

Hydrogenated Pyrolysis Gas (HPG) Hydrogenated C5-C8

Version 2.2

Revision Date 2019-03-25

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

Product information

Product Name : Hydrogenated Pyrolysis Gas (HPG) Hydrogenated C5-C8

Company

: Qatar Chemical Company LTD (QChem)
Amwal Tower, Omar Al Mukhtar St,
Al-Dafna (Zone 61)
PO Box 24646
Doha, Qatar

SDS Requests: (+974) 4484-7110
Technical Information: (+974) 4477-0047
Responsible Party: Product Safety Group
Email: MSDSInquiry@qchem.com.qa

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 2

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

Labeling

Symbol(s)



Signal Word

: Danger

Hazard Statements

: H225: Highly flammable liquid and vapor.
 H304: May be fatal if swallowed and enters airways.
 H315: Causes skin irritation.
 H319: Causes serious eye irritation.
 H336: May cause drowsiness or dizziness.
 H340: May cause genetic defects.
 H350: May cause cancer.
 H361: Suspected of damaging fertility or the unborn child.
 H372: Causes damage to organs (Blood) through prolonged or repeated exposure.
 H373: May cause damage to organs (Auditory organs, color vision, Nervous system) through prolonged or repeated exposure if inhaled.

Precautionary Statements

: **Prevention:**
 P201 Obtain special instructions before use.
 P202 Do not handle until all safety precautions have been read and understood.
 P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.
 P233 Keep container tightly closed.
 P240 Ground/bond container and receiving equipment.
 P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.
 P242 Use only non-sparking tools.
 P243 Take precautionary measures against static discharge.
 P260 Do not breathe dust/fume/gas/mist/vapor/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

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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.

Carcinogenicity:**IARC**

Group 1: Carcinogenic to humans

Benzene 71-43-2

Group 2B: Possibly carcinogenic to humans

Gasoline, pyrolysis, hydrogenated 94114-03-1

Ethylbenzene 100-41-4

NTP

Known to be human carcinogen

Benzene 71-43-2

SECTION 3: Composition/information on ingredients

Synonyms : Benzene Concentrate
 Hexane, Light hydrotreated distillate
 BTX Concentrate

Molecular formula : UVCB

Component	CAS-No.	Weight %
Gasoline, pyrolysis, hydrogenated	94114-03-1	100
Benzene	71-43-2	40 - 50
n-Pentane	109-66-0	6 - 10
Cyclopentane	287-92-3	5 - 7
Toluene	108-88-3	3 - 5
n-hexane	110-54-3	2 - 4
Cyclohexane	110-82-7	2 - 4

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Methylcyclopentane	96-37-7	2 - 3
Isopentane	78-78-4	1 - 2
Ethylbenzene	100-41-4	0.5 - 2

SECTION 4: First aid measures

- General advice : Move out of dangerous area. Show this material safety data sheet to the doctor in attendance. Material may produce a serious, potentially fatal pneumonia if swallowed or vomited.
- If inhaled : Consult a physician after significant exposure. If unconscious, place in recovery position and seek medical advice.
- In case of skin contact : If skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes.
- In case of eye contact : Immediately flush eye(s) with plenty of water. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
- If swallowed : Keep respiratory tract clear. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

SECTION 5: Firefighting measures

- Flash point : -6.7 °C (19.9 °F) estimated
- Autoignition temperature : 510 °C (950 °F) estimated
- Suitable extinguishing media : Alcohol-resistant foam. Carbon dioxide (CO₂). Dry chemical.
- Unsuitable extinguishing media : High volume water jet.
- Specific hazards during fire fighting : Do not allow run-off from fire fighting to enter drains or water courses.
- Special protective equipment for fire-fighters : Wear self-contained breathing apparatus for firefighting if necessary.
- Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.
- Fire and explosion protection : Do not spray on an open flame or any other incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use

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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.
- Methods for cleaning up : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

SECTION 7: Handling and storage**Handling**

- Advice on safe handling : Avoid formation of aerosol. Do not breathe vapors/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. Open drum carefully as content may be under pressure. Dispose of rinse water in accordance with local and national regulations.
- Advice on protection against fire and explosion : Do not spray on an open flame or any other incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.

