



S-Chem Laboratory Calibration Gas

Version 1.2

Revision Date 2026-05-14

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

Product information

Product Name : S-Chem Laboratory Calibration Gas
 Company : Saudi Chevron Phillips Company
 9500 Lakeside Blvd.
 The Woodlands, TX 77381

Emergency telephone:

Health:

866.442.9628 (North America)

1.832.813.4984 (International)

Transport:

CHEMTREC 800.424.9300 or 703.527.3887(int'l)

Asia: CHEMWATCH (+612 9186 1132) China: 0532 8388 9090

Mexico CHEMTREC 01-800-681-9531 (24 hours)

South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600

Argentina: +(54)-1159839431

EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Austria: VIZ +43 1 406 43 43 (24 hours/day, 7 days/week)

Belgium: 070 245 245 (24 hours/day, 7 days/week)

Bulgaria: +359 2 9154 233

Croatia: +3851 2348 342 (24 hours/day, 7 days/week)

Cyprus: 1401

Czech Republic: Toxicological Information Center +420 224 919 293, +420 224 915 402

Denmark: Danish Poison Center (Giftlinjen): +45 8212 1212

Estonia: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Finland: 0800 147 111 09 471 977 (24 hours/day)

France: ORFILA number (INRS): + 33 (0) 1 45 42 59 59 (24 hours/day, 7 days/week)

Germany: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Greece: (0030) 2107793777 (24 hours/day, 7 days/week)

Hungary: +36-80-201-199 (24 hours/day, 7 days/week)

Iceland: 543 2222 (24 hours/day, 7 days/week)

Ireland: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Italy: POISON CENTER MILAN – Azienda Ospedaliera Niguarda Ca` Grande Tel. +39 02

66101029; POISON CENTER ROME – Policlinico “Agostino Gemelli”, Servizio di tossicologia

clinica Tel. +39 06 3054343; POISON CENTER ROME – Ospedale Pediatrico Bambino Gesù

Tel. +39 06 68593726; POISON CENTER ROME – Policlinico “Umberto I” Tel. +39 06 4997 8000;

POISON CENTER FOGGIA – Azienda Ospedaliera Universitaria Riuniti Tel. +39 0881 732326;

POISON CENTER NAPLES – Azienda Ospedaliera “Antonio Cardarelli” Tel. +39 081 7472870;

POISON CENTER FLORENCE – Azienda Ospedaliera universitaria Careggi Tel. +39 055

7947819; POISON CENTER PAVIA – IRCCS Fondazione Salvatore Maugeri Tel. +39 0382

24444; POISON CENTER BERGAMO – Azienda Ospedaliera “Papa Giovanni XXIII” Tel. 800 883

300; POISON CENTER VERONA – Azienda Ospedaliera Universitaria integrata Tel. 800 011

858;

Latvia: State Fire and Rescue Service, phone number: 112; Toxicology and Sepsis Clinic

Poisoning and Drug Information Center, Hipokrāta 2, Riga, Latvia, LV-1038, phone number +371

67042473. (24 hours.)

Liechtenstein: BIG +32.14.584545 (phone) or +32.14583516 (telefax)

Lithuania: +370 (85) 2362052

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

Organization that prepared the SDS : Product Safety and Toxicology Group
 E-mail address : SDS@CPChem.com
 Website : www.CPChem.com

SECTION 2: Hazards identification**Classification of the substance or mixture**

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 gases, Category 1A
 Skin irritation, Category 2
 Germ cell mutagenicity, Category 1B
 Carcinogenicity, Category 1A
 Reproductive toxicity, Category 1A
 Specific target organ toxicity - single exposure, Category 3, Central nervous system
 Specific target organ toxicity - repeated exposure, Category 1, Inhalation, Blood
 Specific target organ toxicity - repeated exposure, Category 2, Inhalation, Auditory organs, color vision
 Simple Asphyxiant

Labeling

Symbol(s) : 

Signal Word : Danger

Hazard Statements : H220: Extremely flammable gas.
 H315: Causes skin irritation.
 H336: May cause drowsiness or dizziness.
 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 if inhaled.
 H373: May cause damage to organs (Auditory organs, color vision) through prolonged or repeated exposure if inhaled.
 May displace oxygen and cause rapid suffocation.

