Para-Xylene

Safety Data Sheet

according to US HazCom 2012

Issue date: 26 May 2015 Revision date: 17 April 2023 Supersedes: 5 October 2017 Version: 1.5

SECTION 1: Identification

1.1. Identification

Product form	:	Substance
Trade name	:	Para-Xylene
Chemical name	:	p-Xylene
CAS-No.	:	106-42-3
Product code	:	P099
Formula	:	C8H10

1.2. Recommended use and restrictions on use

Use of the substance/mixture	:	Raw material for synthesis of terephthalic Acid (TPA) and Poliethylene therephthalate (PET)

1.3. Supplier

Braskem America, Inc.
1735 Market Street
Philadelphia, PA 19103-7583
TEL: (800) 396 - 5252
productsafety@braskem.com
www.braskem.com.br

1.4. Emergency telephone number

Emergency number	:	CHEMTREC: +1-703-527-3887 (INTERNATIONAL) 1-800-424-9300 (NORTH AMERICA)

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Flammable liquids, Category 3	Flammable liquid and vapour.
Acute toxicity (dermal), Category 4	Harmful in contact with skin.
Acute toxicity (inhal.), Category 4	Harmful if inhaled.
Skin corrosion/irritation, Category 2	Causes skin irritation.
Serious eye damage/eye irritation, Category 2A	Causes serious eye irritation.
Reproductive toxicity, Category 2	Suspected of damaging fertility or the unborn child.
Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation	May cause respiratory irritation.
Aspiration hazard, Category 1	May be fatal if swallowed and enters airways.

2.2. GHS Label elements, including precautionary statements

GHS US labelling

Hazard pictograms (GHS US) :

Signal word (GHS US) : Danger

Hazard statements (GHS US) : Flammable liquid and vapour.
May be fatal if swallowed and enters airways.
Harmful in contact with skin or if inhaled
Causes skin irritation.
Causes serious eye irritation.
May cause respiratory irritation.
Suspected of damaging fertility or the unborn child.

Precautionary statements (GHS US) : Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
heat, sparks, open flames, hot surfaces
Keep container tightly closed.
Ground/bond container and receiving equipment.

Use explosion-proof electrical, lighting, ventilating equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Avoid breathing mist, spray, vapours, gas, fumes, dust.
Wash hands thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Wear eye protection, protective clothing, protective gloves
If swallowed: Immediately call a POISON CENTER.
If on skin: Wash with plenty of water.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
If inhaled: Remove person to fresh air and keep comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If exposed or concerned: Get medical advice/attention.
Call a doctor, a POISON CENTER if you feel unwell.
Do NOT induce vomiting.
If skin irritation occurs: Get medical advice/attention.
If eye irritation persists: Get medical advice/attention.
Take off contaminated clothing.
Take off contaminated clothing and wash it before reuse.
In case of fire: Use carbon dioxide (CO_2), dry extinguishing powder, alcohol resistant foam to extinguish.
Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
Store locked up.
Dispose of contents/container to comply with applicable local, national and international regulation..

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substances

Name : p-Xylene
CAS-No. : 106-42-3

Name	Product identifier	%	GHS US classification
p-xylene	CAS-No.: 106-42-3	99.805	Flam. Liq. 3, H226 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation), H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 Asp. Tox. 1, H304
m-xylene (Impurity)	CAS-No.: 108-38-3	≤ 0.2	Flam. Liq. 3, H226 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation), H332 Skin Irrit. 2, H315

Name	Product identifier	%	GHS US classification
ethylbenzene (Impurity)	CAS-No.: 100-41-4	≤ 0.15	Flam. Liq. 2, H225 Acute Tox. 4 (Inhalation), H332 Carc. 2, H351 STOT RE 2, H373 Asp. Tox. 1, H304
Methyl benzene (Impurity)	CAS-No.: 108-88-3	≤ 0.1	Flam. Liq. 2, H225 Skin Irrit. 2, H315 Repr. 2, H361 STOT SE 3, H336 STOT RE 2, H373 Asp. Tox. 1, H304
o-xylene (Impurity)	CAS-No.: 95-47-6	≤ 0.1	Flam. Liq. 2, H225 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation), H332 Skin Irrit. 2, H315

3.2. Mixtures

Not applicable

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : Remove casualty to fresh air and keep warm and at rest. In case of irregular breathing or respiratory arrest provide artificial respiration. In case of breathing difficulties administer oxygen. Immediately get medical attention.

