Orthoxylene (Pure Grade)

Version 1.0 Revision Date 2012-01-05

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product information

Trade name	:	Orthoxylene (Pure Grade)
Material	:	1085274, 1025304, 1030504, 1015398
Use	:	Chemical intermediate, Solvent
Company	:	Chevron Phillips Chemical Company LP 10001 Six Pines Drive The Woodlands, TX 77380

Emergency telephone:

Health:
866.442.9628 (North America)
1.832.813.4984 (International)
Transport:
North America: CHEMTREC 800.424.9300 or 703.527.3887
Asia: +800 CHEMCALL (+800 2436 2255) China: 0532.8388.9090
EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Chemcare Asia: Tel: +65 6848 9048 - Mob: +65 8382 9188 - Fax: +65 6848
South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600

Responsible Department	:	Product Safety and Toxicology Group
E-mail address	:	MSDS@CPChem.com
Website	:	www.CPChem.com

2. HAZARDS IDENTIFICATION

Emergency Overview

Physical state: Liquid **Color**: Colorless **Odor**: pungent, sweet

OSHA Hazards : Flammable Liquid, Moderate skin irritant, Moderate eye irritant

GHS Classification

: Flammable liquids, Category 3
Acute toxicity, Category 5, Oral
Acute toxicity, Category 5, Inhalation
Skin irritation, Category 2
Eye irritation, Category 2A
Specific target organ systemic toxicity - single exposure, Category 3
Aspiration hazard, Category 1
Acute aquatic toxicity, Category 2

GHS-Labeling

Symbol(s) :

Signal Word : Danger

Hazard Statements :
H226: Flammable liquid and vapor.
H303 + H333: May be harmful if swallowed or if inhaled.
H304: May be fatal if swallowed and enters airways.
H315: Causes skin irritation.
H319: Causes serious eye irritation.
H335: May cause respiratory irritation.
H401: Toxic to aquatic life.

Precautionary Statements :

Prevention:
P210: Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233: Keep container tightly closed.
P240: Ground/bond container and receiving equipment.
P241: Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242: Use only non-sparking tools.
P243: Take precautionary measures against static discharge.
P261: Avoid breathing dust/fume/gas/mist/vapors/spray.
P264: Wash skin thoroughly after handling.
P271: Use only outdoors or in a well-ventilated area.
P273: Avoid release to the environment.
P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:
P301 + P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P303 + P361 + P353: IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P312: IF INHALED: Call a POISON CENTER or doctor/ physician if you feel unwell.
P304 + P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P312: Call a POISON CENTER or doctor/ physician if you feel unwell.
P321: Specific treatment (see supplemental first aid instructions on this label).
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 for extinction.

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

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : O-Xylene
Benzene, 1,2-Dimethyl-
o-Xylene greater than 99%

Molecular formula : C8H10

Component	CAS-No.	Weight %
o-Xylene	95-47-6	99 - 100

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 : If unconscious place in recovery position and seek medical advice. If symptoms persist, call a physician.

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. 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.

5. FIRE-FIGHTING MEASURES

Flash point : 31 °C (88 °F)
Method: Tag closed cup

Autoignition temperature	:	No data available
Suitable extinguishing media	:	Alcohol-resistant foam. Carbon dioxide (CO2). Dry chemical.
Unsuitable extinguishing media	:	High volume water jet.
Specific hazards during fire fighting	:	Do not allow run-off from fire fighting to enter drains or water courses.
Special protective equipment for fire-fighters	:	Wear self contained breathing apparatus for fire fighting 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). Keep away from open flames, hot surfaces and sources of ignition.
Hazardous decomposition products	:	Carbon Dioxide. Carbon oxides.

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).

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.
Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary, but may not by themselves be sufficient. Review all operations, which have the potential to generating and accumulation of electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106 "Flammable and Combustible Liquids"; National Fire Protection Association (NFPA 77), "Recommended Practice on Static Electricity"; and/or the American Petroleum Institute (API) Recommended Practice 2003, "Protection Against Ignitions Arising Out of Static, Lightning, and stray Currents".

