



## Isoprene Feedstock

Version 3.2

Revision Date 2023-11-09

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

#### Product information

Product Name : Isoprene Feedstock  
 Material : 1059202, 1059201, 1037432, 1015403

Use : Chemical intermediate

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  
 Mexico CHEMTREC 01-800-681-9531 (24 hours)  
 South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600  
 Argentina: +(54)-1159839431  
 EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)  
 Austria: VIZ +43 1 406 43 43 (24 hours/day, 7 days/week)  
 Belgium: 070 245 245 (24 hours/day, 7 days/week)  
 Bulgaria: +359 2 9154 233  
 Croatia: +3851 2348 342 (24 hours/day, 7 days/week)  
 Cyprus: 1401  
 Czech Republic: Toxicological Information Center +420 224 919 293, +420 224 915 402  
 Denmark: Danish Poison Center (Gifftlinjen): +45 8212 1212  
 Estonia: BIG +32.14.584545 (phone) or +32.14583516 (telefax)  
 Finland: 0800 147 111 09 471 977 (24 hours/day)  
 France: ORFILA number (INRS): + 33 (0) 1 45 42 59 59 (24 hours/day, 7 days/week)  
 Germany: BIG +32.14.584545 (phone) or +32.14583516 (telefax)  
 Greece: (0030) 2107793777 (24 hours/day, 7 days/week)  
 Hungary: +36-80-201-199 (24 hours/day, 7 days/week)  
 Iceland: 543 2222 (24 hours/day, 7 days/week)  
 Ireland: BIG +32.14.584545 (phone) or +32.14583516 (telefax)  
 Italy: BIG +32.14.584545 (phone) or +32.14583516 (telefax)  
 Latvia: State Fire and Rescue Service, phone number: 112; Toxicology and Sepsis Clinic  
 Poisoning and Drug Information Center, Hipokrāta 2, Riga, Latvia, LV-1038, phone number +371  
 67042473. (24 hours.)  
 Liechtenstein: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

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Lithuania: +370 (85) 2362052  
 Luxembourg: (+352) 8002 5500 (24 hours/day, 7 days/week)  
 Malta: +356 2395 2000  
 The Netherlands: NVIC: +31 (0)88 755 8000  
 Norway: 22 59 13 00 (24 hours/day, 7 days/week)  
 Poland: BIG +32.14.584545 (phone) or +32.14583516 (telefax)  
 Portugal: CIAV phone number: +351 800 250 250  
 Romania: +40213183606  
 Slovakia: +421 2 5477 4166  
 Slovenia: Phone number: 112  
 Spain: National Emergency Telephone Number of Spanish Poison Centre: +34 91 562 04 20 (24 hours/day, 7 days/week)  
 Sweden: 112 – ask for Poisons Information

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  
 Acute toxicity, Category 4, Oral  
 Acute toxicity, Category 4, Inhalation  
 Skin irritation, Category 2  
 Eye irritation, Category 2A  
 Germ cell mutagenicity, Category 1B  
 Carcinogenicity, Category 1A  
 Reproductive toxicity, Category 2  
 Specific target organ toxicity - single exposure, Category 3,  
 Respiratory system, Central nervous system  
 Specific target organ toxicity - repeated exposure, Category 1,  
 Blood  
 Specific target organ toxicity - repeated exposure, Category 2,  
 Inhalation, Auditory organs, Nervous system, color vision  
 Aspiration hazard, Category 1

**Labeling**

Symbol(s)



Signal Word

: Danger

Hazard Statements

: H224: Extremely flammable liquid and vapor.  
 H302 + H332: Harmful if swallowed or if inhaled.  
 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.

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H340: May cause genetic defects.  
 H350: May cause cancer.  
 H360D: May damage the unborn child.  
 H372: Causes damage to organs (Blood) through prolonged or repeated exposure.  
 H373: May cause damage to organs (Auditory organs, Nervous system, color vision) 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.  
 P264 Wash skin thoroughly after handling.  
 P270 Do not eat, drink or smoke when using this product.  
 P271 Use only outdoors or in a well-ventilated area.  
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

**Response:**

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.  
 P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.  
 P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.  
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 P308 + P313 IF exposed or concerned: Get medical advice/ attention.  
 P331 Do NOT induce vomiting.  
 P332 + P313 If skin irritation occurs: Get medical advice/ attention.  
 P337 + P313 If eye irritation persists: Get medical advice/ attention.  
 P362 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.

