SAFETY DATA SHEET

In accordance with the provisions of Article 110, Industrial Safety & Health Act

Xylene

Version 4.1 Revision Date 2020.10.29 Print Date 2022.09.03

1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	Xylene
Product code	:	Q5891, Q9151, Q9156, Q9306, T1404
Synonyms	:	Reaction Mass of Ethylbenzene and Xylenes (REACH)
CAS-No.	:	1330-20-7

Recommended use of the chemical and restrictions on use

Recommended use	:	Solvent., Raw material for use in the chemical industry.
Restrictions on use	:	This product must not be used in applications other than the above without first seeking the advice of the supplier.

Manufacturer or supplier's details

Supplier	:	SHELL EASTERN CHEMICALS (S) A REGISTERED BUSINESS OF SHELL EASTERN TRADING (PTE) LTD (UEN:198902087C) 9 North Buona Vista Drive , #07-01 The Metropolis Tower 1 Singapore 138588 Singapore
Telephone	:	+82 2 360 1234
Telefax	:	+82 2 393 6196
Email Contact for Safety Data Sheet	:	sccmsds@shell.com
Emergency telephone number	:	+ (65) 6542 9595 (Alert-SGS)

2. HAZARDS IDENTIFICATION

GHS Classification

Flammable liquids	:	Category 3
Acute toxicity (Oral)	:	Category 4
Aspiration hazard	:	Category 1
Acute toxicity (Dermal)	:	Category 4
Skin irritation	:	Category 2
Eye irritation	:	Category 2
Acute toxicity (Inhalation)	:	Category 4
Specific target organ toxicity - single exposure	:	Category 3 (Respiratory system)
Specific target organ toxicity - repeated exposure (Inhalation)	:	Category 2 (Auditory system)
Long-term (chronic) aquatic hazard	:	Category 3

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : PHYSICAL HAZARDS:
H226 Flammable liquid and vapour.
HEALTH HAZARDS:
H302 Harmful if swallowed.
H304 May be fatal if swallowed and enters airways.
H312 Harmful in contact with skin.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H335 May cause respiratory irritation.
H372 Causes damage to organs (Auditory system) through prolonged or repeated exposure if inhaled.
ENVIRONMENTAL HAZARDS:
H412 Harmful to aquatic life with long lasting effects.

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.
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash hands thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P273 Avoid release to the environment.

Response:
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P370 + P378 In case of fire: Use appropriate media to extinguish.
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
P331 Do NOT induce vomiting.
P302 + P352 IF ON SKIN: Wash with plenty of water and soap.
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P362 + P364 Take off contaminated clothing and wash it before reuse.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water

for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P312 Call a POISON CENTER/ doctor if you feel unwell.

Storage:
P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.

Disposal:
P501 Dispose of contents and container to appropriate waste site or reclaimer in accordance with local and national regulations.

Other hazards which do not result in classification

May form flammable/explosive vapour-air mixture.This material is a static accumulator.Even with proper grounding and bonding, this material can still accumulate an electrostatic charge.If sufficient charge is allowed to accumulate, electrostatic discharge and ignition of flammable air-vapour mixtures can occur.Vapours may cause drowsiness and dizziness.
NFPA Rating (Health, Fire, Reactivity) : 2, 3, 0

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Substance

Components

Chemical name	Common Name	CAS-No.	Concentration (% w/w)
Xylene	xylenes	1330-20-7	> 80
Ethylbenzene	Ethylbenzene	100-41-4	< 20

4. FIRST-AID MEASURES

General advice : DO NOT DELAY.
Keep victim calm. Obtain medical treatment immediately.

In case of eye contact : Immediately flush eye(s) with plenty of water.
Remove contact lenses, if present and easy to do. Continue rinsing.
Transport to the nearest medical facility for additional treatment.

