



XYLENE

MATERIAL SAFETY

The information contained within this Technical Data Sheet, details product description, health and safety hazard information of the product and how to safely handle and use the product in the workplace. Also refer to the MSDS for more information. Each user of this product should read the MSDS and consider the information in the context of how the product will be handled and used in the workplace including in conjunction with other products. If clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact Demtech Australia Pty Ltd. Demtech Australia Pty Ltd makes no representation as to the completeness and accuracy of the data contained within this data sheet. It is the user's obligation to evaluate and use this product safely, and to comply with all relevant Federal, State and Local Government laws and regulations. Demtech Australia Pty Ltd shall not be responsible for loss, damage or injury resulting from reliance upon or failure to adhere to any recommendation or information contained herein, from abnormal use of the material, or any hazard inherent in the nature of the material.

1. PRODUCT IDENTIFICATION

Product identifier

Product name	Cureflex Xylene
Chemical name	Xylene
Proper shipping name	Xylene

Relevant identified uses of the substance or mixture

Relevant identified uses	Use according to manufacturer's directions
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Details of the supplier of the safety data sheet

Registered company name	Demtech Australia Pty Ltd
Address	16 Logis Blvd, Dandenong South VIC 3175 Australia
Telephone	1300 300 090
Fax	Not available
Website	www.demtech.com.au
Email	reception@demtech.com.au

Emergency telephone number

Association/organisation	Not available
Emergency telephone number	Not available
Other emergency telephone	Not available

2. HAZARD IDENTIFICATION

Classification of the substance or mixture

HAZARDOUS CHEMICAL. DANGEROUS GOODS. According to the WHS Regulations and the ADG Code.

Poisons schedule	Not applicable
Classification	Acute toxicity (dermal); Category 4. Acute toxicity (inhalation); Category 4. Skin corrosion/irritation; Category 2. Flammable liquid; Category 3.
Legend	1. Classified by Chemwatch; 2. Classification drawn from HSIS; 3. Classification drawn from EC Directive 1272/2008 Annex VI.

Label elements



Signal word: WARNING

Hazard statement(s)

H312	Harmful in contact with skin.
H332	Harmful if inhaled.
H315	Causes skin irritation.
H226	Flammable liquid and vapour.

Prevention precautionary statement(s)

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.
P103	Read label before use.
P210	Keep away from heat/sparks/open flames/hot surfaces and no smoking.
P233	Keep container tightly closed.
P271	Use only outdoors or in a well-ventilated area.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ventilating/lighting/intrinsically safe equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P261	Avoid breathing mist/vapours/spray.
P280	Wear protective gloves/protective clothing/eye protection/face protection.



XYLENE

MATERIAL SAFETY

2. HAZARD IDENTIFICATION Cont.

Response precautionary statement(s)

P362	Take off contaminated clothing and wash before reuse.
P363	Wash contaminated clothing before reuse.
P370+P378	In case of fire: Use alcohol resistant foam or normal protein foam for extinction.
P312	Call a POISON CENTER or doctor/physician if you feel unwell.
P302+P352	IF ON SKIN: Wash with plenty of soap and water.
P303+P361+P353	IF ON SKIN: Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P332+P313	If skin irritation occurs: Get medical advice/attention.

Storage precautionary statement(s)

P403+P235 Store in a well-ventilated place. Keep cool.

Disposal precautionary statement(s)

P501 Dispose of contents/container in accordance with local regulations.

3. PRODUCT COMPOSITION

Composition of mixtures

CAS No	% (weight)	Name
1330-20-7	>99	Xylene

4. FIRST AID MEASURES

Description of first aid measures

Eye contact

If this product comes in contact with the eyes:

- Wash out immediately with fresh running water.
- Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.
- Seek medical attention without delay. If pain persists or recurs seek medical attention.
- Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.

Skin contact

If skin contact occurs:

- Immediately remove all contaminated clothing, including footwear.
- Flush skin and hair with running water (and soap if available).
- Seek medical attention in event of irritation.



4. FIRST AID MEASURES Cont.

Description of first aid measures

Inhalation

- If fumes or combustion products are inhaled remove from contaminated area.
- Lay patient down. Keep warm and rested.
- Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures.
- Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary.
- Transport to hospital, or doctor.

