Safety Data Sheet(SDS)

Revision date : 01-06-2026

1. Identification

1) Product identifier : XL_MIXED_XYLENE

2) Relevant identified uses of the substance or mixture and uses advised against

○ Relevant identified uses

1.Raw materials and intermediates, Solvent and extraction agents, Others(Industrial raw materials)

○ Restrictions on use

Use for recommended use only
Do not use it for weapons manufacturing and related purposes.

3) Supplier information

○ Seller

Company name : Lotte Daesan Petrochem Corporation
Address : 82 Dokgot 1-ro, Daesan-eup, Seosan-si, Chungcheongnam-do
Telephone number : +82-41-689-5114
Emergency phone number : (Control Room) +82-41-689-5119
Fax number : +82-41-689-5985

2. Hazards identification

1) Hazard classification

- Flammable liquids Category 2
- Acute toxicity(Oral) Category 5
- Acute toxicity(Dermal) Category 5
- Acute toxicity(Inhalation:Gases) Category 4
- Skin corrosion/irritation Category 2
- Serious eye damage/eye irritation Category 2
- Carcinogenicity Category 2
- Specific target organ toxicity single exposure Category 3(Respiratory tract irritation)
- Specific target organ toxicity single exposure Category 3(Narcotic effects)
- Specific target organ toxicity repeated exposure Category 1
- Aspiration hazard Category 1
- Hazardous to the aquatic environment, long-term (chronic) Chronic 3

2) Allocation label elements

Hazard pictograms

Signal word

- DANGER

Hazard statements

H225 Highly flammable liquid and vapour
H303 May be harmful if swallowed
H304 May be fatal if swallowed and enters airways
H313 May be harmful in contact with skin
H315 Causes skin irritation
H319 Causes serious eye irritation
H332 Harmful if inhaled
H335 May cause respiratory irritation
H336 May cause drowsiness or dizziness
H351 Suspected of causing cancer.
H372 Causes damage to organs through prolonged or repeated exposure.
H412 Harmful to aquatic life with long lasting effects

Precautionary statements

- Prevention

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P240 Ground and bond container and receiving equipment.
P241 Use only explosion-proof electrical, ventilating, lighting and equipment.
P242 Use nonsparking tools.
P243 Take action to prevent static discharges.
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
P264 Avoid contact during pregnancy/ while nursing.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a wellventilated area.
P273 Avoid release to the environment.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

- Response

P301+P310 IF SWALLOWED: Call a POISON CENTER / toxins center / physician.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.

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

P304+P340 IF INHALED: Remove person to fresh air and keep 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.

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

P312 Discomfort call a POISON CENTER / toxins center / physician if you feel unwell.

P314 Get medical advice/attention if you feel unwell.

P321 Specific treatment (see supplemental instructions on the administration of antidotes 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+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 wellventilated place. Keep container tightly closed.

P403+P235 Store in a wellventilated place. Keep cool.

P405 Store locked up.

- Disposal

P501 Discard the contents/containers in accordance with the laws and laws related to waste.

3) Other hazards:

According to experience and information provided, this product does not affect harmful effects when using and handling it as a regulation.

3. Composition/Information on ingredients

Chemical name	Common name	CAS No.	Content(wt%)
Ethylbenzene	ethylbenzene	100-41-4	60
m-xylene	m-xylene	108-38-3	20
o-Xylene	o-xylene	95-47-6	9
p-Xylene	p-xylene	106-42-3	8
Hydrocarbons, (C=5-8)	Hydrocarbons, C5-8	92128-65-9	3

4. First-aid measures

1) Following eye contact
   - In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
   - Seek immediate medical assistance.

2) Following skin contact
   - For hot product, immediately immerse in or flush the affected area with large amounts of cold water to dissipate heat.
   - For minor skin contact, avoid spreading material on unaffected skin.
   - In case of burns, immediately cool affected skin for as long as possible with cold water. Do not remove clothing if adhering to skin.
   - In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
   - Remove and isolate contaminated clothing and shoes.
   - Seek immediate medical assistance.
   - Wash skin with soap and water.