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). 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.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

US

Ingredients	Basis	Value	Control parameters	Note
o-Xylene	ACGIH	TWA	100 ppm,	BEI, A4,
	ACGIH	STEL	150 ppm,	BEI, A4,
	NIOSH REL	TWA	100 ppm, 435 mg/m3	
	NIOSH REL	ST	150 ppm, 655 mg/m3	
Cumene	ACGIH	TWA	50 ppm,	
	OSHA Z-1	TWA	50 ppm, 245 mg/m3	X, (b),
	OSHA Z-1-A	TWA	50 ppm, 245 mg/m3	X,
	NIOSH REL	TWA	50 ppm, 245 mg/m3	skin,

(b) The value in mg/m3 is approximate.
A4 Not classifiable as a human carcinogen: Agents which cause concern that they could be carcinogenic for humans but which cannot be assessed conclusively because of a lack of data. In vitro or animal studies do not provide indications of carcinogenicity which are sufficient to classify the agent into one of the other categories.
BEI Substances for which there is a Biological Exposure Index or Indices (see BEI® section)
skin Potential for dermal absorption
X Skin notation

Immediately Dangerous to Life or Health Concentrations (IDLH)

Substance name	CAS-No.	Control parameters	Update

o-Xylene	95-47-6	Immediately Dangerous to Life or Health Concentration Value 900 parts per million	1995-03-01

Engineering measures

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

Personal protective equipment

Respiratory protection : Wear a supplied-air NIOSH approved respirator unless ventilation or other engineering controls are adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure. Wear a NIOSH approved respirator that provides protection when working with this material if exposure to harmful levels of airborne material may occur, such as:. Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, 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 : Tightly fitting safety goggles. Eye wash bottle with pure water.

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.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance

Physical state : Liquid
Color : Colorless
Odor : pungent, sweet

Safety data

Flash point : 31 °C (88 °F)
Method: Tag closed cup
Lower explosion limit : 1.1 %(V)

Upper explosion limit	:	6.4 %(V)
Oxidizing properties	:	no
Autoignition temperature	:	No data available
Molecular formula	:	C8H10
Molecular Weight	:	106.18 g/mol
pH	:	No data available
Boiling point/boiling range	:	138 °C (280 °F)
Vapor pressure	:	0.26 PSI
Relative density	:	0.88, 15.6 °C(60.1 °F)
Water solubility	:	Negligible
Partition coefficient: n-octanol/water	:	No data available
Viscosity, kinematic	:	< 1.138 cSt at 37.8 °C (100.0 °F)
Relative vapor density	:	3.7 (Air = 1.0)
Evaporation rate	:	1
Percent volatile	:	> 99 %

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

Conditions to avoid	:	Heat, sparks, fire, and oxidizing agents.
Materials to avoid	:	May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Other data	:	No decomposition if stored and applied as directed.

11. TOXICOLOGICAL INFORMATION

Orthoxylene (Pure Grade)

Acute oral toxicity	:	LD50: 3,523 mg/kg

Species: rat

Orthoxylene (Pure Grade)
Acute inhalation toxicity : LC50: 27.124 mg/l
Exposure time: 4 h
Species: rat
Test atmosphere: vapor

Orthoxylene (Pure Grade)
Acute dermal toxicity : LD50: 12,126 mg/kg
Species: rabbit

Orthoxylene (Pure Grade)
Skin irritation : Irritating to skin and mucous membranes.
May cause skin irritation in susceptible persons.

Orthoxylene (Pure Grade)
Eye irritation : The product causes irritation of eyes, skin and mucous membranes.
May cause irreversible eye damage.

Orthoxylene (Pure Grade)
Sensitization : Did not cause sensitization on laboratory animals.

Repeated dose toxicity

o-Xylene : Species: rat
Application Route: Inhalation
Dose: 0, 3500 ppm
Exposure time: 6 wk
Lowest observable effect level: 3500 ppm

Carcinogenicity

o-Xylene : Species: rat
Dose: 0, 250, 500 mg/kg
Exposure time: 103 wks
Number of exposures: 5 d/wk
Remarks: No evidence of carcinogenicity

Species: mouse
Dose: 0, 500, 1000 mg/kg
Exposure time: 103 wks
Number of exposures: 5 d/wk
Remarks: No evidence of carcinogenicity

Teratogenicity

o-Xylene : Species: rat
Application Route: Inhalation
Dose: 0, 100, 500, 1000, 2000 ppm
Number of exposures: 6 h/d, 7 d/wk
Test period: GD 6-20
NOAEL Teratogenicity: 100 ppm
NOAEL Maternal: 500 ppm

Orthoxylene (Pure Grade)
Aspiration toxicity : May be fatal if swallowed and enters airways.
Substances known to cause human aspiration toxicity hazards or to be regarded as if they cause human aspiration toxicity hazard.