Ingestion

- If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomitus.
- If swallowed DO NOT induce vomiting.
- If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.
- Observe the patient carefully.
- Never give liquid to a person showing signs of being sleepy or with reduced awareness.
- Give water to rinse out mouth, provide liquid slowly and as much as casualty can comfortably drink.
- Seek medical advice.
- Avoid giving milk or oils.
- Avoid giving alcohol.

Indication of any immediate medical attention and special treatment needed

Any material aspirated during vomiting may produce lung injury. Therefore emesis should not be induced mechanically or pharmacologically. Mechanical means should be used if it is considered necessary to evacuate the stomach contents, these include gastric lavage after endotracheal intubation. If spontaneous vomiting has occurred after ingestion, the patient should be monitored for difficult breathing, as adverse effects of aspiration into the lungs may be delayed up to 48 hours.

For acute or short term repeated exposures to xylene:

- Gastro-intestinal absorption is significant with ingestions. For ingestions exceeding 1-2 ml (xylene)/kg, intubation and lavage with cuffed endotracheal tube is recommended. The use of charcoal and cathartics is equivocal.
- Pulmonary absorption is rapid with about 60-65% retained at rest.
- Primary threat to life from ingestion and/or inhalation, is respiratory failure.
- Patients should be quickly evaluated for signs of respiratory distress (e.g. cyanosis, tachypnoea, intercostal retraction, obtundation) and given oxygen. Patients with inadequate tidal volumes or poor arterial blood gases ($pO_2 < 50$ mm Hg or $pCO_2 > 50$ mm Hg) should be intubated.
- Arrhythmias complicate some hydrocarbon ingestion and/or inhalation and electrocardiographic evidence of myocardial injury has been reported; intravenous lines and cardiac monitors should be established in obviously symptomatic patients. The lungs excrete inhaled solvents, so that hyperventilation improves clearance.
- A chest x-ray should be taken after stabilisation of breathing and circulation to document aspiration and detect the presence of pneumothorax.
- Epinephrine (adrenalin) is not recommended for treatment of bronchospasm because of potential myocardial sensitisation to catecholamines. Inhaled cardioselective bronchodilators (e.g. Alupent, Salbutamol) are the preferred agents, with aminophylline a second choice.

These represent the determinants observed in specimens collected from a healthy worker exposed at the Exposure Standard (ES or TLV).

- Methylhippuric acids in urine:
 - After the end of shift = 1.5 gm/gm creatinine.
 - During last 4 hours of shift = 2 mg/min.



XYLENE

MATERIAL SAFETY

5. FIREFIGHTING MEASURES

Extinguishing media

- Foam.
- Dry chemical powder.
- BCF (where regulations permit).
- Carbon dioxide.
- Water spray or fog (large fires only).

Special hazards arising from the substrate or mixture

Fire incompatibility

Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result.

Advice for firefighters

Fire fighting

- Alert Fire Brigade and tell them location and nature of hazard.
- May be violently or explosively reactive.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water course.
- If safe, switch off electrical equipment until vapour fire hazard removed.
- Use water delivered as a fine spray to control fire and cool adjacent area.
- Avoid spraying water onto liquid pools.
- DO NOT approach containers suspected to be hot.
- Cool fire exposed containers with water spray from a protected location.
- If safe to do so, remove containers from path of fire.

Fire/explosion hazard

- Liquid and vapour are flammable.
- Moderate fire hazard when exposed to heat or flame.
- Vapour forms an explosive mixture with air.
- Moderate explosion hazard when exposed to heat or flame.
- Vapour may travel a considerable distance to source of ignition.
- Heating may cause expansion or decomposition leading to violent rupture of containers.
- On combustion, may emit toxic fumes of carbon monoxide (CO).
- Combustion products include carbon monoxide (CO), carbon dioxide (CO₂), other pyrolysis products typical of burning organic material.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

See Section 8.

Environmental precautions

See Section 12.



XYLENE

MATERIAL SAFETY

6. ACCIDENTAL RELEASE MEASURES Cont.

Methods and materials for containment and cleaning up

Minor spills

- Remove all ignition sources.
- Clean up all spills immediately.
- Avoid breathing vapours and contact with skin and eyes.
- Control personal contact with the substance, by using protective equipment.
- Contain and absorb spill with sand, earth, inert material or vermiculite.
- Wipe up.
- Place in a suitable, labelled container for waste disposal.