3) Following inhalation
   - Administer oxygen if breathing is difficult.
   - Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
   - Give artificial respiration if victim is not breathing.
   - If exposed to excessive levels of dusts or fumes, remove to fresh air and get medical attention if cough or other symptoms develop.
   - Keep victim warm and quiet.
   - Move to fresh air.

4) Following ingestion
   - Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
   - Seek immediate medical assistance.

5) Delayed and immediate effects and also chronic effects from short and long term exposure
   - Suspected of causing cancer
   - Causes damage to organs through prolonged or repeated exposure
   - Causes serious eye irritation
   - Causes skin irritation
   - Harmful if inhaled
   - May be fatal if swallowed and enters airways
   - May be harmful if swallowed
   - May be harmful in contact with skin
   - May cause drowsiness or dizziness
   - May cause respiratory irritation

6) Advice to physician
   - Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.
   - Exposures require specialized first aid with contact and medical follow-up .

5. Fire-Fighting measures

1) Suitable (and unsuitable) extinguishing media

○ Suitable extinguishing media

- For mixtures containing alcohol or polar solvent: Alcohol-resistant foam.
- CO2.
- Regular foam.
- Dry chemical.
- Water spray.
- Use alcohol foam, carbon dioxide, or water spray when fighting fires involving this material.
- Use dry sand or earth to smother fire.

○ Unsuitable extinguishing media

- Direct water.
- High-pressure water.

2) Special hazards arising from the substance or mixture

○ Pyrolytic product

- During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.
- Can decompose at high temperatures forming toxic gases.

○ Risk of fire and explosion

- When heated, vapors may form explosive mixtures with air: indoors, outdoors and sewers explosion hazards.
- Can form explosive mixtures at temperatures at or above the flashpoint.
- HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames.
- May violently polymerize and result in fire and explosion.
- Containers may explode when heated.
- Runoff may create fire or explosion hazard.
- Vapor explosion hazard indoors, outdoors or in sewers.
- Vapors may form explosive mixtures with air.
- Some may burn but none ignite readily.
- Vapors may travel to source of ignition and flash back.

○ Other

- May cause toxic effects if inhaled.

3) Special protective equipment for firefighters

- Move containers from fire area if you can do it without risk.
- Rescuers should put on appropriate protective gear.
- Substance may be transported hot.
- Substance may be transported in a molten form.
- Cautions ; Most of liquids are lighter than water.
- Dike fire-control water for later disposal; do not scatter the material.
- Evacuate area and fight fire from a safe distance.
- Fire involving Tanks: ALWAYS stay away from tanks engulfed in fire.
- Fire involving Tanks: Cool containers with flooding quantities of water until well after fire is out.
- Fire involving Tanks: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Fire involving Tanks: For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

- Fire involving Tanks: Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks).

6. Accident release measures

1) Personal precautions, protective equipment and emergency procedures
- Please note that materials and conditions to be avoided.
- Prevent dust cloud.
- Stop leak if you can do it without risk.
- The very fine particles can cause a fire or explosion, eliminate all ignition sources.
- A vapor suppressing foam may be used to reduce vapors.
- All equipment used when handling the product must be grounded.
- Clean up spills immediately, observing precautions in Protective Equipment section.
- Cover with plastic sheet to prevent spreading.
- Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
- Do not touch or walk through spilled material.
- ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area).
- Isolate hazard area.
- Keep unnecessary and unprotected personnel from entering.

2) Environmental precautions
- Keep out of waterways.
- Prevent entry into waterways, sewers, basements or confined areas.

3) Methods and materials for containment and cleaning up
- With clean shovel place material into clean, dry container and cover loosely; move containers from spill area.
- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
- Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container.
- Absorb the liquid and scrub the area with detergent and water.
- Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry.
- Dike and collect water used to fight fire.
- Large Spill: Dike far ahead of liquid spill for later disposal.
- Reduce airborne dust and prevent scattering by moistening with water.
- Small Spill: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal.
- Use clean non-sparking tools to collect absorbed material.