First-aid measures after skin contact : For even minor contact, immediately remove contaminated clothing. Wash skin thoroughly with mild soap and water. Rinse immediately with plenty of water (for at least 15 minutes). Immediately get medical attention. Discard contaminated clothing.

First-aid measures after eye contact : Rinse immediately and plentifully with water, also under the eyelids, for at least 20 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately get medical attention.

First-aid measures after ingestion : Remove casualty to fresh air and keep warm and at rest. Do not induce vomiting. If swallowed, rinse mouth with water (only if the person is conscious). Give water to drink if victim completely conscious/alert. Never give anything by mouth to an unconscious person. Immediately get medical attention.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects : Headache. Nausea. Dizziness. Drowsiness. Loss of consciousness. Vomiting.

Symptoms/effects after inhalation : Inhalation may affect the nervous system causing headache, possibly dizziness, nausea, weakness, loss of coordination and unconsciousness. Acute exposure to high doses or chronic exposure can cause pulmonary damages, liver, kidneys and neurological disorders. Aspiration of this material may cause chemical pneumonia.

Symptoms/effects after skin contact : Causes skin irritation. Prolonged/repetitive skin contact may cause skin defattening or dermatitis. Repeated exposure may cause skin dryness or cracking. Redness. burning.

Symptoms/effects after eye contact : Irritating to eyes. May cause destruction of eye tissue.

Symptoms/effects after ingestion : Depression of the central nervous system, headaches, dizziness, drowsiness, loss of coordination. Pulmonary oedema.

Chronic symptoms : Symptoms include headache, dizziness, fatigue, muscular weakness, drowsiness and in extreme cases, loss of consciousness.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Carbon dioxide (CO2), dry chemical powder, foam. Water fog.

Unsuitable extinguishing media	:	Do not use a solid water stream as it may scatter and spread fire.

5.2. Specific hazards arising from the chemical

Fire hazard	:	Extremely flammable liquid and vapour. Vapours may cause fire/explosion if source of ignition is present. Heavier than air, vapours may travel long distances along ground, ignite and flash back to source. Under fire conditions closed containers may rupture or explode. On combustion forms: Carbon monoxide. Carbon dioxide. Formaldehyde.
Explosion hazard	:	Vapours can form explosive mixtures with air.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions	:	Do not approach fire except upwind and only with proper skin and respiratory protection (supplied air only). Cool closed containers exposed to fire with water spray.
Protective equipment for firefighters	:	Extra personal protection: complete protective clothing including self-contained breathing apparatus. In case of fire: Wear self-contained breathing apparatus. Refer to chapter 8.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment	:	Wear suitable protective clothing gloves, and eye/face protection. Refer to chapter 8.
Emergency procedures	:	Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment	:	Wear suitable protective clothing, gloves and eye/face protection. Refer to chapter 8.
Emergency procedures	:	Eliminate leaks immediately. Eliminate all ignition sources if safe to do so. Ventilate affected area. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

6.2. Environmental precautions

Use water spray jet to minimise or disperse vapours. Absorb remaining liquid with sand or inert absorbent and remove to safe place. Avoid discharge to the environment. Do not flush down sewers. Do not allow to enter into surface water or drains. Do not allow run-off from fire fighting to enter drains or water courses. Collect contaminated fire extinguishing water separately. This must not be discharged into drains. If the product enters drains or sewers the local water company should be contacted immediately; in the case of contamination of streams, rivers or lakes, the National Rivers Authority.

6.3. Methods and material for containment and cleaning up

For containment	:	Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Ventilate affected area.
Methods for cleaning up	:	Prevent spread over a wide area (e.g. by containment or oil barriers). Collect spills and put it into appropriated container. Keep the recovered product for subsequent recycling.
Other information	:	Granulated activated charcoal associated to bioremediation demonstrated to be the best remotion system from contaminated water bodies. Recovery of the polluted soil and water remediation can be done through the Fenton reaction.