Major spills

- Clear area of personnel and move upwind.
- Alert Fire Brigade and tell them location and nature of hazard.
- May be violently or explosively reactive.
- Wear breathing apparatus plus protective gloves.
- Prevent, by any means available, spillage from entering drains or water course.
- Consider evacuation (or protect in place).
- No smoking, naked lights or ignition sources.
- Increase ventilation.
- Stop leak if safe to do so.
- Water spray or fog may be used to disperse /absorb vapour.
- Contain spill with sand, earth or vermiculite.
- Use only spark-free shovels and explosion proof equipment.
- Collect recoverable product into labelled containers for recycling.
- Absorb remaining product with sand, earth or vermiculite.
- Collect solid residues and seal in labelled drums for disposal.
- Wash area and prevent runoff into drains.
- If contamination of drains or waterways occurs, advise emergency services.

Personal Protective Equipment advice is contained in Section 8 of the MSDS.



XYLENE

MATERIAL SAFETY

7. HANDLING & STORAGE

Precautions for safe handling

Safe handling

- Containers, even those that have been emptied, may contain explosive vapours.
- Do NOT cut, drill, grind, weld or perform similar operations on or near containers.
- Electrostatic discharge may be generated during pumping, this may result in fire.
- Ensure electrical continuity by bonding and grounding (earthing) all equipment.
- Restrict line velocity during pumping in order to avoid generation of electrostatic discharge (≤ 1 m/sec until fill pipe submerged to twice its diameter, then ≤ 7 m/sec).
- Avoid splash filling.
- Do NOT use compressed air for filling discharging or handling operations.
- Avoid all personal contact, including inhalation.
- Wear protective clothing when risk of overexposure occurs.
- Use in a well-ventilated area.
- Prevent concentration in hollows and sumps.
- DO NOT enter confined spaces until atmosphere has been checked.
- Avoid smoking, naked lights or ignition sources.
- Avoid generation of static electricity.
- DO NOT use plastic buckets.
- Earth all lines and equipment.
- Use spark-free tools when handling.
- Avoid contact with incompatible materials.
- When handling, DO NOT eat, drink or smoke.
- Keep containers securely sealed when not in use.
- Avoid physical damage to containers.
- Always wash hands with soap and water after handling.
- Work clothes should be laundered separately.
- Use good occupational work practice.
- Observe manufacturer's storage and handling recommendations contained within this MSDS.
- Atmosphere should be regularly checked against established exposure standards to ensure safe working conditions.
- DO NOT allow clothing wet with material to stay in contact with skin.

Other information

- Store in original containers in approved flammable liquid storage area.
- Store away from incompatible materials in a cool, dry, well-ventilated area.
- DO NOT store in pits, depressions, basements or areas where vapours may be trapped.
- No smoking, naked lights, heat or ignition sources.
- Storage areas should be clearly identified, well illuminated, clear of obstruction and accessible only to trained and authorised personnel, adequate security must be provided so that unauthorised personnel do not have access.
- Store according to applicable regulations for flammable materials for storage tanks, containers, piping, buildings, rooms, cabinets, allowable quantities and minimum storage distances.
- Use non-sparking ventilation systems, approved explosion proof equipment and intrinsically safe electrical systems.
- Have appropriate extinguishing capability in storage area (e.g. portable fire extinguishers, dry chemical, foam or carbon dioxide) and flammable gas detectors.
- Keep adsorbents for leaks and spills readily available.
- Protect containers against physical damage and check regularly for leaks.
- Observe manufacturer's storage and handling recommendations contained within this MSDS.
- In addition, for tank storages (where appropriate):
- Store in grounded, properly designed and approved vessels and away from incompatible materials.
- For bulk storages, consider use of floating roof or nitrogen blanketed vessels, where venting to atmosphere is possible, equip storage tank vents with flame arrestors, inspect tank vents during winter conditions for vapour/ice build-up.
- Storage tanks should be above ground and diked to hold entire contents.



XYLENE

MATERIAL SAFETY

7. HANDLING & STORAGE Cont.

Conditions for safe storage, including any incompatibilities

Suitable container

- Packing as supplied by manufacturer.
- Plastic containers may only be used if approved for flammable liquid.
- Check that containers are clearly labelled and free from leaks.