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Precautionary Statements : **Prevention:**
 P201 Obtain special instructions before use.
 P202 Do not handle until all safety precautions have been read and understood.
 P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 P260 Do not breathe gas.
 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.
 P280 Wear protective gloves, protective clothing, eye protection and face protection.

Response:
 P302 + P352 IF ON SKIN: Wash with plenty of water.
 P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
 P308 + P313 IF exposed or concerned: Get medical advice/ attention.
 P332 + P313 If skin irritation occurs: Get medical advice/ attention.
 P362 + P364 Take off contaminated clothing and wash it before reuse.
 P377 Leaking gas fire: Do not extinguish, unless leak can be stopped safely.
 P381 In case of leakage, eliminate all ignition sources.

Storage:
 P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
 P405 Store locked up.

Disposal:
 P501 Dispose of contents/ container to an approved waste disposal plant.

Potential Health Effects

Symptoms of Overexposure : No data available

Carcinogenicity:

IARC Group 1: Carcinogenic to humans
 1,3-Butadiene 106-99-0

NTP Known to be human carcinogen
 1,3-Butadiene 106-99-0

SECTION 3: Composition/information on ingredients

Component	CAS-No.	Weight %
Ethylene	74-85-1	0 - 99.9
Propylene	115-07-1	0 - 99
Ethane	74-84-0	0 - 95
Isobutane	75-28-5	0 - 95
Methane	74-82-8	0 - 70

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1-Hexene	592-41-6	0 - 66
Propane	74-98-6	0 - 25
Alkenes, C6	68526-52-3	0 - 15
n-Butane	106-97-8	0 - 25
1,3-Butadiene	106-99-0	0 - 12
Toluene	108-88-3	0 - 10
Xylenes	1330-20-7	0 - 7
2-Methylpentane	107-83-5	0 - 6
1-Butene	106-98-9	0 - 5
Carbon Dioxide	124-38-9	0 - 2
Carbon Monoxide	630-08-0	0 - 1.5
Hydrogen Sulfide	7783-06-4	0 - 1
Propadiene	463-49-0	0 - 1
Methylacetylene	74-99-7	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.
- 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 : Induce vomiting immediately and call a physician. Keep respiratory tract clear. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

Notes to physician

- Symptoms : No data available.
- Risks : No data available.
- Treatment : Treat symptomatically.

SECTION 5: Firefighting measures

- Flash point : 45°C (113°F)
- 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.

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- 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.

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.

SECTION 7: Handling and storage**Handling**

- Advice on safe handling : 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 : Prevent unauthorized access. 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

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installations / working materials must comply with the technological safety standards.

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

Components	Basis	Value	Control parameters	Note
Propylene	ACGIH	TWA	500 ppm,	A4,
Ethylene	ACGIH	TWA	200 ppm,	A4,
Isobutane	ACGIH	STEL	1,000 ppm,	
Propane	OSHA Z-1	TWA	1,000 ppm, 1,800 mg/m3	
	OSHA Z-1-A	TWA	1,000 ppm, 1,800 mg/m3	
1-Hexene	ACGIH	TWA	50 ppm,	
n-Butane	OSHA Z-1-A	TWA	800 ppm, 1,900 mg/m3	
	ACGIH	STEL	1,000 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,	
Toluene	ACGIH	TWA	20 ppm,	OTO, 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	20 ppm,	OTO, A4,
	ACGIH	STEL	150 ppm,	A4,
2-Methylpentane	OSHA Z-1-A	TWA	500 ppm, 1,800 mg/m3	
	OSHA Z-1-A	STEL	1,000 ppm, 3,600 mg/m3	
	ACGIH	TWA	200 ppm,	A3,
1-Butene	ACGIH	TWA	250 ppm,	
Carbon Dioxide	ACGIH	TWA	5,000 ppm,	
	ACGIH	STEL	30,000 ppm,	
	OSHA Z-1	TWA	5,000 ppm, 9,000 mg/m3	
	OSHA Z-1-A	TWA	10,000 ppm, 18,000 mg/m3	
	OSHA Z-1-A	STEL	30,000 ppm, 54,000 mg/m3	
Carbon Monoxide	ACGIH	TWA	25 ppm,	
	OSHA Z-1	TWA	50 ppm, 55 mg/m3	
	OSHA Z-1-A	TWA	35 ppm, 40 mg/m3	
	OSHA Z-1-A	C	200 ppm, 229 mg/m3	
Hydrogen Sulfide	ACGIH	TWA	1 ppm,	
	ACGIH	STEL	5 ppm,	
	OSHA Z-2	CEIL	20 ppm,	
	OSHA Z-2	Peak	50 ppm,	
	OSHA Z-1-A	TWA	10 ppm, 14 mg/m3	
	OSHA Z-1-A	STEL	15 ppm, 21 mg/m3	
Methylacetylene	ACGIH	TWA	1,000 ppm,	
	OSHA Z-1	TWA	1,000 ppm, 1,650 mg/m3	
	OSHA Z-1-A	TWA	1,000 ppm, 1,650 mg/m3	
	ACGIH	TWA	1,000 ppm,	EX,