Storage

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

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

Components	Basis	Value	Control parameters	Note
Hydrotreated Light Distillate	OSHA Z-1	TWA	500 ppm, 2,000 mg/m ³	(b),

SDS Number:100000067418

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	OSHA Z-1-A	TWA	400 ppm, 1,600 mg/m3	
Benzene	ACGIH	TWA	0.5 ppm,	leukemia, BEI, A1, Skin,
	ACGIH	STEL	2.5 ppm,	leukemia, BEI, A1, Skin,
	OSHA Z-1-A	TWA	1 ppm,	
	OSHA Z-1-A	CEIL	5 ppm,	
	OSHA Z-2	Peak	50 ppm,	(a),
	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,	
Toluene	ACGIH	TWA	20 ppm,	visual impair, female repro, pregnancy loss, BEI, 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, dimethyl-	OSHA Z-1	TWA	100 ppm, 435 mg/m3	(b),
	OSHA Z-1-A	STEL	150 ppm, 655 mg/m3	
	OSHA Z-1-A	TWA	100 ppm, 435 mg/m3	
	ACGIH	TWA	100 ppm,	CNS impair, URT irr, eye irr, BEI, A4,
	ACGIH	STEL	150 ppm,	CNS impair, URT irr, eye irr, BEI, A4,
Ethylbenzene	OSHA Z-1	TWA	100 ppm, 435 mg/m3	(b),
	OSHA Z-1-A	TWA	100 ppm, 435 mg/m3	
	OSHA Z-1-A	STEL	125 ppm, 545 mg/m3	
	ACGIH	TWA	20 ppm,	cochlear imp, kidney dam (nephropathy), URT irr, BEI, A3,
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	(b),
	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,	CNS impair, URT irr,
	ACGIH	STEL	500 ppm,	CNS impair, URT irr,
n-hexane	ACGIH	TWA	50 ppm,	CNS impair, eye irr, peripheral neuropathy, BEI, Skin,
	OSHA Z-1	TWA	500 ppm, 1,800 mg/m3	(b),
	OSHA Z-1-A	TWA	50 ppm, 180 mg/m3	
Naphthalene	ACGIH	TWA	10 ppm,	hemolytic anemia, URT irr, cataract, 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	(b),
	OSHA Z-1-A	TWA	10 ppm, 50 mg/m3	
	OSHA Z-1-A	STEL	15 ppm, 75 mg/m3	
Cyclopentane	ACGIH	TWA	600 ppm,	CNS impair, URT irr, eye irr, skin irr,
	OSHA Z-1-A	TWA	600 ppm, 1,720 mg/m3	
Cumene	ACGIH	TWA	50 ppm,	CNS impair, URT irr, eye irr, skin irr,
	OSHA Z-1	TWA	50 ppm, 245 mg/m3	X, (b),
	OSHA Z-1-A	TWA	50 ppm, 245 mg/m3	X,
1,2,4-Trimethylbenzene	ACGIH	TWA	25 ppm,	CNS impair, hematologic eff, asthma,
	OSHA Z-1-A	TWA	25 ppm, 125 mg/m3	

() Adopted values or notations enclosed are those for which changes are proposed in the NIC

(a) This standard applies to the industry segments exempt from the 1 ppm 8-hour TWA and 5 ppm STEL of the benzene standard at 1910.1028.

