

**Metallocene C-04**

Version 1.3

Revision Date 2026-09-03

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

Product Name : Metallocene C-04
Use : Polymerization Agent
Company : Chevron Phillips Chemical Company LP
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;

Metallocene C-04

Version 1.3

Revision Date 2026-09-03

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
 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 liquids, Category 2
 Skin irritation, Category 2
 Reproductive toxicity, Category 2
 Specific target organ toxicity - single exposure, Category 3, Central nervous system
 Specific target organ toxicity - repeated exposure, Category 2, Inhalation, Auditory organs, color vision
 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.
 H336: May cause drowsiness or dizziness.
 H361: Suspected of damaging fertility or the unborn child.
 H373: May cause damage to organs (Auditory organs, 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

Metallocene C-04

Version 1.3

Revision Date 2026-09-03

read and understood.

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P233 Keep container tightly closed.

P240 Ground and bond container and receiving equipment.

P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.

P242 Use non-sparking tools.

P243 Take action to prevent static discharges.

P260 Do not breathe mist or vapors.

P264 Wash skin thoroughly after handling.

P271 Use only outdoors or in a well-ventilated area.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection/ hearing protection.

Response:

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.

P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

P331 Do NOT induce vomiting.

P332 + P313 If skin irritation occurs: Get medical advice/ attention.

P362 + P364 Take off contaminated clothing and wash it 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**

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

SECTION 3: Composition/information on ingredients

Synonyms : None Established

Molecular formula : Mixture

Component	CAS-No.	Weight %
-----------	---------	----------

Metallocene C-04

Version 1.3

Revision Date 2026-09-03

1-Hexene	592-41-6	79 - 99.9
Toluene	108-88-3	0 - 20
Metallocene, Proprietary Catalyst Complex	Proprietary	0.1 - 1
n-hexane	110-54-3	0 - 0.3

SECTION 4: First aid measures

- General advice : Move out of dangerous area. Show this material safety data sheet to the doctor in attendance. Material may produce a serious, potentially fatal pneumonia if swallowed or vomited.
- If inhaled : Consult a physician after significant exposure. If unconscious, place in recovery position and seek medical advice.
- In case of skin contact : If skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes.
- In case of eye contact : Flush eyes with water as a precaution. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
- If swallowed : Keep respiratory tract clear. Do NOT induce vomiting. 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

- Risks : May be fatal if swallowed and enters airways. Causes skin irritation. May cause drowsiness or dizziness. Suspected of damaging fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure if inhaled. May be fatal if swallowed and enters airways. Causes skin irritation. May cause drowsiness or dizziness. Suspected of damaging fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure if inhaled.

- Treatment : Treat symptomatically.

SECTION 5: Firefighting measures

- Flash point : approximately -25°C (-13°F)
Method: Tag closed cup
- 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.

Metallocene C-04

Version 1.3

Revision Date 2026-09-03

- Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.
- Fire and explosion protection : Do not spray on a naked flame or any incandescent material. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Use only explosion-proof equipment. Keep away from open flames, hot surfaces and sources of ignition.
- Hazardous decomposition products : Carbon oxides.

SECTION 6: Accidental release measures

- Personal precautions : Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
- Environmental precautions : Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
- Methods for cleaning up : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

SECTION 7: Handling and storage**Handling**

- Advice on safe handling : Avoid formation of aerosol. Do not breathe vapors/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. 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

Metallocene C-04

Version 1.3

Revision Date 2026-09-03

Requirements for storage : 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 : Polymerization Agent

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

US

Components	Basis	Value	Control parameters	Note
1-Hexene	ACGIH	TWA	50 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	
Metallocene, Proprietary Catalyst Complex	OSHA Z-1	TWA	5 mg/m3	
	ACGIH	TWA	5 mg/m3	A4,
	ACGIH	STEL	10 mg/m3	A4,
	OSHA Z-1-A	TWA	5 mg/m3	
	OSHA Z-1-A	STEL	10 mg/m3	
n-hexane	ACGIH	TWA	50 ppm,	Skin,
	OSHA Z-1	TWA	500 ppm, 1,800 mg/m3	
	OSHA Z-1-A	TWA	50 ppm, 180 mg/m3	

A4 Not classifiable as a human carcinogen

OTO Ototoxicant

Skin Danger of cutaneous absorption

Immediately Dangerous to Life or Health Concentrations (IDLH)