For low viscosity materials:

- Drums and jerry cans must be of the non-removable head type.
- Where a can is to be used as an inner package, the can must have a screwed enclosure.

For materials with a viscosity of at least 2680 cSt. (23 °C):

- Removable head packaging, cans with friction closures and low pressure tubes and cartridges.

Where combination packages are used, and the inner packages are of glass, there must be sufficient inert cushioning material in contact with inner and outer packages. In addition, where inner packagings are glass and contain liquids of packing group I there must be sufficient inert absorbent to absorb any spillage, unless the outer packaging is a close fitting moulded plastic box and the substances are not incompatible with the plastic.

Storage incompatibility

- May ignite or explode in contact with oxidisers, 1,3-dichloro-5,5-dimethylhydantoin, uranium fluoride.
- Attack some plastics, rubber and coatings.
- May generate electrostatic charges on flow or agitation due to low conductivity.
- Vigorous reactions, sometimes amounting to explosions, can result from the contact between aromatic rings and strong oxidising agents.
- Aromatics can react exothermically with bases and with diazo-compounds.

8. EXPOSURE CONTROLS

Control paramters

Occupational exposure limits

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
Australia Exposure Standards	Xylene	Xylene (o-, m-, p- isomers)	350 mg/m ³ / 80 ppm	655 mg/m ³ / 150 ppm	Not available	Not available

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
Xylene	Xylene (o-, m-, p- isomers)	Not available	Not available	Not available

Ingredient	Original IDLH	Revised IDLH
Xylene	1,000 ppm	900 ppm

8. EXPOSURE CONTROLS Cont.

Exposure controls

Appropriate engineering controls

CARE: Use of a quantity of this material in confined space or poorly ventilated area, where rapid build up of concentrated atmosphere may occur, could require increased ventilation and/or protective gear.

Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.

The basic types of engineering controls are:

- Process controls which involve changing the way a job activity or process is done to reduce the risk.
- Enclosure and/or isolation of emission source which keeps a selected hazard “physically” away from the worker and ventilation that strategically “adds” and “removes” air in the work environment. Ventilation can remove or dilute an air contaminant if designed properly. The design of a ventilation system must match the particular process and chemical or contaminant in use.
- Employers may need to use multiple types of controls to prevent employee overexposure.

For flammable liquids and flammable gases, local exhaust ventilation or a process enclosure ventilation system may be required. Ventilation equipment should be explosion-resistant.

Air contaminants generated in the workplace possess varying “escape” velocities which, in turn, determine the “capture velocities” of fresh circulating air required to effectively remove the contaminant.

Type of contaminant	Air speed
Solvent, vapours, degreasing etc., evaporating from tank (in still air).	0.25-0.5 m/s (50-100 f/min)
Aerosols, fumes from pouring operations, intermittent container filling, low speed conveyer transfers, welding, spray drift, plating acid fumes, pickling (released at low velocity into zone of active generation).	0.5-1 m/s (100-200 f/min)
Direct spray, spray painting in shallow booths, drum filling, conveyer loading, crusher dusts, gas discharge (active generation into zone of rapid air motion).	1-2.5 m/s (200-500 f/min)

Within each range the appropriate value depends on:

Lower end of the range	Upper end of the range
Room air currents minimal or favourable	Disturbing room air currents
Contaminants of low toxicity or nuisance	Contaminants of high toxicity
Intermittent, low production	High production, heavy use
Large hood or large air mass in motion	Small hood-local control only

Simple theory shows that air velocity falls rapidly with distance away from the opening of a simple extraction pipe. Velocity generally decreases with the square of distance from the extraction point should be adjusted, accordingly, after reference to distance from the contaminating source. The air velocity at the extraction fan, for example, should be a minimum of 4-10 m/s (800-2000 f/min.) for extraction of solvents generated by spraying at a point 2 meters distant from the extraction point. Other mechanical considerations, producing performance deficits within the extraction apparatus, make it essential that theoretical air velocities are multiplied by factors of 10 or more when extraction systems are installed.