CMR effects

o-Xylene : Carcinogenicity: Animal testing did not show any carcinogenic effects.
Mutagenicity: Did not show mutagenic effects in animal experiments.
Teratogenicity: Did not show teratogenic effects in animal experiments.
Reproductive toxicity: No toxicity to reproduction

Orthoxylene (Pure Grade)
Further information : Solvents may degrease the skin.

12. ECOLOGICAL INFORMATION

Toxicity to fish

o-Xylene : LC50: 7.6 mg/l
Exposure time: 96 h
Species: Salmo gairdneri (Rainbow trout)

Toxicity to daphnia and other aquatic invertebrates.

o-Xylene : EC50: 1 mg/l
Exposure time: 24 h
Species: Daphnia magna (Water flea)
Method: OECD Test Guideline 202

Toxicity to algae

o-Xylene : EC50: 4.2 mg/l
Exposure time: 8 Days
Species: Selenastrum capricornutum (algae)
static test Analytical monitoring: yes

Elimination information (persistence and degradability)

Bioaccumulation

o-Xylene : Bioconcentration factor (BCF): 29
Does not significantly accumulate in organisms.

Biodegradability : This material is expected to be readily biodegradable.

Additional ecological information : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

The information in this MSDS 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.

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 MSDS and the bill of lading.

US DOT (United States Department of Transportation)
UN1307, XYLENES, 3, III, RQ (O-XYLENE)

IMO / IMDG (International Maritime Dangerous Goods)
UN1307, XYLENES, 3, III, (31 °C)

IATA (International Air Transport Association)
UN1307, XYLENES, 3, III

ADR (Agreement on Dangerous Goods by Road (Europe))
UN1307, XYLENES, 3, III, (D/E)

RID (Regulations concerning the International Transport of Dangerous Goods (Europe))
UN1307, XYLENES, 3, III

ADN (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
UN1307, XYLENES, 3, III

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

15. REGULATORY INFORMATION

National legislation

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard

EPCRA - EMERGENCY PLANNING COMMUNITY RIGHT - TO – KNOW

CERCLA Reportable Quantity	:	1003 lbs o-Xylene
SARA 302 Reportable Quantity	:	This material does not contain any components with a SARA 302 RQ.
SARA 302 Threshold Planning Quantity	:	SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
SARA 304 Reportable Quantity	:	This material does not contain any components with a section 304 EHS RQ.
SARA 313 Ingredients	:	The following components are subject to reporting levels established by SARA Title III, Section 313:
	:	o-Xylene 95-47-6

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):	:	Cumene
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):	:	o-Xylene Cumene

US State Regulations

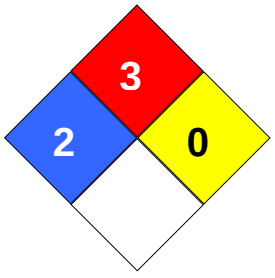
Pennsylvania Right To Know			
	:	o-Xylene	95-47-6
	:	p-Xylene	106-42-3
	:	m-xylene	108-38-3
	:	Cumene	98-82-8
New Jersey Right To Know			
	:	o-Xylene	95-47-6
California Prop. 65 Ingredients	:	WARNING! This product contains a chemical known in the State of California to cause cancer.	

Notification status

Europe REACH	:	This mixture contains only ingredients which have been subject to a pre-registration according to Regulation (EU) No. 1907/2006 (REACH).
United States of America US.TSCA	:	On the inventory, or in compliance with the inventory
Canada DSL	:	All components of this product are on the Canadian DSL list.
Australia AICS	:	On the inventory, or in compliance with the inventory
New Zealand NZIoC	:	On the inventory, or in compliance with the inventory
Japan ENCS	:	On the inventory, or in compliance with the inventory
Korea KECI	:	On the inventory, or in compliance with the inventory
Philippines PICCS	:	On the inventory, or in compliance with the inventory
China IECSC	:	On the inventory, or in compliance with the inventory

16. OTHER INFORMATION

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



Further information

Legacy MSDS Number : 374680

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

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

The information provided in this Material 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	Philipines 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 Compositon, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%		