



BAZAN GROUP

GADIV PETOCEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 1 of 77

Complying with 1907/2006/EEC Regulation of 18 December 2006 ("REACH Regulation"), COMMISSION REGULATION (EU) No 453/2010 and REGULATION (EC) No 1272/2008 (CLP)

Section 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/ UNDERTAKING

1.1 Product identifier

Product name:	p-Xylene
Chemical name:	para-XYLENE
Synonyms :	p-Dimethylbenzene, 1,4-Dimethylbenzene, p-Methyltoluene, 1,4-Xylene, p-Xylol
Trade Name:	p-Xylene, para-Xylene
Chemical formula:	C ₈ H ₁₀
Product type:	Aromatic Hydrocarbons
CAS number:	106-42-3
EC number:	203-396-5
REACH registration no(s):	01-2119484661-33-0024

1.2 Relevant identified uses of the substance or mixture and uses advised

Intended Use: Substrate / Intermediate for synthesis of polymers, Solvent

Identified Uses:

Manufacture of Substance
Distribution of Substance
Use as an Intermediate
Use in Formulations
Use in Coatings
Use in Cleaning
Use in Oilfield drillings and Production operations
Use in Binders
Use in Agrochemicals
Use as a Fuel
Use as a Laboratories
Use in Rubber Production

Uses advised against: This product is not recommended for any industrial, professional or consumer use other than the Identified Uses above.



BAZAN GROUP

GADIV PETROCHEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 2 of 77

1.3 Details of the supplier of the safety data sheet

Company/undertaking identification

Supplier/Manufacturer: GADIV PETROCHEMICAL INDUSTRIES Ltd.
P.O.B 4 HAIFA

Tel: +972-4-8788020

Fax: +972-4-8788018

E-mail: Gadiv@bazan.co.il

E-mail address of person responsible for this SDS: telena@bazan.co.il

1.4 Emergency telephone number

Emergency telephone number (including hours of operation): +972-4-8788512

Section 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification in accordance to Regulation (EC) No. 1272/2008 (CLP/GHS)

Physical / Chemical Hazards:

Flammable liquids, Category 3

Health Hazards:

Skin corrosion / irritation, Category 2

Acute toxicity - Inhalation, Category 4

Acute toxicity - Dermal, Category 4

Serious eye damage / eye irritation, Category 2

Aspiration hazard, Category 1

Specific Target Organ Toxicity, Single Exposure, Category 3 – Respiratory irritation

Environmental Hazards:

Aquatic Chronic, Category 3

Classification according to Directive 67/548/EEC (DSD) or 1999/45/EC

R10 Flammable

Xn; R20/21 Harmful by inhalation and in contact with skin

Xi; R38 Irritating to skin

2.2 Label elements

Labeling in accordance with Regulation 1272/2008 (CLP)



BAZAN GROUP

GADIV PETOCHEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 3 of 77

Hazard pictograms:



Signal word: Danger

Hazard statements:

H226: Flammable liquid and vapour.
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.
H412: Harmful to aquatic life with long lasting effects

Precautionary Statements:

P210: Keep away from heat/sparks/open flames/.../hot surfaces. ... No smoking
P243: Take precautionary measures against static discharge.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P261: Avoid breathing dust/fume/gas/mist/vapours/spray.
P273: Avoid release to the environment.
P303+P361+P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P331: Do NOT induce vomiting.

Labeling in accordance Directive 67/548/EEC (DSD) or 1999/45/EC



Xn - harmful
Xi - irritant

Risk phrases

R10 Flammable
R20/21 Harmful by inhalation and in contact with skin
R38 Irritating to skin



BAZAN GROUP

GADIV PETOCHEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 4 of 77

2.3 Other hazard

Does not meet the criteria for PBT or vPvB.
Material can accumulate static charges which may cause an ignition.

Section 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance

Ingredient name	CAS number	EC number	Concentration %	EU Classification	GHS Classification
p-XYLENE REACH registration no(s): 01-2119484661-33-0024	106-42-3	203-396-5	>99.5%	R10 Xn; R20/21 Xi; R38	Flam. Liq., 3; H226 Acute Tox., 4; H312 Acute Tox., 4; H332 Skin Corr., 2; H315 Eye Irrit. 2; H319 Asp. Tox. 1 H304 STOT Single Exp. 3 H335 Aquatic Chronic 2; H412

Additional Information:

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in section 8.
See section 16 for the full text of the H-statements and R-phrases declared above.

Section 4. FIRST AID MEASURES

Product-Specific hazards:

Flammable liquid and vapour.

Harmful in contact with skin and if inhaled.

Causes skin irritation.

Causes eye irritation.

May cause respiratory irritation.

Risk of serious damage to the lungs if swallowed (by subsequent aspiration).



BAZAN GROUP

GADIV PETOCEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 5 of 77

4.1 Description of first aid measures

General advice:

Take care to self-protect by avoiding becoming contaminated.
Use adequate respiratory protection
Move contaminated patient(s) out of the dangerous area.
Take off all contaminated clothing and shoes.
Seek medical assistance - show the safety data sheet or label if possible.

Inhalation:

Move to fresh air.
Do not leave the victim unattended.
Keep patient warm and at rest.
Seek immediate medical attention.
If breathing is difficult, give oxygen if possible or assisted ventilation, (do not use mouth to mouth)
If unconscious, place in recovery position.
In the event of cardiac arrest (no pulse), apply cardiopulmonary resuscitation.

Skin contact:

Take off all contaminated clothing and shoes.
Immediately flush affected area with plenty of soap and water – continue for at least 15 minutes.
If there are signs of irritation or other symptoms seek medical attention.

Eye contact:

Remove any contact lenses.
Flush eyes with water thoroughly and continuously for at least 15 minutes.
Keep eye wide open while rinsing.
Protect unharmed eye.
If there are signs of irritation or other symptoms seek medical attention.
If eye irritation, pain, swelling, lachrimation or photophobia persists, patient should be referred to a specialist health care facility.

Ingestion:

Do NOT induce vomiting, if vomiting does occur, have victim lean forward to reduce risk of aspiration. Get medical attention immediately.
Clean mouth with water and drink afterwards plenty of water.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.

4.2 Most important symptoms and effects, both acute and delayed

Causes irritation to the skin. This irritation can result in redness and swelling of the skin.
Repeat contact with the skin may cause it to become dry and cracked.
Causes eye irritation. This irritation can result in redness and swelling of the eyes.



BAZAN GROUP

GADIV PETOCHEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 6 of 77

May cause respiratory irritation. If inhalation occurs, signs and symptoms may include sore throat, headache, nausea, coughing, choking, wheezing, difficulty in breathing, chest congestion, shortness of breath and may cause transient central nervous system (CNS) depression.

In case of ingestion, Ipecac-induced emesis is not recommended.

Consider use of charcoal as a slurry (240mL water/30 g charcoal). Usual dose: 25 to 100 g in adults.

If determined necessary (and under qualified medical supervision), the stomach should be emptied by gastric lavage with the airway protected by endotracheal intubation.

[4.3 Indication of any immediate medical attention and special treatment needed](#)

Section 5: FIRE-FIGHTING MEASURES

[5.1 Extinguishing media](#)

Suitable extinguishing media:

LARGE FIRE: Use water spray, water fog or foam. DO NOT use direct water jet.

SMALL FIRE: Dry powder or carbon dioxide (CO₂) extinguisher, dry sand or fire fighting foam.

Unsuitable extinguishing media:

Direct water jet.

Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam.

[5.2 Combustion products](#)

Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke).

[5.3 Specific hazards during fire fighting](#)

Vapour is denser than air – flashback may be possible over considerable distances.

Containers may explode under fire conditions - use water spray to cool unopened containers.

Do not allow run-off from fire fighting to enter drains or water courses – may cause explosion hazard in drains and may reignite on surface water.

[5.4 Special protective measures for firefighters](#)

Wear an approved positive pressure self-contained breathing apparatus in addition to standard fire fighting gear.



BAZAN GROUP

GADIV PETOCEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 7 of 77

Other: All combustion residues and contaminated water from fire-fighting should be disposed of according to local regulations

Section 6: ACCIDENTAL RELEASE MEASURES

6.1 Prevention of secondary risk

Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area).

6.2 Personal precautions

Wear personal protective equipment. Avoid breathing vapours or mist. Ensure adequate ventilation and absence of sources of ignition. Beware of accumulation of vapours in low areas or contained areas, where explosive concentrations may occur.

6.3 Environmental precautions

Land spillage: Prevent further leakage or spillage if safe to do so. Prevent spillage from entering drains, sewer, basement or confined areas.

Water spillage: Prevent further leakage or spillage if safe to do so. If the spillage contaminates rivers, lakes or drains inform respective authorities.

6.4 Spill cleanup methods

Land spillage: Contain spillage. Small spillages can be taken up by collection with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and placed in container for disposal according to local / national regulations.

For larger spillages on water contain with booms or barriers, use surface acting agents to thicken spilled materials.

Remove trapped material with suction hoses.

Water spillage: If the Flash Point exceeds the Ambient Temperature by 10 deg C or more, use containment booms and remove from the surface by skimming or with suitable absorbents when conditions permit. If the Flash Point does not exceed the Ambient Air Temperature by at least 10 deg C, use booms as a barrier to protect shorelines and allow material to evaporate. Seek the advice of a specialist before using dispersants.

6.5 Further accidental release measures

Spillages of liquid product will create a fire hazard and form an explosive atmosphere. Ensure all equipment is non sparking or electrically bonded. Avoid direct contact with released material. Stay upwind. Keep non-involved personnel away from the area of spillage. Ensure adequate ventilation, especially in confined areas.

6.6 Reference to other sections

See Section 1 for emergency contact information.

See Section 8 for information on appropriate personal protective equipment.

See Section 13 for additional waste treatment information.



BAZAN GROUP

GADIV PETOCHEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 8 of 77

Section 7: HANDLING AND STORAGE

7.1 Advice on safe handling

Prevention of user exposure:

Use only in well ventilated areas.

The vapour is heavier than air, beware of accumulation in pits and confined spaces.

Prevention of fire and explosion:

Avoid all sources of ignition.

Use proper bonding and/or grounding procedures.

This material is a static accumulator: Take precautionary measures against static discharges.

Avoid contact with heat and ignition sources and oxidizing agents.

Handle empty containers with care; vapour residue may be flammable.

The product will float on water and can be reignited on surface water.

Ensure that all relevant regulations regarding explosive atmospheres, and handling and storage facilities of flammable products are followed.

Precautions while moving the product:

Containers should be opened only under exhaust ventilation hood.

Do not allow splash filling of bulk volumes.

Do not use compressed air for filling, discharging or handling.

Cleaning, inspection and maintenance of the internal structure of storage tanks must be done only by properly equipped and qualified personnel as defined by national, local or company regulations.

Do not pressurize, cut, weld, braze, solder, drill, or grind on containers.

Hygiene Measures:

Smoking, eating and drinking should be prohibited.

Dispose of rinse water in accordance with local and national regulations.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures:

Vapour space above stored liquid may be flammable/explosive unless blanketed with inert gas.

Storage installations should be designed with adequate bunds so as to prevent ground and water pollution in case of leaks or spills.

Fixed storage containers, transfer containers and associated equipment should be earthed and bonded to prevent accumulation of static charge.

Storage precautions:

No smoking.

Store in a designated cool and well-ventilated place.

Containers which are opened must be carefully resealed and kept upright to prevent leakage.

Keep container tightly closed and properly labeled.



SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 9 of 77

Incompatible products:

Avoid contact with strong oxidizing agents.

Packaging materials:

Store in either mild steel or stainless steel containers or vessels.

Store in the original, tightly closed, container.

7.3 Specific end use(s):

Section 8: EXPOSURE CONTROL / PERSONAL PROTECTION

Use process enclosures, local exhaust ventilation, or others engineering controls to keep airborne levels below recommend exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Occupational Exposure Limits:

Ingredient name	Occupational exposure limits
p-Xylene	TLV-ACGIH 100 ppm (TWA), 150 ppm (STEL) OSHA-PEL 100 ppm (TWA) MAK-GER 440 mg/m ³ (TWA) REL-NIOSH 100 ppm (TWA), 150 ppm (STEL)

Derived No Effect Level (DNEL)

Exposure pattern	Route	Workers	General population
Short-term – systemic effects	Inhalation	442 mg/m ³	260 mg/m ³
Long-term – systemic effects	Oral	Not Required	12.5 mg/kg bw/d
Long-term – systemic effects	Dermal	3182 mg/kg bw/d	1872 mg/kg bw/d
Long-term – systemic effects	Inhalation	221 mg/m ³	65.3 mg/m ³

Predicted No Effect Concentration (PNEC)

Ingredient Name	Exposure Route	Value	Remarks
p-Xylene	Marine Water	0.25 mg/l	None
	Sediment (Marine Water)	14.33 mg/Kg	None
	Soil	2.41 mg/Kg	None



BAZAN GROUP

GADIV PETOCEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 10 of 77

	Sewage Treatment Plant	5 mg/l	None
--	------------------------	--------	------

8.2 Exposure controls

Engineering Controls

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

Adequate ventilation should be provided so that exposure limits are not exceeded. Use explosion-proof ventilation equipment.

Person Protective measures

Respiratory protection: In case of risk of exposure exceeding the mean exposure value, an appropriate breathing apparatus must be worn by each individual.

When using a mask or half-mask: Check with respiratory protective equipment suppliers to select an appropriate combination of mask and filter. Select a filter suitable for organic gases and vapours (boiling point above 65 °C).

Be aware that filter protection time is limited.

Respiratory hazard monitoring method: Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required periodically to confirm the compliance with state and local legislation.

Eye protection: Wear protective safety goggles.

Skin protection

Hand protection: Use appropriate chemically compatible gloves.

Suitability and durability of gloves are dependent on duration of contact, chemical resistance of the glove material, glove thickness. For more precise details about the choice of appropriate protective gloves, please contact the manufacturer. Contaminated gloves should be replaced.

Skin and body (other than the hands): Wear appropriate protective clothing. Wear boots. Wear face protection.

Hygienic work practices: Do not eat, drink or smoke whilst handling the product. Handle in accordance with good industrial hygiene and safety practice.



BAZAN GROUP

GADIV PETOCEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 11 of 77

Environmental exposure controls:

Do not allow material to contaminate ground water system.
Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment may be necessary to reduce emissions to acceptable levels.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Molecular weight (average):	106.165
Appearance:	Liquid, colourless to faint yellow
Odour:	Aromatic hydrocarbon
Odour threshold:	N/A
pH:	N/A
Melting point/Freezing point:	13.2°C
Boiling range (ASTM D 850):	138-139 °C.
Flash point (Closed Cup):	27-32°C; Typical: 24°C
Evaporation rate:	N/A
Flammability (solid, gas):	0.9% - 7%
Vapor pressure:	0.13-0.17 PSI at 25°C
Vapor density (air=1):	N/A
Auto-ignition temperature:	463°C to 528°C
Decomposition temperature:	N/A
Oxidizing properties:	N/A
Explosive hazard:	N/A
Water Solubility:	146-171 mg/L at 25°C
Partition coefficient (Octanol/Water):	3.12-3.2 (log)
Density:	0.86 – 0.87 g/cm ³ at 15°C
Viscosity:	0.581 to 0.76 mPa s at 25°C
Surface tension:	28-29.8 mN/m at 25°C

Section 10: STABILITY AND REACTIVITY

10.1 Stability

The product is stable at normal storage, handling and use temperatures.

10.2 Conditions to avoid

Heat, sparks, ignition points, flames, static electricity.



BAZAN GROUP

GADIV PETOCEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 12 of 77

10.3 Materials to avoid

Keep away from strong oxidizing agents.

10.4 Hazardous Decomposition products

Incomplete combustion and thermolysis produce potentially toxic gases such as: carbon monoxide, carbon dioxide, hydrocarbons, aldehyde and soot.

10.5 Hazard polymerization:

Will not happen.

Section 11: TOXICOLOGICAL INFORMATION

Acute toxicity: by oral route, inhalation and dermal route – Low Acute Toxicity.