(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

asthma Asthma

BEI Substances for which there is a Biological Exposure Index or Indices (see BEI® section)

cataract Cataract

CNS impair Central Nervous System impairment

cochlear imp Cochlear impair

eye dam Eye damage

eye irr Eye irritation

female repro Female reproductive

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hematologic eff Hematologic effects
 hemolytic Hemolytic anemia
 anemia
 kidney dam Kidney damage (nephropathy)
 (nephropathy)
 leukemia Leukemia
 peripheral Peripheral neuropathy
 neuropathy
 pregnancy loss Pregnancy loss
 Skin Danger of cutaneous absorption
 skin irr Skin irritation
 URT irr Upper Respiratory Tract irritation
 visual impair Visual impairment
 X Skin designation

Immediately Dangerous to Life or Health Concentrations (IDLH)

Substance name	CAS-No.	Control parameters	Update
Benzene	71-43-2	Immediately Dangerous to Life or Health Concentration Value 500 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, dimethyl-	1330-20-7	Immediately Dangerous to Life or Health Concentration Value 900 parts per million	1995-03-01
Ethylbenzene	100-41-4	Immediately Dangerous to Life or Health Concentration Value 800 parts per million	1995-03-01
n-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
Naphthalene	91-20-3	Immediately Dangerous to Life or Health Concentration Value 250 parts per million	1995-03-01
Cumene	98-82-8	Immediately Dangerous to Life or Health Concentration Value 900 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
n-Pentane	109-66-0	Immediately Dangerous to Life or Health Concentration Value 1500 parts per million	1995-03-01
Toluene	108-88-3	Immediately Dangerous to Life or Health Concentration Value 500 parts per million	1995-03-01
n-hexane	110-54-3	Immediately Dangerous to Life or Health Concentration Value 1100 parts per million	1995-03-01
Cyclohexane	110-82-7	Immediately Dangerous to Life or Health Concentration Value 1300 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

Biological exposure indices**US**

Substance name	CAS-No.	Control parameters	Sampling time	Update
Benzene	71-43-2	S-Phenylmercapturic acid: 25 µg/g creatinine (Urine)	End of shift (As soon as possible after exposure ceases)	2010-03-01

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		t,t-Muconic acid: 500 µg/g creatinine (Urine)	End of shift (As soon as possible after exposure ceases)	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 (Urine)	End of shift (As soon as possible after exposure ceases)	2010-03-01
Benzene, dimethyl-	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 (Urine)	End of shift (As soon as possible after exposure ceases)	2016-03-01
n-hexane	110-54-3	2,5-Hexanedione: 0.4 mg/l (Urine)	End of shift at end of workweek	2007-01-01
Benzene	71-43-2	S-Phenylmercapturic acid: 25 µg/g creatinine (Urine)	End of shift (As soon as possible after exposure ceases)	2010-03-01
		t,t-Muconic acid: 500 µg/g creatinine (Urine)	End of shift (As soon as possible after exposure ceases)	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 (Urine)	End of shift (As soon as possible after exposure ceases)	2010-03-01
n-hexane	110-54-3	2,5-Hexanedione: 0.4 mg/l (Urine)	End of shift at end of workweek	2007-01-01
Ethylbenzene	100-41-4	Sum of mandelic acid and phenyl glyoxylic acid: 0.15 g/g creatinine (Urine)	End of shift (As soon as possible after exposure ceases)	2016-03-01

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 : 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, exposure levels are not

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	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	: Mild

Safety data

Flash point	: -6.7 °C (19.9 °F) estimated
Lower explosion limit	: 1.2 %(V)
Upper explosion limit	: 7.4 %(V)
Oxidizing properties	: No
Autoignition temperature	: 510 °C (950 °F) estimated
Molecular formula	: UVCB
pH	: Not applicable
Pour point	: No data available
Boiling point/boiling range	: 66 - 232 °C (151 - 450 °F)
Vapor pressure	: 3.30 PSI at 38 °C (100 °F)

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Relative density	: 0.84 at 15.6 °C (60.1 °F)
Water solubility	: Negligible
Partition coefficient: n-octanol/water	: No data available
Viscosity, kinematic	: 0.5 cSt at 38 °C (100 °F)
Relative vapor density	: No data available
Evaporation rate	: No data available

SECTION 10: Stability and reactivity

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

Hazardous reactions: Vapors may form explosive mixture with air.