A2 Suspected human carcinogen

A3 Confirmed animal carcinogen with unknown relevance to humans

A4 Not classifiable as a human carcinogen

EX Explosion hazard: the substance is a flammable asphyxiant or excursions above the TLV ® could approach 10% of the lower explosive limit.

OTO Ototoxicant

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Immediately Dangerous to Life or Health Concentrations (IDLH)

Substance name	CAS-No.	Control parameters	Update
Propane	74-98-6	Immediately Dangerous to Life or Health Concentration Value 2100 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
1,3-Butadiene	106-99-0	Immediately Dangerous to Life or Health Concentration Value 2000 parts per million	2017-02-03
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
Carbon Dioxide	124-38-9	Immediately Dangerous to Life or Health Concentration Value 40000 parts per million	1995-03-01
Carbon Monoxide	630-08-0	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
Methylacetylene	74-99-7	Immediately Dangerous to Life or Health Concentration Value 1700 parts per million	1995-03-01

Biological exposure indices**US**

Substance name	CAS-No.	Control parameters	Sampling time	Update
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
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

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Xylenes	1330-20-7	Methylhippuric acids: 0.3 g/g creatinine 2024 Adoption (Urine) Commercial or technical grade xylenes consist of mixtures of isomers and significant amounts of ethyl benzene as indicated under 'Properties.' Because ethyl benzene is known to reduce the metabolism of xylenes to methylhippuric acids, the BEI applies to technical or commercial grades of xylenes only. () The determinants refer to the total of all isomers of methylhippuric acids. () Adopted values or notations enclosed are those for which changes are proposed in the NIC ()	End of shift (As soon as possible after exposure ceases)	2024-01-01
Carbon Monoxide	630-08-0	Carboxyhemoglobin: 3.5 % Hb Nonspecific (In blood) Background ()	End of shift (As soon as possible after exposure ceases)	2010-03-01
		Carbon monoxide: 20 parts per million Nonspecific (In end-exhaled air) Background ()	End of shift (As soon as possible after exposure ceases)	2010-03-01

Engineering measures

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

Personal protective equipment

- Respiratory protection : If ventilation or other engineering controls are not adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure, a supplied-air NIOSH approved respirator may be appropriate. If exposure to harmful levels of airborne material may occur, a NIOSH approved respirator that provides protection may be appropriate, such as:. 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. Safety glasses.
- 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.

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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 : Gaseous
Color : Colorless
Odor : Aromatic Gasoline

Safety data

Flash point : 45°C (113°F)
Lower explosion limit : 1.2 %(V)
Upper explosion limit : 75 %(V)
Molecular weight : 4.5 - 34 g/mol
pH : Not applicable
Melting point/ range : -169°C (-272°F)
Vapor pressure : 51,000.00 hPa
Density : 1.1 kg/m³
Water solubility : 0.14 g/l

SECTION 10: Stability and reactivity

Reactivity : Stable under recommended storage conditions.

