


**GET A GRIP!****PYTHON**  
ADHESIVES

Document No. BL.SDS.v1.0
Safety Datasheet according to (EC) No. 1907/2006, as amended by Regulation (EC) No. 453/2010
Revision Date: 01/11/18
Python BL

**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

<b>1.1. Product Identifier</b>	
Product name	Python BL
<b>1.2. Relevant identified uses of the substance or mixture and uses advised against</b>	
Description	Construction: sealant.
<b>1.3. Details of the supplier of the safety data sheet</b>	
Company	Python Adhesives Ltd
Address	Teardrop Centre, London Road, Swanley, BR8 8TS.
Web	www.pythonadhesives.co.uk
Telephone	020 8778 9000
Fax	020 8768 7200
Email	getagrip@pythonadhesives.co.uk
Email address of the competent person	getagrip@pythonadhesives.co.uk
<b>1.4. Emergency telephone number</b>	
Emergency telephone number	020 8778 9000 - 7.30am - 6.00pm Mon - Fri

**SECTION 2: Hazards Identification**

<b>2.1. Classification of the substance or mixture</b>	
2.1.1. Classification - 1272/2008	Eye Irrit. 2: H319; Skin Irrit. 2: H315; Resp. Sens. 1: H334;
<b>2.2. Label elements</b>	
Hazard pictograms	
Signal Word	Danger
Hazard Statement	H319 Causes serious eye irritation. H315 Causes skin irritation. H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Precautionary Statement	P101 If medical advice is needed, have product container or label at hand. P102 Keep out of reach of children. P280 Wear protective gloves, protective clothing and eye protection/face protection. P284 Wear respiratory protection. P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P302 + P352 IF ON SKIN: Wash with plenty of water and soap. P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 If eye irritation persists: Get medical advice/attention. P501 Dispose of contents/container in accordance with local/regional/national/international regulation.
Supplemental information	Persons already sensitised to diisocyanates may develop allergic reactions when using this product. - Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product. - This product should not be used under conditions of poor ventilation unless a protective mask with an appropriate gas filter (i.e. type A1 according to standard EN 14387) is used.
<b>2.3. Other hazards</b>	
Contains a sensitising substance. May produce an allergic reaction.	
<b>Further information</b>	
Not applicable.	

**SECTION 3: Composition/information on ingredients****3.1. Substances****3.2. Mixtures**

Chemical Name	Index Number	CAS No.	EC No.	REACH Registration Number	Conc. (%w/w)	Classification	Remark
4,4'-methylenediphenyl diisocyanate		101-68-8	202-966-0	01-2119457014-47	0.1%<C<1%	Carc 2 H351; Acute Tox. 4; H332 STOT RE 2; H373 Eye Irrit. 2; H319 STOT SE 3; H335 Skin Irrit. 2; H315 Resp. Sens. 1; H334 Skin Sens. 1; H317	UVCB
xylene		1330-20-7	215-535-7	01-2119488216-32	1%<C<10%	Flam. Liq. 3; H226 Acute Tox. 4; H332 Acute Tox. 4; H312 Asp. Tox. 1; H304 STOT RE 2; H373 Eye Irrit. 2; H319 STOT SE 3; H335 Skin Irrit. 2; H315	Constituent
ethylbenzene		100-41-4	202-849-4	01-2119489370-35	1%<C<5%	Flam. Liq. 2; H225 Acute Tox. 4; H332 Asp. Tox. 1; H304 STOT RE 2; H373 Aquatic Chronic 3; H412	Constituent

**SECTION 4: First aid measures****4.1. Description of first aid measures**

General	Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/ aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital.
Inhalation	Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.
Eye contact	Rinse immediately with plenty of water. Take victim to an ophthalmologist if irritation persists.
Skin contact	Wash immediately with lots of water. Soap may be used. Take victim to a doctor if irritation persists.
Ingestion	Rinse mouth with water. Consult a doctor/medical service if you feel unwell.

**4.2. Most important symptoms and effects, both acute and delayed**

Inhalation	ON CONTINUOUS EXPOSURE/CONTACT: Headache. Nausea. Dizziness. Narcosis.
Eye contact	Irritating to eyes.
Skin contact	Tingling/irritation of the skin.
Ingestion	AFTER INGESTION OF HIGH QUANTITIES: Symptoms similar to those listed under inhalation.

**SECTION 5: Firefighting measures****5.1. Extinguishing media**

Adapt extinguishing media to the environment.

**5.2. Special hazards arising from the substance or mixture**

On burning: release of toxic and corrosive gases/vapours (hydrogen chloride, sulphur oxides, carbon monoxide - carbon dioxide)

**5.3. Advice for firefighters**

Dilute toxic gases with water spray. Take account of toxic/corrosive precipitation water.

**SECTION 6: Accidental release measures****6.1. Personal precautions, protective equipment and emergency procedures**

No naked flames.

**6.2. Environmental precautions**

Contain leaking substance. Use appropriate containment to avoid environmental contamination.

**6.3. Methods and material for containment and cleaning up**

Allow product to solidify and remove it by mechanical means. Clean (treat) contaminated surfaces with acetone. Wash clothing and equipment after handling.

**6.4. Reference to other sections**

See heading 13.

**SECTION 7: Handling and storage****7.1. Precautions for safe handling**

Keep away from naked flames/heat. Gas/vapour heavier than air at 20C. Observe very strict hygiene -avoid contact. Keep container tightly closed.