Product / ingredient name	Test	Species	Dose
p-Xylene	LD50, Oral	Rat (males)	3,523 mg/kg bw
	LC50, Inhalation	Rat	27,124 mg/m ³
	LD50, Dermal		12,126 mg/kg

However, xylene is classified under Annex I of Dir 67/548/EEC as Xn, R20 – Harmful by inhalation, with corresponding classification under CLP of H332 – Harmful if inhaled. Xylene is currently also classified under Annex I of Dir 67/548/EEC as Xn, R21 – Harmful in contact with skin, with corresponding classification under CLP of H312 – Harmful in contact with skin.

Skin irritation or corrosion: Irritating.

Eye irritation: irritating

Respiratory irritation: irritating

Skin sensitization: Not sensitizing.

CMR Effects:

Mutagenicity: Genetic toxicity: negative

Carcinogenicity:

No classification of xylenes for carcinogenicity is warranted under DSD or CLP.
IARC GROUP 3 – Unclassifiable as to carcinogenicity to humans.
ACGIH A4 – Not classifiable as a human carcinogen.



BAZAN GROUP

GADIV PETOCEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 13 of 77

Reproductive toxicity: Xylene (individual and mixed isomers) is considered not to warrant classification for reproductive or developmental toxicity according to Dir 67/548/ or CLP.

Inhalation - Repeated dose toxicity: Xylene isomers do not warrant classification under DSD or CLP

Toxicokinetics: No other effects of significance for human health have been reported.

Chronic/Other Effects:

No classification is warranted under DSD or CLP. Classification of p-xylene as R48 (or STOT-RE Cat2) is not warranted as the NOAEC exceeds 1000 mg/m³.

Section 12: ECOLOGICAL INFORMATION

12.1 Toxicity

Acute and Chronic Toxicity

Fish:

Short-term LC50 (96 h) = 2.6 -11.23mg/l

Long-term NOEC (56 d): > 1.3 mg/L

Aquatic invertebrates:

Short-term EC50 (48 h) >3.82mg/L. (Daphnia magna)

Long-term NOEC (21 d): 1.57mg/l.

Algae/aquatic plants:

EC50 (72 or 96hr): 2.2 -4.9mg/L

12.2 Persistence and Degradability

Biodegradation: Expected to be readily biodegradable.

12.3 Bioaccumulative potential

Does not bioaccumulate significantly.

12.4 Mobility in soil

No information available

12.5 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



BAZAN GROUP

GADIV PETOCEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 14 of 77

12.6 Other adverse effects

No adverse effects are expected.

Section 13: DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

13.1. WASTE TREATMENT METHODS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products.

REGULATORY DISPOSAL INFORMATION

European Waste Code: 07 01 XX

NOTE: These codes are assigned based upon the most common uses for this material and may not reflect contaminants resulting from actual use. Waste producers need to assess the actual process used when generating the waste and its contaminants in order to assign the proper waste disposal code(s).

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

Section 14: TRANSPORT INFORMATION

14.1 LAND (ADR/RID)

UN Number:	1307
UN Proper Shipping Name (Technical Name):	XYLENES
Transport Hazard Class(es):	3
Packing Group:	III
Environmental Hazards:	None
Classification Code:	F1
Label(s) / Mark(s):	3
Hazard ID Number:	30
Hazchem EAC:	3Y



BAZAN GROUP

GADIV PETOCHEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 15 of 77

14.2 INLAND WATERWAYS (ADNR/ADN)

UN (or ID) Number: 1307
UN Proper Shipping Name (Technical Name): XYLENES (p-XYLENE)
Transport Hazard Class(es): 3
Packing Group: III
Environmental Hazards: None
Hazard ID Number: 30
Label(s) / Mark(s): 3 (N2)

14.3 SEA (IMDG)

UN Number: 1307
UN Proper Shipping Name (Technical Name): XYLENES
Transport Hazard Class(es): 3
Packing Group: III
Label(s): 3
EMS Number: F-E, S-D
Transport Document Name: UN1307, XYLENES, 3, PG III, (27°C c.c.)

14.4 SEA (MARPOL 73/78 Convention - Annex II):

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Substance Name: XYLENES
Ship type required: 2
Pollution category: Y

14.5 AIR (IATA)

UN Number: 1307
UN Proper Shipping Name (Technical Name): XYLENES
Transport Hazard Class(es): 3
Packing Group: III
Environmental Hazards: None
Label(s) / Mark(s): 3
Transport Document Name: UN1307, XYLENES, 3, PG III

Section 15: REGULATORY INFORMATION

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

EU Directives 67/548/EEC and 1999/45/EC (including amendments) and take into account the intended product use.

EU Regulation (EC) No.1907/2006 (REACH)

EU Regulation (EC) No 1272/2008 (CLP)



BAZAN GROUP

GADIV PETOCEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 16 of 77

COMMISSION REGULATION (EU) No 453/2010

15.2 Chemical safety assessment

In accordance with REACH article 14, a Chemical Safety Assessment has been carried out for this substance.

Section 16: OTHER INFORMATION

Full text of R-phrases referred to in sections 2 and 3:

R10 Flammable
R20/21 Harmful by inhalation and in contact with skin
R38 Irritating to skin

Safety phrases:

S2 - keep out of the reach of children
S25 - avoid contact with eyes

Full text of Hazards Statements referred to in sections 2 and 3:

H226: Flammable liquid and vapour.
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.
H412: Harmful to aquatic life with long lasting effects

Precautionary Statements:

P210: Keep away from heat/sparks/open flames/.../hot surfaces. ... No smoking
P243: Take precautionary measures against static discharge.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P261: Avoid breathing dust/fume/gas/mist/vapours/spray.
P273: Avoid release to the environment.
P303+P361+P353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P331: Do NOT induce vomiting.
P501: Dispose of contents/container to

Training advice: Before using/handling the product one must read carefully present MSDS.

Recommended restriction: N/A



BAZAN GROUP

GADIV PETOCEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 17 of 77

Key Legend Information:

ACGIH- American Conference of Governmental Industrial Hygienists

OSHA- Occupational Safety and Health Administration

NTP- National Toxicology program

IARC- International Agency for Research on Cancer

ND- Not Determined

N/A- Not available

R-phrases- Risk phrases

S-phrases- Safety phrases

H-statements – Hazard statements

P-statements – Precautionary statements

UVCB - Substances of Unknown or Variable composition, Complex reaction products or Biological materials

Date of issue: 23/04//2013

Version no. 4

To the best of our knowledge the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.



SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 18 of 77

EXPOSURE SCENARIO

Manufacture of Substance – Industrial

Section 1 Exposure Scenario Title	
Use Descriptor	
Sector(s) of Use	SU3, SU8, SU9
Process Categories	PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15
Environmental Release Categories	ERC1, ERC4
Specific Environmental Release Category	
Processes, tasks, activities covered	
Manufacture of xylene isomers or use as an intermediate or process chemical or extraction agent. Includes recycling/ recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid, vapour pressure 0.5 - 10 kPa at STP	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2]	
Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1]	
Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
General measures (skin irritants) [G19]	
Avoid direct contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with the substance is likely. Clean up contamination / spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. [E3] Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release e.g.spraying [E4].	
General exposures (closed systems) [CS15].	
No specific measures identified [E18].	
General exposures (closed systems) [CS15]. With sample collection [CS56]. With occasional controlled exposure [CS137]	
No specific measures identified [E18].	
General exposures (closed systems)[CS15]. Use in contained batch processes [CS37].	
No specific measures identified [E18].	
General exposures (open systems) [CS16]. Batch process [CS55]. With sample collection [CS56].	
No specific measures identified [E18].	
Process sampling [CS2].	
Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour) [E40], or Avoid carrying out activities involving exposure for more than 1 hour [OC27].	
Laboratory activities [CS36].	
No specific measures identified [E18].	
Bulk transfers [CS14].(open systems) [CS108] With potential for aerosol generation [CS138].	
Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour) [E40], or Avoid carrying out activities involving exposure for more than 1 hour [OC27].	
Bulk transfers [CS14] (closed systems) [CS107];	
Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour) [E40], or Avoid carrying out activities involving exposure for more than 1 hour [OC27].	
Equipment cleaning and maintenance [CS39].	



BAZAN GROUP

GADIV PETOCEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 19 of 77

Drain down system prior to equipment break-in or maintenance [E65]. Storage [CS67]With occasional controlled exposure [CS137] No specific measures identified [E118].
Section 2.2 Control of environmental exposure
Product characteristics The Xylene isomers are liquids of medium volatility. Their average water solubility is 158mg/l; their average vapour pressure is 1050Pa at 25°C; and their average log Kow is 3.16. They are considered to be readily biodegradable.
Duration, frequency and amount EU tonnage 4200 ktonnes/year Regional tonnage 600 ktonnes/year Fraction of main local source 1 Emission days per year 300 Maximum daily site tonnage (kg/day): 2.0E+06
Environmental factors not influenced by risk management Local Freshwater dilution factor 40 Local marine water dilution factor 100
Other given operational conditions affecting environmental exposure Release fraction to air from process: 0.005 Release fraction to waste water from process: 0.003 Release fraction to soil from process (regional only): 0.0001 release percent at site to water (before RMM) 0.3 Typical release to water after RMM 3.62E-02 mg/l
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Treat air emissions to provide a typical removal efficiency of >90%. Typical onsite wastewater treatment technology provides removal efficiency of 93.57%. Soil emission controls are not applicable as there is no direct release to soil. Prevent discharge of undissolved substance to or recover from wastewater .
Organisation measures to prevent/limit release from site Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
Conditions and measures related to municipal sewage treatment plant Estimated substance removal from wastewater via domestic sewage treatment 93.57 (%) [STP3] Assumed domestic sewage treatment plant flow 10000 (m ³ /d) [STP5]
Conditions and measures related to external treatment of waste for disposal During manufacturing no waste of the substance is generated [ETW4]
Conditions and measures related to external recovery of waste During manufacturing no waste of the substance is generated [ERW2]
Section 3 Exposure Estimation
3.1. Health When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1 as indicated in Appendix A.
3.2. Environment When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health Predicted exposures are not expected to exceed the DN(M)EL when the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented. [G22] Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.[G23]
4.2. Environment Further details on scaling and control technologies are provided in factsheet Required removal efficiency for wastewater can be achieved using onsite/offsite technologies, either alone or in combination.



BAZAN GROUP

GADIV PETOCHEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 20 of 77

Use as intermediates – Industrial

Section 1 Exposure Scenario Title	
Use Descriptor	
Sector(s) of Use	SU3, SU8, SU9
Process Categories	PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC15
Environmental Release Categories	ERC6A
Specific Environmental Release Category	ESVOC SpERC 6.1a.v1
Processes, tasks, activities covered	
Use of the substance as an intermediate (not related to Strictly Controlled Conditions). Includes recycling/ recovery, material transfers, storage, sampling, associated laboratory activities, maintenance and loading (including marine vessel/barge, road/rail car and bulk container).	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid, vapour pressure 0.5 - 10 kPa at STP	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2] Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1] Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
General measures (skin irritants) [G19] Avoid direct contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with the substance is likely. Clean up contamination / spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. [E3] Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release e.g. spraying [E4],	
General exposures (closed systems) [CS15]. No specific measures identified [E118].	
General exposures (closed systems) [CS15]. With sample collection [CS56]. With occasional controlled exposure [CS137] No specific measures identified [E118]	
General exposures (closed systems) [CS15]. Use in contained batch processes [CS37]. No specific measures identified [E118].	
General exposures (open systems) [CS16]. Batch process [CS55]. With sample collection [CS56]. No specific measures identified [E118].	
Process sampling [CS2]. Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour) [E40], or Avoid carrying out activities involving exposure for more than 1 hour [OC27].	
Laboratory activities [CS36]. No specific measures identified [E118].	
Bulk transfers [CS14]. (open systems) [CS108] With potential for aerosol generation [CS138]. Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour) [E40], or Avoid carrying out activities involving exposure for more than 1 hour [OC27].	
Bulk transfers [CS14]. (closed systems) [CS107]; Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour) [E40], or Avoid carrying out activities involving exposure for more than 1 hour [OC27].	
Equipment cleaning and maintenance [CS39]. Drain down system prior to equipment break-in or maintenance [E65].	



BAZAN GROUP

GADIV PETOCHEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 21 of 77

Storage [CS67]With occasional controlled exposure [CS137] No specific measures identified [E118].
Section 2.2 Control of environmental exposure
Product characteristics The Xylene isomers are liquids of medium volatility. Their average water solubility is 158mg/l; their average vapour pressure is 1050Pa at 25°C; and their average log Kow is 3.16. They are considered to be readily biodegradable.
Duration, frequency and amount EU tonnage 3570 ktonnes/year Regional tonnage 357 ktonnes/year Fraction of main local source 0.01 Emission days per year 300
Environmental factors not influenced by risk management Local Freshwater dilution factor 10 Local marine water dilution factor 100
Other given operational conditions affecting environmental exposure Release fraction to air from process: 0.005 Release fraction to waste water from process: 0.003 Release fraction to soil from process (regional only): 0.0001
Technical conditions and measures at process level (source) to prevent release Not applicable
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Treat air emissions to provide a typical removal efficiency of >80%. [TCR 7] Typical onsite wastewater treatment technology provides removal efficiency of 93.57%. [TCR 11] Soil emission controls are not applicable as there is no direct release to soil. [TCR 4] Prevent discharge of undissolved substance to or recover from wastewater [TCR14].
Organisation measures to prevent/limit release from site Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
Conditions and measures related to municipal sewage treatment plant Estimated substance removal from wastewater via domestic sewage treatment 93.57 (%) [STP3] Msafe 1.76E+04kg/day after RMM Assumed domestic sewage treatment plant flow 2000 (m ³ /d) [STP5]
Conditions and measures related to external treatment of waste for disposal This substance is consumed during use and no waste of the substance is generated
Conditions and measures related to external recovery of waste This substance is consumed during use and no waste of the substance is generated. [EWR 3]
Section 3 Exposure Estimation
3.1. Health Not applicable
3.2. Environment <i>When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.</i>
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health Not applicable
4.2. Environment <i>Confirm that RMMs and OCs are as described or of equivalent efficiency. The required efficiency removal from water is 93.57% which would be typically found in wastewater treatment plant.</i>



SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 22 of 77

Distribution of substance - Industrial

Section 1 Exposure Scenario Title	
Use Descriptor	
Sector(s) of Use	SU3, SU8, SU9
Process Categories	PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC9, PROC15
Environmental Release Categories	ERC1, ERC2, ERC3, ERC4, ERC5, ERC6A, ERC6B, ERC6C, ERC6D, ERC7
Specific Environmental Release Category	ESVOC 1.1b.v1
Processes, tasks, activities covered	
Loading (including marine vessel/barge, rail/road car and IBC loading) and repacking (including drums and small packs) of substance, including its distribution and associated laboratory activities	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid, vapour pressure 0.5 - 10 kPa at STP	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2] Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1] Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
General exposures (closed systems) [CS15]. No specific measures identified [E118]. General exposures (closed systems) [CS15]. With sample collection [CS56]. With occasional controlled exposure [CS137] No specific measures identified [E118]. General exposures (closed systems) [CS15]. Use in contained batch processes [CS37]. No specific measures identified [E118]. General exposures (open systems) [CS16]. Batch process [CS55]. With sample collection [CS56]. No specific measures identified [E118]. Process sampling [CS2]. No specific measures identified [E118]. Laboratory activities [CS36]. No specific measures identified [E118]. Bulk transfers [CS14]. (closed systems) [CS107] Ensure material transfers are under containment or extract ventilation [E66], or: [G9], Operate activity away from sources or emission or release [E77]. Bulk transfers [CS14]. (open systems) [CS108] Ensure material transfers are under containment or extract ventilation [E66], or: [G9], Operate activity away from sources or emission or release [E77]. Drum and small package filling [CS6]. Fill containers/cans at dedicated fill points supplied with local extract ventilation [E51] Ensure material transfers are under containment or extract ventilation [E66]. Equipment cleaning and maintenance [CS39]. Drain down and flush system prior to equipment break-in or maintenance [E55]. Apply vessel entry procedures including use of forced supplied air [AP15]. Storage [CS67]. With occasional controlled exposure [CS137] Store substance within a closed system [E84]. No specific measures identified [E118].	
Section 2.2 Control of environmental exposure	



BAZAN GROUP

GADIV PETOCEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 23 of 77

Product characteristics
The Xylene isomers are liquids of medium volatility. Their average water solubility is 158mg/l; their average vapour pressure is 1050Pa at 25°C; and their average log Kow is 3.16. They are considered to be readily biodegradable.
Duration, frequency and amount
EU tonnage 4200 ktonnes/year Regional tonnage 600 ktonnes/year Fraction of main local source 1 Emission days per year 300
Environmental factors not influenced by risk management
Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100
Other given operational conditions affecting environmental exposure
Release fraction to air from process 0.0001 Release fraction to waste water from process 0.00001 Release fraction to soil from process (regional only) 0.00001
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Treat air emissions to provide a typical removal efficiency of >90%. [TCR 7] Typical onsite wastewater treatment technology provides removal efficiency of 93.57%. [TCR 11] Soil emission controls are not applicable as there is no direct release to soil. [TCR 4] Prevent discharge of undissolved substance to or recover from wastewater [TCR14].
Organisation measures to prevent/limit release from site
Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
Conditions and measures related to municipal sewage treatment plant
Estimated substance removal from wastewater via domestic sewage treatment 93.57 (%) [STP3] Assumed domestic sewage treatment plant flow 2000 (m3/d) [STP5] Msafe 5.25E+06 kg/day after RMM
Conditions and measures related to external treatment of waste for disposal
External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]
Conditions and measures related to external recovery of waste
External recovery an recycling of waste should comply with applicable local and/or national regulations [ERW1]
Section 3 Exposure Estimation
3.1. Health
When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1 as indicated in Appendix A (CSR)
3.2. Environment
When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.]
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Confirm that RMMs and OCs are as described or of equivalent efficiency. See Appendix A for details of efficiencies and OC.
4.2. Environment
Confirm that RMMs and OCs are as described or of equivalent efficiency. The required efficiency removal from water is 93.57% which would be typically found in waste-water treatment plant.



SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 24 of 77

Use in Formulation – Industrial

Section 1 Exposure Scenario Title	
Use Descriptor	
Sector(s) of Use	SU10, SU3
Process Categories	PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC14, PROC15
Environmental Release Categories	ERC2
Specific Environmental Release Category	ESVOC 2.2.v1
Processes, tasks, activities covered	
Formulation, packing and re-packing of the substance and its mixtures in batch or continuous operations, including storage, materials transfers, mixing, large and small scale packing, maintenance and associated laboratory activities	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid, vapour pressure 0.5 - 10 kPa at STP	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2] Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1] Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
General measures (skin irritants) [G19] Avoid direct contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with the substance is likely. Clean up contamination / spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. [E3] Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release e.g. spraying [E4],	
General exposures (closed systems) [CS15]. No specific measures identified [E118].	
General exposures (closed systems) [CS15]. With sample collection [CS56]. With occasional controlled exposure [CS137] No specific measures identified [E118].	
General exposures (closed systems) [CS15]. Use in contained batch processes [CS37]. No specific measures identified [E118]	
General exposures (open systems) [CS16]. Batch process [CS55]. With sample collection [CS56]. With potential for aerosol generation [CS138]. No specific measures identified [E118].	
Batch processes at elevated temperatures [CS136]. Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour) [E40]	
Process sampling [CS2]. No specific measures identified [E118].	
Laboratory activities [CS36]. No specific measures identified [E118].	
Bulk transfers [CS14]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11].	
Mixing operations (open systems) [CS30]. With potential for aerosol generation [CS138]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11]	
Manual [CS34]. Transfer from/pouring from containers [CS22]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11].	
Drum/batch transfers [CS8].	



SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 25 of 77

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11] Production or preparation or articles by tableting, compression, extrusion or pelletisation [CS100] Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11] Drum and small package filling [CS6]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11]. Equipment cleaning and maintenance [CS39]. Drain down and flush system prior to equipment break-in or maintenance [E55]. Storage [CS67] With occasional controlled exposure [CS137] No specific measures identified [E118].
Section 2.2 Control of environmental exposure
Product characteristics
The Xylene isomers are liquids of medium volatility. Their average water solubility is 158mg/l; their average vapour pressure is 1050Pa at 25°C; and their average log Kow is 3.16. They are considered to be readily biodegradable.
Duration, frequency and amount
EU tonnage 70 ktonnes/year Regional tonnage 7 ktonnes/year Fraction of main local source 1 Emission days per year 300
Environmental factors not influenced by risk management
Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100
Other given operational conditions affecting environmental exposure
Release fraction to air from process before RMMs 0.025 Release fraction to waste water from process before RMMs 0.002 Release fraction to soil from process before RMMs 0.0001
Technical conditions and measures at process level (source) to prevent release
Not applicable
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Treat air emissions to provide a typical removal efficiency of 0%. [TCR 7] Estimated substance removal from wastewater via domestic sewage treatment is 94.51%. [STP 3] Soil emission controls are not applicable as there is no direct release to soil. [TCR 4] Prevent discharge of undissolved substance to or recover from wastewater [TCR14]. Release fraction to air from process (after typical onsite RMMs consistent with EU Solvent Emissions Directive requirements): [OOC11]
Organisation measures to prevent/limit release from site
Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
Conditions and measures related to municipal sewage treatment plant
Estimated substance removal from wastewater via domestic sewage treatment 93.57 (%) [STP3] Assumed domestic sewage treatment plant flow 2000 (m ³ /d) [STP5] MSafe 2.16E+04 kg/day after RMM
Conditions and measures related to external treatment of waste for disposal
External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]
Conditions and measures related to external recovery of waste
External recovery an recycling of waste should comply with applicable local and/or national regulations [ERW1]
Section 3 Exposure Estimation
3.1. Health
When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1
3.2. Environment
When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.



BAZAN GROUP

GADIV PETOCEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 26 of 77

Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Confirm that RMMs and OCs are as described or of equivalent efficiency.
4.2. Environment
Confirm that RMMs and OCs are as described or of equivalent efficiency. The required efficiency removal from water is 93.57% which would be typically found in waste-water treatment plant.



BAZAN GROUP

GADIV PETOCEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 27 of 77

Uses in Coatings – Industrial

Section 1 Exposure Scenario Title	
Use Descriptor	
Sector(s) of Use	SU3
Process Categories	PROC1, PROC2, PROC3, PROC4, PROC5, PROC7, PROC8a, PROC8b, PROC10, PROC13, PROC14, PROC15
Environmental Release Categories	ERC4
Specific Environmental Release Category	ESVOC 4.3a.v1
Processes, tasks, activities covered	
Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, spreader, dip, flow, fluidised bed on production lines and film formation) and equipment cleaning, maintenance and associated laboratory activities.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid, vapour pressure > 10 kPa STP	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2] Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1] Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
General measures (skin irritants) [G19] Avoid direct contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with the substance is likely. Clean up contamination / spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. E3] Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release e.g. spraying [E4],	
General exposures (closed systems) [CS15]. No specific measures identified [E118].	
General exposures (closed systems) [CS15]. With sample collection [CS56]. Use in contained systems [CS38]. No specific measures identified [E118].	
Film formation - force drying (50 - 100°C). Stoving (>100°C). UV/EB radiation curing [CS94] No specific measures identified [E118].	
Mixing operations (closed systems) [CS29]. General exposures (closed systems) [CS15]. No specific measures identified [E118].	
Film formation - air drying [CS95] No specific measures identified [E118].	
Preparation of material for application [CS96]. Mixing operations (open systems) [CS30]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11].	
Spraying (automatic/robotic) [CS97] Carry out in a vented booth provided with laminar airflow [E59].	
Manual [CS34]. Spraying [CS10]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11]. Wear a respirator conforming to EN140 with Type A filter or better. [PPE22]	
Material transfers [CS3]. Non-dedicated facility [CS82] Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11].	
Material transfers [CS3]. Dedicated facility [CS81] Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11].	



BAZAN GROUP

GADIV PETOCHEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 28 of 77

Roller, spreader, flow application [CS98] Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11]. Wear suitable gloves tested to EN374 [PPE15].
Dipping, immersion and pouring [CS4]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11].
Laboratory activities [CS36]. No specific measures identified [E118].
Material transfers [CS3]. Drum/batch transfers [CS8]. Transfer from/pouring from containers [CS22]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11].
Production or preparation of articles by tableting, compression, extrusion or pelletisation [CS100] Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11].
Equipment cleaning and maintenance [CS39]. Drain down system prior to equipment break-in or maintenance [E65].
Section 2.2 Control of environmental exposure
Product characteristics The Xylene isomers are liquids of medium volatility. Their average water solubility is 158mg/l; their average vapour pressure is 1050Pa at 25°C; and their average log Kow is 3.16. They are considered to be readily biodegradable.
Duration, frequency and amount Emission Days (days/year): 300 days/yr EU tonnage 70 ktonnes/year Regional tonnage 7 ktonnes/year Fraction of main local source 3.00E-01
Environmental factors not influenced by risk management Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100
Other given operational conditions affecting environmental exposure Release fraction to air from process 0.098 Release fraction to waste water from process 0.007 Release fraction to soil from process (regional only) 0
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Treat air emissions to provide a typical removal efficiency of >90%. [TCR 7] Typical onsite wastewater treatment technology provides removal efficiency of 93.57%. [TCR 11] Soil emission controls are not applicable as there is no direct release to soil. [TCR 4] Prevent discharge of undissolved substance to or recover from wastewater [TCR14].
Organisation measures to prevent/limit release from site Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
Conditions and measures related to municipal sewage treatment plant Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 93.67 % The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 2.57E+04kg/day
Conditions and measures related to external treatment of waste for disposal External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]
Conditions and measures related to external recovery of waste External recovery an recycling of waste should comply with applicable local and/or national regulations [ERW1]
Section 3 Exposure Estimation
3.1. Health When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1
3.2. Environment When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.



BAZAN GROUP

GADIV PETOCEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 29 of 77

Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Confirm that RMMs and OCs are as described or of equivalent efficiency
4.2. Environment
Confirm that RMMs and OCs are as described or of equivalent efficiency. The required efficiency removal from water is 93.57% which would be typically found in waste-water treatment plant.



SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 30 of 77

Uses in Coatings – Professional

Section 1 Exposure Scenario Title	
Use Descriptor	
Sector(s) of Use	SU22
Process Categories	PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b PROC10, PROC11, PROC13, PROC15, PROC19
Environmental Release Categories	ERC8A, ERC8D
Specific Environmental Release Category	ESVOC 8.3b.v1
Processes, tasks, activities covered	
adhesives, etc) including exposures during use (including materials receipt, storage, preparation and transfer from bulk and semi-bulk, application by spray, roller, brush, spreader by hand or similar methods, and film formation), and equipment cleaning, maintenance and associated laboratory activities.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid, vapour pressure 0.5 - 10 kPa STP	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2] Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1] Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
General measures (skin irritants) [G19] Avoid direct contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with the substance is likely. Clean up contamination / spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. [E3] Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release e.g. spraying [E4],	
General exposures (closed systems) [CS15]. No specific measures identified [E118].	
Filling / preparation of equipment from drums or containers. [CS45]. No specific measures identified [E118].	
General exposures (closed systems) [CS15]. Use in contained systems [CS38]. No specific measures identified [E118].	
Preparation of material for application [CS96] No specific measures identified [E118].	
Film formation - air drying [CS95]Outdoor [OC9]. Ensure operation is undertaken outdoors [E69].	
Film formation - air drying [CS95]. Indoor [OC8]. Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour) [E40].	
Preparation of material for application [CS96] Indoor [OC8]. Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour) [E40].	
Preparation of material for application [CS96] Outdoor [OC9]. Avoid carrying out operation for more than 4 hours [OC12].	
Material transfers [CS3]. Drum/batch transfers [CS8]. Dedicated facility Provide a good standard of general ventilation. Natural ventilation is from windows and doors etc. Controlled ventilation means air is supplied or removed by a powered fan. [E1].	
Material transfers [CS3]. Drum/batch transfers [CS8].Non Dedicated facility Use drum pumps or carefully pour from container [E64].Use container to collect drips [E73]	



BAZAN GROUP

GADIV PETOCHEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 31 of 77

<p>Roller, spreader, flow application [CS98] Indoor [OC8]. Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour) [E40].</p> <p>Roller, spreader, flow application [CS98] Outdoor [OC9]. Ensure operation is undertaken outdoors [E69]. Wear a respirator conforming to EN140 with Type A filter or better. [PPE22]</p> <p>Manual [CS34]. Spraying [CS10]. Indoor [OC8]. Carry out in a vented booth or extracted enclosure [E57]. Wear a respirator conforming to EN140 with Type A filter or better. [PPE22]</p> <p>Manual [CS34]. Spraying [CS10]. Outdoor [OC9]. Ensure operation is undertaken outdoors [E69]. Wear a respirator conforming to EN140 with Type A filter or better. [PPE22]</p> <p>Dipping, immersion and pouring [CS4]. Indoor [OC8]. Provide extract ventilation to points where emissions occur [E54].</p> <p>Dipping, immersion and pouring [CS4]. Outdoor [OC9]. Ensure operation is undertaken outdoors [E69]. Wear a respirator conforming to EN140 with Type A filter or better. [PPE22]</p> <p>Laboratory activities [CS36]. No specific measures identified [E118].</p> <p>Hand application - fingerpaints, pastels, adhesives [CS72]Indoor [OC8]. Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour) [E40].</p> <p>Hand application - fingerpaints, pastels, adhesives [CS72]Outdoor [OC9]. Ensure operation is undertaken outdoors [E69]. Avoid carrying out operation for more than 4 hours [OC12].</p> <p>Equipment cleaning and maintenance [CS39]. Drain down system prior to equipment break-in or maintenance [E65].</p> <p>Storage [CS67]. With occasional controlled exposure [CS137] No specific measures identified [E118]</p>
Section 2.2 Control of environmental exposure
Product characteristics
The Xylene isomers are liquids of medium volatility. Their average water solubility is 158mg/l; their average vapour pressure is 1050Pa at 25°C; and their average log Kow is 3.16. They are considered to be readily biodegradable.
Duration, frequency and amount
EU tonnage 70 ktonnes/year Regional tonnage 7 ktonnes/year Fraction of main local source 0.002 Emission Days (days/year): 365 days/yr
Environmental factors not influenced by risk management
Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100
Other given operational conditions affecting environmental exposure
Release fraction to air from process 0.98 Release fraction to waste water from process 0.01 Release fraction to soil from process (regional only) 0.01
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Negligible air emissions as process operates in a contained system. Typical onsite wastewater treatment technology provides removal efficiency of 93.57%. [TCR 11] Soil emission controls are not applicable as there is no direct release to soil. [TCR 4]
Organisation measures to prevent/limit release from site
Prevent environmental discharge consistent with regulatory requirements.
Conditions and measures related to municipal sewage treatment plant
Estimated substance removal from wastewater via domestic sewage treatment 93.57 (%) [STP3] Assumed domestic sewage treatment plant flow 2000 (m ³ /d) [STP5] The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 2.11 kg/day
Conditions and measures related to external treatment of waste for disposal
External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]
Conditions and measures related to external recovery of waste



BAZAN GROUP

GADIV PETOCEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 32 of 77

External recovery an recycling of waste should comply with applicable local and/or national regulations [ERW1]
Section 3 Exposure Estimation
3.1. Health
When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1
3.2. Environment
When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Confirm that RMMs and OCs are as described or of equivalent efficiency
4.2. Environment
Confirm that RMMs and OCs are as described or of equivalent efficiency. The required efficiency removal from water is 93.57% which would be typically found in waste-water treatment plant.