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

Possibility of hazardous reactions

Hazardous reactions : Hazardous reactions: Vapors may form explosive mixture with air.

Conditions to avoid : Heat, flames and sparks.

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

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SECTION 11: Toxicological information**S-Chem Laboratory Calibration Gas****Acute oral toxicity** : Negligible or unlikely exposure pathways**S-Chem Laboratory Calibration Gas****Acute inhalation toxicity** : No data available**S-Chem Laboratory Calibration Gas****Acute dermal toxicity** : Negligible or unlikely exposure pathways**S-Chem Laboratory Calibration Gas****Skin irritation** : May cause skin irritation in susceptible persons.**S-Chem Laboratory Calibration Gas****Eye irritation** : May irritate eyes.
Vapors may cause irritation to the eyes, respiratory system and the skin.**S-Chem Laboratory Calibration Gas****Sensitization** : No data available.**S-Chem Laboratory Calibration Gas****Repeated dose toxicity** : No data available**Genotoxicity in vitro**Ethylene : Test Type: Ames test
Test system: TA100
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negativeTest Type: Chromosome aberration test in vitro
Test system: Chinese hamster ovary cells
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 473
Result: negativePropylene : Test Type: Ames test
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negativeTest Type: Mammalian cell gene mutation assay
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: AmbiguousIsobutane : Test Type: Ames test
Result: negative1-Hexene : Test Type: Ames test
Metabolic activation: with and without metabolic activation
Method: Mutagenicity (Escherichia coli - reverse mutation)

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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

Propane
Test Type: Ames test
Result: negative

n-Butane
Test Type: Ames test
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

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

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

Genotoxicity in vivo

Ethylene : Test Type: Micronucleus test
Species: Rat
Route of Application: inhalation (gas)
Exposure time: 5 days and 13 weeks
Dose: 10000 ppm
Result: negative

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	<p>Test Type: Micronucleus test Species: Rat Route of Application: inhalation (gas) Exposure time: 4 weeks Dose: 40, 1000, 3000 ppm Method: OECD Test Guideline 474 Result: negative</p>
Propylene	<p>Test Type: Micronucleus test Species: Rat Route of Application: inhalation (gas) Method: OECD Test Guideline 474 Result: negative</p>
1-Hexene	<p>Test Type: Mouse micronucleus assay Species: Mouse Method: Mutagenicity (micronucleus test) Result: negative</p>
1,3-Butadiene	<p>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</p> <p>Test Type: Dominant lethal assay Species: mice Method: OECD Test Guideline 478 Result: Positive results were obtained in some in vivo tests.</p>
Toluene	<p>Test Type: Cytogenetic assay Result: negative</p> <p>Test Type: Mouse micronucleus assay Result: negative</p>
Xylenes	<p>Test Type: Mouse micronucleus assay Result: negative</p>
1-Butene	<p>Test Type: Micronucleus test Species: Mouse Dose: 1000, 3260, 10000 ppm Method: Mutagenicity (micronucleus test) Result: negative</p>
Carcinogenicity	
Ethylene	<p>: Species: Rat Dose: 0. 300, 1000, 3000 ppm Exposure time: 2 yrs Number of exposures: 6 h/d, 5 d/wk Remarks: no increase incidence of tumors</p>
Propylene	<p>Species: Rat Dose: 0, 5000, 10000 ppm Exposure time: 103 wks Number of exposures: 6 h/d, 5 d/wk</p>