**7.2. Conditions for safe storage, including any incompatibilities**

7.2.1 Safe storage requirements	Keep out of direct sunlight. Store in a dry area. Store at room temperature. Meet the legal requirements. Max. storage time: 1 year(s)
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7.2.2 Keep away from	Heat sources.
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**7.3. Specific end use(s)**

If applicable and available, exposure scenarios are attached in annex. See information supplied by the manufacturer.

**SECTION 8: Exposure controls/personal protection****8.1. Control parameters****8.1.1. Exposure Limit Values**

a) Occupational exposure limit values

If limit values are applicable and available these will be listed below.

Ethylbenzene	WEL 8-hr limit ppm: 100 WEL 15 min limit ppm: 125	WEL 8-hr limit mg/m3: 441 WEL 15-min limit mg/m3: 552
Isocyanates, all (as -NCO) Except methyl isocyanate	WEL 8-hr limit ppm: 0.02	WEL 15-min limit mg/m3: 0.07
Xylene, o-,m-,p- or mixed isomer	WEL 8-hr limit ppm: 50 WEL 15 min limit ppm: 100	WEL 8-hr limit mg/m3: 220 WEL 15-min limit mg/m3: 441

**8.1.2 Sampling methods**

b) National biological limit values

If applicable and available it will be listed below.

4,4-Methylene Bisphenyl Isocyanate (MDI) (Isocyanates)	NIOSH	5521
4,4'-Methylenebis (phenylisocyanate)	NIOSH	5525
Ethyl Benzene (Hydrocarbons, Aromatic)	NIOSH	1501
Ethyl Benzene	OSHA	1002
Ethyl Benzene	OSHA	7
Methylene Bisphenyl Isocyanate -(MDI)	OSHA	18
Methylene Bisphenyl Isocyanate (MDI)	OSHA	47
Methylene Bisphenyl Isocyanate	OSHA	33
Xylene (Hydrocarbons, aromatic)	NIOSH	1501
Xylene (Volatile Organic compounds)	NIOSH	2549

**8.1.3 Applicable limit values when using the substance or mixture as intended**

If limit values are applicable and available these will be listed below. If applicable and available it will be listed below.

8.1.4 DNEL/PNEC values	Heat sources.
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**DNEL/DMEL - Workers**

Chemical Name	Effect Level	Type	Value	Remark
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DNEL/DMEL - Workers				
Chemical Name	Effect Level	Type	Value	Remark
4,4'-methylenediphenyl diisocyanate	DNEL	Long-term local effects inhalation	0.05 mg/m <sup>3</sup>	
		Acute local effects inhalation	0.1 mg/m <sup>3</sup>	
xylene	DNEL	Long-term systemic effects inhalation	77 mg/m <sup>3</sup>	
		Acute systemic effects inhalation	289 mg/m <sup>3</sup>	
		Acute local effects inhalation	289 mg/m <sup>3</sup>	
		Long-term systemic effects dermal	180 mg/kg bw/day	
ethylbenzene	DNEL	Long-term systemic effects inhalation	77 mg/m <sup>3</sup>	
		Acute local effects inhalation	283 mg/m <sup>3</sup>	
		Long-term systemic effects inhalation	180 mg/kg bw/day	

DNEL/DMEL - General population				
Chemical Name	Effect Level	Type	Value	Remark
4,4'-methylenediphenyl diisocyanate	DNEL	Long-term local effects inhalation	0.025 mg/m <sup>3</sup>	
		Acute local effects inhalation	0.05 mg/m <sup>3</sup>	
xylene	DNEL	Long-term systemic effects inhalation	77 mg/m <sup>3</sup>	
		Acute systemic effects inhalation	289 mg/m <sup>3</sup>	
		Acute local effects inhalation	289 mg/m <sup>3</sup>	
		Long-term systemic effects dermal	180 mg/kg bw/day	
		Long-term systemic effects oral	1.6 mg/kg bw/day	
ethylbenzene	DNEL	Long-term systemic effects inhalation	15 mg/m <sup>3</sup>	
		Long-term systemic effects oral	1.6 mg/kg bw/day	

PNEC				
Chemical Name	Compartments	Value	Remark	
4,4'-methylenediphenyl diisocyanate	Fresh water	1 mg/l		
	Marine water	0.1 mg/l		
	Aqua (intermittent releases)	10 mg/l		
	STP	1 mg/l		
	Soil	1 mg/kg soil dw		
xylene	Fresh water	0.327 mg/l		
	Marine water	0.327 mg/l		
	Aqua (intermittent releases)	0.327 mg/l		
	STP	6.58 mg/l		
	Fresh water sediment	12.46 mg/kg sediment dw		
	Marine water sediment	12.46 mg/kg sediment dw		
	Soil	2.31 mg/kg sediment dw		
ethylbenzene	Fresh water	0.1 mg/l		
	Marine water	0.01 mg/l		
	Aqua (intermittent releases)	0.01 mg/l		
	STP	9.6 mg/l		
	Fresh water sediment	13.7 mg/kg sediment dw		
	Marine water sediment	1.37 mg/kg sediment dw		
	Soil	2.68 mg/kg soil dw		
	Oral	0.02g/kg food		