Conditions to avoid : Heat, flames and sparks.

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

SECTION 11: Toxicological information**Hydrogenated Pyrolysis Gas (HPG) Hydrogenated C5-C8**

Acute oral toxicity : LD50 Oral: > 2,000 mg/kg
Species: Rat
Method: Acute toxicity estimate
Information given is based on data obtained from similar substances.

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Acute inhalation toxicity : LC50: > 20 mg/l
Exposure time: 4 h
Species: Rat
Test atmosphere: vapor
Method: Acute toxicity estimate

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Acute dermal toxicity : LD50 Dermal: > 5,000 mg/kg
Species: Rabbit

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Information given is based on data obtained from similar substances.

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Skin irritation : May cause skin irritation in susceptible persons.

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Eye irritation : May irritate eyes.

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Sensitization : No adverse effects expected. Information given is based on data obtained from similar substances.

Repeated dose toxicity

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

n-Pentane : Species: Rat, Male and female
Sex: Male and female
Application Route: inhalation (gas)
Dose: 0, 5000, 10,000, 20,000 mg/m³
Exposure time: 13 wk
Number of exposures: 6 h/d, 5 d/wk
NOEL: 20,000 mg/m³
Method: OECD Test Guideline 413

Cyclopentane : Species: Rat, males
Sex: males
Dose: 0, 0.22, 1.12, 5.29 mg/l
Exposure time: 28 DAYS
Number of exposures: 6 h/d
NOEL: 1.12 mg/l
Lowest observable effect level: 5.29 mg/l

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	<p>Species: Rat, females Sex: females Dose: 0, 0.22, 1.12, 5.29 mg/l Exposure time: 28 DAYS Number of exposures: 6 h/d NOEL: 5.29 mg/l Lowest observable effect level: > 5.29 mg/l</p>
Toluene	<p>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</p>
	<p>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</p>
n-hexane	<p>Species: Rat, male Sex: male Application Route: Inhalation Dose: 3,000 ppm Exposure time: 16 wks Number of exposures: 12 h/d Lowest observable effect level: 3,000 ppm Target Organs: Peripheral nervous system</p>
	<p>Species: Mouse, female Sex: female Application Route: Inhalation Dose: 500, 1,000, 4,000, 10,000 ppm Exposure time: 13 wks Number of exposures: 6h or 22h (1,000 ppm)/ 5d/wk Lowest observable effect level: 500 ppm Target Organs: Nose</p>
	<p>Species: Mouse, male Sex: male Application Route: Inhalation Dose: 500, 1,000, 4000, 10,000 ppm Exposure time: 13 wks Number of exposures: 6h or 22h (1,000 ppm)/d, 5d/wk NOEL: 500 ppm Lowest observable effect level: 1,000 ppm Target Organs: Nose</p>
	<p>Species: Rat, male Sex: male Application Route: oral gavage Dose: 568, 1,135, 3,973 mg/kg bw/day Exposure time: 90 or 120 days Number of exposures: Daily or 5d/wk (120-d study) NOEL: 568 mg/kg bw/day Lowest observable effect level: 1135 mg/kg bw/day</p>
Cyclohexane	<p>Species: Rat</p>

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

Species: Rat, Male and female
 Sex: Male and female
 Application Route: Inhalation
 Dose: 0, 500, 2,000, 7000 ppm
 Exposure time: 13-14 wk
 Number of exposures: 6 hr/d, 5 d/wk
 NOEL: 7000 ppm

Species: Mouse, Male and female
 Sex: Male and female
 Application Route: Inhalation
 Dose: 0, 500, 2000, 7000 ppm
 Exposure time: 13-14 wk
 Number of exposures: 6 hr/d, 5 d/wk
 NOEL: 2000 ppm
 Target Organs: Blood

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.