In case of skin contact	:	Remove contaminated clothing. Immediately flush skin with large amounts of water for at least 15 minutes, and follow by washing with soap and water if available. If redness, swelling, pain and/or blisters occur, transport to the nearest medical facility for additional treatment.
If inhaled	:	Call emergency number for your location / facility. Remove to fresh air. Do not attempt to rescue the victim unless proper respiratory protection is worn. If the victim has difficulty breathing or tightness of the chest, is dizzy, vomiting, or unresponsive, give 100% oxygen with rescue breathing or Cardio-Pulmonary Resuscitation as required and transport to the nearest medical facility.
If swallowed	:	Call emergency number for your location / facility. If swallowed, do not induce vomiting: transport to nearest medical facility for additional treatment. If vomiting occurs spontaneously, keep head below hips to prevent aspiration. If any of the following delayed signs and symptoms appear within the next 6 hours, transport to the nearest medical facility: fever greater than 101° F (38.3°C), shortness of breath, chest congestion or continued coughing or wheezing.
Most important symptoms and effects, both acute and delayed	:	Respiratory irritation signs and symptoms may include a temporary burning sensation of the nose and throat, coughing, and/or difficulty breathing. Skin irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blisters. Eye irritation signs and symptoms may include a burning sensation, redness, swelling, and/or blurred vision. Ingestion may result in nausea, vomiting and/or diarrhoea. If material enters lungs, signs and symptoms may include coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath, and/or fever. The onset of respiratory symptoms may be delayed for several hours after exposure. If any of the following delayed signs and symptoms appear within the next 6 hours, transport to the nearest medical facility: fever greater than 101° F (38.3°C), shortness of breath, chest congestion or continued coughing or wheezing. Breathing of high vapour concentrations may cause central nervous system (CNS) depression resulting in dizziness, light-headedness, headache, nausea and loss of coordination. Continued inhalation may result in unconsciousness and death. Auditory system effects may include temporary hearing loss and/or ringing in the ears.
Protection of first-aiders	:	When administering first aid, ensure that you are wearing the appropriate personal protective equipment according to the incident, injury and surroundings.
Notes to physician	:	IMMEDIATE TREATMENT IS EXTREMELY IMPORTANT!

Call a doctor or poison control center for guidance.
Potential for chemical pneumonitis.
Potential for cardiac sensitisation, particularly in abuse situations. Hypoxia or negative inotropes may enhance these effects. Consider: oxygen therapy.
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable and unsuitable extinguishing media

Suitable extinguishing media	:	Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
Unsuitable extinguishing media	:	Do not use water in a jet.
Specific hazards during firefighting	:	Clear fire area of all non-emergency personnel. Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds. Flammable vapours may be present even at temperatures below the flash point. The vapour is heavier than air, spreads along the ground and distant ignition is possible. Will float and can be reignited on surface water.
Specific extinguishing methods	:	Standard procedure for chemical fires. Keep adjacent containers cool by spraying with water.
Special protective equipment for firefighters	:	Proper protective equipment including chemical resistant gloves are to be worn; chemical resistant suit is indicated if large contact with spilled product is expected. Self-Contained Breathing Apparatus must be worn when approaching a fire in a confined space. Select fire fighter's clothing approved to relevant Standards (e.g. Europe: EN469).

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Observe all relevant local and international regulations. Notify authorities if any exposure to the general public or the environment occurs or is likely to occur. Local authorities should be advised if significant spillages cannot be contained.
	:	Avoid contact with skin, eyes and clothing. Isolate hazard area and deny entry to unnecessary or unprotected personnel. Do not breathe fumes, vapour.

Do not operate electrical equipment.

Environmental precautions	:	Shut off leaks, if possible without personal risks. Remove all possible sources of ignition in the surrounding area. Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers. Attempt to disperse the vapour or to direct its flow to a safe location for example by using fog sprays. Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding (earthing) all equipment. Monitor area with combustible gas indicator.
Methods and materials for containment and cleaning up	:	For small liquid spills (< 1 drum), transfer by mechanical means to a labeled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely. For large liquid spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely Ventilate contaminated area thoroughly. If contamination of site occurs remediation may require specialist advice.
Additional advice	:	For guidance on selection of personal protective equipment see Section 8 of this Safety Data Sheet. For guidance on disposal of spilled material see Section 13 of this Safety Data Sheet.

