oncorhynchus mykiss (rainbow trout) Method: QSAR modeled data

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)

Distillates (petroleum), Hydrotreated light	:	NOEC: 0.48 mg/l Exposure time: 21 Days Species: Daphnia magna (Water flea) Method: OECD Test Guideline 211
Isoalkanes C7-8	:	NOELR: 1 mg/l Exposure time: 21 d Species: Daphnia magna (Water flea) Method: OECD Test Guideline 211 Information given is based on data obtained from similar substances.
Ethylbenzene	:	NOEC: 1 mg/l Exposure time: 7 d

Species: Daphnia pulex (Water flea)
semi-static test
Analytical monitoring: yes

Biodegradability : Expected to be ultimately biodegradable
This material is not expected to be readily biodegradable.

Elimination information (persistence and degradability)

Bioaccumulation

Distillates (petroleum), Hydrotreated light	:	The product may be accumulated in organisms.
Kerosene C9-C16	:	The product may be accumulated in organisms.
Kerosine, petroleum, hydrosulfurized	:	The product may be accumulated in organisms.
Naphtha (petroleum), light catalytic reformed	:	The product may be accumulated in organisms.
Isopentane	:	Accumulation in aquatic organisms is unlikely.
Isoalkanes C7-8	:	This material is not expected to bioaccumulate.
Toluene	:	This material is not expected to bioaccumulate.
Xylenes	:	This material is not expected to bioaccumulate.
Ethylbenzene	:	Bioconcentration factor (BCF): 110
Benzene	:	Bioconcentration factor (BCF): 13

Mobility

Distillates (petroleum), Hydrotreated light	:	No data available
Kerosene C9-C16	:	No data available
Kerosine, petroleum, hydrosulfurized	:	No data available
Naphtha (petroleum), light catalytic reformed	:	No data available
Isoalkanes C7-8	:	Medium: Air Method: Calculation, Mackay Level III Fugacity Model
Toluene	:	Not expected to adsorb on soil.
Ethylbenzene	:	Method: Calculation, Mackay Level I Fugacity Model Disperses rapidly in air.
Benzene	:	No data available

Results of PBT assessment

Isopentane	:	Non-classified PBT substance, Non-classified vPvB substance
Isoalkanes C7-8	:	Non-classified PBT substance, Non-classified vPvB substance
Toluene	:	Non-classified vPvB substance, Non-classified PBT substance

Ethylbenzene	:	Non-classified vPvB substance, Non-classified PBT substance
Benzene	:	This substance is not considered to be persistent, bioaccumulating and toxic (PBT)., This substance is not considered to be very persistent and very bioaccumulating (vPvB).
Additional ecological information	:	Toxic to aquatic life with long lasting effects.

Ecotoxicology Assessment

Short-term (acute) aquatic hazard	:	Toxic to aquatic life.
Long-term (chronic) aquatic hazard	:	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)
UN1863, FUEL, AVIATION, TURBINE ENGINE, 3, I

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)
UN1863, FUEL, AVIATION, TURBINE ENGINE, 3, I, (-23°C), MARINE POLLUTANT, (KEROSENE C9-C16)

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)

UN1863, FUEL, AVIATION, TURBINE ENGINE, 3, I

ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))
UN1863, FUEL, AVIATION, TURBINE ENGINE, 3, I, (D/E), ENVIRONMENTALLY HAZARDOUS, (KEROSENE C9-C16)

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))
UN1863, FUEL, AVIATION, TURBINE ENGINE, 3, I, ENVIRONMENTALLY HAZARDOUS, (KEROSENE C9-C16)

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)
UN1863, FUEL, AVIATION, TURBINE ENGINE, 3, I, ENVIRONMENTALLY HAZARDOUS, (KEROSENE C9-C16)

Maritime transport in bulk according to IMO instruments

SECTION 15: Regulatory information

National legislation

SARA 311/312 Hazards	:	Flammable (gases, aerosols, liquids, or solids) Germ cell mutagenicity Reproductive toxicity Aspiration hazard Carcinogenicity Skin corrosion or irritation Specific target organ toxicity (single or repeated exposure)
CERCLA Reportable Quantity	:	2222 lbs Benzene
SARA 302 Reportable Quantity	:	This material does not contain any components with a SARA 302 RQ.
SARA 302 Threshold Planning Quantity	:	This material does not contain any components with a section 302 EHS TPQ.
SARA 304 Reportable Quantity	:	This material does not contain any components with a section 304 EHS RQ.

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

: Toluene - 108-88-3
Xylenes - 1330-20-7
Naphthalene - 91-20-3
Ethylbenzene - 100-41-4
Benzene - 71-43-2

Clean Air Act

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

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 112 (40 CFR 61):
: 2,2,4-Trimethylpentane (Isooctane) - 540-84-1
Toluene - 108-88-3
Xylenes - 1330-20-7
Naphthalene - 91-20-3
Ethylbenzene - 100-41-4
Benzene - 71-43-2

The following chemical(s) are listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F):
: Isopentane - 78-78-4

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):
: Isopentane - 78-78-4
Toluene - 108-88-3
Xylenes - 1330-20-7
Ethylbenzene - 100-41-4

US State Regulations

Pennsylvania Right To Know
: Distillates (petroleum), Hydrotreated light - 64742-47-8
Kerosene C9-C16 - 8008-20-6
Kerosine, petroleum, hydrosulfurized - 64742-81-0
Naphtha (petroleum), light catalytic reformed - 64741-63-5
Isopentane - 78-78-4
Isoalkanes C7-8 - 70024-92-9
Toluene - 108-88-3
Xylenes - 1330-20-7

Naphthalene - 91-20-3
Ethylbenzene - 100-41-4
Benzene - 71-43-2
2,2,4-Trimethylpentane (Isooctane) - 540-84-1

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

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

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.

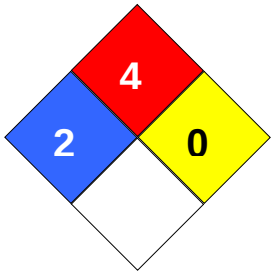
Toluene	108-88-3
Benzene	71-43-2

Notification status

Europe REACH	:	Not in compliance with the inventory
Switzerland CH INV	:	On the inventory, or in compliance with the inventory
United States of America (USA) TSCA	:	On or in compliance with the active portion of the TSCA inventory
Canada DSL	:	Not in compliance with the inventory
Other AIIC	:	On the inventory, or 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
Taiwan TCSI	:	On the inventory, or in compliance with the inventory
China IECSC	:	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 : 001927

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%		