7. Handling and storage

1) Precautions for safe handling
- Loosen closure cautiously before opening.
- Measure atmospheric oxygen concentration and ventilate the area during the operation since low-closed area can cause oxygen deficiency.
- Please note that materials and conditions to be avoided.
- Use care in handling/storage.

- Use only in a well-ventilated area.
- All equipment used when handling the product must be grounded.
- Avoid breathing vapors from heated material.
- Avoid prolonged or repeated contact with skin.
- Caution: Heat.
- CAUTION: High temperature.
- Do not enter storage area unless adequately ventilated.
- DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION;.
- Follow all MSDS/label precautions even after container is emptied because they may retain product residues.
- Handling refer to engineering control/personal protection section.

2) Conditions for safe storage (including any incompatibilities)

- Empty drums should be completely drained, properly bunged, and promptly returned to a drum reconditioner, or properly disposed of.
- Keep away from food and drinking water.

8. Exposure controls & personal protection

1) Chemical exposure limits, Biological exposure standard

Components	ACGIH regulations	Biological limit values
Ethylbenzene	20 ppm TWA	0.15 G / G Creatinine Medium: Urine Time: End of Shift Parameter: Sum of Mandelic Acid and Phenylglyoxylic Acid (Nonspecific)
m-xylene	100 ppm TWA	Methylhippuric acids in Urine: 1.5 g / g Creatinine, End of Shift
o-Xylene	100 ppm TWA	Methylhippuric acids in Urine: 1.5 g / g Creatinine, End of Shift
p-Xylene	100 ppm TWA	No data available

2) Appropriate engineering controls

- Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
- If user operations generate dust, fume, or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
- Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

3) Personal protective equipment

○ Respiratory protection

- If you have a direct contact or exposed to the material, wear the appropriate form of respiratory protection certified.

○ Eye protection

- If the work environment or activity involves dusty conditions, mists or aerosols, wear the appropriate goggles.

○ Hand protection

- Wear chemical safety gloves.

○ Skin protection

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

9. Physical and chemical information

Property name	Values	Source
Appearance		
Physical state	Liquid	HSDB
Color	Colourless	HSDB
Odor	Characteristic	HSDB
Odor threshold	140	HSDB
pH	No data available	
Melting point/freezing point	-95	ICSC
Initial boiling point and boiling range(℃)	136	ICSC
Flash point(℃)	28	Experimental Data
Evaporation rate	No data available	
Flammability(solid, gas)	No data available	
Upper/lower flammability or explosive limits	Upper flammability limits : 6.7 %(V), Lower flammability limits : 1 %(V)	ICSC
Vapour pressure	9.6 ㎜Hg (25 ℃)	HSDB
Solubility(ies)	0.015 g/100㎖ (20 ℃)	ICSC
Vapour density	3.66 (air= 1)	HSDB
Relative density	No data available	
n-octanol/water partition coefficient	logPow 3.15	HSDB
Auto ignition temperature	432	ICSC
Decomposition temperature	No data available	
Viscosity(㎟/s, 40℃)	0.64 cP (25℃)	HSDB
Molecular weight(mass)	106.17	HSDB
Density	0.9 g/㎤ (15 ℃)	
Specific gravity	0.87 (20 ℃)	ECHA

10. Stability and hazardous reactivity

1) Chemical stability and Possibility of hazardous reactions
- Some may burn but none ignite readily.
- Vapor explosion hazard indoors, outdoors or in sewers.
- Vapors may form explosive mixtures with air.
- When heated, vapors may form explosive mixtures with air: indoors, outdoors and sewers explosion hazards.
- Can decompose at high temperatures forming toxic gases.
- Can form explosive mixtures at temperatures at or above the flashpoint.
- Containers may explode when heated.
- Fire may produce irritating and/or toxic gases.
- Fire may produce irritating, corrosive and/or toxic gases.
- HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames.
- May violently polymerize and result in fire and explosion.
- Runoff may create fire or explosion hazard.

2) Conditions to avoid
- Heat, contamination.
- Ignition source(heat, spark, flame, etc.).

3) Incompatible materials
- Combustibles, reducing material.