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	<p>Remarks: No evidence of carcinogenicity</p> <p>Species: Mouse Dose: 0, 5000, 10000 ppm Exposure time: 103 wks Number of exposures: 6 h/d, 5 d/wk Remarks: No evidence of carcinogenicity</p>
1,3-Butadiene	<p>Species: Mouse Sex: male and female Dose: 6.25, 20, 62.5, 200, 625 ppm Exposure time: 6hr/day. 5day/wk for up to 2 y Test substance: yes Print Date: OECD Test Guideline 453 Remarks: Clear evidence of multiple organ carcinogenicity.</p> <p>Species: Rat Sex: male and female Dose: 1000, 8000 ppm Exposure time: 6 hr/day, 5 day/wk for 2 years Test substance: yes Remarks: weak oncogen</p>
Toluene	<p>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</p> <p>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</p>
Xylenes	<p>Species: Rat Dose: 0, 250, 500 mg/kg Exposure time: 103 wks Number of exposures: 5 d/wk Remarks: No evidence of carcinogenicity</p> <p>Species: Mouse Dose: 0, 500, 1000 mg/kg Exposure time: 103 wks Number of exposures: 5 d/wk Remarks: No evidence of carcinogenicity</p>
1-Butene	<p>Species: Rat Sex: male Dose: 0, 500, 2000, 8000 ppm Exposure time: 2 years Number of exposures: 6 hr/d, 5 d/wk Remarks: increased incidence of thyroid tumors, Information given is based on data obtained from similar substances.</p>

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Species: Rat
 Sex: female
 Dose: 0, 500, 2000, 8000 ppm
 Exposure time: 2 years
 Number of exposures: 6 hr/d, 5 d/wk
 Remarks: no increase incidence of tumors, Information given is based on data obtained from similar substances.

Species: Mouse
 Sex: male
 Dose: 0, 500, 2000, 8000 ppm
 Exposure time: 2 years
 Number of exposures: 6 hr/d, 5 d/wk
 Remarks: no increase incidence of tumors, Information given is based on data obtained from similar substances.

Species: Mouse
 Sex: female
 Dose: 0, 500, 2000, 8000 ppm
 Exposure time: 2 years
 Number of exposures: 6 hr/d, 5 d/wk
 Remarks: no increase incidence of tumors, Information given is based on data obtained from similar substances.

Reproductive toxicity

Ethylene : Species: Rat
 Application Route: Inhalation
 Dose: 0, 200, 1000, 5000 ppm
 Number of exposures: 6 h/d
 NOAEL Parent: 5000 ppm
 NOAEL F1: 5000 ppm
 no abnormalities observed

Propylene Species: Rat
 Sex: male and female
 Application Route: Inhalation
 Dose: 0, 5000, 10000 ppm
 Number of exposures: 6 hrs/d, 5 d/wk
 Test period: 103 wks
 NOAEL Parent: 10000 ppm

Species: Mouse
 Sex: male and female
 Application Route: Inhalation
 Dose: 0, 5000, 10000 ppm
 Number of exposures: 6 hrs/d, 5 d/wk
 Test period: 103 wks
 NOAEL Parent: 10000 ppm

Ethane Species: Rat
 Sex: male and female
 Application Route: Inhalation
 Dose: 0, 1600, 5000, 16000 ppm
 Exposure time: 6 weeks
 Number of exposures: 6 hours/day, 7 days/week
 Test period: 6 weeks
 Test substance: yes
 Method: OECD Guideline 422

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	NOAEL Parent: 16000 ppm NOAEL F1: 16000 ppm no abnormalities observed
1-Hexene	Species: Rat Sex: males Application Route: oral gavage Dose: 0, 100, 500, 1000 mg/kg Number of exposures: daily Test period: 44 d Test substance: yes Method: OECD Guideline 421 NOAEL Parent: 1,000 mg/kg NOAEL F1: 1,000 mg/kg
	Species: Rat Sex: females Application Route: oral gavage Dose: 0, 100, 500, 1000 mg/kg Number of exposures: daily Test period: 41-51 d Test substance: yes Method: OECD Guideline 421 NOAEL Parent: 1,000 mg/kg NOAEL F1: 1,000 mg/kg
Propane	Species: Rat Sex: male and female Application Route: Inhalation Dose: 0, 1200, 4000, 12000 ppm Exposure time: 6 weeks Number of exposures: 6 hours/day, 7 days/week Test period: 6 weeks Test substance: yes Method: OECD Guideline 422 NOAEL Parent: 12000 ppm NOAEL F1: 12000 ppm
Toluene	Species: Rat Application Route: Inhalation Dose: 0, 100, 500, 2000 ppm Test period: 95 d NOAEL Parent: 2000 ppm
1-Butene	Species: Rat Sex: male and female Application Route: Inhalation Dose: 0, 500, 2000, 8000 ppm Method: OECD Guideline 422 NOAEL Parent: 8000 ppm NOAEL F1: 8000 ppm
Developmental Toxicity	
Ethylene	: Species: Rat Application Route: Inhalation Dose: 0. 200, 1000, 5000 ppm Number of exposures: 6 h/d NOAEL Teratogenicity: 5000 ppm

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NOAEL Maternal: 5000 ppm
 No toxicity to reproduction
 Animal testing did not show any effects on fertility.