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**Carcinogenicity:**

<b>IARC</b>	Group 1: Carcinogenic to humans	
	Benzene	71-43-2
	1,3-Butadiene	106-99-0
<b>NTP</b>	Group 2B: Possibly carcinogenic to humans	
	Isoprene	78-79-5
	Ethylbenzene	100-41-4
	Known to be human carcinogen	
<b>NTP</b>	Benzene	71-43-2
	1,3-Butadiene	106-99-0
	Reasonably anticipated to be a human carcinogen	
	Isoprene	78-79-5

**SECTION 3: Composition/information on ingredients**

Synonyms : C5 Amylene  
C5 Diolefin Stream  
Crude Isoprene

Molecular formula : UVCB

Component	CAS-No.	Weight %
Naphtha, (Petroleum), Light Steam-Cracked, Isoprene-Rich	68514-39-6	100
Isopentane	78-78-4	0 - 60
n-Pentane	109-66-0	0 - 60
Isoprene	78-79-5	0 - 60
Cyclopentadiene	542-92-7	0 - 30
Cyclopentene	142-29-0	0 - 20
Ethylbenzene	100-41-4	0 - 5
n-Butane	106-97-8	0 - 5
Xylenes	1330-20-7	0 - 5
n-Heptane	142-82-5	0 - 5
n-hexane	110-54-3	0 - 5
Dicyclopentadiene	77-73-6	0 - 5
Cyclopentane	287-92-3	0 - 5
Toluene	108-88-3	0 - 5
Benzene	71-43-2	0 - 5
1,3-Butadiene	106-99-0	0 - 5
Methylcyclopentane	96-37-7	0 - 5

**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

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- 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 : -54°C (-65°F)  
Method: Tag closed cup
- Autoignition temperature : 220°C (428°F)
- Suitable extinguishing media : Alcohol-resistant foam. Carbon dioxide (CO<sub>2</sub>). 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

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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. Container may be opened only under exhaust ventilation hood. 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 : Chemical intermediate

**SECTION 8: Exposure controls/personal protection****Ingredients with workplace control parameters****US**

Components	Basis	Value	Control parameters	Note
Isopentane	ACGIH	TWA	1,000 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,	
Isoprene	US WEEL	TWA	2 ppm,	
Cyclopentadiene	ACGIH	TWA	0.5 ppm,	
	OSHA Z-1	TWA	75 ppm, 200 mg/m3	
	OSHA Z-1-A	TWA	75 ppm, 200 mg/m3	
	ACGIH	STEL	1 ppm,	
Dicyclopentadiene	ACGIH	TWA	0.5 ppm,	URT irr, LRT irr, eye irr,
	ACGIH	TWA	0.5 ppm,	
	OSHA Z-1-A	TWA	5 ppm, 30 mg/m3	
	ACGIH	STEL	1 ppm,	
	ACGIH	TWA	0.5 ppm,	URT irr, LRT irr, eye irr,
	ACGIH	STEL	1 ppm,	
	OSHA Z-1	TWA	100 ppm, 435 mg/m3	

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	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,
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,
n-Butane	OSHA Z-1-A	TWA	800 ppm, 1,900 mg/m3	
	ACGIH	STEL	1,000 ppm,	CNS impair, EX,
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	
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,	
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	
Cyclopentane	ACGIH	TWA	600 ppm,	
	OSHA Z-1-A	TWA	600 ppm, 1,720 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	
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,	
1,3-Butadiene	ACGIH	TWA	2 ppm,	A2,
	OSHA Z-1	TWA	1 ppm,	
	OSHA Z-1	STEL	5 ppm,	
	OSHA CARC	PEL	1 ppm,	
	OSHA 29 CFR 1910.1051(c)	TWA	1 ppm,	
	OSHA CARC	STEL	5 ppm,	
	OSHA 29 CFR 1910.1051(c)	STEL	5 ppm,	

A1 Confirmed human carcinogen

A2 Suspected 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 irr Eye irritation