Substance name	CAS-No.	Control parameters	Update
Toluene	108-88-3	Immediately Dangerous to Life or Health Concentration Value 500 parts per million	1995-03-01
CPC- M1		Immediately Dangerous to Life or Health Concentration Value 25 milligram per cubic meter	1995-03-01
n-hexane	110-54-3	Immediately Dangerous to Life or Health Concentration Value 1100 parts per million	1995-03-01

Biological exposure indices

US

Substance name	CAS-No.	Control parameters	Sampling time	Update
Toluene	108-88-3	Toluene: 0.02 mg/l (In blood)	Prior to last shift of workweek	2010-03-01
		Toluene: 0.03 mg/l (Urine)	End of shift (As soon as possible after exposure ceases)	2010-03-01
		o-Cresol: 0.3 mg/g creatinine Background (Urine) With hydrolyses ()	End of shift (As soon as possible after exposure ceases)	2010-03-01
n-hexane	110-54-3	2,5-Hexanedione: 0.5 mg/l Without hydrolysis (Urine)	End of shift	2020-02-01

Engineering measures

Metallocene C-04

Version 1.3

Revision Date 2026-09-03

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: Air-Purifying Respirator for Organic Vapors. 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 : clear, orange-red
Odor : Mild

Safety data

- Flash point : approximately -25°C (-13°F)
Method: Tag closed cup

- Molecular formula : Mixture

Metallocene C-04

Version 1.3

Revision Date 2026-09-03

Molecular weight	: Not applicable
pH	: Not applicable
Pour point	: No data available
Boiling point/boiling range	: 63°C (145°F)
Vapor pressure	: 3.00 PSI at 21°C (70°F)
Relative density	: No data available
Density	: 0.68 - 0.71 G/ML
Water solubility	: slightly soluble
Partition coefficient: n-octanol/water	: No data available
Viscosity, kinematic	: No data available
Relative vapor density	: 3 (Air = 1.0)
Evaporation rate	: No data available

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.
Materials to avoid	: No data available.
Hazardous decomposition products	: Carbon oxides
Other data	: No decomposition if stored and applied as directed.

SECTION 11: Toxicological information**Acute oral toxicity**

SDS Number:100000013747

8/20

Metallocene C-04

Version 1.3

Revision Date 2026-09-03

1-Hexene : LD50: > 5,600 mg/kg
Species: Rat
Sex: male and female
Method: Fixed Dose Method

Toluene LD50: 6,500 mg/kg
Species: Rat
Sex: Not Specified

n-hexane LD50: 16 g/kg
Species: Rat
Sex: male and female

Metallocene C-04
Acute inhalation toxicity : Acute toxicity estimate: > 40 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Method: Calculation method

Acute toxicity estimate: 125 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Method: Calculation method

Metallocene C-04
Acute dermal toxicity : Acute toxicity estimate: 2,503 mg/kg
Method: Calculation method

Metallocene C-04
Skin irritation : May cause skin irritation in susceptible persons.

Metallocene C-04
Eye irritation : Vapors may cause irritation to the eyes, respiratory system and the skin.

Metallocene C-04
Sensitization : No data available.

Repeated dose toxicity

1-Hexene : Species: Rat, male
Sex: male
Application Route: oral gavage
Dose: 0, 10, 101, 1010, 3365 mg/kg
Exposure time: 28 day
Number of exposures: daily
NOEL: 101 mg/kg
Lowest observable effect level: 1,010 mg/kg
Test substance: yes
Method: OECD Test Guideline 407

Metallocene C-04

Version 1.3

Revision Date 2026-09-03

	Species: Rat, female Sex: female Application Route: oral gavage Dose: 0, 10, 101, 1010, 3365 mg/kg Exposure time: 28 day Number of exposures: daily NOEL: 1,010 mg/kg Lowest observable effect level: 3,365 mg/kg Test substance: yes Method: OECD Test Guideline 407
	Species: Rat Application Route: Inhalation Dose: 0, 300, 1000, 3000 ppm Exposure time: 90 day Number of exposures: 6 h/d, 5 d/wk, 13 wk NOEL: 3000 ppm Test substance: yes
Toluene	Species: Rat Application Route: Inhalation Dose: 0, 100, 625, 1250, 3000 ppm Exposure time: 15 wk Number of exposures: 6.5 h/d, 5 d/wk NOEL: 625 ppm
	Species: Mouse Application Route: Inhalation Dose: 0, 100, 625, 1250, 3000 ppm Exposure time: 14 wk Number of exposures: 6.5 h/d, 5 d/wk NOEL: 100 ppm
n-hexane	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