4) Hazardous decomposition products
- Corrosive/toxic fume.
- During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.
- Irritating and/or toxic gas.
- Irritating, corrosive and/or toxic gas.

11. Toxicological information

1) Information on the likely routes of exposure

○ Inhalation
- Can be absorbed in body by inhalation.

2) Delayed and immediate effects and also chronic effects from short and long term exposure

○ Acute toxicity

● Acute toxicity(Oral) PRODUCT : Category 5(ATEmix = 4000.372mg/kg)

- m-xylene
  : LD50 6602 ㎎ / ㎏ experimental species: Rat (OECD TG 401)
- Ethylbenzene
  : LD50 3,500 ㎎ / ㎏ experimental species: Rat
- p-Xylene
  : LD50 3523 ㎎ / ㎏ experimental species: Rat (EU Method B1)
- Hydrocarbons, (C=5-8)

: LD50> 3492 ㎎ / ㎏ experimental species: Rat (1 Marie died)

- o-Xylene
: LD50 3523 ㎎ / ㎏ experimental species: Rat (EU Method B1)

● Acute toxicity(Dermal) PRODUCT : Category 5(ATEmix = 2972.973mg/kg)

- m-xylene
: Ministry of Environment(Category 4 : 1100mg/kg)

- Ethylbenzene
: LD50> 20000 ㎎ / ㎏ experimental species: Rabbit (OECD Guideline 402 GLP)

- p-Xylene
: Ministry of Environment(Category 4 : 1100mg/kg)

- Hydrocarbons, (C=5-8)
: LD50> 3160 ㎎ / ㎏ experimental species: Rabbit (OECD Guideline 402)

- o-Xylene
: Ministry of Environment(Category 4 : 1100mg/kg)

● Acute toxicity(Inhalation:Gases) PRODUCT : Category 4(ATEmix = 4500.000ppm)

- m-xylene
: Ministry of Environment(Category 4 : 4500ppm)

- p-Xylene
: Ministry of Environment(Category 4 : 4500ppm)

- o-Xylene
: Ministry of Environment(Category 4 : 4500ppm)

● Acute toxicity(Inhalation:Vapours) PRODUCT : Not classified

- Ethylbenzene
: LC50 4000 ppm 4 hr experiment Species: Rat (Rat LC50 = 4000 ppm 4 hr corresponding value: 17.8 mg / L (ECHA, HSDB), RD50 = 1432 ppm 6.2 mg / L; EU CLP conditioner Classification Section 4)

- p-Xylene
: LC50 25.713 ㎎ / ℓ 4 hr experiment Species: Rat (EPA OPP 81-3, GLP)

- Hydrocarbons, (C=5-8)
: LC50> 6.193 ㎎ / ℓ 4 hr experiment Species: Rat (OECD Guideline 403 GLP)

- o-Xylene
: LC50 5922 ppm 4 hr experimental species: Rat (EPA OPP 81-3, GLP)

● Acute toxicity(Inhalation:Dust/mist) PRODUCT : Not classified

- m-xylene
: LC50 39.59 ㎎ / ℓ 4 hr experiment Species: Rat (saturated vapor pressure of 0.67 kPa is determined as a mist at a higher concentration than the saturation vapor pressure of 6,600 ppm concentration in the 20 ℃)

○ Skin corrosion/irritation PRODUCT : Category 2

- m-xylene
: Ministry of Environment(Category 2)

- Ethylbenzene
: Moderate irritation of skin irritation tests with rabbits

- p-Xylene
  : Ministry of Environment(Category 2)
- Hydrocarbons, (C=5-8)
  : Rabbit moderate irritation redness 1.9 Directive 67/548 / EEC (OECD TG 404) GLP
- o-Xylene
  : Ministry of Environment(Category 2)

○ Serious eye damage/eye irritation PRODUCT : Category 2

- m-xylene
  : Ministry of Environment(Category 2)
- Ethylbenzene
  : Slight irritation to the eyes conjunctival irritation tests in rabbits and there were no corneal damage
- p-Xylene
  : Ministry of Environment(Category 2)
- Hydrocarbons, (C=5-8)
  : Bijageuk rabbit OECD Guideline 405 GLP
- o-Xylene
  : Ministry of Environment(Category 2)