8.1.5 Control banding	If applicable and available it will be listed below.
<b>8.2. Exposure controls</b>	
The information in this section is a general description. If applicable and available, exposure scenarios are attached in annex. Always use the relevant exposure scenarios that correspond to your identified use.	
8.2.1. Appropriate engineering controls	Keep away from naked flames/heat. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection.
8.2.2. Individual protection measures	Observe very strict hygiene - avoid contact. Keep container tightly closed. Do not eat, drink or smoke during work.
Eye / Face protection	Approved safety goggles.
Skin protection / Hand protection	Protective clothing / Gloves.
Respiratory protection	Wear gas mask with filter type A if conc. in air > exposure limit.
8.2.3 Environmental exposure controls	See headings 6.2, 6.3 and 13
<b>SECTION 9: Physical and chemical properties</b>	
<b>9.1. Information on basic physical and chemical properties</b>	
Physical form	Viscous.
Odour	Solvent-like odour.
Odour threshold	No data available.
Colour	Variable in colour, depending on the composition.
Particle size	No data available
Explosion limits	Not applicable.
Flammability	Non combustible.
Log Kow	Not applicable (mixture)
Dynamic viscosity	No data available.
Kinematic viscosity	No data available.
Melting point	No data available.
Boiling point	No data available.
Flash point	Not applicable.
Evaporation rate	No data available.
Relative vapour density	> 1
Vapour pressure	No data available.
Solubility	Water ; insoluble. Organic solvents ; soluble.
Relative density	1.3 ; 20°C
Decomposition temperature	No data available.
Auto-ignition temperature	Not applicable.
Explosive properties	No chemical group associated with explosive properties.
Oxidising properties	No chemical group associated with oxidising properties.
pH	No data available.
<b>9.2. Other information</b>	
Absolute density	1300 kg/m <sup>3</sup> ; 20°C
<b>SECTION 10: Stability and reactivity</b>	
<b>10.1. Reactivity</b>	
No data available.	
<b>10.2. Chemical stability</b>	
Stable under normal conditions.	
<b>10.3. Possibility of hazardous reactions</b>	
No data available.	
<b>10.4. Conditions to avoid</b>	
Keep away from naked flames/heat.	
<b>10.5. Incompatible materials</b>	
No data available.	
<b>10.6. Hazardous decomposition products</b>	
On burning: release of toxic and corrosive gases/vapours (hydrogen chloride, sulphur oxides, carbon monoxide -carbon dioxide).	

**SECTION 11: Toxicological information**
**11.1. Information on toxicological effects**

## 11.1.1 Test results

**Acute toxicity**

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No (test) data on the mixture available.

Chemical Name	Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Remark
4,4'-methylenediphenyl diisocyanate	Oral	LD50	Equivalent to OECD 401	> 7616 mg/kg		Rat (female)	Read-across	
	Dermal	LD50	Equivalent to OECD 402	> 9400 mg/kg bw	24 h	Rabbit (male/female)	Read-across	
	Dermal	Percutaneous absorption rate	EPA OPPTS 870.7600	0.9%	8 h	Rat (male)	Experimental value	
	Inhalation (aerosol)	LC50	Equivalent to OECD 403	0.49 mg/l air	4 h	Rat (male/female)	Read-across	

Chemical Name	Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Remark
xylene	Oral	LD50	OECD 401	3523 mg/kg bw		Rat (male)	Experimental value	
	Dermal	LD50	OECD 401	> 4000 mg/kg bw		Rat (female)	Experimental value	
	Dermal	LD50	OECD 402	> 4200 mg/kg bw	4 h	Rabbit (male)	Experimental value	
	Inhalation (vapours)	LC50	OECD 403	27.57 mg/l air	4 h	Rat (male)	Experimental value	

Chemical Name	Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Remark
ethylbenzene	Oral	LD50		3500 mg/kg		Rat (male/female)	Experimental value	
	Dermal	LD50		15432 mg/kg	24 h	Rabbit (male)	Experimental value	
	Inhalation	LC50		1432 ppm	4 h	Mouse (male)	Experimental value	

Judgement is based on the relevant ingredients

**Conclusion**

Not classified for acute toxicity.

**Corrosion/irritation**

No (test) data on the mixture available.

Chemical Name	Route of exposure	Result	Method	Exposure time	Time Point	Species	Value determination	Remark
ethylbenzene	Eye	Slightly irritating				Rabbit	Experimental value	
	Eye	Irritating			24 h	Human	Weight of evidence	
	Skin	Irritating	OECD 404	4 h	24; 48; 72 hours	Rabbit	Read-across	
	Skin	Irritating			4 h	Human	Weight of evidence	
	Inhalation	Irritating			4 h	Human	Weight of evidence	

Chemical Name	Route of exposure	Result	Method	Exposure time	Time Point	Species	Value determination	Remark
xylene	Eye	Moderately irritating	OECD 405		24; 48; 72 hours	Rabbit	Experimental value	
	Skin	Moderately irritating			24; 72 hours	Rabbit	Experimental value	
	Inhalation (vapours)	Moderately irritating		4 h		Human		
		Irritating; STOT SE cat.3					Literature study	

Chemical Name	Route of exposure	Result	Method	Exposure time	Time Point	Species	Value determination	Remark
ethylbenzene	Eye	Slightly irritating			7 days	Rabbit	Experimental value	
	Skin	Moderately irritating		24 h		Rabbit	Experimental value	

Classification is based on the relevant ingredients

Conclusion

Causes skin irritation.  
Causes serious eye irritation.  
Not classified as irritating to the respiratory system

Specific target organ toxicity

Python BL

No (test) data on the mixture available.

