

p-Xylene

ONGC MANGALORE PETROCHEMICALS LTD

Version No: 2.2

Safety Data Sheet (Conforms to Regulation (EU) No 2015/830)

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S.REACH.GBR.EN

SECTION 1 IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

1.1. Product Identifier

Product name	p-Xylene
Synonyms	1,4-Dimethylbenzene
Proper shipping name	XYLENES
Other means of identification	Not Available

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

Relevant identified uses	Raw material for use in the chemical industry to manufacture Purified Terephthalic acid.
Uses advised against	Not Applicable

1.3. Details of the supplier of the safety data sheet

Registered company name	ONGC MANGALORE PETROCHEMICALS LTD
Address	MSEZ (Mangalore Special Economy Zone), Permude, Mangalore-574 509 India
Telephone	+91 (824) 2872000
Fax	+91 (824) 2872005
Website	Ompl.co.in
Email	omplmlr@omplindia.com

1.4. Emergency telephone number

Association / Organisation	ONGC MANGALORE PETROCHEMICALS LTD
Emergency telephone numbers	+91 (824) 2872000
Other emergency telephone numbers	Not Available


SECTION 2 HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Considered a hazardous mixture according to Reg. (EC) No 1272/2008 and their amendments. Classified as Dangerous Goods for transport purposes.

Classification according to regulation (EC) No 1272/2008 [CLP] [1]	H226 - Flammable Liquid Category 3, H312 - Acute Toxicity (Dermal) Category 4, H332 - Acute Toxicity (Inhalation) Category 4, H315 - Skin Corrosion/Irritation Category 2, H319 - Eye Irritation Category 2
Legend:	1. Classified by Chemwatch; 2. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI

2.2. Label elements

Hazard pictogram(s)	
SIGNAL WORD	WARNING

Hazard statement(s)

p-Xylene

H226	Flammable liquid and vapour.
H312	Harmful in contact with skin.
H332	Harmful if inhaled.
H315	Causes skin irritation.
H319	Causes serious eye irritation.

Supplementary statement(s)

Not Applicable

CLP classification (additional)

Not Applicable

Precautionary statement(s) Prevention

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.

Precautionary statement(s) Response

P321	Specific treatment (see advice on this label).
P370+P378	In case of fire: Use alcohol resistant foam or normal protein foam to extinguish.

Precautionary statement(s) Storage

P403+P235	Store in a well-ventilated place. Keep cool.
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Precautionary statement(s) Disposal

P501	Dispose of contents/container to authorised hazardous or special waste collection point in accordance with any local regulation.
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2.3. Other hazards

HARMFUL: may cause lung damage if swallowed

p-xylene	Listed in the Europe Regulation (EC) No 1907/2006 - Annex XVII (Restrictions may apply)
m-xylene	Listed in the Europe Regulation (EC) No 1907/2006 - Annex XVII (Restrictions may apply)
o-xylene	Listed in the Europe Regulation (EC) No 1907/2006 - Annex XVII (Restrictions may apply)
ethylbenzene	Listed in the Europe Regulation (EC) No 1907/2006 - Annex XVII (Restrictions may apply)

SECTION 3 COMPOSITION / INFORMATION ON INGREDIENTS**3.1. Substances**

See 'Composition on ingredients' in Section 3.

3.2. Mixtures

1.CAS No 2.EC No 3.Index No 4.REACH No	%[weight]	Name	Classification according to regulation (EC) No 1272/2008 [CLP]
1.106-42-3 2.203-396-5 3.601-022-00-9 4.01-2119484661-33-XXXX	99.7	<u>p-xylene</u> *	Acute Toxicity (Dermal) Category 4, Flammable Liquid Category 3, Acute Toxicity (Inhalation) Category 4, Skin Corrosion/Irritation Category 2; H312, H226, H332, H315 [2]
1.108-38-3 2.203-576-3 3.601-022-00-9 4.01-2119484621-37-XXXX	0.1	<u>m-xylene</u> *	Acute Toxicity (Inhalation) Category 4, Skin Corrosion/Irritation Category 2, Flammable Liquid Category 3, Acute Toxicity (Dermal) Category 4; H332, H315, H226, H312 [2]
1.95-47-6 2.202-422-2 3.601-022-00-9 4.01-2119485822-30-XXXX	0.1	<u>o-xylene</u> *	Skin Corrosion/Irritation Category 2, Acute Toxicity (Dermal) Category 4, Flammable Liquid Category 3, Acute Toxicity (Inhalation) Category 4; H315, H312, H226, H332 [2]
1.100-41-4 2.202-849-4 3.601-023-00-4	0.1	<u>ethylbenzene</u> *	Flammable Liquid Category 2, Aspiration Hazard Category 1, Specific target organ toxicity - repeated exposure Category 2 (hearing organs), Acute Toxicity (Inhalation) Category 4; H225, H304, H373, H332 [2]