○ Respiratory sensitization PRODUCT : Not classified

- No data available

○ Skin sensitization PRODUCT : Not classified

- m-xylene
  : Local lymph node test mouse using xylene OECD TG 429 non-irritable
- p-Xylene
  : Mouse Local Lymph Node Test OECD TG 429 non-irritable
- Hydrocarbons, (C=5-8)
  : Guinea pig (female) non-OECD Guideline 406 Sensitization
- o-Xylene
  : Mouse Local Lymph Node Test OECD TG 429 non-irritable

○ Carcinogenicity PRODUCT : Category 2

- m-xylene
  : A4 (ACGIH)
- Ethylbenzene
  : 2B (IARC)

  A3 (ACGIH)

  2 (Notice of Ministry of Employment and Labor)
- p-Xylene
  : A4 (ACGIH)
- o-Xylene
  : A4 (ACGIH)

○ Germ cell mutagenicity PRODUCT : Not classified

- m-xylene

: Reverse mutation test using bacteria in vitro micronucleus test using the OECD TG471 negative results, in vivo mouse bone marrow cells OEF 474, GLP results appear to speech

- Ethylbenzene

: Mouse genetic toxicity test Using lymphoma L5178Y cell results voice, Chinese hamster Ovary; chromosomal aberration results using CHO cells negative test, OECD TG476, GLP, OECD TG 473 mouse bone marrow cells to Unscheduled DNA using a micronucleus test mammal liver with voice synthesis; UDS test negative, OECD TG474, OECD TG486, GLP

- p-Xylene

: Reverse mutation test using bacteria in vitro micronucleus test using the OECD TG471 negative results, in vivo mouse bone marrow cells OEF 474, GLP results appear to speech

- Hydrocarbons, (C=5-8)

: in vitro mammalian chromosome aberration test negative OECD Guideline 473 GLP, in vitro mammalian cell gene mutation test negative OECD Guideline 476 GLP, in vitro negative sister chromosome exchange tests with mammalian cells OECD Guideline 479 GLP, in vivo chromosomal aberration test negative OECD Guideline 475 GLP

- o-Xylene

: Return using in vitro bacterial mutagenicity tests OECD TG 471 negative results, in vivo mouse micronucleus test with bone marrow cells OECD TG 474, GLP results appear to speech

○ Reproductive toxicity PRODUCT : Not classified

- m-xylene

: Rats second-generation reproduction toxicity (repeated exposure inhalation, EPA OPPTS870.3800) toxic effects associated with the test result reproduction and development to the highest concentration tested (500ppm) was not observed. NOAEC (reproductive / developmental / parental toxicity)> = 500 ppm (analogous substances Ethyl benzene,)

- Ethylbenzene

: Second-generation inhalation reproductive toxicity studies using rats (OECD TG416, GLP) adverse effects associated with reproductive or developmental outcomes up to 500ppm is not observed. NOEL for parental systemic toxicity due to weight loss, increased liver weight, etc. NOEL = 100 ppm. Inhalation developmental toxicity test using rats (EOCD TG414, GLP) deformities influence the result to 2000ppm is not observed. 1000, or a new party appears weak weight loss at 2000 ppm. Maternal toxicity body weight and feed consumption decreased in 1000 and 2000ppm. NOAEL (teratogenicity) = 2000ppm, NOAEL (maternal / developmental toxicity) = is shown as 500ppm.