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

Hydrogenated Pyrolysis Gas (HPG) Hydrogenated C5-C8

Genotoxicity in vitro : Remarks: May cause genetic defects., Information refers to the main ingredient.

Hydrogenated Pyrolysis Gas (HPG) Hydrogenated C5-C8

Genotoxicity in vivo : Remarks: May cause genetic defects., Information refers to the main ingredient.

Carcinogenicity

Benzene : Species: Rat

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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.

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

n-hexane

Species: Rat
 Dose: 0.043, 900, 3,000, 9,016 ppm
 Exposure time: 2 yrs
 Number of exposures: 6 h/d, 5 d/wk
 Remarks: No evidence of carcinogenicity, Information given is based on data obtained from similar substances.

Species: Mouse
 Sex: male and female
 Dose: 0.039, 900, 3,000, 9,018 ppm
 Exposure time: 2 yrs
 Number of exposures: 6 h/d, 5 d/wk
 Remarks: No evidence of carcinogenicity, Information given is based on data obtained from similar substances.

Hydrogenated Pyrolysis Gas (HPG) Hydrogenated C5-C8**Reproductive toxicity** : This information is not available.**Hydrogenated Pyrolysis Gas (HPG) Hydrogenated C5-C8****Developmental Toxicity** : This information is not available.

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Hydrogenated Pyrolysis Gas (HPG) Hydrogenated C5-C8**Aspiration toxicity** : May be fatal if swallowed and enters airways.**Toxicology Assessment****Hydrogenated Pyrolysis Gas (HPG) Hydrogenated C5-C8**

CMR effects : Carcinogenicity:
May cause cancer.
Mutagenicity:
May cause genetic defects.
Teratogenicity:
May damage the unborn child.
Reproductive toxicity:
May damage fertility.

Hydrogenated Pyrolysis Gas (HPG) Hydrogenated C5-C8

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**

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
n-Pentane	LC50: 4.3 mg/l Exposure time: 96 h Species: Oncorhynchus mykiss (rainbow trout)
Cyclopentane	NOEC: > 100 mg/l Exposure time: 24 h Species: Oncorhynchus kisutch (Marine, fresh water)
Toluene	LC50: 18 - 36 mg/l Exposure time: 96 h Species: Pimephales promelas (fathead minnow)
n-hexane	LL50: 12.51 mg/l Exposure time: 96 h Species: Oncorhynchus mykiss (rainbow trout) Method: QSAR modeled data
Cyclohexane	LC50: 4.53 mg/l Exposure time: 96 h Species: Pimephales promelas (fathead minnow) Method: OECD Test Guideline 203
Methylcyclopentane	No data available

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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.

Ethylbenzene LC50: 4.3 mg/l
 Exposure time: 96 h
 Species: Marone saxatilis (striped bass)

Toxicity to daphnia and other aquatic invertebrates

Benzene : EC50: 10 mg/l
 Exposure time: 48 h
 Species: Daphnia magna (Water flea)
 static test Test substance: yes
 Method: OECD Test Guideline 202

n-Pentane EC50: 2.7 mg/l
 Exposure time: 48 h
 Species: Daphnia magna (Water flea)

Cyclopentane EL50: 10.5 mg/l
 Exposure time: 24 h
 Species: Daphnia magna (Water flea)

Toluene EC50: 3.78 mg/l
 Exposure time: 48 h
 Species: Daphnia magna (Water flea)

n-hexane EL50: 21.85 mg/l
 Exposure time: 48 h
 Species: Daphnia magna (Water flea)
 Method: QSAR modeled data

Cyclohexane EC50: 0.9 mg/l
 Exposure time: 48 h
 Species: Daphnia magna (Water flea)
 Method: OECD Test Guideline 202

Methylcyclopentane No data available

Isopentane EC50: 2.3 mg/l
 Exposure time: 48 h
 Species: Daphnia magna (Water flea)
 static test Method: OECD Test Guideline 202