LRT irr Lower Respiratory Tract irritation

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
n-Pentane	109-66-0	Immediately Dangerous to Life or Health Concentration Value 1500 parts per million	1995-03-01
Cyclopentadiene	542-92-7	Immediately Dangerous to Life or Health Concentration Value 750 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

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Ethylbenzene	100-41-4	Immediately Dangerous to Life or Health Concentration Value 800 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
n-Heptane	142-82-5	Immediately Dangerous to Life or Health Concentration Value 750 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
Toluene	108-88-3	Immediately Dangerous to Life or Health Concentration Value 500 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
1,3-Butadiene	106-99-0	Immediately Dangerous to Life or Health Concentration Value 2000 parts per million	2017-02-03

**Biological exposure indices****US**

Substance name	CAS-No.	Control parameters	Sampling time	Update
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
n-hexane	110-54-3	2,5-Hexanedione: 0.5 mg/l Without hydrolysis (Urine)	End of shift	2020-02-01
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
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
1,3-Butadiene	106-99-0	1,2 Dihydroxy-4-(N-acetylcysteinyl)-butane: 2.5 mg/l Background (Urine) Semi-quantitative ( )	End of shift (As soon as possible after exposure ceases)	2010-03-01
		Mixture of N-1 and N-2(hydroxybutenyl)valine: 2.5 picomoles per gram Hemoglobin Semi-quantitative (Hemoglobin (Hb) adducts in blood)	Not critical	2010-03-01

**Engineering measures**

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



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

**Personal protective equipment**

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

**SECTION 9: Physical and chemical properties****Information on basic physical and chemical properties****Appearance**

- Physical state : liquid  
 Color : Colorless  
 Odor : distinct, hydrocarbon-like

**Safety data**

- Flash point : -54°C (-65°F)  
 Method: Tag closed cup
- Lower explosion limit : 1.5 %(V)

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Upper explosion limit	: 8.9 %(V)
Oxidizing properties	: No
Autoignition temperature	: 220°C (428°F)
Thermal decomposition	: No data available
Molecular formula	: UVCB
Molecular weight	: Not applicable
pH	: Not applicable
Freezing point	: -147°C (-233°F)
Pour point	No data available
Boiling point/boiling range	: 33.9°C (93.0°F)
Vapor pressure	: 400.00 MMHG at 20°C (68°F)
Relative density	: 0.66 - 0.69 at 15.6 °C (60.1 °F)
Water solubility	: Insoluble
Partition coefficient: n-octanol/water	: No data available
Viscosity, kinematic	: No data available
Relative vapor density	: 2.4 (Air = 1.0)
Evaporation rate	: No data available

**SECTION 10: Stability and reactivity**

<b>Reactivity</b>	: Stable under recommended storage conditions.
<b>Chemical stability</b>	: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
<b>Possibility of hazardous reactions</b>	
<b>Hazardous reactions</b>	: Hazardous reactions: Hazardous polymerization does not occur.

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	Hazardous reactions: Vapors may form explosive mixture with air.
<b>Conditions to avoid</b>	: Heat, flames and sparks.
<b>Materials to avoid</b>	: May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
<b>Thermal decomposition</b>	: No data available
<b>Hazardous decomposition products</b>	: Carbon oxides
<b>Other data</b>	: No decomposition if stored and applied as directed.

**SECTION 11: Toxicological information**

<b>Isoprene Feedstock Acute oral toxicity</b>	: LD50: 310.56 mg/kg Species: Rat Method: Acute toxicity estimate
<b>Isoprene Feedstock Acute inhalation toxicity</b>	: LC50: > 20 mg/l Species: Rat Test atmosphere: vapor Method: Acute toxicity estimate
<b>Isoprene Feedstock Acute dermal toxicity</b>	: LD50 Dermal: > 2,000 mg/kg Species: Rabbit Method: Acute toxicity estimate
<b>Isoprene Feedstock Skin irritation</b>	: Irritating to skin.
<b>Isoprene Feedstock Eye irritation</b>	: Irritating to eyes.
<b>Isoprene Feedstock Sensitization</b>	: Did not cause sensitization on laboratory animals. Information refers to the main ingredient.
<b>Isoprene Feedstock Repeated dose toxicity</b>	: This information is not available.
<b>Genotoxicity in vitro</b>	
Isopentane	: Test Type: Ames test Concentration: 1, 2, 5, 8, 10% Metabolic activation: with and without metabolic activation

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Method: OECD Test Guideline 471  
Result: negative

Test Type: Ames test  
Concentration: 1, 2, 5, 8, 10, 25, 50%  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 471  
Result: negative  
Remarks: Information given is based on data obtained from similar substances.