- p-Xylene

: Rats second-generation reproduction toxicity (repeated exposure inhalation, EPA OPPTS870.3800) toxic effects associated with the test result reproduction and development to the highest concentration tested (500ppm) was not observed. BMCL10 to NOAEC (reproduction / development / parent toxicity)> = developmental inhalation toxicity test using 500 ppm rats (OECD TG414) results BMCL10 (development), the reduction of the new character weight = 5761 mg / ㎥, maternal weight loss (maternal toxicity) = 2675mg / ㎥

- Hydrocarbons, (C=5-8)

: Reproductive toxicity rat steam NOAEC = 1500 ppm (7500 mg / m3) reduced weight at birth foal. All surviving male found very few signs of toxicity. 7 deaths in females 1500ppm. GLP

- o-Xylene

: Rats second-generation reproduction toxicity (repeated exposure inhalation, EPA OPPTS870.3800) toxic effects associated with the test result reproduction and development to the highest concentration tested (500ppm) was not observed. BMCL10 to NOAEC (reproduction / development / parent toxicity)> = developmental inhalation toxicity test using 500 ppm rats (OECD TG414) results BMCL10 (development), the reduction of the new character weight = 5761 mg / ㎥, maternal weight loss (maternal toxicity) = 2675mg / ㎥

○ Specific target organ toxicity single exposure PRODUCT : Category 3(Respiratory tract irritation), Category 3(Narcotic effects)

- m-xylene

: Ministry of Environment(Category 3(Narcotic effects))

- Ethylbenzene

: In experimental animals causes the nervous system effects such as dizziness and airway irritation.

- p-Xylene

: Ministry of Environment(Category 3(Narcotic effects))

- Hydrocarbons, (C=5-8)

: Rats orally (number) LD50> 8 mL / kg bw (6984 mg / kg / bw), (cancer) LD50 4 mL / kg bw (3492 mg / kg bw) 1 mari death (4ml / kg) female rats 2 females ataxia and loss of consciousness symptoms (8 ml / kg) died after

- o-Xylene

: Ministry of Environment(Category 3(Narcotic effects))

○ Specific target organ toxicity repeated exposure PRODUCT : Category 1

- m-xylene

: Ministry of Environment(Category 1)

- Ethylbenzene

: 13 week repeated oral toxicity test weak playback anemia based on the hematological changes, between the weight increase and centrilobular hepatocytes hypertrophy change indicating NOAEL = 75 mg / kg bw / dayOECD TG408, GLP Using rats, 13 with ECHA mouse weeks Repeat inhalation toxicity test results show that the liver and kidney weight increase in 750ppm3.55 mg / L or more nateu or other tissue pathology or adverse effects are not observed NOAEC = 1000ppm4.74mg / LOECD TG413, inhalation neurotoxicity using ECHA rats result of repeated exposure to the suction 4 -13 weeks, 200-800ppm concentration to confirm that the OECD TG424 after stopping exposure above 400ppm concentration not the hearing threshold recovery to eight weeks. 8 OHC loss of the main recovery time is increased 200-800ppm severe to 4%, and 100%, respectively. LOAEL = 200ppm

- p-Xylene

: Ministry of Environment(Category 1)

- Hydrocarbons, (C=5-8)

: Rats orally 90 days NOAEL = 600 mg / kg bw / day adversely shortage (kidney, liver, increase of serum) OECD Guideline 408

- o-Xylene

: Ministry of Environment(Category 1)

○ Aspiration hazard PRODUCT : Category 1

- m-xylene

: Aspiration toxicity: hydrocarbons, search tie viscosity 0.603 mPa s 25 ℃ swallowing the liquid, and reporting the risk of chemical pneumonia by ohyeon

- Ethylbenzene

: Hydrocarbons. It may cause chemical pneumonia if swallowed by a liquid to ohyeon. Tie viscosity 0.64 ㎟ / s 25 ℃

- p-Xylene

: Aspiration toxicity: hydrocarbons, search tie viscosity 0.603 mPa s 25 ℃ swallowing the liquid, and reporting the risk of chemical pneumonia by ohyeon

- Hydrocarbons, (C=5-8)

: Dynamic viscosity = 1.20mm2 / s hydrocarbons

- o-Xylene

: Aspiration toxicity: hydrocarbons, search tie viscosity 0.603 mPa s 25 ℃ swallowing the liquid, and reporting the risk of chemical pneumonia by ohyeon

12. Ecological information

1) Ecotoxicity

- Fish

- m-xylene

: LC50 8.4 ㎎ / ℓ 96 hr Other (OECD Guideline 203)