6.4. Reference to other sections

Refer to sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	:	Use grounded electrical/mechanical equipment. Provide earthing of containers, equipment, pumps and ventilation facilities. Ground/bond container and receiving equipment. Avoid producing mist or vapors by heating of opened recipient.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions	:	Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep in original containers closed. Keep stored the least quantity possible. Store in dry, cool, well-ventilated area.
Incompatible materials	:	Oxidizing agents. Strong acid. Halogenated compounds.
Packaging materials	:	stainless steel. Carbon steel. PVC.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

p-Xylene (106-42-3)	
No additional information available	

ethylbenzene (100-41-4)	
USA - ACGIH - Occupational Exposure Limits	
Local name	Ethylbenzene
ACGIH OEL TWA [ppm]	20 ppm
Remark (ACGIH)	TLV® Basis: URT & eye irr; ototoxicity; kidney eff; CNS impair. Notations: OTO (Ototoxicant); A3 (Confirmed Animal Carcinogen with Unknown Relevance to Humans); BEI
ACGIH chemical category	Confirmed Animal Carcinogen with Unknown Relevance to Humans
Regulatory reference	ACGIH 2023
USA - ACGIH - Biological Exposure Indices	
Local name	ETHYLBENZENE
BEI	0.15 g/g creatinine Parameter: Sum of mandelic acid and phenylglyoxylic acid (with hydrolysis) - Medium: urine - Sampling time: End of shift - Notations: Ns
Regulatory reference	ACGIH 2023
USA - OSHA - Occupational Exposure Limits	
Local name	Ethyl benzene
OSHA PEL TWA [1]	435 mg/m³
OSHA PEL TWA [2]	100 ppm
Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1
USA - IDLH - Occupational Exposure Limits	
IDLH [ppm]	800 ppm (10% LEL)
USA - NIOSH - Occupational Exposure Limits	
NIOSH REL TWA	435 mg/m³
NIOSH REL TWA [ppm]	100 ppm
NIOSH REL STEL	545 mg/m³
NIOSH REL STEL [ppm]	125 ppm

Methyl benzene (108-88-3)	
USA - ACGIH - Occupational Exposure Limits	
Local name	Toluene
ACGIH OEL TWA	188 mg/m³
ACGIH OEL TWA [ppm]	20 ppm
Remark (ACGIH)	TLV® Basis: CNS, visual & hearing impair; female repro system eff; pregnancy loss. Notations: OTO; A4 (Not classifiable as a Human Carcinogen); BEI
ACGIH chemical category	Not Classifiable as a Human Carcinogen
Regulatory reference	ACGIH 2023

Methyl benzene (108-88-3)	
USA - ACGIH - Biological Exposure Indices	
Local name	TOLUENE
BEI	0.3 mg/g creatinine Parameter: o-Cresol (with hydrolysis) - Medium: urine - Sampling time: End of shift - Notations: B 0.03 mg/l Parameter: Toluene - Medium: urine - Sampling time: End of shift 0.02 mg/l Parameter: Toluene - Medium: blood - Sampling time: Prior to last shift of workweek
Regulatory reference	ACGIH 2023
USA - OSHA - Occupational Exposure Limits	
Local name	Toluene
OSHA PEL TWA [2]	200 ppm
OSHA PEL STEL [2]	300 ppm
OSHA PEL C [ppm]	500 ppm
Acceptable maximum peak above the acceptable ceiling concentration for an 8-hr shift	500 ppm 10 mins.
Regulatory reference (US-OSHA)	OSHA Annotated Table Z-2
USA - IDLH - Occupational Exposure Limits	
IDLH [ppm]	500 ppm
USA - NIOSH - Occupational Exposure Limits	
NIOSH REL TWA	375 mg/m³
NIOSH REL TWA [ppm]	100 ppm
NIOSH REL STEL	560 mg/m³
NIOSH REL STEL [ppm]	150 ppm