Chemical Name	Route of exposure	Parameter	Method	Value	Organ	Effect	Exposure time	Species	Value determination
4,4'-methylenediphenyl diisocyanate	Inhalation (aerosol)	LOAEC	Other	0.23 mg/m <sup>3</sup> air	Lungs	Lung tissue affection/ degeneration	<= 104 weeks (17h/day, 5 days/ week)	Rat (female)	Experimental value
xylene	Oral (stomach tube)	LOAEL	Equivalent to OECD 408	150 mg/kg/bw/day	Liver	Weight gain	90 day(s)	Rat (male)	Experimental value
	Oral	NOAEL	Other	250 mg/kg/bw/day		No effect	103 weeks (6h/day, 5 days/week)	Rat (male/female)	Experimental value
	Inhalation (vapours)	NOAEC	Subchronic toxicity test	> 3515 mg/m <sup>3</sup>		No effect	13 weeks (6h/day, 5 days/week)	Rat (male)	Experimental value
ethylbenzene	Oral	NOAEL	OECD 407	75 mg/kg/bw/day	Liver	Enlargement/affection of the liver	28 day(s)	Rat (male/female)	Experimental value
	Oral	NOAEL	OECD 408	75 mg/kg/bw/day	Liver	Enlargement/affection of the liver	13 week(s)	Rat (male/female)	Experimental value
	Oral	LOAEL	OECD 408	250 mg/kg/bw/day	Liver	Enlargement/affection of the liver	13 week(s)	Rat (male/female)	Experimental value
	Oral	NOAEL	Equivalent to OECD 424	500 mg/kg/bw/day		No effect	90 day(s)	Rat (male/female)	Experimental value
	Inhalation (vapours)	LOAEC	Equivalent to OECD 453	75 ppm		No effect	104 weeks (6h/day, 5 days/week)	Rat (male/female)	Experimental value
	Inhalation	NOAEL	Equivalent to OECD 413	1000 ppm		No effect	13 weeks (6h/day, 5 days/week)	Rat (male/female)	Experimental value
	Inhalation	NOAEL	OECD 412	800 ppm	Liver		4 weeks (6h/day, 5 days/week)	Mouse (male/female)	Experimental value
	Inhalation	NOAEL	OECD 412	800 ppm	Liver	Enlargement/affection of the liver	4 weeks (6h/day, 5 days/week)	Rat (male/female)	Experimental value

Judgement is based on the relevant ingredients									
Conclusion					Not classified for subchronic toxicity				
<b>Mutagenicity (in vitro)</b>									
Python BL					No (test)data on the mixture available.				
Chemical Name	Result	Method	Test substrate	Effect	Value determination				
4,4'-methylenediphenyl diisocyanate	Negative with metabolic activation, negative without metabolic activation	Equivalent to OECD 471	Bacteria ( <i>S. typhimurium</i> )	No effect	Experimental value				
xylene	Negative with metabolic activation, negative without metabolic activation	Other	Chinese hamster ovary (CHO)	No effect	Experimental value				
ethylbenzene	Negative with metabolic activation, negative without metabolic activation	OECD 476	OECD 476 Mouse (lymphoma L5178Y cells)	No effect	Experimental value				
	Negative with metabolic activation, negative without metabolic activation	Equivalent to OECD 473	Chinese hamster ovary (CHO)	No effect	Experimental value				
<b>Mutagenicity (in vivo)</b>									
Python BL					No (test)data on the mixture available.				
Chemical Name	Result	Method	Exposure time	Test substrate	Organ	Value determination			
4,4'-methylenediphenyl diisocyanate	Negative	OECD 474	3 weeks (1h/day, 1 day/week)	Rat (male)		Experimental value			
xylene	Negative	Equivalent to OECD 478		Mouse (male/female)		Experimental value			
ethylbenzene	Negative	OECD 486	6 h	Mouse (male/female)		Experimental value			
	Negative	OECD 474	48 h	Mouse (male)		Experimental value			
<b>Carcinogenicity</b>									
Python BL					No (test)data on the mixture available.				
Chemical Name	Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Organ	Effect
4,4'-methylenediphenyl diisocyanate	Inhalation (aerosol)	NOAEC	Other	0.7 mg/m <sup>3</sup> air	104 weeks (17h/day, 5 days/week)	Rat (female)	Experimental value		No carcinogenic effect
xylene	Oral	NOAEC	Not further determined	≥ 1000 mg/kg/bw/day	103 weeks (5 days/week)	Mouse (male/female)	Experimental value		No carcinogenic effect
	Oral	NOAEC	Not further determined	≥ 500 mg/kg/bw/day	103 weeks (5 days/week)	Rat (male/female)	Experimental value		No carcinogenic effect
ethylbenzene	Inhalation (vapours)	NOAEC	Equivalent to OECD 453	250 ppm	104 weeks (6h/day, 5 days/week)	Rat (male/female)	Experimental value		No effect
<b>Reproductive toxicity</b>									
Python BL					No (test)data on the mixture available.				