BAZAN GROUP

GADIV PETOCEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 33 of 77

Uses in Coatings – Consumer

Section 1 Exposure Scenario Title	
Use Descriptor	
Sector(s) of Use	SU21
Product Categories	PC1, PC4, PC8 (excipient only), PC9, PC15, PC18, PC23, PC24, PC31, PC34
Environmental Release Categories	ERC8A, ERC8D
Specific Environmental Release Category	ESVOC 8.3c.v1
Processes, tasks, activities covered	
Covers the use in coatings (paints, inks, adhesives, etc) including exposures during use (including product transfer and preparation, application by brush, spray by hand or similar methods) and equipment cleaning.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of consumer exposure	
Product Characteristic	
Liquid, Vapour pressure 1052 Pa	
Amounts used	
Unless otherwise stated, covers use amounts up to 13800g [ConsOC2]; covers skin contact area up to 857.5cm ² [ConsOC5]	
Duration, frequency and amount	
Covers daily use up to 1 times per day	
Other given operational conditions affecting consumer exposure	
Unless otherwise stated assumes use at ambient temperatures; assumes use in a 20 m ³ room; assumes use with typical ventilation	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
PC1:Adhesives, sealants--Glues, hobby use Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 35.73 cm ² [ConsOC5]; for each use event, covers use amounts up to 9g[ConsOC2]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 4.00hr/event[ConsOC14];	
PC1:Adhesives, sealants—Glues DIY-use (carpet glue, tile glue, wood parquet glue) Unless otherwise stated, covers concentrations up to 3% [ConsOC1]; covers use up to 1 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 110.00 cm ² [ConsOC5]; for each use event, covers use amounts up to 6390g [ConsOC2]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 6.00hr/event[ConsOC14];	
PC1:Adhesives, sealants--Glue from spray Unless otherwise stated, covers concentrations up to 24% [ConsOC1]; covers use up to 6 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 35.73 cm ² [ConsOC5]; for each use event, covers use amounts up to 85.05g [ConsOC2]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 4.00hr/event[ConsOC14];	
PC1:Adhesives, sealants--Sealants Unless otherwise stated, covers concentrations up to 30% [ConsOC1]; covers use up to 365 days/year[ConsOC3];	



SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 34 of 77

covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 35.73 cm² [ConsOC5]; for each use event,
covers use amounts up to 75g [ConsOC2];
covers use in room size of 20m³[ConsOC11]; for each use event,
covers exposure up to 1.00hr/event[ConsOC14];
PC4_n:Anti-freeze and de-icing products--Washing car window
Unless otherwise stated, covers concentrations up to 1% [ConsOC1];
covers use up to 365 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 35.73 cm² [ConsOC5]; for each use event,
covers use amounts up to 0.5g [ConsOC2];
Covers use in a one car garage (34m³) under typical ventilation [ConsOC10];
covers use in room size of 34m³[ConsOC11]; for each use event,
covers exposure up to 0.02hr/event[ConsOC14];
PC4_n:Anti-freeze and de-icing products--Pouring into radiator
Unless otherwise stated, covers concentrations up to 10% [ConsOC1];
covers use up to 365 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 428.00 cm² [ConsOC5]; for each use event,
covers use amounts up to 2000g [ConsOC2];
Covers use in a one car garage (34m³) under typical ventilation[ConsOC10];
covers use in room size of 34m³[ConsOC11];
for each use event, covers exposure up to 0.17hr/event[ConsOC14];
PC4_n:Anti-freeze and de-icing products--Lock de-icer
Unless otherwise stated, covers concentrations up to 50% [ConsOC1];
covers use up to 365 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 214.40 cm² [ConsOC5];
for each use event, covers use amounts up to 4g [ConsOC2];
Covers use in a one car garage (34m³) under typical ventilation [ConsOC10];
covers use in room size of 34m³[ConsOC11];
for each use event, covers exposure up to 0.25hr/event[ConsOC14];
PC8_n: Biocidal products (excipient use only for solvent products)--Laundry and dish washing products
Unless otherwise stated, covers concentrations up to 5% [ConsOC1];
covers use up to 365 days/year[ConsOC3]
covers use up to 1
time/on day of use[ConsOC4];
covers skin contact area up to 857.50 cm² [ConsOC5];
for each use event, covers use amounts up to 15g[ConsOC2];
covers use in room size of 20m³[ConsOC11];
for each use event, covers exposure up to 0.50hr/event[ConsOC14];
PC8_n: Biocidal products (excipient use only for solvent products)-- Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)
Unless otherwise stated, covers concentrations up to 5% [ConsOC1];
covers use up to 128 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 857.50 cm² [ConsOC5];
for each use event, covers use amounts up to 27g [ConsOC2];
covers use in room size of 20m³[ConsOC11];
for each use event, covers exposure up to 0.33hr/event[ConsOC14];
PC8_n: Biocidal products (excipient use only for solvent products)-- Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)
Unless otherwise stated, covers concentrations up to 15% [ConsOC1];
covers use up to 128 days/year[ConsOC3];



SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 35 of 77

covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 428.00 cm² [ConsOC5];
for each use event, covers use amounts up to 35g[ConsOC2];
covers use in room size of 20m³[ConsOC11];
for each use event, covers exposure up to 0.17hr/event[ConsOC14];
PC9a:Coatings and paints, fillers putties, thinners--Waterborne latex wall paint
Unless otherwise stated, covers concentrations up to 1.5% [ConsOC1];
covers use up to 4 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 428.75 cm² [ConsOC5];
for each use event, covers use amounts up to 2760g [ConsOC2];
covers use in room size of 20m³[ConsOC11];
for each use event, covers exposure up to 2.20hr/event[ConsOC14];
PC9a:Coatings and paints, fillers putties, thinners--Solvent rich, high solid, water borne paint
Unless otherwise stated, covers concentrations up to 27.5% [ConsOC1];
covers use up to 6 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 428.75 cm² [ConsOC5];
for each use event, covers use amounts up to 744g [ConsOC2];
covers use in room size of 20m³[ConsOC11];
for each use event, covers exposure up to 2.20hr/event[ConsOC14];
PC9a:Coatings and paints, fillers putties, thinners--Aerosol spray can
Unless otherwise stated, covers concentrations up to 50% [ConsOC1];
covers use up to 2 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
for each use event, covers use amounts up to 215g [ConsOC2];
Covers use in a one car garage (34m³) under typical ventilation [ConsOC10];
covers use in room size of 34m³[ConsOC11];
for each use event, covers exposure up to 0.33hr/event[ConsOC14];
PC9a:Coatings and paints, fillers putties, thinners--Removers (paint-, glue-, wall paper-, sealant-remover)
Unless otherwise stated, covers concentrations up to 50% [ConsOC1]
covers use up to 3 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 857.50 cm² [ConsOC5];
for each use event, covers use amounts up to 491g [ConsOC2];
covers use in room size of 20m³[ConsOC11];
for each use event, covers exposure up to 2.00hr/event[ConsOC14];
PC9b:Fillers, putties, plasters, modeling clay--Fillers and putty
Unless otherwise stated, covers concentrations up to 2% [ConsOC1];
covers use up to 12 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 35.73 cm² [ConsOC5];
for each use event, covers use amounts up to 85g [ConsOC2];
covers use in room size of 20m³[ConsOC11];
for each use event, covers exposure up to 4.00hr/event[ConsOC14];
PC9b:Fillers, putties, plasters, modeling clay--Plasters and floor equalizers
OC Unless otherwise stated, covers concentrations up to 1.9% [ConsOC1];
covers use up to 12 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 857.50 cm² [ConsOC5];
for each use event, covers use amounts up to 13800g [ConsOC2];
covers use in room size of 20m³[ConsOC11];
for each use event, covers exposure up to 2.00hr/event[ConsOC14];
PC9b:Fillers, putties, plasters, modeling clay--Modelling clay



SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 36 of 77

OC Unless otherwise stated, covers concentrations up to 1% [ConsOC1];
covers use up to 365 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 254.40 cm² [ConsOC5];
for each use event, assumes swallowed amount of 1g [ConsOC13];
covers use in room size of 20m³[ConsOC11];
for each use event, covers exposure up to 1.00hr/event[ConsOC14];

PC9c:Finger paints --Finger paints

Unless otherwise stated, covers concentrations up to 8% [ConsOC1];
covers use up to 365 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 254.40 cm² [ConsOC5];
for each use event, assumes swallowed amount of 1.35g [ConsOC13];
covers use in room size of 20m³[ConsOC11];
for each use event, covers exposure up to 0.03hr/event[ConsOC14];

PC15_n: Non-metal surface treatment products—Waterborne latex wall paint

Unless otherwise stated, covers concentrations up to 1.5% [ConsOC1];
covers use up to 4 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 428.75 cm² [ConsOC5];
for each use event, covers use amounts up to 2760g [ConsOC2];
covers use in room size of 20m³[ConsOC11];
for each use event, covers exposure up to 2.20hr/event[ConsOC14];

PC15_n: Non-metal surface treatment products--Solvent rich, high solid, water borne paint

OC Unless otherwise stated, covers concentrations up to 27.5% [ConsOC1];
covers use up to 6 days/year[ConsOC3]; covers use up to 1
time/on day of use[ConsOC4]; covers skin
contact area up to 428.75 cm² [ConsOC5]; for
each use event, covers use amounts up to 744g [ConsOC2];
covers use in room size of 20m³[ConsOC11];
for each use event, covers exposure up to 2.20hr/event[ConsOC14];

PC15_n: Non-metal surface treatment products--Aerosol spray

Unless otherwise stated, covers concentrations up to 50% [ConsOC1];
covers use up to 2 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
for each use event, covers use amounts up to 215g [ConsOC2];
Covers use in a one car garage (34m³) under typical ventilation [ConsOC10];
covers use in room size of 34m³[ConsOC11];
for each use event, covers exposure up to 0.33hr/event[ConsOC14];

PC15_n: Non-metal surface treatment products—Removers (paint-, glue-, wall paper-, sealantremover)

OC Unless otherwise stated, covers concentrations up to 50% [ConsOC1];
covers use up to 3 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 857.50 cm² [ConsOC5];
for each use event, covers use amounts up to 491g [ConsOC2];
covers use in room size of 20m³[ConsOC11];
for each use event, covers exposure up to 2.00hr/event[ConsOC14];

PC18_n: Ink and toners--Inks and toners.

OC Unless otherwise stated, covers concentrations up to 10% [ConsOC1];
covers use up to 365 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 71.40 cm² [ConsOC5];
for each use event, covers use amounts up to 40g [ConsOC2];
covers use in room size of 20m³[ConsOC11];



BAZAN GROUP

GADIV PETOCHEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 37 of 77

for each use event, covers exposure up to 2.20hr/event[ConsOC14];
PC23_n: Leather tanning, dye, finishing, impregnation and care products--Polishes, wax / cream (floor, furniture, shoes)
OC Unless otherwise stated, covers concentrations up to 50% [ConsOC1];
covers use up to 29 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 430.00 cm² [ConsOC5];
for each use event, covers use amounts up to 56g [ConsOC2];
covers use in room size of 20m³[ConsOC11];
for each use event, covers exposure up to 1.23hr/event[ConsOC14];
PC23_n: Leather tanning, dye, finishing, impregnation and care products--Polishes, spray (furniture, shoes)
OC Unless otherwise stated, covers concentrations up to 50% [ConsOC1];
covers use up to 8 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 430.00 cm² [ConsOC5];
for each use event, covers use amounts up to 56g [ConsOC2];
covers use in room size of 20m³[ConsOC11];
for each use event, covers exposure up to 0.33hr/event[ConsOC14];
C24: Lubricants, greases, and release products--Liquids
OC Unless otherwise stated, covers concentrations up to 100% [ConsOC1];
covers use up to 4 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 468.00 cm² [ConsOC5];
for each use event, covers use amounts up to 2200g [ConsOC2];
Covers use in a one car garage (34m³) under typical ventilation [ConsOC10];
covers use in room size of 34m³[ConsOC11];
for each use event, covers exposure up to 0.17hr/event[ConsOC14];
PC24: Lubricants, greases, and release products--Pastes
OC Unless otherwise stated, covers concentrations up to 20% [ConsOC1];
covers use up to 10 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 468.00 cm² [ConsOC5];
for each use event, covers use amounts up to 34g [ConsOC2];
covers use in room size of 20m³[ConsOC11];
PC24: Lubricants, greases, and release products--Sprays
OC Unless otherwise stated, covers concentrations up to 50% [ConsOC1];
covers use up to 6 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 428.75 cm² [ConsOC5];
for each use event, covers use amounts up to 73g [ConsOC2];
covers use in room size of 20m³[ConsOC11];
for each use event, covers exposure up to 0.17hr/event[ConsOC14];
PC31:Polishes and wax blends-- Polishes, wax / cream (floor, furniture, shoes)
OC Unless otherwise stated, covers concentrations up to 50% [ConsOC1];
covers use up to 29 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 430.00 cm² [ConsOC5];
for each use event, covers use amounts up to 142g [ConsOC2];
covers use in room size of 20m³[ConsOC11];
for each use event, covers exposure up to 1.23hr/event[ConsOC14];
PC31:Polishes and wax blends--Polishes, spray (furniture, shoes)
OC Unless otherwise stated, covers concentrations up to 50% [ConsOC1];
covers use up to 8 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 430.00 cm² [ConsOC5];



SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 38 of 77

<p>for each use event, covers use amounts up to 35g [ConsOC2]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 0.33hr/event[ConsOC14]; PC34_n: Textile dyes, finishing and impregnating products-- OC Unless otherwise stated, covers concentrations up to 10% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm² [ConsOC5]; for each use event, covers use amounts up to 115g [ConsOC2]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 1.00hr/event[ConsOC14]; PC9a:Coatings and paints, fillers putties, thinners--Brush or roller coating of antirust and roof paint OC Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 2 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; for each use event, covers use amounts up to 215g [ConsOC2]; Covers use in a one car garage (34m³) under typical ventilation [ConsOC10]; covers use in room size of 34m³[ConsOC11]; for each use event, covers exposure up to 0.33hr/event[ConsOC14];</p>
Section 2.2 Control of environmental exposure
Product characteristics
The Xylene isomers are liquids of medium volatility. Their average water solubility is 158mg/l; their average vapour pressure is 1050Pa at 25°C; and their average log Kow is 3.16. They are considered to be readily biodegradable.
Duration, frequency and amount
EU tonnage 70 ktonnes/year Regional tonnage 7 ktonnes/year Fraction of main local source 0.002 Emission Days (days/year): 365 days/yr
Environmental factors not influenced by risk management
Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100
Other given operational conditions affecting environmental exposure
Release fraction to air from wide dispersive use (regional only) [OOC7] 0.985 Release fraction to wastewater from wide dispersive use [OOC8] 0.01 Release fraction to soil from wide dispersive use (regional only) [OOC9] 0.005
Organisation measures to prevent/limit release from site
Prevent environmental discharge consistent with regulatory requirements. [OMS4]
Conditions and measures related to municipal sewage treatment plant
Estimated substance removal from wastewater via domestic sewage treatment 93.57 (%) [STP3] Assumed domestic sewage treatment plant flow 2000 (m ³ /d) [STP5] The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 1.8E+04 kg/day
Conditions and measures related to external treatment of waste for disposal
External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]
Conditions and measures related to external recovery of waste
External recovery an recycling of waste should comply with applicable local and/or national regulations [ERW1]
Section 3 Exposure Estimation
3.1. Health
When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1
3.2. Environment
When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.



BAZAN GROUP

GADIV PETOCEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 39 of 77

Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Confirm that RMMs and OCs are as described or of equivalent efficiency
4.2. Environment
Confirm that RMMs and OCs are as described or of equivalent efficiency. The required efficiency removal from water is 86.5% which would be typically found in waste-water treatment plant.



BAZAN GROUP

GADIV PETOCEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 40 of 77

Use in Cleaning – Industrial

Section 1 Exposure Scenario Title	
Use Descriptor	
Sector(s) of Use	SU3
Process Categories	PROC1, PROC2, PROC3, PROC4, PROC7, PROC8a, PROC8b, PROC10, PROC13
Environmental Release Categories	ERC4
Specific Environmental Release Category	ESVOC 4.4a.v1
Processes, tasks, activities covered	
Covers the use as a component of cleaning products including transfer from storage, pouring/unloading from drums or containers. Exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping, automated and by hand), related equipment cleaning and maintenance.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid, vapour pressure 0.5 - 10 kPa STP	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2] Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1] Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
General measures (skin irritants) [G19] Avoid direct contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with the substance is likely. Clean up contamination / spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent /minimise exposures and to report any skin problems that may develop. [E3] Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release e.g. spraying [E4],	
Bulk transfers [CS14]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11].	
Automated process with (semi) closed systems [CS93] Use in contained systems [CS38]. No specific measures identified [E118].	
Automated process with (semi) closed systems [CS93]Use in contained systems [CS38].Drum/batch transfers [CS8]. Use in contained systems [CS38]. No specific measures identified [E118].	
Application of cleaning products in closed systems [CS101] No specific measures identified [E118]	
Filling / preparation of equipment from drums or containers. [CS45]. Dedicated facility [CS81] Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11].	
Use in contained batch processes [CS37]. Treatment by heating [OC129] Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11].	
Degreasing small objects in cleaning station [CS41]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11]	
Cleaning with low-pressure washers [CS42]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11].	
Cleaning with high pressure washers [CS44]. Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour) [E40]. Wear a respirator conforming to EN140 with Type A filter or better. [PPE22]	
Manual [CS34]. Surfaces [CS48].Cleaning [CS47].No spraying [CS60].	



SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 41 of 77

Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11]. Equipment cleaning and maintenance [CS39]. Drain down system prior to equipment break-in or maintenance [E65]. Storage [CS67]. With occasional controlled exposure [CS137] No specific measures identified [E118].
Section 2.2 Control of environmental exposure
Product characteristics
Not applicable
Duration, frequency and amount
EU tonnage 14 ktonnes/year Regional tonnage 1.4 ktonnes/year Fraction of main local source 1 Emission Days (days/year): 300 days/yr
Environmental factors not influenced by risk management
Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100
Other given operational conditions affecting environmental exposure
Release fraction to air from process 0.3 Release fraction to waste water from process 0.00003 Release fraction to soil from process (regional only) 0
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Treat air emissions to provide a typical removal efficiency of >90%. [TCR 7] Typical onsite wastewater treatment technology provides removal efficiency of 93.57%. [TCR 11] Soil emission controls are not applicable as there is no direct release to soil. [TCR 4] Prevent discharge of undissolved substance to or recover from wastewater [TCR14].
Organisation measures to prevent/limit release from site
Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
Conditions and measures related to municipal sewage treatment plant
Estimated substance removal from wastewater via domestic sewage treatment 93.57 (%) [STP3] Assumed domestic sewage treatment plant flow 2000 (m3/d) [STP5] The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 2.57E+05kg/day
Conditions and measures related to external treatment of waste for disposal
External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]
Conditions and measures related to external recovery of waste
External recovery an recycling of waste should comply with applicable local and/or national regulations [ERW1]
Section 3 Exposure Estimation
3.1. Health
When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1
3.2. Environment
When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Confirm that RMMs and OCs are as described or of equivalent efficiency
4.2. Environment
Confirm that RMMs and OCs are as described or of equivalent efficiency. The required efficiency removal from water is 93.57% which would be typically found in waste-water treatment plant.



BAZAN GROUP

GADIV PETOCHEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 42 of 77

Use in Cleaning – Professional

Section 1 Exposure Scenario Title	
Use Descriptor	
Sector(s) of Use	SU22
Process Categories	PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b PROC10, PROC11, PROC13
Environmental Release Categories	ERC8A, ERC8D
Specific Environmental Release Category	ESVOC 8.4b.v1
Processes, tasks, activities covered	
Covers the use as a component of cleaning products including pouring/unloading from drums or containers; and exposures during mixing/diluting in the preparatory phase and cleaning activities (including spraying, brushing, dipping, wiping automated and by hand).	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid, vapour pressure 0.5 - 10 kPa STP	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2] Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1] Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
General measures (skin irritants) [G19] Avoid direct contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with the substance is likely. Clean up contamination / spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. [E3] Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release e.g. spraying [E4], Filling / preparation of equipment from drums or containers. [CS45]. Dedicated facility [CS81] Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour) [E40]. Automated process with (semi) closed systems [CS93] Use in contained systems [CS38]. No specific measures identified [E118]. Automated process with (semi) closed systems [CS93] Use in contained systems [CS38]. Drum/batch transfers [CS8]. No specific measures identified [E118]. Semi Automated process. (e.g.: Semi automatic application of floor care and maintenance products) [CS76] Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11]. Filling / preparation of equipment from drums or containers. [CS45]. Outdoor [OC9]. Ensure operation is undertaken outdoors [E69]. Avoid carrying out operation for more than 4 hours [OC12]. Manual [CS34]. Cleaning [CS47]. Surfaces [CS48]. ; Dipping, immersion and pouring [CS4]. Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour) [E40]. Cleaning with low-pressure washers [CS42]. Rolling, Brushing [CS51]. ; No spraying [CS60]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11].Wear a respirator conforming to EN140 with Type A filter or better. [PPE22] Cleaning with high pressure washers [CS44]. Spraying [CS10]. Indoor [OC8]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11].Wear a respirator conforming to EN140 with Type A filter or better. [PPE22] Cleaning with high pressure washers [CS44]. Spraying [CS10]. Outdoor [OC9]. Ensure operation is undertaken outdoors [E69]. Wear a respirator conforming to EN140 with Type A filter or better. [PPE22]	



BAZAN GROUP

GADIV PETOCHEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 43 of 77

<p>Manual [CS34]. Surfaces [CS48]. Cleaning [CS47]. ; Spraying [CS10]. Provide a good standard of general ventilation. Natural ventilation is from windows and doors etc. Controlled ventilation means air is supplied or removed by a powered fan. [E1]. Wear a respirator conforming to EN140 with Type A filter or better. [PPE22] Ad hoc manual application via trigger sprays, dipping, etc. [CS27]. Rolling, Brushing [CS51]. Provide extract ventilation to points where emissions occur [E54]. Ad hoc manual application via trigger sprays, dipping, etc. [CS27]. Rolling, Brushing [CS51]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11]. Wear a respirator conforming to EN140 with Type A filter or better. [PPE22] Application of cleaning products in closed systems [CS101]. Outdoor [OC9]. Ensure operation is undertaken outdoors [E69]. Cleaning of medical devices [CS74] Provide extract ventilation to points where emissions occur [E54]. Equipment cleaning and maintenance [CS39]. Drain down system prior to equipment break-in or maintenance [E65]. Storage [CS67]With occasional controlled exposure [CS137] No specific measures identified [E118].</p>
Section 2.2 Control of environmental exposure
Product characteristics
The Xylene isomers are liquids of medium volatility. Their average water solubility is 158mg/l; their average vapour pressure is 1050Pa at 25°C; and their average log Kow is 3.16. They are considered to be readily biodegradable.
Duration, frequency and amount
EU tonnage 14 ktonnes/year Regional tonnage 1.4 ktonnes/year Fraction of main local source 0.002 Emission Days (days/year): 365 days/yr
Environmental factors not influenced by risk management
Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100
Other given operational conditions affecting environmental exposure
Release fraction to air from process 0.02 Release fraction to waste water from process 0.000001 Release fraction to soil from process (regional only) 0
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Negligible air emissions as process operates in a contained system. Typical onsite wastewater treatment technology provides removal efficiency of 93.57%. [TCR 11] Soil emission controls are not applicable as there is no direct release to soil. [TCR 4]
Organisation measures to prevent/limit release from site
Prevent environmental discharge consistent with regulatory requirements. [OMS 4]
Conditions and measures related to municipal sewage treatment plant
Estimated substance removal from wastewater via domestic sewage treatment 93.57 (%) [STP3] Assumed domestic sewage treatment plant flow 2000 (m ³ /d) [STP5] The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 470kg/day after RMM Conditions and measures related to external treatment of waste for disposal
External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]
Conditions and measures related to external recovery of waste
External recovery an recycling of waste should comply with applicable local and/or national regulations [ERW1]
Section 3 Exposure Estimation
3.1. Health
When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1
3.2. Environment
When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not



BAZAN GROUP

GADIV PETOCEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 44 of 77

expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Confirm that RMMs and OCs are as described or of equivalent efficiency
4.2. Environment
Confirm that RMMs and OCs are as described or of equivalent efficiency. The required efficiency removal from water is 93.57% which would be typically found in waste-water treatment plant



BAZAN GROUP

GADIV PETOCEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 45 of 77

Use in Cleaning – Consumer

Section 1 Exposure Scenario Title	
Use Descriptor	
Sector(s) of Use	SU21
Product Categories	PC3, PC4, PC8 (excipient only), PC9, PC24, PC35, PC38. Note PC8 included based upon indication this will be changed from Coatings to Cleanings in future
Environmental Release Categories	ERC8A, ERC8D
Specific Environmental Release Category	ESVOC 8.4c.v1
Processes, tasks, activities covered	
Covers general exposures to consumers arising from the use of household products sold as washing and cleaning products, aerosols, coatings, de-icers, lubricants and air care products.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of consumer exposure	
Product Characteristic	
Liquid, Vapour pressure 1052 Pa	
Amounts used	
Unless otherwise stated, covers use amounts up to 13800g [ConsOC2]; covers skin contact area up to 857.5cm ² [ConsOC5]	
Duration, frequency and amount	
Covers daily use up to 4 times per day covers exposure up to 8 hours per event [ConsOC14]	
Other given operational conditions affecting consumer exposure	
Unless otherwise stated assumes use at ambient temperatures; assumes use in a 20 m ³ room; assumes use with typical ventilation	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
<p>C3:Air care products--Air care, instant action (aerosol sprays) OC Unless otherwise stated, covers concentrations up to 50% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 4 times/day of use[ConsOC4]; for each use event, covers use amounts up to 0.1g [ConsOC2]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 0.25hr/event[ConsOC14];</p> <p>PC3:Air care products--Air care, continuous action (solid and liquid) OC Unless otherwise stated, covers concentrations up to 10% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 35.70 cm² [ConsOC5]; for each use event,covers use amounts up to 0.48g [ConsOC2]; covers use in room size of 20m³[ConsOC11]; for each use event, covers exposure up to 8.00hr/event[ConsOC14];</p> <p>PC4_n:Anti-freeze and de-icing products--Washing car window OC Unless otherwise stated, covers concentrations up to 1% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; for each use event, covers use amounts up to 0.5g [ConsOC2]; Covers use in a one car garage (34m³) under typical ventilation [ConsOC10]; covers use in room size of 34m³[ConsOC11]; for each use event, covers exposure up to 0.02hr/event[ConsOC14];</p> <p>PC4_n:Anti-freeze and de-icing products--Pouring into radiator OC Unless otherwise stated, covers concentrations up to 10% [ConsOC1];</p>	



SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 46 of 77

covers use up to 365 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 428.00 cm2 [ConsOC5];
for each use event, covers use amounts up to 2000g [ConsOC2];
Covers use in a one car garage (34m3) under typical ventilation [ConsOC10];
covers use in room size of 34m3[ConsOC11];
for each use event, covers exposure up to 0.17hr/event[ConsOC14];

PC4_n: Anti-freeze and de-icing products--Lock de-icer

OC Unless otherwise stated, covers concentrations up to 50% [ConsOC1];
covers use up to 365 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 214.40 cm2 [ConsOC5];
for each use event, covers use amounts up to 4g [ConsOC2];
Covers use in a one car garage (34m3) under typical ventilation [ConsOC10];
covers use in room size of 34m3[ConsOC11];
for each use event, covers exposure up to 0.25hr/event[ConsOC14];

PC8_n: Biocidal products (excipient use only for solvent products)--Laundry and dish washing products

OC Unless otherwise stated, covers concentrations up to 5% [ConsOC1];
covers use up to 365 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 857.50 cm2 [ConsOC5];
for each use event, covers use amounts up to 15g [ConsOC2];
covers use in room size of 20m3[ConsOC11];
for each use event, covers exposure up to 0.50hr/event[ConsOC14];

PC8_n: Biocidal products (excipient use only for solvent products)--Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)

OC Unless otherwise stated, covers concentrations up to 5% [ConsOC1];
covers use up to 128 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 857.50 cm2 [ConsOC5];
for each use event, covers use amounts up to 27g [ConsOC2];
covers use in room size of 20m3[ConsOC11];
for each use event, covers exposure up to 0.33hr/event[ConsOC14];

PC8_n: Biocidal products (excipient use only for solvent products)--Cleaners, sanitary products, glass cleaners) trigger sprays (all purpose cleaners,

OC Unless otherwise stated, covers concentrations up to 15% [ConsOC1];
covers use up to 128 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 428.00 cm2 [ConsOC5];
for each use event, covers use amounts up to 35g [ConsOC2];
covers use in room size of 20m3[ConsOC11];
for each use event, covers exposure up to 0.17hr/event[ConsOC14];

PC9a: Coatings and paints, fillers putties, thinners--Waterborne latex wall paint

OC Unless otherwise stated, covers concentrations up to 1.5% [ConsOC1];
covers use up to 4 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 428.75 cm2 [ConsOC5];
for each use event, covers use amounts up to 2760g [ConsOC2];
covers use in room size of 20m3[ConsOC11];
for each use event, covers exposure up to 2.20hr/event[ConsOC14];

PC9a: Coatings and paints, fillers putties, thinners--Solvent rich, high solid, water borne paint

OC Unless otherwise stated, covers concentrations up to 12% [ConsOC1];
covers use up to 6days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];



BAZAN GROUP

GADIV PETOCEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 47 of 77

covers skin contact area up to 428.75 cm² [ConsOC5];
for each use event, covers use amounts up to 744g [ConsOC2];
covers use in room size of 20m³[ConsOC11];
for each use event, covers exposure up to 2.20hr/event[ConsOC14];
PC9a:Coatings and paints, fillers putties, thinners--Aerosol spray can
OC Unless otherwise stated, covers concentrations up to 5% [ConsOC1];
covers use up to 2 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
for each use event, covers use amounts up to 215g [ConsOC2];
Covers use in a one car garage (34m³) under typical ventilation [ConsOC10];
covers use in room size of 34m³[ConsOC11];
for each use event, covers exposure up to 0.33hr/event[ConsOC14];
PC9a:Coatings and paints, fillers putties, thinners--Removers (paint-, glue-, wall paper-, sealant-remover)
OC Unless otherwise stated, covers concentrations up to 18% [ConsOC1];
covers use up to 3 days/year[ConsOC3]; covers use up to 1 time/on
day of use[ConsOC4];
covers skin contact area up to 857.50 cm² [ConsOC5];
for each use event, covers use amounts up to 491g [ConsOC2];
covers use in room size of 20m³[ConsOC11];
for each use event, covers exposure up to 2.00hr/event[ConsOC14];
PC9b:Fillers, putties, plasters, modeling clay--Fillers and putty
OC Unless otherwise stated, covers concentrations up to 2% [ConsOC1];
covers use up to 12 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 35.73 cm² [ConsOC5];
for each use event, covers use amounts up to 85g [ConsOC2];
covers use in room size of 20m³[ConsOC11];
for each use event, covers exposure up to 4.00hr/event[ConsOC14];
PC9b:Fillers, putties, plasters, modeling clay--Plasters and floor equalizers
OC Unless otherwise stated, covers concentrations up to 0.6% [ConsOC1];
covers use up to 12 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 857.50 cm² [ConsOC5];
for each use event, covers use amounts up to 13800g [ConsOC2];
covers use in room size of 20m³[ConsOC11];
for each use event, covers exposure up to 2.00hr/event[ConsOC14];
PC9b:Fillers, putties, plasters, modeling clay--Modelling clay
OC Unless otherwise stated, covers concentrations up to 1% [ConsOC1];
covers use up to 365 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 254.40 cm² [ConsOC5];
for each use event, assumes swallowed amount of 1g [ConsOC13];
covers use in room size of 20m³[ConsOC11];
PC9c:Finger paints --Finger paints
OC Unless otherwise stated, covers concentrations up to 5% [ConsOC1];
covers use up to 365 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 254.40 cm² [ConsOC5];
for each use event, assumes swallowed amount of 1.35g [ConsOC13];
covers use in room size of 20m³[ConsOC11];
PC24: Lubricants, greases, and release products—Liquids
OC Unless otherwise stated, covers concentrations up to 100% [ConsOC1];
covers use up to 4 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];



SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 48 of 77

covers skin contact area up to 468.00 cm² [ConsOC5];
for each use event, covers use amounts up to 2200g [ConsOC2];
Covers use in a one car garage (34m³) under typical ventilation [ConsOC10];
covers use in room size of 34m³[ConsOC11];
for each use event, covers exposure up to 0.17hr/event[ConsOC14];

PC24: Lubricants, greases, and release products—Pastes

OC Unless otherwise stated, covers concentrations up to 20% [ConsOC1];
covers use up to 10 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 468.00 cm² [ConsOC5];
for each use event, covers use amounts up to 34g [ConsOC2];
Covers use in a one car garage (34m³) under typical ventilation [ConsOC10];
covers use in room size of 34m³[ConsOC11];

PC24: Lubricants, greases, and release products—Sprays

OC Unless otherwise stated, covers concentrations up to 7.4% [ConsOC1];
covers use up to 6 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 428.75 cm² [ConsOC5];
for each use event, covers use amounts up to 73g [ConsOC2];
covers use in room size of 20m³[ConsOC11];
for each use event, covers exposure up to 0.17hr/event[ConsOC14];