m-xylene (108-38-3)	
USA - ACGIH - Occupational Exposure Limits	
Local name	m-Xylene (1,3-Dimethylbenzene)
ACGIH OEL TWA [ppm]	20 ppm
Remark (ACGIH)	TLV® Basis: URT & eye irr; hematologic eff; CNS impair. Notations: A4 (Not classifiable as a Human Carcinogen); BEI
ACGIH chemical category	Not Classifiable as a Human Carcinogen
Regulatory reference	ACGIH 2023
USA - ACGIH - Biological Exposure Indices	
Local name	XYLENES (Technical or commercial grade)
BEI	1.5 g/g creatinine Parameter: Methylhippuric acids - Medium: urine - Sampling time: end of shift
Regulatory reference	ACGIH 2023
USA - IDLH - Occupational Exposure Limits	
IDLH [ppm]	900 ppm

m-xylene (108-38-3)	
USA - NIOSH - Occupational Exposure Limits	
NIOSH REL TWA	435 mg/m³
NIOSH REL TWA [ppm]	100 ppm
NIOSH REL STEL	655 mg/m³
NIOSH REL STEL [ppm]	150 ppm

o-xylene (95-47-6)	
USA - ACGIH - Occupational Exposure Limits	
Local name	o-Xylene (1,2-Dimethylbenzene)
ACGIH OEL TWA	434 mg/m³
ACGIH OEL TWA [ppm]	20 ppm
ACGIH OEL STEL	651 mg/m³
Remark (ACGIH)	TLV® Basis: URT & eye irr; hematologic eff; CNS impair. Notations: A4 (Not classifiable as a Human Carcinogen); BEI
ACGIH chemical category	Not Classifiable as a Human Carcinogen
Regulatory reference	ACGIH 2023
USA - ACGIH - Biological Exposure Indices	
Local name	XYLENES (Technical or commercial grade)
BEI	1.5 g/g creatinine Parameter: Methylhippuric acids - Medium: urine - Sampling time: end of shift
Regulatory reference	ACGIH 2023
USA - OSHA - Occupational Exposure Limits	
OSHA PEL TWA [1]	435 mg/m³
OSHA PEL TWA [2]	100 ppm
USA - IDLH - Occupational Exposure Limits	
IDLH [ppm]	900 ppm
USA - NIOSH - Occupational Exposure Limits	
NIOSH REL TWA	435 mg/m³
NIOSH REL TWA [ppm]	100 ppm
NIOSH REL STEL	655 mg/m³
NIOSH REL STEL [ppm]	150 ppm

p-xylene (106-42-3)	
USA - ACGIH - Occupational Exposure Limits	
Local name	p-Xylene (1,4-Dimethylbenzene)
ACGIH OEL TWA	434 mg/m³
ACGIH OEL TWA [ppm]	100 ppm
ACGIH OEL STEL	651 mg/m³

p-xylene (106-42-3)	
Remark (ACGIH)	TLV® Basis: URT & eye irr; hematologic eff; ototoxycity; CNS impair. Notations: OTO (Ototoxicant); A4 (Not classifiable as a Human Carcinogen); BEI
ACGIH chemical category	Not Classifiable as a Human Carcinogen
Regulatory reference	ACGIH 2023
USA - ACGIH - Biological Exposure Indices	
Local name	XYLENES (Technical or commercial grade)
BEI	1.5 g/g creatinine Parameter: Methylhippuric acids - Medium: urine - Sampling time: end of shift
Regulatory reference	ACGIH 2023
USA - OSHA - Occupational Exposure Limits	
OSHA PEL TWA [1]	435 mg/m³
OSHA PEL TWA [2]	100 ppm
USA - IDLH - Occupational Exposure Limits	
IDLH [ppm]	900 ppm
USA - NIOSH - Occupational Exposure Limits	
NIOSH REL TWA	435 mg/m³
NIOSH REL TWA [ppm]	100 ppm
NIOSH REL STEL	655 mg/m³
NIOSH REL STEL [ppm]	150 ppm

8.2. Appropriate engineering controls

Appropriate engineering controls : Provide local exhaust or general room ventilation to minimize vapour concentrations. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:
Protective goggles. Protective clothing. Gloves. Self-contained breathing apparatus.