Chemical Name		Parameter	Method	Value	Exposure time	Species	Effect	Organ	Value determination
4,4'-methylenediphenyl diisocyanate	Developmental toxicity	NOAEC	OECD 414	3 mg/m <sup>3</sup> air	10 days (6h/day)	Rat (female)	No effect		Experimental value
		LOAEL	OECD 414	9 mg/m <sup>3</sup> air	10 days (6h/day)	Rat (female)	Embryotoxicity		Experimental value
	Maternal toxicity	NOAEL	OECD	4 mg/kg/bw/day	10 day(s)	Rat (female)	No effect		Read-across
	Effects on fertility								Data waiving
xylene	Developmental toxicity	NOAEC	Equivalent to OECD 453	250 ppm	15 days (6h/day)	Rat (male/female)	No effect	Foetus	Experimental value
	Maternal toxicity	NOAEC	Equivalent to OECD 414	500 ppm		Rat	No effect		Experimental value
	Effects on fertility	NOAEC (P)	EPA OPPTS 870.3800	≥ 500 ppm	70 days (6h/day)	Rat (male/female)	No effect		Experimental value
		NOAEC (F1)	EPA OPPTS 870.3800	≥ 500 ppm	70 days (6h/day)	Rat (male/female)	No effect		Experimental value
ethylbenzene	Developmental toxicity	NOAEC	OECD 414	500 ppm	15 days (gestation daily)	Rat (female)	No effect		Experimental value
		NOAEC	OECD 426	500 ppm	70 days (6h/day)	Rat (male/female)	No effect		Experimental value
	Effects on fertility	NOAEC (P/F1/F2)	OECD 416	500 ppm	70 days (6h/day)	Rat (male/female)	No effect		Experimental value
		NOAEC (P)	Equivalent to OECD 415	1000 ppm	2 week(s)	Rat (male/female)	No effect		Experimental value
		NOEC (F1)	Equivalent to OECD 415	100 ppm		Rat (male/female)	No effect		Experimental value
		NOAEL	Other	750 ppm	104 weeks (6h/day, 5 days/week)	Mouse (male/female)	No effect		Experimental value
		NOEC	OECD 408		13 week(s)	Rat (male/female)	No effect		Experimental value

Judgement is based on the relevant ingredients

Conclusion CMR

Not classified for carcinogenicity  
Not classified for mutagenic or genotoxic toxicity  
Not classified for reprotoxic or developmental toxicity

Toxicity other effects

Python BL

No (test)data on the mixture available.

Chemical Name	Parameter	Method	Value	Organ	Effect	Exposure time	Species	Value determination
4,4'-methylenediphenyl diisocyanate	LD50		100 mg/kg bw				Mouse (male)	Experimental value

Chronic effects from short and long-term exposure

Python BL

ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Respiratory difficulties. Skin rash/inflammation.

## SECTION 12: Ecological information

### 12.1. Toxicity

No (test)data on the mixture available.

Chemical Name		Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
ethylbenzene	Acute toxicity fishes	LD50	OECD 203	> 1000 mg/l	96 h	Danio rerio	Static system	Fresh water	Read-across; Nominal concentration
	Acute toxicity invertebrates	EC50	OECD 202	129.7 mg/l	24 h	Daphnia magna	Static system	Fresh water	Read-across; Locomotor effect
	Toxicity algae and other aquatic plants	EC50	OECD 201	> 1640 mg/l	72 h	Desmodesmus subspicatus	Static system	Fresh water	Read-across; Growth rate
	Long-term toxicity aquatic invertebrates	NOEC	OECD 211	≥ 10 mg/l	21 day(s)	Daphnia magna	Semi-static system	Fresh water	Read-across; Reproduction
	Toxicity aquatic microorganisms	EC50	OECD 209	> 100 mg/l	3 h	Activated sludge	Static system	Fresh water	Read-across; Nominal concentration
xylene	Acute toxicity fishes	LC50	OECD 203	2.6 mg/l	96 h	Oncorhynchus mykiss	Static system	Fresh water	Read-across; Lethal concentration
	Acute toxicity invertebrates	EC50		3.82 mg/l	48 h	Daphnia magna	Flow-through system	Fresh water	Read-across;
	Toxicity algae and other aquatic plants	EC50	OECD 201	4.36 mg/l	72 h	Pseudokirchneriella subcapitata	Static system	Fresh water	Experimental value; Growth rate
	Long-term toxicity fish	NOEC		> 1.3 mg/l	56 day(s)	Oncorhynchus mykiss	Flow-through system	Fresh water	Experimental value; Lethal
	Long-term toxicity aquatic invertebrates	NOEC	US EPA	1.17 mg/l	7 day(s)	Ceriodaphnia dubia		Fresh water	Read-across; Reproduction
ethylbenzene	Acute toxicity fishes	LC50	OECD 203	4.2 mg/l	96 h	Salmo gairdneri	Semi-static system	Fresh water	Experimental value
	Acute toxicity invertebrates	EC50	OECD 203	1.8 mg/l -2.4 mg/l	48 h	Daphnia magna	Static system	Fresh water	Experimental value
	Toxicity algae and other aquatic plants	EC50		4.6 mg/l	72 h	Selenastrum capricornutum			Experimental value; Growth rate
	Long-term toxicity fish	ChV	OECD 201	1.13 mg/l	30 day(s)	Pisces			QSAR
	Long-term toxicity aquatic invertebrates	NOEC		1 mg/l	7 day(s)	Ceriodaphnia dubia	Semi-static system	Fresh water	Experimental value; Reproduction
	Toxicity aquatic microorganisms	EC50	US EPA	96 mg/l	24 h	Nitrosomonas			Experimental value
	<b>Parameter</b>		<b>Method</b>	<b>Value</b>	<b>Duration</b>		<b>Species</b>	<b>Value determination</b>	
	Toxicity soil macro-organisms		LC50	OECD 207	0.042 mg/cm <sup>3</sup> -0.053 mg/cm <sup>3</sup>		Eisenia fetida	Experimental value	