PC35:Washing and cleaning products

(including solvent based products)--Laundry and dish washing products

OC Unless otherwise stated, covers concentrations up to 5% [ConsOC1];
covers use up to 365 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 857.50 cm² [ConsOC5];
for each use event, covers use amounts up to 15g [ConsOC2];
covers use in room size of 20m³[ConsOC11];
for each use event, covers exposure up to 0.50hr/event[ConsOC14];

PC35:Washing and cleaning products (including solvent based products)-- Cleaners, liquids (all purpose cleaners, sanitary products, floor cleaners, glass cleaners, carpet cleaners, metal cleaners)

OC Unless otherwise stated, covers concentrations up to 5% [ConsOC1];
covers use up to 128 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 857.50 cm² [ConsOC5];
for each use event, covers use amounts up to 27g [ConsOC2];
covers use in room size of 20m³[ConsOC11];
for each use event, covers exposure up to 0.33hr/event[ConsOC14];

PC35:Washing and cleaning products (including solvent based products)-- Cleaners, trigger sprays (all purpose cleaners, sanitary products, glass cleaners)

OC Unless otherwise stated, covers concentrations up to 15% [ConsOC1];
covers use up to 128 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 428.00 cm² [ConsOC5];
for each use event, covers use amounts up to 35g [ConsOC2];
covers use in room size of 20m³[ConsOC11];
for each use event, covers exposure up to 0.17hr/event[ConsOC14];

PC38_n: Welding and soldering products, flux products--NOTE, n_assessment not in TRA

OC Unless otherwise stated, covers concentrations up to 20% [ConsOC1];
covers use up to 365 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
for each use event, covers use amounts up to 12g [ConsOC2];
covers use in room size of 20m³[ConsOC11];



BAZAN GROUP

GADIV PETOCEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 49 of 77

for each use event, covers exposure up to 1.00hr/event[ConsOC14];
Section 2.2 Control of environmental exposure
Product characteristics
The Xylene isomers are liquids of medium volatility. Their average water solubility is 158mg/l; their average vapour pressure is 1050Pa at 25°C; and their average log Kow is 3.16. They are considered to be readily biodegradable.
Duration, frequency and amount
EU tonnage 14 ktonnes/year Regional tonnage 1.4 ktonnes/year Fraction of main local source 0.002 Emission Days (days/year): 365 days/yr
Environmental factors not influenced by risk management
Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100
Other given operational conditions affecting environmental exposure
Release fraction to air from process 0.95 Release fraction to waste water from process 0.025 Release fraction to soil from process (regional only) 0.025
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Risk from environmental exposure is driven by freshwater [TCR1a] Treat air emission to provide a typical removal efficiency of 0% [TCR 7]
Organisation measures to prevent/limit release from site
Prevent environmental discharge consistent with regulatory requirements. [OMS4]
Conditions and measures related to municipal sewage treatment plant
Estimated substance removal from wastewater via domestic sewage treatment 93.57 (%) [STP3] Assumed domestic sewage treatment plant flow 2000 (m3/d) [STP5] The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 410kg/day after RMM
Conditions and measures related to external treatment of waste for disposal
External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]
Conditions and measures related to external recovery of waste
External recovery an recycling of waste should comply with applicable local and/or national regulations [ERW1]
Section 3 Exposure Estimation
3.1. Health
When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1
3.2. Environment
When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Confirm that RMMs and OCs are as described or of equivalent efficiency
4.2. Environment
Confirm that RMMs and OCs are as described or of equivalent efficiency. The required efficiency removal from water is 86.5% which would be typically found in waste-water treatment plant.



BAZAN GROUP

GADIV PETOCEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 50 of 77

Use in oil field drilling and production operations– Industrial

Section 1 Exposure Scenario Title	
Use Descriptor	
Sector(s) of Use	SU3
Process Categories	PROC1, PROC2, PROC3, PROC4, PROC8a, PROC8b
Environmental Release Categories	ERC4
Specific Environmental Release Category	ESVOC 4.5a.v1
Processes, tasks, activities covered	
Oil field well drilling and production operations (including drilling muds and well cleaning) including material transfers, on-site formulation, well head operations, shaker room activities and related maintenance.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid, vapour pressure 0.5 - 10 kPa STP	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2] Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1] Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
General measures (skin irritants) [G19] Avoid direct contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with the substance is likely. Clean up contamination / spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. [E3] Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release e.g. spraying [E4],	
Bulk transfers [CS14]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11].	
Filling / preparation of equipment from drums or containers. [CS45]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11].	
Drill floor operations [CS116]. No specific measures identified [E118].	
Drill floor operations [CS116]. Ensure operation is undertaken outdoors [E69].	
Operation of solids filtering equipment – vapour exposures [CS118]. Ensure material transfers are under containment or extract ventilation [E66].	
Operation of solids filtering equipment – aerosol exposures [CS119]. Ensure material transfers are under containment or extract ventilation [E66].	
Operation of solids filtering equipment [CS117]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11].	
Treatment and disposal of filtered solids [CS121]. No specific measures identified [E118].	
Process sampling [CS2]. No specific measures identified [E118].	
General exposures (closed systems) [CS15]. No specific measures identified [E118].	



BAZAN GROUP

GADIV PETOCEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 51 of 77

Pouring from small containers [CS9]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11]. Wear suitable gloves tested to EN374 [PPE15].
General exposures (open systems) [CS16]. Ensure operation is undertaken outdoors [E69].
Equipment cleaning and maintenance [CS39]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11]. Wear suitable gloves tested to EN374 [PPE15].
Batch process [CS55]. No specific measures identified [E118].
Batch process [CS55]. With occasional controlled exposure [CS137] Provide extract ventilation to points where emissions occur [E54].
Section 2.2 Control of environmental exposure
Product characteristics The Xylene isomers are liquids of medium volatility. Their average water solubility is 158mg/l; their average vapour pressure is 1050Pa at 25°C; and their average log Kow is 3.16. They are considered to be readily biodegradable.
Duration, frequency and amount Emission days per year <i>Not applicable</i>
Environmental factors not influenced by risk management Local Freshwater dilution factor <i>Not applicable</i> Local marine water dilution factor <i>Not applicable</i>
Other given operational conditions affecting environmental exposure Release fraction to air from process <i>Not applicable</i> Release fraction to waste water from process <i>Not applicable</i> Release fraction to soil from process (regional only) <i>Not applicable</i>
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Discharge to aquatic environment is restricted (see Section 4.2) 0.01 Prevent environmental discharge consistent with regulatory requirements. 0.07
Organisation measures to prevent/limit release from site Prevent environmental discharge consistent with regulatory requirements
Conditions and measures related to municipal sewage treatment plant <i>Not applicable</i>
Conditions and measures related to external treatment of waste for disposal External treatment and disposal of waste should comply with applicable local and/or national regulations. External recovery and recycling of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]
Section 3 Exposure Estimation
3.1. Health When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1
3.2. Environment Quantitative exposure and risk assessment not possible due to lack of emissions to aquatic environment. Qualitative approach used to conclude safe use.
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health Confirm that RMMs and OCs are as described or of equivalent efficiency
4.2. Environment Discharge to aquatic environment is restricted by law and industry prohibits release.



SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 52 of 77

Use in oil field drilling and production operations – Professional

Section 1 Exposure Scenario Title	
Use Descriptor	
Sector(s) of Use	SU22
Process Categories	PROC1, PROC2, PROC3, PROC4, PROC 8a, PROC8b
Environmental Release Categories	ERC8D
Specific Environmental Release Category	
Processes, tasks, activities covered	
Oil field well drilling and production operations (including drilling muds and well cleaning) including material transfers, maintenance and disposal.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid, vapour pressure 0.5 - 10 kPa STP	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2] Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1] Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
General measures (skin irritants) [G19] Avoid direct contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with the substance is likely. Clean up contamination / spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. [E3] Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release e.g. spraying [E4],	
Bulk transfers [CS14]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11].	
Filling / preparation of equipment from drums or containers. [CS45]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11].	
Drill floor operations [CS116]. No specific measures identified [E118].	
Drill floor operations [CS116]. Ensure operation is undertaken outdoors [E69].	
Operation of solids filtering equipment - vapour exposures [CS118]. Ensure material transfers are under containment or extract ventilation [E66]	
Operation of solids filtering equipment - aerosol exposures [CS119].; Ensure material transfers are under containment or extract ventilation [E66]	
Operation of solids filtering equipment [CS117]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11].	
Treatment and disposal of filtered solids [CS121]. No specific measures identified [E118].	
Process sampling [CS2]. No specific measures identified [E118].	
General exposures (closed systems) [CS15]. No specific measures identified [E118].	



SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 53 of 77

Pouring from small containers [CS9]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11]. Avoid carrying out operation for more than 4 hours [OC12].
General exposures (open systems) [CS16]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11].
Equipment cleaning and maintenance [CS39]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11]. Avoid carrying out operation for more than 4 hours [OC12].
Batch process [CS55]. No specific measures identified [E118].
Batch process [CS55]. With occasional controlled exposure [CS137] No specific measures identified [E118].
Section 2.2 Control of environmental exposure
Product characteristics The Xylene isomers are liquids of medium volatility. Their average water solubility is 158mg/l; their average vapour pressure is 1050Pa at 25°C; and their average log Kow is 3.16. They are considered to be readily biodegradable.
Duration, frequency and amount Emission days per year <i>Not applicable</i>
Environmental factors not influenced by risk management Local Freshwater dilution factor <i>Not applicable</i> Local marine water dilution factor <i>Not applicable</i>
Other given operational conditions affecting environmental exposure Release fraction to air from process <i>Not applicable</i> Release fraction to waste water from process <i>Not applicable</i> Release fraction to soil from process (regional only) <i>Not applicable</i>
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Discharge to aquatic environment is restricted
Organisation measures to prevent/limit release from site Prevent environmental discharge consistent with regulatory requirements.
Conditions and measures related to municipal sewage treatment plant <i>Not applicable</i>
Conditions and measures related to external treatment of waste for disposal External treatment and disposal of waste should comply with applicable local and/or national regulations.
Conditions and measures related to external recovery of waste External recovery and recycling of waste should comply with applicable local and/or national regulations.
Section 3 Exposure Estimation
3.1. Health measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1
3.2. Environment Quantitative exposure and risk assessment not possible due to lack of emissions to aquatic environment. Qualitative approach used to conclude safe use.
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health Confirm that RMMs and OCs are as described or of equivalent efficiency.
4.2. Environment Discharge to aquatic environment is restricted by law and industry prohibits release



SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 54 of 77

Use as binders – Industrial

Section 1 Exposure Scenario Title	
Use Descriptor	
Sector(s) of Use	SU3
Process Categories	PROC1, PROC2, PROC3, PROC4, PROC6, PROC7, PROC8b, PROC10, PROC13, PROC14,
Environmental Release Categories	ERC 4
Specific Environmental Release Category	ESVOC 4.10a.v1
Processes, tasks, activities covered	
Covers the use as binders and release agents including material transfers, mixing, application (including spraying and brushing), mould forming and casting, and handling of waste.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid, vapour pressure 0.5 - 10 kPa STP	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2]	
Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1]	
Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions	
(only required controls to demonstrate safe use listed)	
General measures (skin irritants) [G19]	
Avoid direct contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with the substance is likely. Clean up contamination / spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. [E3]	
Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release e.g. spraying [E4],	
Material transfers [CS3].	
No specific measures identified [E118].	
Material transfers [CS3]. With occasional controlled exposure [CS137]	
No specific measures identified [E118].	
Material transfers [CS3]. Batch process [CS55]. (closed systems) [CS107].	
No specific measures identified [E118].	
Drum/batch transfers [CS8].	
Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour) [E40].	
Mixing operations (closed systems) [CS29].	
No specific measures identified [E118].	
Mixing operations (open systems) [CS30].	
No specific measures identified [E118].	
Mold forming [CS31].	
Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour) [E40].	
Casting operations [CS32].	
Provide extract ventilation to points where emissions occur [E54].	
Spraying [CS10]. Machine [CS33].	
Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60]. Wear suitable gloves tested to EN374 [PPE15].	



BAZAN GROUP

GADIV PETOCEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 55 of 77

Manual roller application or brushing [CS13]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11].
General exposures (open systems) [CS16]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11].
Storage [CS67] With occasional controlled exposure [CS137] No specific measures identified [E118]
Section 2.2 Control of environmental exposure
Product characteristics
The Xylene isomers are liquids of medium volatility. Their average water solubility is 158mg/l; their average vapour pressure is 1050Pa at 25°C; and their average log Kow is 3.16. They are considered to be readily biodegradable.
Duration, frequency and amount
EU tonnage 21 ktonnes/year Regional tonnage 2.1 ktonnes/year Fraction of main local source 1 Emission Days (days/year): 300 days/yr
Environmental factors not influenced by risk management
Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100
Other given operational conditions affecting environmental exposure
Release fraction to air from process 0.2 Release fraction to waste water from process 0.00003 Release fraction to soil from process (regional only) 0
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Treat air emissions to provide a typical removal efficiency of >80%. [TCR 7] Typical onsite wastewater treatment technology provides removal efficiency of 93.57%. [TCR 11] Soil emission controls are not applicable as there is no direct release to soil. [TCR 4] Prevent discharge of undissolved substance to or recover from wastewater [TCR14].
Organisation measures to prevent/limit release from site
Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
Conditions and measures related to municipal sewage treatment plant
Estimated substance removal from wastewater via domestic sewage treatment 93.57 (%) [STP3] Assumed domestic sewage treatment plant flow 2000 (m ³ /d) [STP5] The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 3.70E+05 kg/day after RMM
Conditions and measures related to external treatment of waste for disposal
External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]
Conditions and measures related to external recovery of waste
External recovery an recycling of waste should comply with applicable local and/or national regulations [ERW1]
Section 3 Exposure Estimation
3.1. Health
When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1
3.2. Environment
When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Confirm that RMMs and OCs are as described or of equivalent efficiency
4.2. Environment



BAZAN GROUP

GADIV PETOCEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 56 of 77

Confirm that RMMs and OCs are as described or of equivalent efficiency. The required efficiency removal from water is 93.57% which would be typically found in waste-water treatment plant.



BAZAN GROUP

GADIV PETOCEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 57 of 77

Use as binders – Professional

Section 1 Exposure Scenario Title	
Use Descriptor	
Sector(s) of Use	SU22
Process Categories	PROC1, PROC2, PROC3, PROC4, PROC6, PROC 8a, PROC8b, PROC10, PROC11, PROC14
Environmental Release Categories	ERC8A, ERC8D
Specific Environmental Release Category	ESVOC 8.10b.v1
Processes, tasks, activities covered	
Covers the use as binders and release agents including material transfers, mixing, application by spraying, brushing, and handling of waste	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid, vapour pressure 0.5 - 10 kPa STP	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2] Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1] Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
General measures (skin irritants) [G19] Avoid direct contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with the substance is likely. Clean up contamination / spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. [E3] Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release e.g. spraying [E4],	
Material transfers [CS3]. (closed systems) [CS107] No specific measures identified [E118].	
Material transfers [CS3]. (closed systems) [CS107] With occasional controlled exposure [CS137] No specific measures identified [E118].	
Material transfers [CS3]. (closed systems) [CS107] Batch process [CS55]. No specific measures identified [E118].	
Drum/batch transfers [CS8]. Transfer materials directly to mixing vessels [E45]	
Mixing operations (closed systems) [CS29]. No specific measures identified [E118].	
Mixing operations (open systems) [CS30]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11].	
Mold forming [CS31]. Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour) [E40].	
Casting operations [CS32]. (open systems) [CS108] Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour) [E40].	
Spraying [CS10]. Manual [CS34]. Carry out in a vented booth or extracted enclosure [E57]. Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour) [E40].	