Test Type: Chromosome aberration test in vitro  
Metabolic activation: with and without metabolic activation  
Method: Mutagenicity (in vitro mammalian cytogenetic test)  
Result: negative  
Remarks: Information given is based on data obtained from similar substances.

Test Type: In vitro mammalian cell gene mutation test  
Metabolic activation: with and without metabolic activation  
Method: OECD Test Guideline 476  
Result: negative  
Remarks: Information given is based on data obtained from similar substances.

n-Pentane

Test Type: Ames test  
Metabolic activation: with and without metabolic activation  
Result: negative

Test Type: Chromosome aberration test in vitro  
Metabolic activation: with and without metabolic activation  
Result: Ambiguous

Isoprene

Test Type: Ames test  
Result: negative

Test Type: Sister Chromatid Exchange Assay  
Result: positive

Ethylbenzene

Test Type: Ames test  
Result: negative

Test Type: Unscheduled DNA synthesis assay  
Result: negative

n-Butane

Test Type: Ames test  
Result: negative

Xylenes

Test Type: Ames test  
Result: negative

Test Type: Mouse lymphoma assay  
Result: negative

n-Heptane

Test Type: Ames test  
Method: Mutagenicity (Escherichia coli - reverse mutation assay)  
Result: negative

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	<p>Test Type: Mammalian cell gene mutation assay Method: OECD Guideline 476 Result: negative</p>
	<p>Test Type: Chromosome aberration test in vitro Method: OECD Guideline 473 Result: negative</p>
	<p>Test Type: Mitotic recombination Result: negative</p>
n-hexane	<p>Test Type: Ames test Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 471 Result: negative</p>
	<p>Test Type: Mouse lymphoma assay Metabolic activation: with and without metabolic activation Method: OECD Test Guideline 476 Result: negative</p>
	<p>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.</p>
Dicyclopentadiene	<p>Test Type: Ames test Result: negative</p>
	<p>Test Type: Chromosome aberration test in vitro Result: negative</p>
Cyclopentane	<p>Test Type: Modified Ames test Concentration: 1250 microgram/plate Metabolic activation: with and without metabolic activation Result: negative</p>
	<p>Test Type: Mouse lymphoma assay Concentration: 200 microgram/milliliter Metabolic activation: with and without metabolic activation Result: negative</p>
Toluene	<p>Test Type: Ames test Result: negative</p>
	<p>Test Type: Sister Chromatid Exchange Assay Result: negative</p>
	<p>Test Type: Mouse lymphoma assay Result: negative</p>
	<p>Test Type: Cytogenetic assay Result: negative</p>
Benzene	<p>Test Type: Ames test Result: negative</p>

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	Test Type: Cytogenetic assay Result: positive
	Test Type: Mouse lymphoma assay Result: positive
	Test Type: Sister Chromatid Exchange Assay Result: negative
1,3-Butadiene	Test Type: Ames test Metabolic activation: with and without metabolic activation Result: Positive results were obtained in some in vitro tests.
	Test Type: Chromosome aberration test in vitro Test system: Chinese hamster cells Method: OECD Guideline 473 Result: positive
<b>Genotoxicity in vivo</b>	
Isopentane	: Test Type: In vivo micronucleus test Species: Rat Cell type: Bone marrow Route of Application: inhalation (vapor) Exposure time: 13 wk Dose: 5000, 10,000, 20,000 mg/m <sup>3</sup> Method: Directive 67/548/EEC, Annex V, B.12. Remarks: Information given is based on data obtained from similar substances.
n-Pentane	Test Type: Micronucleus test Species: Rat Cell type: Bone marrow Result: negative
Isoprene	Result: negative
	Test Type: Micronucleus test Result: positive
Ethylbenzene	Test Type: Mouse micronucleus assay Species: Mouse Result: negative
Xylenes	Test Type: Mouse micronucleus assay Result: negative
n-hexane	Test Type: Dominant lethal assay Species: Mouse Dose: 100 and 400 ppm Result: negative
	Test Type: Cytogenetic assay Species: Rat Dose: 900, 3000, 9000 ppm Result: negative
Cyclopentane	Test Type: Micronucleus test Species: Mouse