Judgement is based on the relevant ingredients

Conclusion

Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/2008

## 12.2. Persistence and degradability

### 4,4'-methylenediphenyl diisocyanate

Biodegradation water	Method	Value	Duration	Value determination
	OECD 302C: Inherent Biodegradability: Modified MITI Test (II)	0 %	28 day(s)	Read-across
Phototransformation air (DT50 air)	Method	Value	Conc. OH-radicals	Value determination
	AOPWIN v1.92	0.92 day(s)		QSAR
Half-life water (t1/2 water)	Method	Value	Primary degradation/mineralisation	Value determination
		20 h		Read-across

xylene

Biodegradation water	Method		Value	Duration	Value determination	
		OECD 301F: Manometric Respirometry Test	87.8 %; GLP	28 day(s)	Read-across	
ethylbenzene						
Biodegradation water	Method		Value	Duration	Value determination	
		ISO 14593	70 % - 80 %; GLP	28 day(s)	Experimental value	
Phototransformation air (DT50 air)	Method		Value	Conc. OH-radicals	Value determination	
				500000 /cm <sup>3</sup>		
Half-life soil (t1/2 soil)	Method		Value	Primary degradation/mineralisation	Value determination	
			3 day(s) - 10 day(s)		Literature study	
Half-life air (t1/2 air)	Method		Value	Primary degradation/mineralisation	Value determination	
			2.3 day(s)			
Conclusion			Contains non readily biodegradable component(s)			
<b>12.3. Bioaccumulative potential</b>						
Log kow	Method	Remark	Value	Temperature	Value determination	
		Not applicable (mixture)				
4,4'-methylenediphenyl diisocyanate						
BCF fishes	Parameter	Method	Value	Duration	Species	Value determination
		OECD 305	92 - 200	4 week(s)	Cyprinus carpi	Experimental value
Log kow	Method	Remark	Value	Temperature	Value determination	
		Not applicable (mixture)	5.22		Estimated value	
	OECD 117		4.51	22°C	Experimental value	
xylene						
BCF fishes	Parameter	Method	Value	Duration	Species	Value determination
			7 - 26	8 week(s)	Oncorhynchus mykiss	Experimental value
Log kow	Method	Remark	Value	Temperature	Value determination	
			3.2	20°C	Conclusion by analogy	
ethylbenzene						
BCF fishes	Parameter	Method	Value	Duration	Species	Value determination
		Other	1	6 week(s)	Oncorhynchus kisutch	Literature study
			15 - 79		Carassius auratus	Literature study
BCF other aquatic organisms	Parameter	Method	Value	Duration	Species	Value determination
	BCF		4.68		Lamellibranchiata	Literature study
Log kow	Method	Remark	Value	Temperature	Value determination	
	EU Method A.8		3.6	20°C	Experimental value	
Conclusion			Does not contain bioaccumulative component(s)			
<b>12.4. Mobility in soil</b>						
4,4'-methylenediphenyl diisocyanate						

Volatility (Henry's Law constant H)	Value	Method	Temperature	Remark	Value determination	
	8.95E-7 atm m <sup>3</sup> /mol		25°C		Estimated value	
<b>ethylbenzene</b>						
(log) Koc	Parameter	Method	Value	Value determination		
	log Koc	PCKOCWIN v1.66	2.71	Calculated value		
Volatility (Henry's Law constant H)	Value	Method	Temperature	Remark	Value determination	
	0.00843 atm m <sup>3</sup> /mol		25°C		Experimental value	
Percent distribution	Method	Fraction air	Fraction biota	Fraction soil	Fraction water	Value determination
	Mackay Level 1	99.45%		0.05%	0.45%	QSAR

Conclusion Contains component(s) with potential for mobility in the soil

**12.5. Results of PBT and vPvB assessment**

Due to insufficient data no statement can be made whether the component(s) fulfil(s) the criteria of PBT and vPvB according to Annex XIII of Regulation (EC) No 1907/2006

**12.6. Other adverse effects**

Global warming potential (GWP) None of the known components is included in the list of fluorinated greenhouse gases (Regulation (EC) No 517/2014)

Ozone-depleting potential (ODP) Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009)

**4,4'-methylenediphenyl diisocyanate**

Global warming potential (GWP) Not included in the list of fluorinated greenhouse gases (Regulation (EC) No 517/2014)

**xylene**

Global warming potential (GWP) Not included in the list of fluorinated greenhouse gases (Regulation (EC) No 517/2014)

Ground water Ground water pollutant

**ethylbenzene**

Global warming potential (GWP) Not included in the list of fluorinated greenhouse gases (Regulation (EC) No 517/2014)

**SECTION 13: Disposal considerations**

**13.1. Waste treatment method**

13.1.1 Provisions relating to waste Waste material code (Directive 2008/98/EC, Decision 2000/0532/EC). 08 04 09\* (wastes from MFSU of adhesives and sealants (including waterproofing products): waste adhesives and sealants containing organic solvents or other dangerous substances). Depending on branch of industry and production process, also other waste codes may be applicable. Hazardous waste according to Regulation (EU) No 1357/2014

13.1.2 Disposal methods In authorized incinerator equipped with flue gas scrubber with energy recovery. Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Do not discharge into drains or the environment.