BAZAN GROUP

GADIV PETOCEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 58 of 77

Manual roller application or brushing [CS13]. Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour) [E40]. Spraying [CS10]. Manual [CS34]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11]. Wear a respirator conforming to EN140 with Type A filter or better. [PPE22] Material transfers [CS3]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11]. Avoid carrying out operation for more than 4 hours [OC12]. Storage [CS67] No specific measures identified [E118]. Storage [CS67]With occasional controlled exposure [CS137] No specific measures identified [E118].
Section 2.2 Control of environmental exposure
Product characteristics The Xylene isomers are liquids of medium volatility. Their average water solubility is 158mg/l; their average vapour pressure is 1050Pa at 25°C; and their average log Kow is 3.16. They are considered to be readily biodegradable.
Duration, frequency and amount EU tonnage 21 ktonnes/year Regional tonnage 2.1 ktonnes/year Fraction of main local source 0.002 Emission Days (days/year): 365 days/yr
Environmental factors not influenced by risk management Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100
Other given operational conditions affecting environmental exposure Release fraction to air from process 0.95 Release fraction to waste water from process 0.025 Release fraction to soil from process (regional only) 0.025
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil Negligible air emissions as process operates in a contained system. Typical onsite wastewater treatment technology provides removal efficiency of 93.57%. [TCR 11] Soil emission controls are not applicable as there is no direct release to soil. [TCR 4]
Organisation measures to prevent/limit release from site Prevent environmental discharge consistent with regulatory requirements. [OMS 4]
Conditions and measures related to municipal sewage treatment plant Estimated substance removal from wastewater via domestic sewage treatment 93.57 (%) [STP3] Assumed domestic sewage treatment plant flow 2000 (m ³ /d) [STP5] The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 5.78E+02 kg/day after RMM
Conditions and measures related to external treatment of waste for disposal External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]
Conditions and measures related to external recovery of waste External recovery an recycling of waste should comply with applicable local and/or national regulations [ERW1]
Section 3 Exposure Estimation
3.1. Health When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1
3.2. Environment When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.
Section 4 Guidance to check compliance with the Exposure Scenario



BAZAN GROUP

GADIV PETOCHEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 59 of 77

4.1. Health
Confirm that RMMs and OCs are as described or of equivalent efficiency
4.2. Environment
Confirm that RMMs and OCs are as described or of equivalent efficiency. The required efficiency removal from water is 93.57% which would be typically found in waste-water treatment plant..



SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 60 of 77

Use in Agrochemicals – Professional

Section 1 Exposure Scenario Title	
Use Descriptor	
Sector(s) of Use	SU22
Process Categories	PROC1, PROC2, PROC4, PROC8a, PROC8b, PROC11, PROC13,
Environmental Release Categories	ERC8A, ERC 8D
Specific Environmental Release Category	ESVOC 8.11a.v1
Processes, tasks, activities covered	
Use as an agrochemical excipient for application by manual or machine spraying, smokes and fogging; including storage, equipment clean-downs and disposal.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid, vapour pressure 0.5 - 10 kPa STP	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2] Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1] Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
General measures (skin irritants) [G19] Avoid direct contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with the substance is likely. Clean up contamination / spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. [E3] Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release e.g. spraying [E4],	
Transfer from/pouring from containers [CS22]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11]. Avoid carrying out operation for more than 1 hour [OC11]	
Mixing in containers [CS23]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11].	
Spraying/fogging by manual application [CS24]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11]. Wear a respirator conforming to EN140 with Type A filter or better. [PPE22]	
Spraying/fogging by machine application [CS25]. Apply within a vented cab supplied with filtered air under positive pressure and with a protection factor of >20 [E70]. Ad hoc manual application via trigger sprays, dipping, etc [CS27]. Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour) [E40].	
Clean down and maintenance [CS26]. Non-dedicated facility [CS82]. Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour) [E40].	
Disposal of wastes [CS28]. Nondedicated facility [CS82]. Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour) [E40].	
Storage [CS67] With occasional controlled exposure [CS137] No specific measures identified [E118].	
Section 2.2 Control of environmental exposure	
Product characteristics	



SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 61 of 77

The Xylene isomers are liquids of medium volatility. Their average water solubility is 158mg/l; their average vapour pressure is 1050Pa at 25°C; and their average log Kow is 3.16. They are considered to be readily biodegradable.
Duration, frequency and amount
EU tonnage 21 ktonnes/year Regional tonnage 2.1 ktonnes/year Fraction of main local source 0.002 Emission Days (days/year): 365 days/yr
Environmental factors not influenced by risk management
Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100
Other given operational conditions affecting environmental exposure
Release fraction to air from process 0.9 Release fraction to waste water from process 0.01 Release fraction to soil from process (regional only) 0.09
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Negligible air emissions as process operates in a contained system. Typical onsite wastewater treatment technology provides removal efficiency of 93.57%. [TCR 11] Soil emission controls are not applicable as there is no direct release to soil. [TCR 4]
Organisation measures to prevent/limit release from site
Prevent environmental discharge consistent with regulatory requirements. [OMS 4]
Conditions and measures related to municipal sewage treatment plant
Estimated substance removal from wastewater via domestic sewage treatment 93.57 (%) [STP3] Assumed domestic sewage treatment plant flow 2000 (m ³ /d) [STP5] The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 6.50E+02 kg/day after RMM
Conditions and measures related to external treatment of waste for disposal
External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]
Conditions and measures related to external recovery of waste
External recovery an recycling of waste should comply with applicable local and/or national regulations [ERW1]
Section 3 Exposure Estimation
3.1. Health
When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1
3.2. Environment
When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Confirm that RMMs and OCs are as described or of equivalent efficiency
4.2. Environment
Confirm that RMMs and OCs are as described or of equivalent efficiency. The required efficiency removal from water is 93.57% which would be typically found in waste-water treatment plant.



SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 62 of 77

Use in Agrochemicals – Consumer

Section 1 Exposure Scenario Title	
Use Descriptor	
Sector(s) of Use	SU21
Product Categories	PC12, PC27
Environmental Release Categories	ERC8A, ERC8D
Specific Environmental Release Category	ESVOC SpERC 8.11b.v1
Processes, tasks, activities covered	
Covers the consumer use in agrochemicals in liquid and solid forms.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of consumer exposure	
Product Characteristic	
Liquid, Vapour pressure 1052 kPa	
Duration, frequency and amount	
Unless otherwise stated, cover concentrations up to 40% Unless otherwise stated, covers use frequency up to 1 times per day covers exposure up to 2 hours per event Unless otherwise stated, covers use amounts up to 0.4g covers skin contact area up to 857.5cm ²	
Other given operational conditions affecting consumer exposure	
Unless otherwise stated assumes use at ambient temperatures assumes use in a 20 m ³ room assumes use with typical ventilation	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
PC12:Fertilizers--Lawn and garden preparations OC Unless otherwise stated, covers concentrations up to 35% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm ² [ConsOC5]; for each use event, assumes swallowed amount of 0.3g [ConsOC13]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 2.00hr/event[ConsOC14];	
PC27_n: Plant protection products-- OC Unless otherwise stated, covers concentrations up to 35% [ConsOC1]; covers use up to 365 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 857.50 cm ² [ConsOC5]; for each use event, assumes swallowed amount of 0.3g [ConsOC13]; covers use in room size of 20m ³ [ConsOC11]; for each use event, covers exposure up to 2.00hr/event[ConsOC14];	
Section 2.2 Control of environmental exposure	
Product characteristics	
The Xylene isomers are liquids of medium volatility. Their average water solubility is 158mg/l; their average vapour pressure is 1050Pa at 25°C; and their average log Kow is 3.16. They are considered to be readily biodegradable.	
Duration, frequency and amount	
EU tonnage 21 ktonnes/year Regional tonnage 2.1 ktonnes/year Fraction of main local source 0.002 Emission Days (days/year): 365 days/yr	



BAZAN GROUP

GADIV PETOCHEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 63 of 77

Environmental factors not influenced by risk management
Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100
Other given operational conditions affecting environmental exposure
Release fraction to air from process 0.9 Release fraction to waste water from process 0.01 Release fraction to soil from process (regional only) 0.09
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Risk from environmental exposure is driven by freshwater [TCR1a] Treat air emission to provide a typical removal efficiency of 0% [TCR 7]
Organisation measures to prevent/limit release from site
Prevent environmental discharge consistent with regulatory requirements.
Conditions and measures related to municipal sewage treatment plant
Estimated substance removal from wastewater via domestic sewage treatment 93.57 (%) [STP3] Assumed domestic sewage treatment plant flow 2000 (m ³ /d) [STP5] The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 6.50E+02 kg/day after RMM
Conditions and measures related to external treatment of waste for disposal
External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]
Conditions and measures related to external recovery of waste
External recovery or recycling of waste should comply with applicable local and/or national regulations [ERW1]
Section 3 Exposure Estimation
3.1. Health
When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1
3.2. Environment
When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Confirm that RMMs and OCs are as described or of equivalent efficiency
4.2. Environment
Confirm that RMMs and OCs are as described or of equivalent efficiency. The required efficiency removal from water is 86.5% which would be typically found in waste-water treatment plant.



BAZAN GROUP

GADIV PETOCEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 64 of 77

Use as a fuel - Industrial

Section 1 Exposure Scenario Title	
Use Descriptor	
Sector(s) of Use	SU3
Process Categories	PROC1, PROC16, PROC2, PROC3, PROC4, PROC8a, PROC8b, PROC 16
Environmental Release Categories	ERC7
Specific Environmental Release Category	ESVOC 7.12a.v1
Processes, tasks, activities covered	
Covers the use as a fuel (or fuel additive) and includes activities associated with its transfer, use, equipment maintenance and handling of waste	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid, vapour pressure 0.5 - 10 kPa STP	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2] Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1] Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
General measures (skin irritants) [G19] Avoid direct contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with the substance is likely. Clean up contamination / spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimize exposures and to report any skin problems that may develop. [E3] Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release e.g. spraying [E4],	
Bulk transfers [CS14]. No specific measures identified [E118].	
Drum/batch transfers [CS8]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11].	
General exposures (closed systems) [CS15]. No specific measures identified [E118]. {Wear suitable gloves tested to EN374 [PPE15]}.	
General exposures (closed systems) [CS15]. With occasional controlled exposure [CS137] No specific measures identified [E118].	
General exposures (closed systems) [CS15]. Batch process [CS55]. No specific measures identified [E118].	
General exposures (open systems) [CS16]. (closed systems) [CS107] No specific measures identified [E118].	
General exposures (open systems) [CS16]. (closed systems) [CS107]. Batch process [CS55]. No specific measures identified [E118].	
Equipment maintenance [CS5]. Drain down and flush system prior to equipment break-in or maintenance [E55].Wear suitable coveralls to prevent exposure to the skin [PPE27].	
Vessel and container cleaning [CS103] Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11].	
Storage [CS67] Transfer via enclosed lines [E52].Store substance within a closed system [E84].	
Section 2.2 Control of environmental exposure	
Product characteristics	



BAZAN GROUP

GADIV PETOCHEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 65 of 77

The Xylene isomers are liquids of medium volatility. Their average water solubility is 158mg/l; their average vapour pressure is 1050Pa at 25°C; and their average log Kow is 3.16. They are considered to be readily biodegradable.
Duration, frequency and amount
EU tonnage 70 ktonnes/year Regional tonnage 7 ktonnes/year Fraction of main local source 1 Emission Days (days/year): 300 days/yr
Environmental factors not influenced by risk management
Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100
Other given operational conditions affecting environmental exposure
Release fraction to air from process 0.0025 Release fraction to waste water from process 0.00001 Release fraction to soil from process (regional only) 0
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Treat air emissions to provide a typical removal efficiency of >80%. [TCR 7] Typical onsite wastewater treatment technology provides removal efficiency of 93.57%. [TCR 11] Soil emission controls are not applicable as there is no direct release to soil. [TCR 4] Prevent discharge of undissolved substance to or recover from wastewater [TCR14].
Organisation measures to prevent/limit release from site
Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
Conditions and measures related to municipal sewage treatment plant
Estimated substance removal from wastewater via domestic sewage treatment 93.57 (%) [STP3] Assumed domestic sewage treatment plant flow 2000 (m ³ /d) [STP5] The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 1.22E+06 kg/day after RMM
Conditions and measures related to external treatment of waste for disposal
External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]
Conditions and measures related to external recovery of waste
External recovery an recycling of waste should comply with applicable local and/or national regulations [ERW1]
Section 3 Exposure Estimation
3.1. Health
When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1
3.2. Environment
When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Confirm that RMMs and OCs are as described or of equivalent efficiency
4.2. Environment
Confirm that RMMs and OCs are as described or of equivalent efficiency. The required efficiency removal from water is 93.57% which would be typically found in waste-water treatment plant.



BAZAN GROUP

GADIV PETO CHEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 66 of 77

Use as a fuel – Professional

Section 1 Exposure Scenario Title	
Use Descriptor	
Sector(s) of Use	SU22
Process Categories	PROC1, PROC4, PROC2, PROC3, PROC8a, PROC8b, PROC16
Environmental Release Categories	ERC9A, ERC9B,
Specific Environmental Release Category	ESVOC 9.12b.v1
Processes, tasks, activities covered	
Covers the use as a fuel (or fuel additive), and includes activities associated with its transfer, use, equipment maintenance and handling of waste.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid, vapour pressure 0.5 - 10 kPa STP	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2] Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1] Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
General measures (skin irritants) [G19] Avoid direct contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with the substance is likely. Clean up contamination / spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. [E3] Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release e.g. spraying [E4],	
Bulk transfers [CS14]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11].	
Drum/batch transfers [CS8]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11].	
Dipping, immersion and pouring [CS4]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11].	
General exposures (closed systems) [CS15]. No specific measures identified [E118].	
General exposures (closed systems) [CS15]. With occasional controlled exposure [CS137] No specific measures identified [E118].	
General exposures (open systems) [CS16]. (closed systems) [CS107] Batch process [CS55]. No specific measures identified [E118].	
General exposures (open systems) CS16. (closed systems) [CS107] No specific measures identified [E118].	
Equipment cleaning and maintenance [CS39]. Drain down and flush system prior to equipment break-in or maintenance [E55].	
Vessel and container cleaning [CS103] Drain down system prior to equipment break-in or maintenance [E65].	
Storage [CS67] Store substance within a closed system [E84].	
Section 2.2 Control of environmental exposure	



BAZAN GROUP

GADIV PETOCHEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 67 of 77

Product characteristics
The Xylene isomers are liquids of medium volatility. Their average water solubility is 158mg/l; their average vapour pressure is 1050Pa at 25°C; and their average log Kow is 3.16. They are considered to be readily biodegradable.
Duration, frequency and amount
EU tonnage 70 ktonnes/year Regional tonnage 7 ktonnes/year Fraction of main local source 0.002 Emission Days (days/year): 365 days/yr
Environmental factors not influenced by risk management
Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100
Other given operational conditions affecting environmental exposure
Release fraction to air from process 0.001 Release fraction to waste water from process 0.00001 Release fraction to soil from process (regional only) 0.00001
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Treat air emissions to provide a typical removal efficiency of >0%. [TCR 7] Typical onsite wastewater treatment technology provides removal efficiency of 93.57%. [TCR 11] Soil emission controls are not applicable as there is no direct release to soil. [TCR 4] Prevent discharge of undissolved substance to or recover from wastewater [TCR14].
Organisation measures to prevent/limit release from site
Do not apply industrial sludge to natural soils [OMS2]. Sludge should be incinerated, contained or reclaimed [OMS3].
Conditions and measures related to municipal sewage treatment plant
Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 93.57 % The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 2.35E+03 kg/day after RMM
Conditions and measures related to external treatment of waste for disposal
External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]
Conditions and measures related to external recovery of waste
External recovery an recycling of waste should comply with applicable local and/or national regulations [ERW1]
Section 3 Exposure Estimation
3.1. Health
When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1
3.2. Environment
When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Confirm that RMMs and OCs are as described or of equivalent efficiency
4.2. Environment
Confirm that RMMs and OCs are as described or of equivalent efficiency. The required efficiency removal from water is 93.57% which would be typically found in waste-water treatment plant.