Personal protection





8. EXPOSURE CONTROLS Cont.

Exposure controls

Eye and face protection

- Safety glasses with side shields.
- Chemical goggles.
- Contact lenses may pose a special hazard; soft contact lenses may absorb and concentrate irritants. A written policy document, describing the wearing of lenses or restrictions on use, should be created for each workplace or task. This should include a review of lens absorption and adsorption for the class of chemicals in use and an account of injury experience. Medical and first-aid personnel should be trained in their removal and suitable equipment should be readily available. In the event of chemical exposure, begin eye irrigation immediately and remove contact lens as soon as practicable. Lens should be removed at the first signs of eye redness or irritation. Lens should be removed in a clean environment only after workers have washed hands thoroughly (CDC NIOSH Current Intelligence Bulletin 59) (AS/NZS 1336 or national equivalent).

Skin protection

See hand protection below.

Hand/feet protection

- Wear chemical protective gloves, e.g. PVC.
- Wear safety footwear or safety gumboots, e.g. rubber.

The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

The exact break through time for substances has to be obtained from the manufacturer of the protective gloves and has to be observed when making a final choice. 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 moisturiser is recommended.

Important factors in the selection of gloves include:

- Frequency and duration of contact.
- Chemical resistance of glove material.
- Glove thickness.
- Dexterity.

Select gloves tested to a relevant standard:

- When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
- When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
- Some glove polymer types are less affected by movement and this should be taken into account when considering gloves for long-term use.
- Contaminated gloves should be replaced.

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

Body protection

See other protection below

8. EXPOSURE CONTROLS Cont.

Exposure controls

Other protection

- Overalls.
- PVC apron.
- PVC protective suit may be required if exposure severe.
- Eyewash unit.
- Ensure there is ready access to a safety shower.
- Some plastic personal protective equipment (PPE) (e.g. gloves, aprons, overshoes) are not recommended as they may produce static electricity.
- For large scale or continuous use wear tight-weave non-static clothing (no metallic fasteners/cuffs).
- Non sparking safety or conductive footwear should be considered. Conductive footwear describes a boot or shoe with a sole made from a conductive compound chemically bound to the bottom components, for permanent control to electrically ground the foot and shall dissipate static electricity from the body to reduce the possibility of ignition of volatile compounds. Electrical resistance must range between 0 to 500,000 ohms. Conductive shoes should be stored in lockers close to the room in which they are worn. Personnel who have been issued conductive footwear should not wear them from their place of work to their homes and return.

Respiratory protection

- Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content. The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate.
- Selection of the Class and Type of respirator will depend upon the level of breathing zone contaminant and the chemical nature of the contaminant. Protection Factors (defined as the ratio of contaminant outside and inside the mask) may also be important.

Required minimum protection factor	Maximum gas/vapour concentration present in air p.p.m. (by volume)	Half-face respirator	Full-face respirator
Up to 10	1000	A-AUS Class 1	
Up to 50	1000		A-AUS Class 1
Up to 50	5000	Airline*	
Up to 100	5000		A-2
Up to 100	10000		A-3
100+			Airline**

- * = Continuous flow.
- ** = Continuous flow or positive pressure demand.
- A (All classes) = Organic vapours, B AUS or B1 = Acid gasses, B2 = Acid gas or hydrogen cyanide (HCN), B3 = Acid gas or hydrogen cyanide (HCN), E = Sulfur dioxide (SO₂), G = Agricultural chemicals, K = Ammonia (NH₃), Hg = Mercury, NO = Oxides of nitrogen, MB = Methyl bromide, AX = Low boiling point organic compounds (below 65 °C).



XYLENE

MATERIAL SAFETY

8. EXPOSURE CONTROLS Cont.

Exposure controls

Glove selection index

Material	CPI	Material	CPI
PE/EVAL/PE	A	NATURAL+NEOPRENE	C
PVA	A	NEOPRENE	C
TEFLON	A	NEOPRENE/NATURAL	C
VITON	A	NITRILE	C
BUTYL	C	NITRILE+PVC	C
BUTYL/NEOPRENE	C	PVC	C
HYPALON	C	PVDC/PE/PVDC	C
NAT+NEOPR+NITRILE	C		

- A: Best selection.
- B: Satisfactory, may degrade after 4 hours continuous immersion.
- C: Poor to dangerous choice for other than short term immersion.