Hand protection:

VITON gloves. protective gloves: neoprene gloves, PVA

Eye protection:

Chemical goggles or safety glasses. Contact lenses should not be worn

Skin and body protection:

Use protective coverall. Boots made of PVA

Respiratory protection:

Half/ full mask with filter for organic vapors. If there is any possibility of uncontrolled emissions or entering in instances where the exposure levels are unknown use a full-facepiece positive-pressure, air-supplied respirator

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Liquid
Colour : Colorless
Odour : Aromatic

Odour threshold	:	No data available
pH	:	No data available
Melting point	:	No data available
Freezing point	:	13.2 °C
Boiling point	:	138.4 °C
Flash point	:	25 °C
Relative evaporation rate (butylacetate=1)	:	No data available
Flammability	:	No data available
Vapour pressure	:	8.84 mm Hg (at 25°C) 6,5 mmHg a 20°C
Relative vapour density at 20°C	:	3.7
Relative density	:	0.86 g/cm³
Solubility	:	Water: 156 mg/l
Partition coefficient n-octanol/water (Log Pow)	:	3.15
Auto-ignition temperature	:	528 °C
Decomposition temperature	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosive limits	:	1.1 – 7 vol %
Explosive properties	:	No data available
Oxidising properties	:	No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Stable at ambient temperature and under normal conditions of use.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Avoid static electricity discharges.

10.5. Incompatible materials

Oxidizing agents. Strong acids. Halogenated compounds.

10.6. Hazardous decomposition products

Carbon dioxide (CO2). Carbon monoxide. Formaldehyde.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	:	Not classified
Acute toxicity (dermal)	:	Harmful in contact with skin.
Acute toxicity (inhalation)	:	Harmful if inhaled.

p-Xylene (106-42-3)	
LD50 dermal rat	12126 mg/kg
ATE US (dermal)	1002 mg/kg bodyweight
ATE US (gases)	4500 ppmv/4h
ATE US (vapours)	11 mg/l/4h
ATE US (dust,mist)	1.5 mg/l/4h

ethylbenzene (100-41-4)	
LD50 oral rat	3500 mg/kg
LD50 dermal rabbit	15400 mg/kg

ethylbenzene (100-41-4)	
LC50 Inhalation - Rat	17.4 mg/l/4h
LC50 Inhalation - Rat [ppm]	1432 ppm
ATE US (vapours)	17.4 mg/l/4h
ATE US (dust,mist)	1.5 mg/l/4h

Methyl benzene (108-88-3)	
LD50 oral rat	636 mg/kg
LD50 dermal rabbit	12000 mg/kg
LC50 Inhalation - Rat	> 20 g/m³ Duration: 4h
ATE US (oral)	5580 mg/kg bodyweight
ATE US (dust,mist)	28100 mg/l/4h

m-xylene (108-38-3)	
LD50 oral rat	5 g/kg
LD50 dermal rabbit	12.18 g/kg
LC50 Inhalation - Rat	27124 mg/m³ (Exposure time: 4 h)
ATE US (oral)	5000 mg/kg bodyweight
ATE US (dermal)	1100 mg/kg bodyweight
ATE US (gases)	4500 ppmv/4h
ATE US (vapours)	11 mg/l/4h
ATE US (dust,mist)	1.5 mg/l/4h

o-xylene (95-47-6)	
LD50 oral rat	3608 mg/kg
LD50 dermal rabbit	14100 mg/kg
LC50 Inhalation - Rat [ppm]	4330 ppm (Exposure time: 6 h)
ATE US (dermal)	1100 mg/kg bodyweight
ATE US (gases)	4500 ppmv/4h
ATE US (vapours)	11 mg/l/4h
ATE US (dust,mist)	1.5 mg/l/4h

p-xylene (106-42-3)	
LD50 oral rat	4029 mg/kg
LD50 dermal rabbit	1000 – 2000 mg/kg
LC50 Inhalation - Rat	10 – 20 mg/l/4h
LC50 Inhalation - Rat [ppm]	4740 ppm/4h
ATE US (dust,mist)	1.5 mg/l/4h

Skin corrosion/irritation : Causes skin irritation.

Serious eye damage/irritation : Causes serious eye irritation.