- Ethylbenzene

: LC50 5.1 ㎎ / ℓ 96 hr

- p-Xylene

: LC50 2.6 ㎎ / ℓ 96 hr Other (OECD Guideline 203)

- Hydrocarbons, (C=5-8)

: LC50 9.2 ㎎ / ℓ 96 hr Oncorhynchus mykiss ((LL50) OECD Guideline 203 GLP)

- o-Xylene

: LC50> 1000 ㎎ / ℓ 96 hr Oncorhynchus mykiss (OECD Guideline 203)

- Crustaceans

- m-xylene

: LC50 4.7 ㎎ / ℓ 24 hr Other (OECD TG 202)

- Ethylbenzene

: LC50 1.8 ㎎ / ℓ 48 HR Daphnia Magna (Ceriodaphnia Dubia NOEC 1.0 mg / L (0.96 mg / L) 7days)

- p-Xylene

: LC50 3.6 ㎎ / ℓ 24 hr Other (OECD TG 202)

- Hydrocarbons, (C=5-8)

: EC50 3.2 ㎎ / ℓ 48 hr Daphnia magna ((EL50) OECD Guideline 202 GLP)

- o-Xylene

: EC50 3.82 ㎎ / ℓ 48 hr Daphnia magna

- Aquatic algae

- m-xylene
  : EC50 4.9 ㎎ / ℓ 72 hr Other (OECD TG201, GLP)
- Ethylbenzene
  : EC50 2.6 ㎎ / ℓ 96 hr Other (Marine Invertebrate)
- p-Xylene
  : EC50 4.06 ㎎ / ℓ 72 hr Other (OECD TG201, GLP)
- Hydrocarbons, (C=5-8)
  : ErC50 2.9 ㎎ / ℓ 72 hr Other ((ErL50) Test species: Raphidocelis subcapitata, OECD Guideline 201 GLP)
- o-Xylene
  : EC50 4.06 ㎎ / ℓ 72 hr (OECD TG 201)

2) Persistence and degradability

- Degradability

  No data available

- Biodegradation
  - m-xylene
    : 90% 28 day (OECD TG301F, GLP)
  - Ethylbenzene
    : 80% ~ 70% 28 day (ISO 14593 CO2 headspace test, GLP)
  - p-Xylene
    : 90% 28 day (OECD TG301F, GLP)
  - Hydrocarbons, (C=5-8)
    : 78 (%) 28 day (OECD Guideline 301 F)
  - o-Xylene
    : 90% 28 day (OECD TG 301F, GLP)

3) Bioaccumulative potential

- n-octanol water partition coefficient
  - m-xylene
    : 3.15 log Kow
  - Ethylbenzene
    : 3.15 log Kow
  - p-Xylene
    : 3.15 log Kow
  - o-Xylene
    : 3.15 log Kow
- Bioconcentration factor(BCF)
  - m-xylene
    : 14.8
  - Ethylbenzene
    : 1 (BCF)
  - o-Xylene
    : 25.9

4) Mobility in soil

- m-xylene
  : Blanket 166

- Ethylbenzene
  : (Log koc = 2.41, measured)
- p-Xylene
  : Blanket 540 ~ 246 Blanket
- o-Xylene
  : Blanket 537 (OECD TG 121)

5) Other adverse effects

No data available

13. Disposal considerations

1) Disposal methods

- Empty containers should be taken to an approved waste handling site for recycling or disposal.

2) Precautions (including disposal of contaminated container of package)

- Dispose of in accordance with local regulations.
- Send to a licensed waste management company.