7. HANDLING AND STORAGE

General Precautions	:	Avoid breathing of or direct contact with material. Only use in well ventilated areas. Wash thoroughly after handling. For guidance on selection of personal protective equipment see Section 8 of this Safety Data Sheet. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material. Ensure that all local regulations regarding handling and storage facilities are followed.
Advice on safe handling	:	Avoid inhaling vapour and/or mists. Avoid contact with skin, eyes and clothing. Extinguish any naked flames. Do not smoke. Remove ignition sources. Avoid sparks. Use local exhaust ventilation if there is risk of inhalation of

vapours, mists or aerosols.
Bulk storage tanks should be diked (bunded).
When using do not eat or drink.

The vapour is heavier than air, spreads along the ground and distant ignition is possible.

Avoidance of contact : Strong oxidising agents.

Product Transfer : Even with proper grounding and bonding, this material can still accumulate an electrostatic charge. If sufficient charge is allowed to accumulate, electrostatic discharge and ignition of flammable air-vapour mixtures can occur. Be aware of handling operations that may give rise to additional hazards that result from the accumulation of static charges. These include but are not limited to pumping (especially turbulent flow), mixing, filtering, splash filling, cleaning and filling of tanks and containers, sampling, switch loading, gauging, vacuum truck operations, and mechanical movements. These activities may lead to static discharge e.g. spark formation. Restrict line velocity during pumping in order to avoid generation of electrostatic discharge (≤ 1 m/s until fill pipe submerged to twice its diameter, then ≤ 7 m/s). Avoid splash filling. Do NOT use compressed air for filling, discharging, or handling operations.

Refer to guidance under Handling section.

Safe storage methods (including conditions to be avoided)

Conditions for safe storage : Refer to section 15 for any additional specific legislation covering the packaging and storage of this product.

Other data : Storage Temperature:
Ambient.

Bulk storage tanks should be diked (bunded).
Locate tanks away from heat and other sources of ignition.
Cleaning, inspection and maintenance of storage tanks is a specialist operation, which requires the implementation of strict procedures and precautions.
Must be stored in a diked (bunded) well- ventilated area, away from sunlight, ignition sources and other sources of heat.
Keep away from aerosols, flammables, oxidizing agents, corrosives and from other flammable products which are not harmful or toxic to man or to the environment.
Electrostatic charges will be generated during pumping.
Electrostatic discharge may cause fire. Ensure electrical continuity by bonding and grounding (earthing) all equipment to reduce the risk.
The vapours in the head space of the storage vessel may lie in the flammable/explosive range and hence may be flammable.

Packaging material	:	Suitable material: For containers, or container linings use mild steel, stainless steel., For container paints, use epoxy paint, zinc silicate paint. Unsuitable material: Avoid prolonged contact with natural, butyl or nitrile rubbers.
Container Advice	:	Do not cut, drill, grind, weld or perform similar operations on or near containers.
Specific use(s)	:	Not applicable See additional references that provide safe handling practices for liquids that are determined to be static accumulators: American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practices on Static Electricity). IEC/TS 60079-32-1: Electrostatic hazards, guidance