Respiratory or skin sensitisation : Not classified (Based on available data, the classification criteria are not met)
Germ cell mutagenicity : Not classified (Based on available data, the classification criteria are not met)
Carcinogenicity : Not classified (Based on available data, the classification criteria are not met)

ethylbenzene (100-41-4)	
IARC group	2B - Possibly carcinogenic to humans
National Toxicity Program (NTP) Status	Evidence of Carcinogenicity
In OSHA Hazard Communication Carcinogen list	Yes

Methyl benzene (108-88-3)	
IARC group	3 - Not classifiable

m-xylene (108-38-3)	
IARC group	3 - Not classifiable

o-xylene (95-47-6)	
IARC group	3 - Not classifiable

p-xylene (106-42-3)	
IARC group	3 - Not classifiable

Reproductive toxicity : Suspected of damaging fertility or the unborn child.
STOT-single exposure : May cause respiratory irritation.

Methyl benzene (108-88-3)	
STOT-single exposure	May cause drowsiness or dizziness.

p-xylene (106-42-3)	
STOT-single exposure	May cause respiratory irritation.

STOT-repeated exposure : Not classified (Based on available data, the classification criteria are not met)

ethylbenzene (100-41-4)	
NOAEL (oral, rat, 90 days)	75 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)
STOT-repeated exposure	May cause damage to organs (hearing organs) through prolonged or repeated exposure.

Methyl benzene (108-88-3)	
LOAEL (oral, rat, 90 days)	1250 mg/kg bodyweight Animal: rat, Guideline: EU Method B.26 (Sub-Chronic Oral Toxicity Test: Repeated Dose 90-Day Oral Toxicity Study in Rodents)
NOAEL (oral, rat, 90 days)	625 mg/kg bodyweight Animal: rat, Guideline: EU Method B.26 (Sub-Chronic Oral Toxicity Test: Repeated Dose 90-Day Oral Toxicity Study in Rodents)
NOAEC (inhalation, rat, vapour, 90 days)	2.355 mg/l air Animal: rat, Guideline: EU Method B.29 (Sub-Chronic Inhalation Toxicity:90-Day Study)
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard : May be fatal if swallowed and enters airways.
Viscosity, kinematic : No data available
Symptoms/effects : Headache. Nausea. Dizziness. Drowsiness. Loss of consciousness. Vomiting.
Symptoms/effects after inhalation : Inhalation may affect the nervous system causing headache, possibly dizziness, nausea, weakness, loss of coordination and unconsciousness. Acute exposure to high doses or chronic exposure can cause pulmonary damages, liver, kidneys and neurological disorders. Aspiration of this material may cause chemical pneumonia.

Symptoms/effects after skin contact	:	Causes skin irritation. Prolonged/repetitive skin contact may cause skin defattening or dermatitis. Repeated exposure may cause skin dryness or cracking. Redness. burning.
Symptoms/effects after eye contact	:	Irritating to eyes. May cause destruction of eye tissue.
Symptoms/effects after ingestion	:	Depression of the central nervous system, headaches, dizziness, drowsiness, loss of coordination. Pulmonary oedema.
Chronic symptoms	:	Symptoms include headache, dizziness, fatigue, muscular weakness, drowsiness and in extreme cases, loss of consciousness.

SECTION 12: Ecological information

12.1. Toxicity

p-Xylene (106-42-3)	
ErC50 algae	2.2 mg/l
LOEC (chronic)	3.16 mg/l aquatic invertebrates (21d)
NOEC (acute)	1.57 mg/l aquatic invertebrates (21d)
NOEC (chronic)	> 1.3 mg/l fish (56 d)

ethylbenzene (100-41-4)	
LC50 - Fish [1]	11 – 18 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])
EC50 - Crustacea [1]	1.8 – 2.4 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 - Fish [2]	4.2 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [semi-static])
LOEC (chronic)	1.7 mg/l Test organisms (species): Ceriodaphnia dubia Duration: '7 d'
NOEC (chronic)	0.96 mg/l Test organisms (species): Ceriodaphnia dubia Duration: '7 d'