BAZAN GROUP

GADIV PETOCEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 68 of 77

Use as a fuel – Consumer

Section 1 Exposure Scenario Title	
Use Descriptor	
Sector(s) of Use	SU21
Product Categories	PC13
Environmental Release Categories	ERC9A, ERC9B
Specific Environmental Release Category	ESVOC 9.12c.v1
Processes, tasks, activities covered	
Covers consumer uses in liquid fuels.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of consumer exposure	
Product Characteristic	
Liquid	
Duration, frequency and amount	
Unless otherwise stated, covers use frequency up to 0.143 times per day; covers exposure up to 2 hours per event Unless otherwise stated, covers use amounts up to 37500g; covers skin contact area up to 420cm ²	
Other given operational conditions affecting consumer exposure	
Unless otherwise stated assumes use at ambient temperatures; assumes use in a 20 m ³ room ; assumes use with typical ventilation	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
PC13:Fuels--Liquid – subcategories added: Automotive Refuelling OC Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 52 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 210.00 cm ² [ConsOC5]; for each use event, covers use amounts up to 37500g [ConsOC2]; covers outdoor use [ConsOC12]; covers use in room size of 100m ³ [ConsOC11]; for each use event, covers exposure up to 0.05hr/event[ConsOC14];	
PC13:Fuels--Liquid – subcategories added: Scooter Refuelling OC Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 52 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; covers skin contact area up to 210.00 cm ² [ConsOC5]; for each use event, covers use amounts up to 3750g [ConsOC2]; covers outdoor use [ConsOC12]; covers use in room size of 100m ³ [ConsOC11]; for each use event, covers exposure up to 0.03hr/event[ConsOC14];	
PC13:Fuels--Liquid – subcategories added: Garden Equipment - Use OC Unless otherwise stated, covers concentrations up to 100% [ConsOC1]; covers use up to 26 days/year[ConsOC3]; covers use up to 1 time/on day of use[ConsOC4]; for each use event, covers use amounts up to 750g [ConsOC2]; covers outdoor use [ConsOC12]; covers use in room size of 100m ³ [ConsOC11]; for each use event, covers exposure up to 2.00hr/event[ConsOC14];	
PC13:Fuels--Liquid (subcategories added): Garden Equipment - Refueling OC Unless otherwise stated, covers concentrations up to 100% [ConsOC1];	



SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 69 of 77

covers use up to 26 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 420.00 cm² [ConsOC5];
for each use event, covers use amounts up to 750g [ConsOC2];
Covers use in a one car garage (34m³) under typical ventilation[ConsOC10];
covers use in room size of 34m³[ConsOC11];
for each use event, covers exposure up to 0.03hr/event[ConsOC14];
PC13:Fuels--Liquid – subcategories added: Lamp oil
OC Unless otherwise stated, covers concentrations up to 100% [ConsOC1];
covers use up to 52 days/year[ConsOC3];
covers use up to 1 time/on day of use[ConsOC4];
covers skin contact area up to 210.00 cm² [ConsOC5];
for each use event, covers use amounts up to 100g [ConsOC2];
covers use in room size of 20m³[ConsOC11];
for each use event, covers exposure up to 0.01hr/event[ConsOC14]

Section 2.2 Control of environmental exposure

Product characteristics

The Xylene isomers are liquids of medium volatility. Their average water solubility is 158mg/l; their average vapour pressure is 1050Pa at 25°C; and their average log Kow is 3.16. They are considered to be readily biodegradable.

Duration, frequency and amount

EU tonnage 70 ktonnes/year
Regional tonnage 7 ktonnes/year
Fraction of main local source 0.002
Emission Days (days/year): 365 days/yr

Environmental factors not influenced by risk management

Local freshwater dilution factor [EF1] 10
Local marine water dilution factor: [EF2] 100

Other given operational conditions affecting environmental exposure

Release fraction to air from process 0.001
Release fraction to waste water from process 0.00001
Release fraction to soil from process (regional only) 0.00001

Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil

Treat air emissions to provide a typical removal efficiency of >0%. [TCR 7]
Typical onsite wastewater treatment technology provides removal efficiency of 93.57%. [TCR 11]
Soil emission controls are not applicable as there is no direct release to soil. [TCR 4]

Organisation measures to prevent/limit release from site

Do not apply industrial sludge to natural soils [OMS2].
Sludge should be incinerated, contained or reclaimed [OMS3].

Conditions and measures related to municipal sewage treatment plant

Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m³/day
Estimated substance removal from wastewater via domestic sewage treatment is: 93.57 %
The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 2.35E+03 kg/day after RMM

Conditions and measures related to external treatment of waste for disposal

This substance is consumed during use and no waste of the substance is generated [ETW5]

Conditions and measures related to external recovery of waste

This substance is consumed during use and no waste of the substance is generated [ERW3]

Section 3 Exposure Estimation

3.1. Health

When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1

3.2. Environment

When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not



BAZAN GROUP

GADIV PETOCHEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 70 of 77

expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Confirm that RMMs and OCs are as described or of equivalent efficiency
4.2. Environment
Confirm that RMMs and OCs are as described or of equivalent efficiency. The required efficiency removal from water is 93.57% which would be typically found in wastewater treatment plant.



SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 71 of 77

Use in laboratories – Industrial

Section 1 Exposure Scenario Title	
Use Descriptor	
Sector(s) of Use	SU3
Process Categories	PROC10, PROC15
Environmental Release Categories	ERC2, ERC4
Specific Environmental Release Category	
Processes, tasks, activities covered	
Use of the substance within laboratory settings, including material transfers and equipment cleaning.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid, vapour pressure 0.5 - 10 kPa	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2] Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1] Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
General measures (skin irritants) [G19] Avoid direct contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with the substance is likely. Clean up contamination / spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. [E3] Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release e.g. spraying [E4], Laboratory activities [CS36]. Small scale [CS61]. Handling small quantities (<1000ml) for more than 4 hours/day - inside fume cupboard. No specific measures identified [E118]. Cleaning [CS47]. Rolling, Brushing [CS51]. Vessel and container cleaning [CS103]Cleaning equipment, glassware etc under general ventilation for 15 min - 1 hour/day Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11].	
Section 2.2 Control of environmental exposure	
Product characteristics	
The Xylene isomers are liquids of medium volatility. Their average water solubility is 158mg/l; their average vapour pressure is 1050Pa at 25°C; and their average log Kow is 3.16. They are considered to be readily biodegradable.	
Duration, frequency and amount	
EU tonnage 21 ktonnes/year Regional tonnage 2.1 ktonnes/year Fraction of main local source 0.3 Emission Days (days/year): 300 days/yr	
Environmental factors not influenced by risk management	
Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100	
Other given operational conditions affecting environmental exposure	
Release fraction to air from process 0.025 Release fraction to waste water from process 0.02 Release fraction to soil from process (regional only) 0.0001	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	



BAZAN GROUP

GADIV PETOCHEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 72 of 77

Treat air emission to provide a typical removal efficiency of >0% [TCR7] Typical onsite wastewater treatment technology provides removal efficiency of 93.57%. [TCR 11] Soil emission controls are not applicable as there is no direct release to soil. [TCR4]
Organisation measures to prevent/limit release from site
Do not apply industrial sludge to natural soils. [OMS2]
Conditions and measures related to municipal sewage treatment plant
Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 93.57 % The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 2.71E+03 kg/day after RMM
Conditions and measures related to external treatment of waste for disposal
External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]
Conditions and measures related to external recovery of waste
External recovery an recycling of waste should comply with applicable local and/or national regulations [ERW1]
Section 3 Exposure Estimation
3.1. Health
When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1
3.2. Environment
When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Confirm that RMMs and OCs are as described or of equivalent efficiency
4.2. Environment
Confirm that RMMs and OCs are as described or of equivalent efficiency. The required efficiency removal from water is 93.57% which would be typically found in waste-water treatment plant.



BAZAN GROUP

GADIV PETO CHEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 73 of 77

Use in laboratories – Professional

Section 1 Exposure Scenario Title	
Use Descriptor	
Sector(s) of Use	SU22
Process Categories	PROC10, PROC15
Environmental Release Categories	ERC8A
Specific Environmental Release Category	ESVOC 8.17.v1
Processes, tasks, activities covered	
Use of small quantities within laboratory settings, including material transfers and equipment cleaning.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid, vapour pressure 0.5 - 10 kPa	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2]	
Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1]	
Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions	
(only required controls to demonstrate safe use listed)	
General measures (skin irritants) [G19]	
Avoid direct contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with the substance is likely. Clean up contamination / spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. [E3]	
Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release e.g. spraying [E4],	
Laboratory activities [CS36]. Small scale [CS61]. Fume-cupboard Activity [CS139].	
No specific measures identified [E118].	
Cleaning [CS47]. Rolling, Brushing [CS51]. Vessel and container cleaning [CS103]	
Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour) [E40].	
Section 2.2 Control of environmental exposure	
Product characteristics	
The Xylene isomers are liquids of medium volatility. Their average water solubility is 158mg/l; their average vapour pressure is 1050Pa at 25°C; and their average log Kow is 3.16. They are considered to be readily biodegradable.	
Duration, frequency and amount	
EU tonnage 21 ktonnes/year	
Regional tonnage 2.1 ktonnes/year	
Fraction of main local source 0.002	
Emission Days (days/year): 365 days/yr	
Environmental factors not influenced by risk management	
Local freshwater dilution factor [EF1] 10	
Local marine water dilution factor: [EF2] 100	
Other given operational conditions affecting environmental exposure	
Release fraction to air from process 0.5	
Release fraction to waste water from process 0.5	
Release fraction to soil from process (regional only) 0	
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil	
Treat air emission to provide a typical removal efficiency of >0% [TCR7]	
Estimated substance removal from wastewater via domestic sewage treatment 93.57% [STP3]	



BAZAN GROUP

GADIV PETOCHEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 74 of 77

Soil emission controls are not applicable as there is no direct release to soil. [TCR4]
Organisation measures to prevent/limit release from site
Do not apply industrial sludge to natural soils.
Conditions and measures related to municipal sewage treatment plant
Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 93.57 % The maximum allowable site tonnage (MSafe) based on domestic sewage plant effluent release is: 1.09E+02 kg/day after RMM
Conditions and measures related to external treatment of waste for disposal
External treatment and disposal of waste should comply with applicable local and/or national regulations [ETW3]
Conditions and measures related to external recovery of waste
External recovery and recycling of waste should comply with applicable local and/or national regulations [ERW1]
Section 3 Exposure Estimation
3.1. Health
When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1
3.2. Environment
When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Confirm that RMMs and OCs are as described or of equivalent efficiency
4.2. Environment
Confirm that RMMs and OCs are as described or of equivalent efficiency. The required efficiency removal from water is 93.57% which would be typically found in waste-water treatment plant.



BAZAN GROUP

GADIV PETOCHEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 75 of 77

Use in rubber production – Industrial

Section 1 Exposure Scenario Title	
Use Descriptor	
Sector(s) of Use	SU3, SU10
Process Categories	PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC7, PROC8a, PROC8b, PROC9, PROC13, PROC14, PROC15, PROC21
Environmental Release Categories	ERC1, ERC4, ERC6D
Specific Environmental Release Category	ESVOC 4.19.v1
Processes, tasks, activities covered	
Manufacture of tyres and general rubber articles, including processing of raw (uncured) rubber, handling and mixing of rubber Additives, vulcanising, cooling and finishing.	
Section 2 Operational conditions and risk management measures	
Section 2.1 Control of worker exposure	
Product Characteristic	
Liquid, vapour pressure 0.5 - 10 kPa	
Duration, frequency and amount	
Covers daily exposures up to 8 hours (unless stated differently)[G2] Covers percentage substance in the product up to 100 %[G13]	
Other given operational conditions affecting workers exposure	
Assumes a good basic standard of occupational hygiene is implemented [G1] Assumes use at not more than 20°C above ambient temperature[G15]	
Contributing Scenarios/Specific Risk Management Measures and Operating Conditions (only required controls to demonstrate safe use listed)	
General measures (skin irritants) [G19] Avoid direct contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with the substance is likely. Clean up contamination / spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent / minimise exposures and to report any skin problems that may develop. [E3] Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release e.g. spraying [E4],	
Material transfers [CS3]. With occasional controlled exposure [CS137] No specific measures identified [E118].	
Material transfers [CS3]. Dedicated facility [CS81]. No specific measures identified [E118].	
Material transfers [CS3]. Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour). [E11]	
Rework of articles [CS86]. No specific measures identified [E118].	
Bulk weighing [CS91] With occasional controlled exposure No specific measures identified [E118].	
Bulk weighing [CS91] No specific measures identified [E118].	
Small scale weighing [CS90] Provide a good standar of general ventilation (not less than 3 to 5 air changes per hour). [E11].	
Additive premixing [CS92] No specific measures identified [E118].	
Additive premixing [CS92] Dedicated facility [CS81]. No specific measures identified [E118].	
Material transfers [CS3]. Provide a good standar of general ventilation (not less than 3 to 5 air changes per hour). [E11]	



SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 76 of 77

<p>Material transfers [CS3]. Batch process [CS55]. Provide a good standar of general ventilation (not less than 3 to 5 air changes per hour). [E11].</p> <p>Additive premixing [CS92] Provide a good standar of general ventilation (not less than 3 to 5 air changes per hour). [E11].</p> <p>Calendering (including Banburys) [CS64] Minimise exposure by partial enclosure of the operation or equipment and provide extract ventilation at openings [E60].</p> <p>Calendering (including Banburys) [CS64] Provide a good standar of general ventilation (not less than 3 to 5 air changes per hour). [E11].</p> <p>Pressing uncured rubber blanks [CS73] Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour) [E40].</p> <p>Vulcanisation [CS70] Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour) [E40].</p> <p>Cooling cured articles [CS71] Provide a good standar of general ventilation (not less than 3 to 5 air changes per hour). [E11].</p> <p>Laboratory activities [CS36]. No specific measures identified [E118].</p> <p>Spraying [CS10]. Provide extract ventilation to points where emissions occur [E54].</p> <p>Dipping, immersion and pouring [CS4]. Provide a good standard of general or controlled ventilation (10 to 15 air changes per hour) [E40].</p> <p>Equipment maintenance [CS5]. Drain or remove substance from equipment prior to break-in or maintenance [E81].{Wear suitable gloves tested to EN374 [PPE15]}.</p>
Section 2.2 Control of environmental exposure
Product characteristics
The Xylene isomers are liquids of medium volatility. Their average water solubility is 158mg/l; their average vapour pressure is 1050Pa at 25°C; and their average log Kow is 3.16. They are considered to be readily biodegradable.
Duration, frequency and amount
EU tonnage 42 ktonnes/year Regional tonnage 4.2 ktonnes/year Fraction of main local source 1 Emission Days (days/year): 300 days/yr
Environmental factors not influenced by risk management
Local freshwater dilution factor [EF1] 10 Local marine water dilution factor: [EF2] 100
Other given operational conditions affecting environmental exposure
Release fraction to air from process 0.01 Release fraction to waste water from process 0.003 Release fraction to soil from process (regional only) 0.0001
Technical onsite conditions and measures to reduce or limit discharges, air emissions and releases to soil
Treat air emissions to provide a typical removal efficiency of >90%. [TCR 8] Typical onsite wastewater treatment technology provides removal efficiency of 93.57%. [TCR 11] Soil emission controls are not applicable as there is no direct release to soil. [TCR 4] Prevent discharge of undissolved substance to or recover from wastewater [TCR14].
Organisation measures to prevent/limit release from site
Do not apply industrial sludge to natural soils. Sludge should be incinerated, contained or reclaimed.
Conditions and measures related to municipal sewage treatment plant
Assumed domestic sewage treatment plant effluent flow is:[STP5] 2000 m3/day Estimated substance removal from wastewater via domestic sewage treatment is: 93.57 % Msafe 1.76E+04 kg/day after RMM
Conditions and measures related to external treatment of waste for disposal
This substance is consumed during use and no waste of the substance is generated [ETW5]
Conditions and measures related to external recovery of waste



BAZAN GROUP

GADIV PETOCEMICAL
INDUSTRIES LTD

SAFETY DATA SHEET

PARA-XYLENE

April 2013, Version 04

Page 77 of 77

This substance is consumed during use and no waste of the substance is generated [ERW3]
Section 3 Exposure Estimation
3.1. Health
When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted DNELs and the resulting risk characterisation ratios are expected to be less than 1
3.2. Environment
When the recommended risk management measures (RMMs) and operational conditions (OCs) are observed, exposures are not expected to exceed the predicted PNECs and the resulting risk characterisation ratios are expected to be less than 1.
Section 4 Guidance to check compliance with the Exposure Scenario
4.1. Health
Confirm that RMMs and OCs are as described or of equivalent efficiency
4.2. Environment
Confirm that RMMs and OCs are as described or of equivalent efficiency. The required efficiency removal from water is 93.57% which would be typically found in waste-water treatment plant.