13.1.3 Packaging/Container Waste material code packaging (Directive 2008/98/EC). 15 01 10\* (packaging containing residues of or contaminated by dangerous substances).

**SECTION 14: Transport information**

**14.1. UN number**

**14.2. UN proper shipping name**

**14.3. Transport hazard class(es)**

The product is not classified as dangerous for carriage.

**14.4. Packing group**

**SECTION 14: Transport information****14.4. Packing group**

The product is not classified as dangerous for carriage.

**14.5. Environmental hazards**

Environmentally hazardous substance mark

No

**14.6. Special precautions for user**

The product is not classified as dangerous for carriage.

**14.7 Transport in bulk - IBC code**

The product is not classified as dangerous for carriage.

**SECTION 15: Regulatory information****15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****Regulations**

The data should be considered when making any assessment under the Control of Substances Hazardous to Health Regulations (COSHH), and related guidance, for example, "COSHH Essentials" (United Kingdom). This product is classified under the Chemicals (Hazard Information and Packaging) Regulations, (CHIP) (United Kingdom). COMMISSION REGULATION (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC. REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC .

**15.2. Chemical safety assessment**

A chemical safety assessment according to (EC) regulation 1907/2006 (REACH) has not been carried out for this product.

European legislation:

VOC content Directive 2010/75/EU

**VOC content Directive 2010/75/EU****Remark**

8 % - 13 %

Calculated value

104 g/l - 169 g/l

Indicative occupational exposure limit values (Directive 98/24/EC, 2000/39/EC and 2009/161/EU)

**Product name****Skin resorption**

Ethylbenzene

Skin

Xylene, mixed isomers, pure

Skin

**REACH Annex XVII - Restriction**

Contains component(s) subject to restrictions of Annex XVII of Regulation (EC) No 1907/2006: restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

- xylene
- ethylbenzene

Liquid substances or mixtures which are regarded as dangerous in accordance with Directive 1999/45/EC or are fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: (a) hazard classes 2.1 to 2.4, 2.6 and 2.7, 2.8 types A and B, 2.9, 2.10, 2.12, 2.13 categories 1 and 2, 2.14 categories 1 and 2, 2.15 types A to F; (b) hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10; (c) hazard class 4.1; (d) hazard class 5.1.

1. Shall not be used in:

- ornamental articles intended to produce light or colour effects by means of different phases, for example in ornamental lamps and ashtrays,
- tricks and jokes, games for one or more participants, or any article intended to be used as such, even with ornamental aspects,

2. Articles not complying with paragraph 1 shall not be placed on the market.

3. Shall not be placed on the market if they contain a colouring agent, unless required for fiscal reasons, or perfume, or both, if they:

- can be used as fuel in decorative oil lamps for supply to the general public, and,
- present an aspiration hazard and are labelled with R65 or H304,

4. Decorative oil lamps for supply to the general public shall not be placed on the market unless they conform to the European Standard on Decorative oil lamps (EN 14059) adopted by the European Committee for Standardisation (CEN). 5. Without prejudice to the implementation of other Community provisions relating to the classification, packaging and labelling of dangerous substances and mixtures, suppliers shall ensure, before the placing on the market, that the following requirements are met :