Methyl benzene (108-88-3)	
LC50 - Fish [1]	5.5 mg/l
EC50 - Crustacea [1]	6000 µg/l
EC50 - Other aquatic organisms [1]	3.78 mg/l waterflea
LC50 - Fish [2]	12.6 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
EC50 - Crustacea [2]	11.5 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LOEC (chronic)	2.76 mg/l Test organisms (species): Ceriodaphnia dubia Duration: '7 d'
NOEC (chronic)	0.74 mg/l Test organisms (species): Ceriodaphnia dubia Duration: '7 d'
NOEC chronic fish	1.39 mg/l Test organisms (species): Oncorhynchus kisutch Duration: '40 d'
NOEC chronic crustacea	0.74 mg/l

m-xylene (108-38-3)	
LC50 - Fish [1]	14.3 – 18 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
EC50 - Crustacea [1]	2.81 – 5 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
LC50 - Fish [2]	8.4 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [semi-static])
LOEC (chronic)	3.16 mg/l Test organisms (species): Daphnia magna Duration: '21 d'
NOEC chronic fish	0.714 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio) Duration: '35 d'

o-xylene (95-47-6)	
LC50 - Fish [1]	11.6 – 22.4 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])

o-xylene (95-47-6)	
EC50 - Crustacea [1]	3.2 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 - Fish [2]	11.6 – 22.4 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [flow-through])
EC50 - Crustacea [2]	2.61 – 5.59 mg/l (Exposure time: 48 h - Species: Daphnia magna [Flow through])
LOEC (chronic)	3.16 mg/l Test organisms (species): Daphnia magna Duration: '21 d'
NOEC chronic fish	0.714 mg/l Test organisms (species): Danio rerio (previous name: Brachydanio rerio) Duration: '35 d'

p-xylene (106-42-3)	
LC50 - Fish [1]	7.2 – 9.9 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
EC50 - Crustacea [1]	3.55 – 6.31 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
LC50 - Fish [2]	2.6 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss)

12.2. Persistence and degradability

p-Xylene (106-42-3)	
Persistence and degradability	Readily biodegradable. not persistent.
BOD (% of ThOD)	50 % ThOD (13 d)

12.3. Bioaccumulative potential

p-Xylene (106-42-3)	
Partition coefficient n-octanol/water (Log Pow)	3.15
Bioaccumulative potential	not bioaccumulable.

ethylbenzene (100-41-4)	
BCF - Fish [1]	(15 dimensionless)
Partition coefficient n-octanol/water (Log Pow)	3.6 (at 20 °C (at pH 7.84)

Methyl benzene (108-88-3)	
Partition coefficient n-octanol/water (Log Pow)	2.73

m-xylene (108-38-3)	
Partition coefficient n-octanol/water (Log Pow)	3.2 (at 20 °C (at pH 7)

o-xylene (95-47-6)	
BCF - Fish [1]	(21,4 dimensionless (xylene from crude oil)
Partition coefficient n-octanol/water (Log Pow)	3.12 (at 20 °C (at pH 7)

p-xylene (106-42-3)	
BCF - Fish [1]	(2,2 dimensionless)
Partition coefficient n-octanol/water (Log Pow)	3.2 (at 20 °C (at pH 7)

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

Regional legislation (waste) : Dispose of contents/container to comply with applicable local, national and international regulations. Consult the appropriate authorities about waste disposal.

Sewage disposal recommendations : The adequately treated and biorremediated effluents may be discarded into the water bodies.

Product/Packaging disposal recommendations : Dispose of this material and its container at hazardous or special waste collection point.

SECTION 14: Transport information

In accordance with DOT / TDG / IMDG / IATA

DOT	TDG	IMDG	IATA
14.1. UN number			
1307	UN1307	1307	1307
14.2. Proper Shipping Name			
Xylenes	XYLENES	XYLENES	Xylenes
14.3. Transport hazard class(es)			
3	3	3	3
			
14.4. Packing group			
III	III	III	III
14.5. Environmental hazards			
Dangerous for the environment: No	Dangerous for the environment: No	Dangerous for the environment: No Marine pollutant: No	Dangerous for the environment: No
No supplementary information available			

SECTION 15: Regulatory information

15.1. US Federal regulations

All components of this product are listed as active on the TSCA Inventory or exempt

ethylbenzene (100-41-4)	
Listed on EPA Hazardous Air Pollutant (HAPS)	
CERCLA RQ	1000 lb