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Xylene	1330-20-7	STEL	150 ppm	KR OEL
Xylene		TWA	100 ppm	KR OEL
Xylene	1330-20-7	TWA	100 ppm 435 mg/m3	OSHA Z-1
Xylene		TWA	100 ppm	ACGIH
Xylene		STEL	150 ppm	ACGIH
Xylene		STEL	150 ppm 655 mg/m3	OSHA P0
Xylene		TWA	100 ppm 435 mg/m3	OSHA P0
Ethylbenzene	100-41-4	TWA	100 ppm	KR OEL
	Further information: Limited evidence of carcinogenicity in humans or animals, which is not sufficiently convincing to place the substance in Category 1			
Ethylbenzene		STEL	125 ppm	KR OEL
	Further information: Limited evidence of carcinogenicity in humans or animals, which is not sufficiently convincing to place the substance in Category 1			
Ethylbenzene	100-41-4	TWA	20 ppm	ACGIH
Ethylbenzene		TWA	100 ppm 435 mg/m3	NIOSH REL
Ethylbenzene		ST	125 ppm 545 mg/m3	NIOSH REL
Ethylbenzene		TWA	100 ppm 435 mg/m3	OSHA Z-1

Biological occupational exposure limits

No biological limit allocated.

Monitoring Methods

Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.
Validated exposure measurement methods should be applied by a competent person and samples analysed by an accredited laboratory.
Examples of sources of recommended exposure measurement methods are given below or contact the supplier. Further national methods may be available.
National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Analytical Methods http://www.cdc.gov/niosh/
Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods http://www.osha.gov/
Health and Safety Executive (HSE), UK: Methods for the Determination of Hazardous Substances http://www.hse.gov.uk/
Institut für Arbeitsschutz Deutschen Gesetzlichen Unfallversicherung (IFA) , Germany http://www.dguv.de/inhalt/index.jsp
L'Institut National de Recherche et de Securité, (INRS), France http://www.inrs.fr/accueil

Engineering measures : The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances.
Appropriate measures include:
Use sealed systems as far as possible.
Adequate explosion-proof ventilation to control airborne concentrations below the exposure guidelines/limits.
Local exhaust ventilation is recommended.
Firewater monitors and deluge systems are recommended.
Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.
Eye washes and showers for emergency use.

General Information:
Always observe good personal hygiene measures, such as washing hands after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned.
Practice good housekeeping.
Define procedures for safe handling and maintenance of controls.
Educate and train workers in the hazards and control measures relevant to normal activities associated with this product.
Ensure appropriate selection, testing and maintenance of equipment used to control exposure, e.g. personal protective equipment, local exhaust ventilation.
Drain down system prior to equipment break-in or maintenance.
Retain drain downs in sealed storage pending disposal or subsequent recycle.

Personal protective equipment

Protective measures

Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

Respiratory protection	:	If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are unsuitable (e.g. airborne concentrations are high, risk of oxygen deficiency, confined space) use appropriate positive pressure breathing apparatus. If air-filtering respirators are suitable for conditions of use: Select a filter suitable for organic gases and vapours [Type A boiling point >65°C (149°F)]. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter.
Eye protection	:	Wear goggles for use against liquids and gas. Wear full face shield if splashes are likely to occur.
Hand protection Remarks	:	Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection. Longer term protection: Viton. Incidental contact/Splash protection: Nitrile rubber. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. For continuous contact we recommend gloves with breakthrough time of more than 240 minutes with preference for > 480 minutes where suitable gloves can be identified. For short-term/splash protection we recommend the same but recognize that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough time maybe acceptable so long as appropriate maintenance and replacement regimes are followed. Glove thickness is not a good predictor of glove resistance to a chemical as it is dependent on the exact composition of the glove material. Glove thickness should be typically greater than 0.35 mm depending on the glove make and model. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.
Skin and body protection	:	Wear chemical resistant gloves/gauntlets and boots. Where

risk of splashing, also wear an apron.
Wear antistatic and flame-retardant clothing.

Hygiene measures : Wash hands before eating, drinking, smoking and using the toilet.
Launder contaminated clothing before re-use.
Do not ingest. If swallowed, then seek immediate medical assistance.