Propylene

Species: Rat
 Application Route: Inhalation
 Dose: 0, 200, 1000, 10000 ppm
 Number of exposures: 6 hrs/d
 Test period: 14 d
 Method: OECD Guideline 414
 NOAEL Teratogenicity: 10000 ppm
 NOAEL Maternal: 10000 pmm

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

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Aspiration toxicity : No aspiration toxicity classification.
Toxicology Assessment

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

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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 degrease the skin.

SECTION 12: Ecological information

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Ecotoxicity effects

Toxicity to fish : No data available

Toxicity to daphnia and other aquatic invertebrates : No data available

Toxicity to algae : No data available

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)

Hydrogen Sulfide : Not classified due to data which are conclusive although insufficient for classification.

Biodegradability : No data available

Physico-chemical removability

Hydrogen Sulfide : The product can be degraded by abiotic (e.g. chemical or photolytic) processes.
Readily eliminated from water

Elimination information (persistence and degradability)

Bioaccumulation : No data available

Mobility : No data available

Results of PBT assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

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.

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.

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- 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)

UN3501, CHEMICAL UNDER PRESSURE, FLAMMABLE, N.O.S., (ETHYLENE, PROPYLENE), 2.1, RQ (1,3-BUTADIENE, XYLENES)

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)

UN3501, CHEMICAL UNDER PRESSURE, FLAMMABLE, N.O.S., (ETHYLENE, PROPYLENE), 2.1, (45 °C c.c.), MARINE POLLUTANT, (ALKENES, C6, XYLENES)

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)

UN3501, CHEMICAL UNDER PRESSURE, FLAMMABLE, N.O.S., (ETHYLENE, PROPYLENE), 2.1

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

UN3501, CHEMICAL UNDER PRESSURE, FLAMMABLE, N.O.S., (ETHYLENE, PROPYLENE), 2.1, ENVIRONMENTALLY HAZARDOUS, (ALKENES, C6, XYLENES)

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

23, UN3501, CHEMICAL UNDER PRESSURE, FLAMMABLE, N.O.S., (ETHYLENE, PROPYLENE), 2.1, ENVIRONMENTALLY HAZARDOUS, (ALKENES, C6, XYLENES)

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

UN3501, CHEMICAL UNDER PRESSURE, FLAMMABLE, N.O.S., (ETHYLENE, PROPYLENE), 2.1, ENVIRONMENTALLY HAZARDOUS, (ALKENES, C6, XYLENES)

Maritime transport in bulk according to IMO instruments

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SECTION 15: Regulatory information**National legislation**

SARA 311/312 Hazards : Flammable (gases, aerosols, liquids, or solids)
 Germ cell mutagenicity
 Carcinogenicity
 Reproductive toxicity
 Specific target organ toxicity (single or repeated exposure)
 Skin corrosion or irritation
 Simple Asphyxiant

CERCLA Reportable Quantity : 83 lbs
 1,3-Butadiene
 100 lbs
 Ethylbenzene

SARA 302 Reportable Quantity : Listed substances in the product are at low enough levels to not be expected to exceed the RQ
 Hydrogen Sulfide
 Ammonia
 Arsine

SARA 302 Threshold Planning Quantity :

SARA 304 Reportable Quantity : Listed substances in the product are at low enough levels to not be expected to exceed the RQ
 Hydrogen Sulfide 7783-06-4 500 lbs
 Hydrogen Sulfide 7783-06-4 100 lbs
 Ammonia 7664-41-7 100 lbs
 Arsine 7784-42-1 100 lbs