Metallocene C-04

Version 1.3

Revision Date 2026-09-03

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

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

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

Genotoxicity in vitro

1-Hexene

: Test Type: Ames test
Metabolic activation: with and without metabolic activation
Method: Mutagenicity (Escherichia coli - reverse mutation assay)
Result: negative

Test Type: Unscheduled DNA synthesis assay
Result: negative

Test Type: Mouse lymphoma assay
Result: negative

Test Type: Chromosome aberration test in vitro
Method: OECD Guideline 473
Result: negative

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

n-hexane

Test Type: Ames test

Metallocene C-04

Version 1.3

Revision Date 2026-09-03

Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative

Test Type: Mouse lymphoma assay
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: negative

Test Type: Mouse lymphoma assay
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 476
Result: Positive results were obtained in some in vitro tests.

Genotoxicity in vivo

1-Hexene : Test Type: Mouse micronucleus assay
Species: Mouse
Method: Mutagenicity (micronucleus test)
Result: negative

Toluene Test Type: Cytogenetic assay
Result: negative

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

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.

Metallocene C-04

Version 1.3

Revision Date 2026-09-03

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.

Reproductive toxicity

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

Toluene

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

n-hexane

Species: Rat
Sex: male
Application Route: Inhalation
Dose: 5,000 ppm
Number of exposures: 16 hr/d, 6 d/wk
Test period: 6 wks
permanent testicular damage characterized by loss of germ-cell line

Developmental Toxicity

Toluene

: Species: Rat
Application Route: Inhalation
Dose: 0, 100, 500, 2000 ppm
Test period: 95 d
NOAEL Teratogenicity: 400-750 ppm

n-hexane

Species: Rat
Application Route: Inhalation
Dose: 200, 1,000, 5,000 ppm
Number of exposures: 20 hr/d, daily

Metallocene C-04

Version 1.3

Revision Date 2026-09-03

Test period: GD 6-20
 NOAEL Teratogenicity: 200 ppm
 NOAEL Maternal: 200 ppm

Species: Mouse
 Application Route: Inhalation
 Dose: 200, 1,000, 5,000 ppm
 Number of exposures: 20 hr/d, daily
 Test period: GD 6-17
 NOAEL Maternal: 1,000 ppm

Aspiration toxicity

1-Hexene : May be fatal if swallowed and enters airways.
 Toluene : May be fatal if swallowed and enters airways.
 n-hexane : May be fatal if swallowed and enters airways.

CMR effects

1-Hexene : Carcinogenicity: Not available
 Mutagenicity: Tests on bacterial or mammalian cell cultures did not show mutagenic effects.
 Teratogenicity: Animal testing did not show any effects on fetal development.
 Reproductive toxicity: Animal testing did not show any effects on fertility.

Toluene : Carcinogenicity: Not classifiable as a human carcinogen.
 Mutagenicity: Animal testing did not show any mutagenic effects.
 Teratogenicity: Some evidence of adverse effects on development, based on animal experiments.
 Reproductive toxicity: Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.

n-hexane : Carcinogenicity: Not classifiable as a human carcinogen.
 Mutagenicity: Did not show mutagenic effects in animal experiments.
 Teratogenicity: Animal testing did not show any effects on fetal development.
 Reproductive toxicity: Some evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments.

**Metallocene C-04
Further information**

: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Concentrations substantially above the TLV value may cause narcotic effects. Solvents may degrease the skin.

SECTION 12: Ecological information**Ecotoxicity effects
Toxicity to fish**

1-Hexene : LC50: 5.6 mg/l
 Exposure time: 96 h
 Species: Oncorhynchus mykiss (rainbow trout)

Metallocene C-04

Version 1.3

Revision Date 2026-09-03

semi-static test Test substance: yes
Method: OECD Test Guideline 203

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

Toxicity to daphnia and other aquatic invertebrates

1-Hexene : EC50: 4.4 mg/l
Exposure time: 48 h
Species: Daphnia magna (Water flea)
static test Test substance: no
Method: OECD Test Guideline 202
Information given is based on data obtained from similar substances.