14. Transport information

1) UN No. : 1307

2) Proper shipping name : XYLENES

3) Hazard class : 3

4) Packing group : III

5) Marine pollutant : No

6) Special precautions for user related to transport or transportation measures :

Emergency measures in case of fire : F-E

Emergency measures in the effluent : S-D

- ADR

· Tunnel restriction code : D/E

- IMDG

· Marine pollutant : No

- Air transport(IATA)

· UN No. : 1307

· Proper shipping name : XYLENES

· Class or division : 3

· Packing group : III

15. Regulatory information

Australia Industrial Chemicals Notification and Assessment Act

- Inventory - Australia - Inventory of Industrial Chemicals (AIIC)

- m-xylene : Present

- Ethylbenzene : Present

- p-Xylene : Present

- o-Xylene : Present

China Inventory of Existing Chemical Substances (IECSC)

- Inventory - China - Inventory of Existing Chemical Substances (IECSC)

- m-xylene : Present [20755]

- Ethylbenzene : Present [38114]

- p-Xylene : Present [06716]

- o-Xylene : Present [22226]

92/32/EEC

- Not applicable

European Union Official Journal of the European Communities 15 June 1990 - Annex Based on Article 13 of Directive 67/548/EEC Amended by Directive 79/831/EEC

- Inventory - European Union - European Inventory of Existing Commercial Chemical Substances (EINECS)

- m-xylene : 203-576-3

- Ethylbenzene : 202-849-4

- p-Xylene : 203-396-5

- Hydrocarbons, (C=5-8) : 295-762-6

- o-Xylene : 202-422-2

Japan - ISHL Ordinance Hazardous Substances Whose Names Are to be Indicated on the Label

Japan Law Concerning the Examination and Regulations of Manufacture, etc. of Chemical Substances

- Inventory - Japan - Existing and New Chemical Substances (ENCS)

- m-xylene : (3)-3, (3)-60

- Ethylbenzene : (3)-28, (3)-60

- p-Xylene : (3)-3, (3)-60

- o-Xylene : (3)-3, (3)-60

New Zealand Environmental Protection Authority, Inventory of Chemicals

- Inventory - New Zealand - Inventory of Chemicals (NZIoC)

- m-xylene : HSNO Approval: HSR001236

- Ethylbenzene : HSNO Approval: HSR001151

- p-Xylene : HSNO Approval: HSR001048

- Hydrocarbons, (C=5-8) : May be used as a component in a product covered by a group standard but it is not approved for use as a chemical in its own right

- o-Xylene : HSNO Approval: HSR001237

Turkey Regulation on Inventory and Control of Chemicals

- Not applicable

Taiwan Chemical Substance Inventory

- Inventory - Taiwan - Taiwan Chemical Substance Inventory (TCSI)

- m-xylene : Present

- Ethylbenzene : Present

- p-Xylene : Present

- Hydrocarbons, (C=5-8) : Present

- o-Xylene : Present

U.S. Toxic Substances Control Act

Vietnam National Chemicals Inventory (NCI)

- Inventory - Vietnam - National Chemicals Inventory (NCI) (DRAFT)

- m-xylene : Present 01880

- Ethylbenzene : Present 01450

- p-Xylene : Present 01750

- o-Xylene : Present 01183

16. Other information

1) Reference

NCIS, KOSHA, Montreal Protocol, ECHA, OECD SIDS, EU IUCLID, HSDB(PubChem), NITE, NTP, ACGIH, IARC, NIOSH, ChemIDplus, EPA, EPI Suite, INCHEM

2) Issue date : 01-01-2023

3) Revision date

○ Revised date count : 3-1

○ Last revised date : 01-06-2026

4) Other

ACGIH : American Conference of Governmental Industrial Hygienists
ADR : Agreement Concerning the International Carriage of Dangerous Goods by Road
ATE : The Acute Toxicity Estimate
ECHA : European Chemicals Agency
EPA : United States Environmental Protection Agency
EPI Suite : The Estimation Programs Interface for Windows
EU IUCLID : International Uniform Chemical Information Database
HSDB : Hazardous Substances Data Bank
IARC : International Agency for Research on Cancer
IATA : International Air Transport Association
IMDG : International Maritime Dangerous Goods Codes
INCHEM : Internationally Peer Reviewed Chemical Safety Information
M-Factor : The Multiplication Factor
NIOSH : National Institute of Occupational Safety and Health
NITE : National Institute of Technology and Evaluation(JAPAN)
NTP : National Toxicology Program
SCL : Specific Concentration Limit
OECD SIDS : Organization for Economic Co-operation and Development Screening Information Dataset

GHS/EN