SARA 313 Components : The following components are subject to reporting levels established by SARA Title III, Section 313:
 : Propylene - 115-07-1
 Ethylene - 74-85-1
 1,3-Butadiene - 106-99-0
 Toluene - 108-88-3
 Xylenes - 1330-20-7
 Hydrogen Sulfide - 7783-06-4

Clean Air Act

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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):

: 1,3-Butadiene - 106-99-0
Toluene - 108-88-3
Xylenes - 1330-20-7

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):

: Propylene - 115-07-1
Ethylene - 74-85-1
Ethane - 74-84-0
Isobutane - 75-28-5
Propane - 74-98-6
Hydrogen - 1333-74-0
Methane - 74-82-8
n-Butane - 106-97-8
1,3-Butadiene - 106-99-0
1-Butene - 106-98-9
Hydrogen Sulfide - 7783-06-4
Propadiene - 463-49-0
Methylacetylene - 74-99-7

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):

: Propylene - 115-07-1
Ethylene - 74-85-1
1,3-Butadiene - 106-99-0
Toluene - 108-88-3
Xylenes - 1330-20-7
1-Butene - 106-98-9

US State Regulations

Massachusetts Right To Know

: Propylene - 115-07-1
Ethylene - 74-85-1
Nitrogen - 7727-37-9
Ethane - 74-84-0
Isobutane - 75-28-5
Propane - 74-98-6
Hydrogen - 1333-74-0
Methane - 74-82-8
1-Hexene - 592-41-6
n-Butane - 106-97-8
1,3-Butadiene - 106-99-0
Toluene - 108-88-3
Xylenes - 1330-20-7
2-Methylpentane - 107-83-5
1-Butene - 106-98-9

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Carbon Dioxide - 124-38-9
 Carbon Monoxide - 630-08-0
 Hydrogen Sulfide - 7783-06-4
 Methylacetylene - 74-99-7
 Ammonia - 7664-41-7
 Arsine - 7784-42-1

Pennsylvania Right To Know

: Propylene - 115-07-1
 Ethylene - 74-85-1
 Nitrogen - 7727-37-9
 Ethane - 74-84-0
 Isobutane - 75-28-5
 Propane - 74-98-6
 Hydrogen - 1333-74-0
 Methane - 74-82-8
 1-Hexene - 592-41-6
 n-Butane - 106-97-8
 Alkenes, C6 - 68526-52-3
 1,3-Butadiene - 106-99-0
 Toluene - 108-88-3
 Xylenes - 1330-20-7
 2-Methylpentane - 107-83-5
 1-Butene - 106-98-9
 Carbon Dioxide - 124-38-9
 Carbon Monoxide - 630-08-0
 Hydrogen Sulfide - 7783-06-4
 Methylacetylene - 74-99-7

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.

1,3-Butadiene	106-99-0
Ethylbenzene	100-41-4
Arsine	7784-42-1

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

1,3-Butadiene	106-99-0
Toluene	108-88-3
Carbon Monoxide	630-08-0
Methanol	67-56-1

Notification status

Europe EU REACH : Not in compliance with the inventory
 Switzerland CH INV : Not in compliance with the inventory
 United States of America (USA) : Product contains substance(s) not active on TSCA

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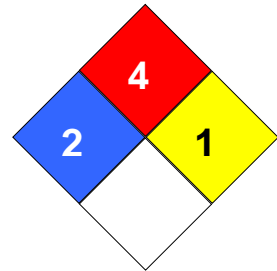
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TSCA	inventory.
Canada NDSL	: This product contains one or several components listed in the Canadian NDSL.
Australia AU AIC	: Not in compliance with the inventory
New Zealand NZIoC	: Not in compliance with the inventory
Japan ENCS	: Not in compliance with the inventory
Korea KECI	: Not in compliance with the inventory
Philippines PICCS	: Not in compliance with the inventory
China IECSC	: Not in compliance with the inventory
Taiwan TW TCSI	: Not in compliance with the inventory

SECTION 16: Other information

NFPA Classification : Health Hazard: 2
Fire Hazard: 4
Reactivity Hazard: 1



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Further information

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%
AIC	Australian Inventory of Industrial Chemicals	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration

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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