9. PHYSICAL & CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Colourless liquid	Relative density (water = 1)	Not available
Physical state	Liquid	Partition coefficient	Not available
Odour	Not available	Auto-ignition temperature (°C)	Not available
Odour threshold	Not available	Decomposition temperature	Not available
pH (as supplied)	Not available	Viscosity (cSt)	Not available
Melting/freezing point (°C)	Not available	Molecular weight (g/mol)	Not available
Boiling point/range (°C)	Not available	Taste	Not available
Flash point (°C)	Not available	Explosive properties	Not available
Evaporation rate	Not available	Oxidising properties	Not available
Flammability	Not available	Surface tension (dyn/cm or mN/m)	Not available
Upper explosive limit (%)	Not available	Volatile component (%vol)	Not available
Lower explosive limit (%)	Not available	Gas group	Not available
Vapour pressure (kpa)	Not available	pH as a solution (1%)	Not available
Solubility in water	Not available	VOC g/l	Not available
Vapour density (air = 1)	Not available		

10. STABILITY & REACTIVITY

Reactivity	See Section 7.
Chemical stability	<ul style="list-style-type: none"> • Unstable in the presence of incompatible materials. • Product is considered stable. • Hazardous polymerisation will not occur.
Possibility of hazardous reactions	See Section 7.
Conditions to avoid	See Section 7.
Incompatible materials	See Section 7.
Hazardous decomposition products	See Section 5.

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Inhaled	<p>Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be harmful. The material is not thought to produce respiratory irritation (as classified by EC Directives using animal models). Nevertheless inhalation of vapours, fumes or aerosols, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress.</p> <p>Headache, fatigue, tiredness, irritability and digestive disturbances (nausea, loss of appetite and bloating) are the most common symptoms of xylene overexposure. Injury to the heart, liver, kidneys and nervous system has also been noted amongst workers. Xylene is a central nervous system depressant</p>
Ingestion	<p>The material is not thought to produce adverse health effects following ingestion (as classified by EC Directives using animal models). Nevertheless, adverse systemic effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum. Swallowing of the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis; serious consequences may result (ICSC13733).</p>
Skin contact	<ul style="list-style-type: none"> • Skin contact with the material may be harmful, systemic effects may result following absorption. • This material can cause inflammation of the skin on contact in some persons. • The material may accentuate any pre-existing dermatitis condition • Open cuts, abraded or irritated skin should not be exposed to this material • Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.
Eye	<p>Although the liquid is not thought to be an irritant (as classified by EC Directives), direct contact with the eye may produce transient discomfort characterised by tearing or conjunctival redness (e.g. windburn).</p>
Chronic	<p>Long-term exposure to the product is not thought to produce chronic effects adverse to the health (as classified by EC Directives using animal models) nevertheless exposure by all routes should be minimised as a matter of course. There has been some concern that this material can cause cancer or mutations but there is not enough data to make an assessment. Women exposed to xylene in the first 3 months of pregnancy showed a slightly increased risk of miscarriage and birth defects. Evaluation of workers chronically exposed to xylene has demonstrated lack of genetic toxicity.</p>

11. TOXICOLOGICAL INFORMATION Cont.

Information on toxicological effects

Triethyl phosphate

Toxicity

Dermal (rabbit) LD50: >1700 mg/kg[2]

Inhalation (rat) LC50: 5000 ppm/4hr[2]

Oral (rat) LD50: 4300 mg/kg[2]

Irritation

Eye (human): 200 ppm irritant

Eye (rabbit): 5 mg/24h severe

Eye (rabbit): 87 mg mild

Skin (rabbit): 500 mg/24h moderate

Legend

[1] Value obtained from Europe ECHA Registered Substances - acute toxicity.

[2] Value obtained from manufacturer's MSDS.

Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of Chemical Substances.

Xylene

The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis. The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin.

The substance is classified by IARC as Group 3:

- NOT classifiable as to its carcinogenicity to humans.
- Evidence of carcinogenicity may be inadequate or limited in animal testing.
- Reproductive effector in rats.

Acute toxicity	✓	Carcinogenicity	✗
Skin irritation/corrosion	✓	Reproductivity	✗
Serious eye damage/irritation	✗	STOT: Single exposure	✗
Respiratory or skin sensitisation	✗	STOT: Repeated exposure	✗
Mutagenicity	✗	Aspiration hazard	✗

Legend: ✓ Data available to make classification.