Environmental exposure controls

General advice : Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapour.
Information on accidental release measures are to be found in section 6.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Liquid.
Colour	:	colourless
Odour	:	aromatic
Odour Threshold	:	0.27 ppm
pH	:	Not applicable
Melting point/freezing point	:	< -25 °C / -13 °F
Boiling point/boiling range	:	Typical 136 - 145 °C / 277 - 293 °F
Flash point	:	Typical 23 - 27 °C / 73 - 81 °F Method: Abel
Evaporation rate	:	13.5 Method: DIN 53170, di-ethyl ether=1
		0.76 Method: ASTM D 3539, nBuAc=1
Flammability (solid, gas)	:	Not applicable
Upper/Lower explosion limit		
Upper explosion limit	:	7.1 %(V)
Lower explosion limit	:	1 %(V)
Vapour pressure	:	4.5 kPa (50 °C / 122 °F)
		0.8 - 1.2 kPa (20 °C / 68 °F)

		0.2 kPa (0 °C / 32 °F)
Solubility(ies)		
Water solubility	:	estimated value(s) 0.2 g/l
Relative vapour density	:	3.7
Relative density	:	0.86 - 0.87
Density	:	Typical 870 kg/m3 (15 °C / 59 °F) Method: ASTM D1298
Partition coefficient: n-octanol/water	:	log Pow: 3.16Method: Literature data.
Auto-ignition temperature	:	estimated value(s) 432 - 530 °C / 810 - 986 °F
Viscosity		
Viscosity, dynamic	:	ca. 0.9 mPa.s (20 °C / 68 °F)
Viscosity, kinematic	:	< 0.9 mm2/s (20 °C / 68 °F)
Explosive properties	:	Not classified
Oxidizing properties	:	Not applicable
Surface tension	:	Typical 28.7 mN/m, 20 °C / 68 °F, ASTM D-971
Conductivity	:	Low conductivity: < 100 pS/m The conductivity of this material makes it a static accumulator., A liquid is typically considered nonconductive if its conductivity is below 100 pS/m and is considered semi-conductive if its conductivity is below 10,000 pS/m., Whether a liquid is nonconductive or semi-conductive, the precautions are the same., A number of factors, for example liquid temperature, presence of contaminants, and anti-static additives can greatly influence the conductivity of a liquid
Particle size	:	Data not available
Molecular weight	:	106 g/mol

10. STABILITY AND REACTIVITY

Chemical stability and possibility of hazardous reactions:
: The product does not pose any further reactivity hazards in addition to those listed in the following sub-paragraph.

No hazardous reaction is expected when handled and stored according to provisions, Stable under normal conditions of use.
Reacts with strong oxidising agents.

Conditions to avoid : Avoid heat, sparks, open flames and other ignition sources.

In certain circumstances product can ignite due to static electricity.

Incompatible materials : Strong oxidising agents.

Hazardous decomposition products : Hazardous decomposition products are not expected to form during normal storage.
Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases including carbon monoxide, carbon dioxide, sulphur oxides and unidentified organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation.

11. TOXICOLOGICAL INFORMATION

Basis for assessment : Information given is based on product testing.

Information on likely routes of exposure : Inhalation is the primary route of exposure although absorption may occur through skin contact or following accidental ingestion.

Health hazard information

Acute toxicity

Product:

Acute oral toxicity : LD 50 Rat, male and female: > 2,000 mg/kg
Method: EC Directive 92/69/EEC B.1 Acute Toxicity (Oral)
Remarks: Based on available data, the classification criteria are not met.

Acute inhalation toxicity : LC 50 Rat, male: 6350 ppm
Exposure time: 4 h
Test atmosphere: vapour
Method: Test(s) equivalent or similar to Directive 67/548/EEC, Annex V, B.2.
Remarks: Harmful if inhaled.

Acute dermal toxicity : LD 50 Rabbit, male: > 2,000 mg/kg
Method: Literature data
Test substance: m-xylene
Remarks: Based on available data, the classification criteria are not met.

Information given is based on data obtained from similar substances.

Skin corrosion/irritation

Product:

Species: Rabbit
Method: Literature data
Remarks: Causes skin irritation.

Serious eye damage/eye irritation

Product:

Species: Rabbit
Method: Acceptable non-standard method.
Remarks: Causes serious eye irritation.