Methyl benzene (108-88-3)	
Listed on EPA Hazardous Air Pollutant (HAPS)	
CERCLA RQ	1000 lb

m-xylene (108-38-3)	
Listed on EPA Hazardous Air Pollutant (HAPS)	
CERCLA RQ	1000 lb

o-xylene (95-47-6)	
Listed on EPA Hazardous Air Pollutant (HAPS)	
CERCLA RQ	1000 lb

p-xylene (106-42-3)	
Listed on EPA Hazardous Air Pollutant (HAPS)	
CERCLA RQ	100 lb

15.2. International regulations

CANADA

ethylbenzene (100-41-4)
Listed on the Canadian DSL (Domestic Substances List)

Methyl benzene (108-88-3)
Listed on the Canadian DSL (Domestic Substances List)

m-xylene (108-38-3)
Listed on the Canadian DSL (Domestic Substances List)

o-xylene (95-47-6)
Listed on the Canadian DSL (Domestic Substances List)

p-xylene (106-42-3)
Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

p-Xylene (106-42-3)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

ethylbenzene (100-41-4)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

Methyl benzene (108-88-3)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

m-xylene (108-38-3)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

o-xylene (95-47-6)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

p-xylene (106-42-3)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

National regulations

p-Xylene (106-42-3)
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing New Chemical Substances) inventory
Listed on KECL/KECI (Korean Existing Chemicals Inventory)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Japanese Poisonous and Deleterious Substances Control Law
Japanese Pollutant Release and Transfer Register Law (PRTR Law)

ethylbenzene (100-41-4)
Listed on IARC (International Agency for Research on Cancer)
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the Japanese ENCS (Existing New Chemical Substances) inventory
Listed on KECL/KECI (Korean Existing Chemicals Inventory)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Japanese Pollutant Release and Transfer Register Law (PRTR Law)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on the TCSI (Taiwan Chemical Substance Inventory)
Listed on the NCI (Vietnam - National Chemical Inventory)

Methyl benzene (108-88-3)
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the Japanese ENCS (Existing New Chemical Substances) inventory
Listed on KECL/KECI (Korean Existing Chemicals Inventory)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Japanese Poisonous and Deleterious Substances Control Law
Japanese Pollutant Release and Transfer Register Law (PRTR Law)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on the TCSI (Taiwan Chemical Substance Inventory)
Listed on the NCI (Vietnam - National Chemical Inventory)

m-xylene (108-38-3)
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the Japanese ENCS (Existing New Chemical Substances) inventory
Listed on KECL/KECI (Korean Existing Chemicals Inventory)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Japanese Poisonous and Deleterious Substances Control Law
Japanese Pollutant Release and Transfer Register Law (PRTR Law)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on the TCSI (Taiwan Chemical Substance Inventory)
Listed on the NCI (Vietnam - National Chemical Inventory)

o-xylene (95-47-6)
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the Japanese ENCS (Existing New Chemical Substances) inventory
Listed on KECL/KECI (Korean Existing Chemicals Inventory)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Japanese Poisonous and Deleterious Substances Control Law
Japanese Pollutant Release and Transfer Register Law (PRTR Law)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on the TCSI (Taiwan Chemical Substance Inventory)
Listed on the NCI (Vietnam - National Chemical Inventory)

p-xylene (106-42-3)
Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the Japanese ENCS (Existing New Chemical Substances) inventory
Listed on KECL/KECI (Korean Existing Chemicals Inventory)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Japanese Poisonous and Deleterious Substances Control Law
Japanese Pollutant Release and Transfer Register Law (PRTR Law)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on the TCSI (Taiwan Chemical Substance Inventory)
Listed on the NCI (Vietnam - National Chemical Inventory)

15.3. US State regulations

No additional information available

SECTION 16: Other information

according to US HazCom 2012

Revision date : 17 April 2023

Braskem - SDS_US_GHS_HazCom_2012 (modified 211028)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product. It warns that the handling of any chemical substance requires the previous knowledge of its hazards for the user. It is up to the user of the product company providing this SDS to and promote the training of its employees about possible risks come upon of the product. The information contained herein is not absolute, but only general information on the use of the chemical and indication of safety and security measures.