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

Toxicity to algae

1-Hexene : NOEC: 1.8 mg/l
Exposure time: 96 h
Species: Pseudokirchneriella subcapitata (green algae)
Growth inhibition Method: OECD Test Guideline 201
Information given is based on data obtained from similar substances.

EC50: > 5.5 mg/l
Exposure time: 96 h
Species: Pseudokirchneriella subcapitata (green algae)
Growth inhibition Method: OECD Test Guideline 201
Information given is based on data obtained from similar substances.

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

Metallocene C-04

Version 1.3

Revision Date 2026-09-03

Biodegradability

1-Hexene : 67 - 98 %
Testing period: 28 d
Test substance: yes
According to the results of tests of biodegradability this product is considered as being readily biodegradable.

Toluene : This material is expected to be readily biodegradable.

n-hexane : This material is expected to be readily biodegradable.

Elimination information (persistence and degradability)**Bioaccumulation**

1-Hexene : This material is not expected to bioaccumulate.

Toluene : This material is not expected to bioaccumulate.

n-hexane : Bioconcentration factor (BCF): 501
Does not significantly accumulate in organisms.

Mobility : No data available

Results of PBT assessment

1-Hexene : Non-classified PBT substance, Non-classified vPvB substance

Toluene : Non-classified vPvB substance, Non-classified PBT substance

n-hexane : Non-classified vPvB substance, Non-classified PBT substance

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal., Toxic to aquatic life.

Ecotoxicology Assessment

Short-term (acute) aquatic hazard : Toxic to aquatic life.

Long-term (chronic) aquatic hazard

1-Hexene : No data available

Toluene : Harmful to aquatic life with long lasting effects.

Metallocene, Proprietary Catalyst Complex : No data available

n-hexane : Toxic to aquatic life with long lasting effects.

SECTION 13: Disposal considerations

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

Metallocene C-04

Version 1.3

Revision Date 2026-09-03

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)

UN1993, FLAMMABLE LIQUIDS, N.O.S., (1-HEXENE, TOLUENE), 3, II, RQ (TOLUENE)

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)

UN1993, FLAMMABLE LIQUID, N.O.S., (1-HEXENE, TOLUENE), 3, II, (APPROXIMATELY -25 °C c.c.)

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)

UN1993, FLAMMABLE LIQUID, N.O.S., (1-HEXENE, TOLUENE), 3, II

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

UN1993, FLAMMABLE LIQUID, N.O.S., (1-HEXENE, TOLUENE), 3, II

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

,UN1993,FLAMMABLE LIQUID, N.O.S., (1-HEXENE, TOLUENE), 3, II

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

UN1993, FLAMMABLE LIQUID, N.O.S., (1-HEXENE, TOLUENE), 3, II

Metallocene C-04

Version 1.3

Revision Date 2026-09-03

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

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

CERCLA Reportable Quantity : 5000 lbs
Toluene

SARA 302 Reportable Quantity : This material does not contain any components with a SARA 302 RQ.

SARA 302 Threshold Planning Quantity : This material does not contain any components with a section 302 EHS TPQ.

SARA 304 Reportable Quantity : This material does not contain any components with a section 304 EHS RQ.

SARA 313 Components : The following components are subject to reporting levels established by SARA Title III, Section 313:
: Toluene - 108-88-3

Clean Air Act

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

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 112 (40 CFR 61):
: Toluene - 108-88-3

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

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):
: Toluene - 108-88-3

US State Regulations

Metallocene C-04

Version 1.3

Revision Date 2026-09-03

Pennsylvania Right To Know

: 1-Hexene - 592-41-6
Toluene - 108-88-3

**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 birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

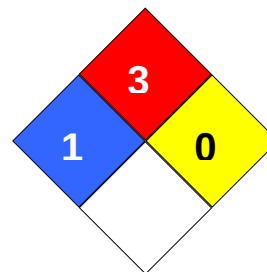
Toluene	108-88-3
n-hexane	110-54-3

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) TSCA	: On or in compliance with the active portion of the TSCA inventory
Canada DSL	: This product contains one or several components that are not on the Canadian DSL nor 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
Japan ISHL	: 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: 1
Fire Hazard: 3
Reactivity Hazard: 0



Revision Date : 2026-09-03
Date of last issue : 2021-09-16

Metallocene C-04

Version 1.3

Revision Date 2026-09-03

Print Date : 2026-09-13

Further information

Legacy SDS Number : CPC00219

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%
AIRC	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
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