Respiratory or skin sensitisation

Product:

Species: Mouse
Method: Test(s) equivalent or similar to OECD Test Guideline 429
Remarks: Based on available data, the classification criteria are not met.

Carcinogenicity

Product:

Species: Rat, (male and female)
Application Route: Oral
Method: Test(s) equivalent or similar to Directive 67/548/EEC, Annex V, B.32
Remarks: Based on available data, the classification criteria are not met.

Carcinogenicity - Assessment : This product does not meet the criteria for classification in categories 1A/1B.

Material	GHS/CLP Carcinogenicity Classification
Xylene	No carcinogenicity classification.
Ethylbenzene	No carcinogenicity classification.

Material	Other Carcinogenicity Classification
Xylene	IARC: Group 3: Not classifiable as to its carcinogenicity to humans
Ethylbenzene	IARC: Group 2B: Possibly carcinogenic to humans

Germ cell mutagenicity

Product:

Genotoxicity in vitro : Method: Test(s) equivalent or similar to Directive 67/548/EEC, Annex V, B.10

Remarks: Based on available data, the classification criteria are not met.

: Method: Test(s) equivalent or similar to Directive 67/548/EEC, Annex V, B.19
Remarks: Based on available data, the classification criteria are not met.

: Test species: MouseMethod: OECD Test Guideline 478
Remarks: Based on available data, the classification criteria are not met.

Germ cell mutagenicity-Assessment : This product does not meet the criteria for classification in categories 1A/1B.

Reproductive toxicity

Product:

: Species: Rat
Sex: male and female
Application Route: Inhalation

Method: Acceptable non-standard method.
Remarks: Based on available data, the classification criteria are not met.

Effects on foetal development : Species: Rat, female
Application Route: Inhalation
Method: Test(s) equivalent or similar to OECD Test Guideline 414
Remarks: Based on available data, the classification criteria are not met.

Reproductive toxicity - Assessment : This product does not meet the criteria for classification in categories 1A/1B.

STOT - single exposure

Product:

Exposure routes: Inhalation
Target Organs: Respiratory Tract
Remarks: May cause respiratory irritation., Inhalation of vapours or mists may cause irritation to the respiratory system., High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued inhalation may result in unconsciousness and/or death.

STOT - repeated exposure

Product:

Exposure routes: Inhalation
Target Organs: Auditory system

Remarks: May cause damage to organs or organ systems through prolonged or repeated exposure., Harmful: danger of serious damage to health by prolonged exposure through inhalation., Solvent abuse and noise interaction in the work environment may cause hearing loss.

Repeated dose toxicity

Product:

Rat, male and female:
Application Route: Oral
Method: Test(s) equivalent or similar to OECD Test Guideline 408
Target Organs: No specific target organs noted
Remarks: Over exposures of humans to xylene or xylene solvent mixtures produced predominately central nervous system (CNS) effects with less common effects reported to the lung, gastrointestinal tract, liver, kidney and heart.
Available animal and human results in auditory system provide limited evidence that xylenes may induce decrements in human hearing, and it was unclear if these changes were temporary or permanent.

Rat, male:
Application Route: Inhalation
Test atmosphere: vapour
Method: Literature data
Target Organs: Auditory system
Remarks: Over exposures of humans to xylene or xylene solvent mixtures produced predominately central nervous system (CNS) effects with less common effects reported to the lung, gastrointestinal tract, liver, kidney and heart.
Available animal and human results in auditory system provide limited evidence that xylenes may induce decrements in human hearing, and it was unclear if these changes were temporary or permanent.

Aspiration toxicity

Product:

Aspiration into the lungs when swallowed or vomited may cause chemical pneumonitis which can be fatal.

Further information

Product:

Remarks: Classifications by other authorities under varying regulatory frameworks may exist.

12. ECOLOGICAL INFORMATION

Basis for assessment : Incomplete ecotoxicological data are available for this product. The information given below is based partly on a knowledge of the components and the ecotoxicology of similar products.