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

Toxicity to algae

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Benzene	: ErC50: 100 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (green algae) Test substance: yes Method: OECD Test Guideline 201
n-Pentane	EbC50: 10.7 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (green algae)
Toluene	EC50: 134 mg/l Exposure time: 72 h Species: Chlamydomonas angulosa (Green algae)
n-hexane	EL50: 9.29 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (green algae) Method: QSAR modeled data
Cyclohexane	EbC50: 3.4 mg/l Exposure time: 72 h Species: Selenastrum capricornutum (algae) NOEC: 0.925 mg/l Exposure time: 72 h Species: Pseudokirchneriella subcapitata (microalgae) 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.
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)

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

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 : This material is not expected to be readily biodegradable.

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Information given is based on data obtained from similar substances.

Elimination information (persistence and degradability)

Bioaccumulation : 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.

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)
UN1203, GASOLINE, 3, II

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IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)

UN1203, GASOLINE, 3, II, (-6.7 °C), MARINE POLLUTANT, (TOLUENE, ETHYLBENZENE)

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)

UN1203, GASOLINE, 3, II

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

UN1203, MOTOR SPIRIT, 3, II, (D/E), ENVIRONMENTALLY HAZARDOUS, (TOLUENE, ETHYLBENZENE)

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

UN1203, GASOLINE, 3, II, ENVIRONMENTALLY HAZARDOUS, (TOLUENE, ETHYLBENZENE)

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

UN1203, GASOLINE, 3, II, ENVIRONMENTALLY HAZARDOUS, (TOLUENE, ETHYLBENZENE)

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

Other information	: Pyrolysis gasoline (containing benzene) (n), Environmental Cat.Y, Ship Type2 U.S. Coast Guard Compatibility Group 32
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SECTION 15: Regulatory information**National legislation**

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

CERCLA Reportable Quantity : 20 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.

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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:

: Benzene - 71-43-2
Toluene - 108-88-3
n-hexane - 110-54-3
Cyclohexane - 110-82-7
Ethylbenzene - 100-41-4

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 12 (40 CFR 61):

: Benzene - 71-43-2
Toluene - 108-88-3
n-hexane - 110-54-3
Ethylbenzene - 100-41-4

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):

: n-Pentane - 109-66-0
Isopentane - 78-78-4

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):

: Benzene - 71-43-2
n-Pentane - 109-66-0
Toluene - 108-88-3
Cyclohexane - 110-82-7
Isopentane - 78-78-4
Ethylbenzene - 100-41-4

US State Regulations

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Pennsylvania Right To Know

: Benzene - 71-43-2
 n-Pentane - 109-66-0
 Cyclopentane - 287-92-3
 Toluene - 108-88-3
 n-hexane - 110-54-3
 Cyclohexane - 110-82-7
 Methylcyclopentane - 96-37-7
 Isopentane - 78-78-4
 Ethylbenzene - 100-41-4
 p-xylene - 106-42-3
 o-xylene - 95-47-6
 m-xylene - 108-38-3

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.

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

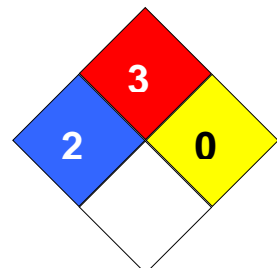
108-88-3

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 : Not in compliance with the inventory
 Canada DSL : Not in compliance with the inventory
 Australia AICS : Not in compliance with the inventory
 New Zealand NZIoC : Not in compliance with the inventory
 Japan ENCS : Not in compliance with the inventory
 Korea KECI : On the inventory, or in compliance with the inventory
 Philippines PICCS : Not in compliance with the inventory
 China IECSC : Not in compliance with the inventory
 Taiwan TCSI : Not in compliance with the inventory

SECTION 16: Other information**NFPA Classification**

: Health Hazard: 2
 Fire Hazard: 3
 Reactivity Hazard: 0



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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%
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%		