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	Route of Application: inhalation (vapor) Dose: 10,000 ppm Result: negative
Toluene	Test Type: Cytogenetic assay Result: negative
	Test Type: Mouse micronucleus assay Result: negative
Benzene	Test Type: Mouse micronucleus assay Result: positive
1,3-Butadiene	Test Type: Mouse micronucleus assay Species: mice Route of Application: inhalation (gas) Exposure time: 6 h per day for 5 days Dose: 50, 200, 500, 1300 ppm Method: OECD Test Guideline 474 Result: positive
	Test Type: Dominant lethal assay Species: mice Method: OECD Test Guideline 478 Result: Positive results were obtained in some in vivo tests.

**Isoprene Feedstock Carcinogenicity** : Remarks: This information is not available.

**Isoprene Feedstock Reproductive toxicity** : This information is not available.

**Isoprene Feedstock Developmental Toxicity** : This information is not available.

**Isoprene Feedstock 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.

**Toxicology Assessment**

**Isoprene Feedstock CMR effects** : Carcinogenicity:  
May cause cancer.  
Mutagenicity:  
May cause genetic defects.  
Teratogenicity:  
Not available  
Reproductive toxicity:  
May damage the unborn child.

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**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 decrease the skin.

**SECTION 12: Ecological information****Ecotoxicity effects**

**Toxicity to fish** : Toxic to fish.  
Information given is based on data obtained from similar substances.

**Toxicity to daphnia and other aquatic invertebrates** : Toxic to aquatic organisms.  
Information given is based on data obtained from similar substances.

**Toxicity to algae** : Toxic to algae.  
Information given is based on data obtained from similar substances.

**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)**

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

Elimination information (persistence and degradability)

Bioaccumulation : This material is not expected to bioaccumulate.

Mobility : No data available

Results of PBT assessment : This mixture contains no substance considered to be persistent, bioaccumulating and toxic (PBT).

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.



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**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)**

UN3295, HYDROCARBONS, LIQUID, N.O.S., 3, I, MARINE POLLUTANT, (ISOPRENE), RQ (BENZENE, 1,3-BUTADIENE)

**IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)**

UN3295, HYDROCARBONS, LIQUID, N.O.S., 3, I, (-54 °C c.c.), MARINE POLLUTANT, (NAPHTHA, (PETROLEUM), LIGHT STEAM-CRACKED, ISOPRENE-RICH)

**IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)**

UN3295, HYDROCARBONS, LIQUID, N.O.S., 3, I

**ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))**

UN3295, HYDROCARBONS, LIQUID, N.O.S., 3, I, (D/E), ENVIRONMENTALLY HAZARDOUS, (NAPHTHA, (PETROLEUM), LIGHT STEAM-CRACKED, ISOPRENE-RICH)

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

33,UN3295,HYDROCARBONS, LIQUID, N.O.S., 3, I, ENVIRONMENTALLY HAZARDOUS, (NAPHTHA, (PETROLEUM), LIGHT STEAM-CRACKED, ISOPRENE-RICH)

**ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)**

UN3295, HYDROCARBONS, LIQUID, N.O.S., 3, I, ENVIRONMENTALLY HAZARDOUS, (NAPHTHA, (PETROLEUM), LIGHT STEAM-CRACKED, ISOPRENE-RICH)

**Maritime transport in bulk according to IMO instruments****SECTION 15: Regulatory information****National legislation**

- SARA 311/312 Hazards** : Flammable (gases, aerosols, liquids, or solids)  
Acute toxicity (any route of exposure)  
Germ cell mutagenicity  
Carcinogenicity  
Reproductive toxicity  
Specific target organ toxicity (single or repeated exposure)  
Aspiration hazard  
Skin corrosion or irritation  
Serious eye damage or eye irritation
- CERCLA Reportable Quantity** : 166 lbs  
Isoprene
- 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:  
: Isoprene - 78-79-5  
: Dicyclopentadiene - 77-73-6