Ecotoxicity

Product:

Toxicity to fish (Acute toxicity)	:	LC50 (Oncorhynchus mykiss (rainbow trout)): 2.6 mg/l Exposure time: 96 h Method: Information given is based on data obtained from similar substances. Remarks: Toxic LL/EL/IL50 > 1 <= 10 mg/l
Toxicity to crustacean (Acute toxicity)	:	EC50 (Daphnia magna (Water flea)): 3.82 mg/l Exposure time: 48 h Method: Information given is based on data obtained from similar substances. Remarks: Toxic LC/EC/IC50 >1 - <=10 mg/l
Toxicity to algae/aquatic plants (Acute toxicity)	:	EC50 (Pseudokirchneriella subcapitata (algae)): 2.2 mg/l Exposure time: 72 h Method: Information given is based on data obtained from similar substances. Remarks: Toxic LC/EC/IC50 >1 - <=10 mg/l
Toxicity to fish (Chronic toxicity)	:	NOEC: > 1.3 mg/l Exposure time: 56 d Species: Oncorhynchus mykiss (rainbow trout) Method: Literature data. Remarks: NOEC/NOEL > 1.0 - <= 10 mg/l
Toxicity to crustacean (Chronic toxicity)	:	NOEC: 0.96 mg/l Exposure time: 7 d Species: Ceriodaphnia dubia (Water flea) Method: Other guideline method. Remarks: NOEC/NOEL > 0.1 - <=1.0 mg/l
Toxicity to microorganisms (Acute toxicity)	:	EC50 (Activated sludge): > 157 mg/l Exposure time: 3 h Method: Information given is based on data obtained from similar substances. Remarks: Practically non toxic: LL/EL/IL50 > 100 mg/l

Persistence and degradability

Product:

Biodegradability	:	Biodegradation: 87.8 % Exposure time: 28 d Method: Information given is based on data obtained from similar substances. Remarks: Readily biodegradable. Remarks: Not Persistent per IMO criteria., International Oil Pollution Compensation (IOPC) Fund definition: “A non-persistent oil is oil, which, at the time of shipment, consists of hydrocarbon fractions, (a) at least 50% of which, by volume, distills at a temperature of 340ºC (645ºF) and (b) at least 95%

of which, by volume, distils at a temperature of 370ºC (700ºF) when tested by the ASTM Method D-86/78 or any subsequent revision thereof."

Bioaccumulative potential

Product:

Bioaccumulation : Species: Oncorhynchus mykiss (rainbow trout)
Exposure time: 56 d
Bioconcentration factor (BCF): 29
Method: Literature data.
Remarks: Does not bioaccumulate significantly.

Partition coefficient: n-octanol/water : log Pow: 3.16Method: Literature data.

Components:
Xylene :
Partition coefficient: n-octanol/water : log Pow: 3.16Method: Literature data.

Mobility in soil

Product:

Mobility : Remarks: Floats on water., If it enters soil, it will adsorb to soil particles and will not be mobile.

Other adverse effects

Product:

Results of PBT and vPvB assessment : The substance does not fulfill all screening criteria for persistence, bioaccumulation and toxicity and hence is not considered to be PBT or vPvB.

13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Recover or recycle if possible.
It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations.
Waste product should not be allowed to contaminate soil or ground water, or be disposed of into the environment.
Do not dispose into the environment, in drains or in water courses
Do not dispose of tank water bottoms by allowing them to drain into the ground. This will result in soil and groundwater contamination.
Waste arising from a spillage or tank cleaning should be disposed of in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.

Waste, spills or used product is dangerous waste.

Disposal should be in accordance with applicable regional, national, and local laws and regulations.
Local regulations may be more stringent than regional or national requirements and must be complied with.