✗ Data either not available or does not fill the criteria for classification.

12. ECOLOGICAL INFORMATION

Toxicity: Xylene

Endpoint	Test duration (hr)	Species	Value	Source
LC50	96	Fish	0.0013404mg/L	4
EC50	48	Crustecea	>3.4mg/L	2
EC50	72	Algae or aquatic plants	4.6mg/L	2
EC50	24	Crustecea	0.711mg/L	4
NOEC	73	Algae or aquatic plants	0.44mg/L	2

Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data.

12. ECOLOGICAL INFORMATION Cont.

Toxicity: Xylene

- Log Koc: 2.05-3.08; Koc: 25.4-204; Half-life (hr) air : 0.24-42; Half-life (hr) H₂O surface water: 24-672; Half-life (hr) H₂O ground: 336-8640; Half-life (hr) soil: 52-672; Henry's Pa m³/mol : 637-879; Henry's atm m³/mol - 7.68E-03; BOD 5 if unstated - 1.4,1%; COD - 2.56,13% ThOD - 3.125; BCF: 23; log BCF: 1.17-2.41.

Environmental fate: Most xylenes released to the environment will occur in the atmosphere and volatilisation is the dominant environmental fate process. Xylenes are expected to have moderate mobility in soil evaporating rapidly from soil surfaces. The extent of the degradation is expected to depend on its concentration, residence time in the soil, the nature of the soil, and whether resident microbial populations have been acclimated. Xylene can remain below the soil surface for several days and may travel through the soil profile and enter groundwater. Soil and water microbes may transform it into other, less harmful compounds, although this happens slowly. It is not clear how long xylene remains trapped deep underground in soil or groundwater, but it may be months or years.

Atmospheric fate: Xylene evaporates quickly into the air from surface soil and water and can remain in the air for several days until it is broken down by sunlight into other less harmful chemicals. In the ambient atmosphere, xylenes are expected to exist solely in the vapour phase. Xylenes are degraded in the atmosphere with an estimated atmospheric lifetime of about 0.5 to 2 days. Xylene may contribute to photochemical smog formation. p-Xylene has a moderately high photochemical reactivity under smog conditions, higher than the other xylene isomers. The photo-oxidation of p-xylene results in the production of carbon monoxide, formaldehyde, glyoxal, methylglyoxal, 3-methylbenzyl nitrate, m-tolualdehyde, 4-nitro-3-xylene, 5-nitro-3-xylene, 2,6-dimethyl-p-benzoquinone, 2,4-dimethylphenol, 6-nitro-2,4-dimethylphenol, 2,6-dimethylphenol, and 4-nitro-2,6-dimethylphenol.

Aquatic fate: p-Xylene may adsorb to suspended solids and sediment in water and is expected to volatilise from water surfaces. Estimated volatilisation half-lives for a model river and model lake are 3 hours and 4 days, respectively. Measurements taken from goldfish, eels and clams indicate that bioconcentration in aquatic organisms is low. Photo-oxidation in the presence of humic acids may play an important role in the abiotic degradation of p-xylene. p-Xylene is biodegradable and has been observed to degrade in pond water however it is unclear if it degrades in surface waters. p-Xylene has been observed to degrade in anaerobic and aerobic groundwater however, it is known to persist for many years in groundwater, at least at sites where the concentration might have been quite high. Ecotoxicity: Xylenes are slightly toxic to fathead minnow, rainbow trout and bluegill and not acutely toxic to water fleas. For *Photobacterium phosphoreum* EC50 (24 h): 0.0084 mg/L. and *Gammarus lacustris* LC50 (48 h): 0.6 mg/L. DO NOT discharge into sewer or waterways.

Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
Xylene	HIGH (Half-life = 360 days)	LOW (Half-life = 1.83 days)

Bioaccumulative potential

Ingredient	Bioaccumulation
Xylene	MEDIUM (BCF = 740)

Mobility in soil

Ingredient	Mobility
Xylene	No data available

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Product/packaging disposal:

- Containers may still present a chemical hazard/danger when empty. Return to supplier for reuse/recycling if possible.
- If container can not be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorised landfill. Where possible retain label warnings and MSDS and observe all notices pertaining to the product.
- Legislation addressing waste disposal requirements may differ by country, state and/or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked. A hierarchy of controls seems to be common and the user should investigate: Reduction; Reuse; Recycling; Disposal (if all else fails). This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. If it has been contaminated, it may be possible to reclaim the product by filtration, distillation or some other means. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.
- DO NOT allow wash water from cleaning or process equipment to enter drains.
- It may be necessary to collect all wash water for treatment before disposal. In all cases disposal to sewer may be subject to local laws and regulations and these should be considered first. Where in doubt contact the responsible authority.
- DO NOT recycle spilled material. Consult State Land Waste Management Authority for disposal. Neutralise spill material carefully and decontaminate empty containers and spill residues with 10% ammonia solution plus detergent or a proprietary decontaminant prior to disposal.
- DO NOT seal or stopper drums being decontaminated as CO₂ gas is generated and may pressurise containers. Puncture containers to prevent re-use. Bury or incinerate residues at an approved site.

14. TRANSPORT INFORMATION

Labels required



Marine pollutant	No
HAZCHEM	3Y

Land transport

UN number	1307
Packing group	III
UN proper shipping name	Xylene
Environmental hazard	Not applicable
Transport hazard class(es)	<ul style="list-style-type: none"> • Class: 3 • Subrisk: Not applicable
Special precautions for user	<ul style="list-style-type: none"> • Special provisions: 223 • Limited quantity: 5L



XYLENE

MATERIAL SAFETY

14. TRANSPORT INFORMATION Cont.

Air transport

UN number	1307
Packing group	III
UN proper shipping name	Xylene
Environmental hazard	Not applicable
Transport hazard class(es)	<ul style="list-style-type: none">• ICAO/IATA Class: 3• ICAO/IATA Subrisk: Not applicable• ERG Code: 3L
Special precautions for user	<ul style="list-style-type: none">• Special provisions: A3• Cargo only packing instructions: 366• Cargo only maximum qty/pack: 220L• Passenger and cargo packing instructions: 355• Passenger and cargo maximum qty/pack: 60L• Passenger and cargo limited quantity packing instructions: Y344• Passenger and cargo limited maximum qty/pack: 10L

Sea transport

UN number	1307
Packing group	III
UN proper shipping name	Xylene
Environmental hazard	Not applicable
Transport hazard class(es)	<ul style="list-style-type: none">• IMDG Class: 3• IMDG Subrisk: Not applicable
Special precautions for user	<ul style="list-style-type: none">• EMS Number: F-E, S-D• Special provisions: 223• Limited quantities: 5L

Transport in bulk

Source	Product name	Pollution category	Ship type
IMO MARPOL (Annex II) List of Noxious Liquid Substances Carried in Bulk	Xylenes Alkyl benzene distillation bottoms Alkylbenzene mixtures (containing at least 50% of toluene)	Y; Y; Y	2 2 3



XYLENE

MATERIAL SAFETY

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

Xylene (1330-20-7) is found on the following regulatory lists:

- Australia Exposure Standards
- Australia Hazardous Substances Information System
- Australia Inventory of Chemical Substances (AICS)
- International Agency for Research on Cancer (IARC)

National inventory status

National Inventory	Status
Australia - AICS	Yes
Canada - DSL	Yes
Canada - NDSL	No
China - IECSC	Yes
Europe - EINEC/ELINCS/NLP	Yes
Japan - ENCS	Yes
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	Yes

Legend: Yes = All CAS declared ingredients are on the inventory.

No = Not determined or one or more ingredients are not on the inventory and are not exempt from listing.

Definitions and abbreviations

PC - TWA: Permissible Concentration - Time Weighted Average

PC - STEL: Permissible Concentration - Short Term Exposure Limit

IARC: International Agency for Research on Cancer

ACGIH: American Conference of Governmental Industrial Hygienists

STEL: Short Term Exposure Limit

TEEL: Temporary Emergency Exposure Limit

IDLH: Immediately Dangerous to Life or Health Concentrations

OSF: Odour Safety Factor

NOAEL: No Observed Adverse Effect Level

LOAEL: Lowest Observed Adverse Effect Level

TLV: Threshold Limit Value

LOD: Limit of Detection

OTV: Odour Threshold Value

BCF: Bio-concentration Factors

BEI: Biological Exposure Index