		a) lamp oils, labelled with R65 or H304, intended for supply to the general public are visibly, legibly and indelibly marked as follows: Keep lamps filled with this liquid out of the reach of children; and, by 1 December 2010, Just a sip of lamp oil or even sucking the wick of lamps may lead to life-threatening lung damage; b) grill lighter fluids, labelled with R65 or H304, intended for supply to the general public are legibly and indelibly marked by 1 December 2010 as follows: Just a sip of grill lighter may lead to life threatening lung damage; c) lamp oils and grill lighters, labelled with R65 or H304, intended for supply to the general public are packaged in black opaque containers not exceeding 1 litre by 1 December 2010.6. No later than 1 June 2014, the Commission shall request the European Chemicals Agency to prepare a dossier, in accordance with Article 69 of the present Regulation with a view to ban, if appropriate, grill lighter fluids and fuel for decorative lamps, labelled R65 or H304, intended for supply to the general public.7. Natural or legal persons placing on the market for the first time lamp oils and grill lighter fluids, labelled with R65 or H304, shall by 1 December 2011, and annually thereafter, provide data on alternatives to lamp oils and grill lighter fluids labelled R65 or H304 to the competent authority in the Member State concerned. Member States shall make those data available to the Commission.
<ul style="list-style-type: none"> <li>• xylene</li> <li>• ethylbenzene</li> </ul>	Substances classified as flammable gases category 1 or 2, flammable liquids categories 1, 2 or 3, flammable solids category 1 or 2, substances and mixtures which, in contact with water, emit flammable gases, category 1, 2 or 3, pyrophoric liquids category 1 or pyrophoric solids category 1, regardless of whether they appear in Part 3 of Annex VI to that Regulation or not.	1. Shall not be used, as substance or as mixtures in aerosol dispensers where these aerosol dispensers are referred to the general public for entertainment and decorative purposes such as the following: metallic glitter intended mainly for decoration, artificial snow and frost, whoopee cushions, silly string aerosols, imitation excrement, horns for parties, decorative flakes and foams, artificial cobwebs, stink bombs.2. Without prejudice to the application of other Community provisions on the classification, packaging and labelling of substances, suppliers shall ensure before the placing on the market that the packaging of aerosol dispensers referred to above is marked visibly, legibly and indelibly with: For professional users only.3. By way of derogation, paragraphs 1 and 2 shall not apply to the aerosol dispensers referred to Article 8 (1a) of Council Directive 75/ 324/EEC.4. The aerosol dispensers referred to in paragraphs 1 and 2 shall not be placed on the market unless they conform to the requirements indicated
• 4,4'-methylenediphenyl diisocyanate	Methylenediphenyl diisocyanate (MDI) including the following specific isomers: 4,4Methylenediphenyl diisocyanate; 2,4Methylenediphenyl diisocyanate; 2,2Methylenediphenyl diisocyanate	1. Shall not be placed on the market after 27 December 2010, as a constituent of mixtures in concentrations equal to or greater than 0,1 % by weight of MDI for supply to the general public, unless suppliers shall ensure before the placing on the market that the packaging: (a) contains protective gloves which comply with the requirements of Council Directive 89/686/EEC; (b) is marked visibly, legibly and indelibly as follows, and without prejudice to other Community legislation concerning the classification, packaging and labelling of substances and mixtures: Persons already sensitised to diisocyanates may develop allergic reactions when using this product. Persons suffering from asthma, eczema or skin problems should avoid contact, including dermal contact, with this product. This product should not be used under conditions of poor ventilation unless a protective mask with an appropriate gas filter (i.e. type A1 according to standard EN 14387) is used.2. By way of derogation, paragraph 1(a) shall not apply to hot melt adhesives.

#### Other relevant data

4,4'-methylenediphenyl diisocyanate IARC - classification	3; 4,4'-methylenediphenyl diisocyanate and polymeric 4,4'-methylenediphenyl diisocyanate
xylene TLV - Carcinogen IARC - classification	Xylene (all isomers); A4 3; Xylenes
ethylbenzene TLV - Carcinogen IARC - classification	Ethyl benzene; A3 2B; Ethylbenzene

#### 15.2. Chemical safety assessment

No chemical safety assessment is required.

#### SECTION 16: Other information

H phrases in section 2	<p>H225 Highly flammable liquid and vapour.</p> <p>H226 Flammable liquid and vapour.</p> <p>H304 May be fatal if swallowed and enters airways.</p> <p>H312 Harmful in contact with skin.</p> <p>H315 Causes skin irritation.</p> <p>H317 May cause an allergic skin reaction.</p> <p>H319 Causes serious eye irritation.</p> <p>H332 Harmful if inhaled.</p> <p>H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.</p> <p>H335 May cause respiratory irritation.</p> <p>H351 Suspected of causing cancer.</p> <p>H373 May cause damage to the lungs through prolonged or repeated exposure if inhaled.</p> <p>H373 May cause damage to the ears (hearing damage) through prolonged or repeated exposure.</p> <p>H412 Harmful to aquatic life with long lasting effects. (*) = INTERNAL CLASSIFICATION BY BIG PBT-substances = persistent, bioaccumulative and toxic substances CLP (EU-GHS) Classification, labelling and packaging (Globally Harmonised System in Europe)</p>
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Specific concentration limits CLP			
4,4'-methylenediphenyl diisocyanate	C ≥ 5%	Eye Irrit. 2; H319	CLP Annex VI (ATP 1)
	C ≥ 5%	Skin Irrit. 2; H315	CLP Annex VI (ATP 1)
	C ≥ 0.1%	Resp. Sens. 1; H334	CLP Annex VI (ATP 1)
	C ≥ 5%	STOT SE 3; H335	CLP Annex VI (ATP 1)
Disclaimer	<p>The information in this safety data sheet is based on data and samples provided to BIG. The sheet was written to the best of our ability and according to the state of knowledge at that time. The safety data sheet only constitutes a guideline for the safe handling, use, consumption, storage, transport and disposal of the substances/preparations/mixtures mentioned under point 1. New safety data sheets are written from time to time. Only the most recent versions may be used. Old versions must be destroyed. Unless indicated otherwise word for word on the safety data sheet, the information does not apply to substances/preparations/mixtures in purer form, mixed with other substances or in processes. The safety data sheet offers no quality specification for the substances/preparations/mixtures in question. Compliance with the instructions in this safety data sheet does not release the user from the obligation to take all measures dictated by common sense, regulations and recommendations or which are necessary and/or useful based on the real applicable circumstances. BIG does not guarantee the accuracy or exhaustiveness of the information provided and cannot be held liable for any changes by third parties. This safety data sheet is only to be used within the European Union. Any use outside of this area is at your own risk. Use of this safety data sheet is subject to the licence and liability limiting conditions as stated in your BIG licence agreement or when this is failing the general conditions of BIG. All intellectual property rights to this sheet are the property of BIG and its distribution and reproduction are limited. Consult the mentioned agreement/conditions for details.</p>		