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Xylenes - 1330-20-7  
Ethylbenzene - 100-41-4  
n-hexane - 110-54-3  
Toluene - 108-88-3  
Benzene - 71-43-2  
1,3-Butadiene - 106-99-0

**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):

: Xylenes - 1330-20-7  
Ethylbenzene - 100-41-4  
n-hexane - 110-54-3  
Toluene - 108-88-3  
Benzene - 71-43-2  
1,3-Butadiene - 106-99-0

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-Pentane - 109-66-0  
Isoprene - 78-79-5  
1,3-Pentadiene - 504-60-9  
1-Pentene - 109-67-1  
n-Butane - 106-97-8  
cis-2-Pentene - 627-20-3  
trans-2-Pentene - 646-04-8  
3-Methyl-1-Butene - 563-45-1  
2-methyl-1-butene - 563-46-2  
1,3-Butadiene - 106-99-0

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

: Isopentane - 78-78-4  
n-Pentane - 109-66-0  
Isoprene - 78-79-5  
1-Pentene - 109-67-1  
Xylenes - 1330-20-7  
Ethylbenzene - 100-41-4  
Toluene - 108-88-3  
Benzene - 71-43-2  
1,3-Butadiene - 106-99-0

**US State Regulations**

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## Pennsylvania Right To Know

: Naphtha, (Petroleum), Light Steam-Cracked, Isoprene-Rich - 68514-39-6  
 Isopentane - 78-78-4  
 n-Pentane - 109-66-0  
 Isoprene - 78-79-5  
 1,3-Pentadiene - 504-60-9  
 Cyclopentadiene - 542-92-7  
 1-Pentene - 109-67-1  
 Cyclopentene - 142-29-0  
 Dicyclopentadiene - 77-73-6  
 cis-1,3-Pentadiene - 1574-41-0  
 1,4-Pentadiene - 591-93-5  
 Xylenes - 1330-20-7  
 Ethylbenzene - 100-41-4  
 n-Butane - 106-97-8  
 Methylcyclopentane - 96-37-7  
 n-Heptane - 142-82-5  
 n-hexane - 110-54-3  
 Cyclopentane - 287-92-3  
 cis-2-Pentene - 627-20-3  
 trans-2-Pentene - 646-04-8  
 2-methyl-2-butene - 513-35-9  
 Toluene - 108-88-3  
 Benzene - 71-43-2  
 3-Methyl-1-Butene - 563-45-1  
 2-methyl-1-butene - 563-46-2  
 1,3-Butadiene - 106-99-0

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](http://www.P65Warnings.ca.gov/food).

Isoprene	78-79-5
Ethylbenzene	100-41-4
Benzene	71-43-2
1,3-Butadiene	106-99-0

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](http://www.P65Warnings.ca.gov).

n-hexane	110-54-3
Toluene	108-88-3
Benzene	71-43-2
1,3-Butadiene	106-99-0

**Notification status**

Europe REACH : Not in compliance with the inventory  
 Switzerland CH INV : Not in compliance with the inventory

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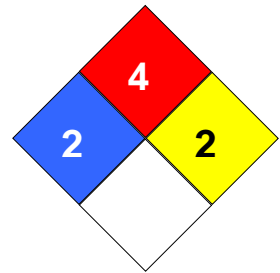
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United States of America (USA) TSCA	:	On or in compliance with the active portion of the TSCA inventory
Canada NDSL	:	This product contains one or several components listed in the Canadian NDSL.
Australia AIIC	:	Not in compliance with the inventory
New Zealand NZIoC	:	Not in compliance with the inventory
Japan ENCS	:	Not in compliance with the inventory
Korea KECI	:	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 or the exported amount does not exceed the minimum threshold quantity of the non-registered substance(s).
Philippines PICCS	:	Not in compliance with the inventory
Taiwan TCSI	:	Not 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: 2

**Further information**

Legacy SDS Number : PE0052

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

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

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

**Key or legend to abbreviations and acronyms used in the safety data sheet**

ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AIIC	Australian Inventory of Industrial Chemicals	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of

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