Contaminated packaging : Drain container thoroughly.
After draining, vent in a safe place away from sparks and fire.
Residues may cause an explosion hazard. Do not puncture, cut or weld uncleaned drums.
Send to drum recoverer or metal reclaimer.
Comply with any local recovery or waste disposal regulations.

Disposal considerations

Dispose of in accordance with local regulations.

14. TRANSPORT INFORMATION

National Regulations

Refer to section 15 for specific national regulation.

International Regulations

ADR

UN number	:	1307
Proper shipping name	:	XYLENES
Class	:	3
Packing group	:	III
Labels	:	3
Hazard Identification Number	:	30
Environmentally hazardous	:	no

IATA-DGR

UN/ID No.	:	UN 1307
Proper shipping name	:	XYLENES
Class	:	3
Packing group	:	III
Labels	:	3

IMDG-Code

UN number	:	UN 1307
Proper shipping name	:	XYLENES
Class	:	3
Packing group	:	III
Labels	:	3
Marine pollutant	:	no

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

Pollution category : Y

Ship type : 2
Product name : Xylene (Mixed Isomers)

Special precautions for user

Remarks : Special Precautions: Refer to Section 7, Handling & Storage, for special precautions which a user needs to be aware of or needs to comply with in connection with transport.

Additional Information **:** This product may be transported under nitrogen blanketing. Nitrogen is an odourless and invisible gas. Exposure to nitrogen enriched atmospheres displaces available oxygen which may cause asphyxiation or death. Personnel must observe strict safety precautions when involved with a confined space entry.

15. REGULATORY INFORMATION

National regulatory information
The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

INDUSTRY SAFETY & HEALTH ACT:	Hazardous substances prohibited from manufacturing, etc., Not applicable
	Hazardous substances subject to authorization, Not applicable
	Hazardous substances subject to control, Applicable - Threshold >=1%
	Substances established for exposure limits, Applicable
	Hazardous factor subject to keep below permissible limit, Not applicable
	Hazardous Factors Subject to Working Environment Monitoring, Applicable
	Hazardous Factors Subject to Special Medical Examination, Applicable
CHEMICALS CONTROL ACT:	Toxic chemical substances, Applicable - Threshold >=85%
	Authorization chemical substances, Not applicable
	Restricted chemical substances, Not applicable

	Prohibited chemical substances, Not applicable

	Accident precaution chemical substance, Not applicable

DANGEROUS GOODS SAFE CONTROL ACT:	Category/Classification of dangerous material:, Category 4 Dangerous Goods (Flammable Liquids), Grade 2 petroleum chemicals

WASTES MANAGEMENT ACT:	Treat with Article 4/5/24/25 of Disposal Considerations Section.

Other requirements in domestic and other countries

The components of this product are reported in the following inventories:

AIIC : Listed

DSL : Listed

IECSC : Listed

ENCS : Listed

KECI : Listed

NZIoC : Listed

PICCS : Listed

TSCA : Listed

TCSI : Listed

16. OTHER INFORMATION

Full text of other abbreviations

Acute Tox.	Acute toxicity
Aquatic Chronic	Long-term (chronic) aquatic hazard
Asp. Tox.	Aspiration hazard
Eye Irrit.	Eye irritation
Flam. Liq.	Flammable liquids
Skin Irrit.	Skin irritation
STOT RE	Specific target organ toxicity - repeated exposure
STOT SE	Specific target organ toxicity - single exposure

Abbreviations and Acronyms

AICS - Australian Inventory of Chemical Substances; AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for

the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

Further information

Training advice	:	Provide adequate information, instruction and training for operators.
Sources of key data used to compile the Safety Data Sheet	:	The quoted data are from, but not limited to, one or more sources of information (e.g. toxicological data from Shell Health Services, material suppliers' data, CONCAWE, EU IUCLID date base, EC 1272 regulation, etc).
Issuing date	:	2004.01.27

Revision number and date

Number of Revision	:	4.1
Revision Date	:	2020.10.29
Other information	:	A vertical bar (|) in the left margin indicates an amendment from the previous version.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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