Continued...

p-Xylene

4.01-2119489370-35-XXXX

Legend: 1. Classified by Chemwatch; 2. Classification drawn from Regulation (EU) No 1272/2008 - Annex VI; 3. Classification drawn from C&L; * EU IOELVs available

SECTION 4 FIRST AID MEASURES

4.1. Description of first aid measures

Eye Contact	<p>If this product comes in contact with the eyes:</p> <ul style="list-style-type: none"> ▸ Wash out immediately with fresh running water. ▸ Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids. ▸ Seek medical attention without delay; if pain persists or recurs seek medical attention. ▸ Removal of contact lenses after an eye injury should only be undertaken by skilled personnel.
Skin Contact	<p>If skin contact occurs:</p> <ul style="list-style-type: none"> ▸ Immediately remove all contaminated clothing, including footwear. ▸ Flush skin and hair with running water (and soap if available). ▸ Seek medical attention in event of irritation.
Inhalation	<ul style="list-style-type: none"> ▸ If fumes or combustion products are inhaled remove from contaminated area. ▸ Lay patient down. Keep warm and rested. ▸ Prostheses such as false teeth, which may block airway, should be removed, where possible, prior to initiating first aid procedures. ▸ Apply artificial respiration if not breathing, preferably with a demand valve resuscitator, bag-valve mask device, or pocket mask as trained. Perform CPR if necessary. ▸ Transport to hospital, or doctor.
Ingestion	<ul style="list-style-type: none"> ▸ If spontaneous vomiting appears imminent or occurs, hold patient's head down, lower than their hips to help avoid possible aspiration of vomitus. ▸ If swallowed do NOT induce vomiting. ▸ If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration. ▸ Observe the patient carefully. ▸ Never give liquid to a person showing signs of being sleepy or with reduced awareness; i.e. becoming unconscious. ▸ Give water to rinse out mouth, then provide liquid slowly and as much as casualty can comfortably drink. ▸ Seek medical advice. ▸ Avoid giving milk or oils. ▸ Avoid giving alcohol.

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

See Section 11

4.3. Indication of any immediate medical attention and special treatment needed

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

- Gastro-intestinal absorption is significant with ingestions. For ingestions exceeding 1-2 ml (xylene)/kg, intubation and lavage with cuffed endotracheal tube is recommended. The use of charcoal and cathartics is equivocal.
- Pulmonary absorption is rapid with about 60-65% retained at rest.
- Primary threat to life from ingestion and/or inhalation, is respiratory failure.
- Patients should be quickly evaluated for signs of respiratory distress (e.g. cyanosis, tachypnoea, intercostal retraction, obtundation) and given oxygen. Patients with inadequate tidal volumes or poor arterial blood gases (pO₂ < 50 mm Hg or pCO₂ > 50 mm Hg) should be intubated.
- Arrhythmias complicate some hydrocarbon ingestion and/or inhalation and electrocardiographic evidence of myocardial injury has been reported; intravenous lines and cardiac monitors should be established in obviously symptomatic patients. The lungs excrete inhaled solvents, so that hyperventilation improves clearance.
- A chest x-ray should be taken immediately after stabilisation of breathing and circulation to document aspiration and detect the presence of pneumothorax.
- Epinephrine (adrenalin) is not recommended for treatment of bronchospasm because of potential myocardial sensitisation to catecholamines. Inhaled cardioselective bronchodilators (e.g. Alupent, Salbutamol) are the preferred agents, with aminophylline a second choice.

BIOLOGICAL EXPOSURE INDEX - BEI

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

Determinant	Index	Sampling Time	Comments
Methylhippu-ric acids in urine	1.5 gm/gm creatinine 2 mg/min	End of shift Last 4 hrs of shift	

SECTION 5 FIREFIGHTING MEASURES

5.1. Extinguishing media

- Foam.

Continued...

p-Xylene

- ▶ Dry chemical powder.

5.2. Special hazards arising from the substrate or mixture

Fire Incompatibility	<ul style="list-style-type: none"> ▶ Avoid contamination with oxidising agents i.e. nitrates, oxidising acids, chlorine bleaches, pool chlorine etc. as ignition may result
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5.3. Advice for firefighters

Fire Fighting	<ul style="list-style-type: none"> ▶ Alert Fire Brigade and tell them location and nature of hazard. ▶ May be violently or explosively reactive.
Fire/Explosion Hazard	<ul style="list-style-type: none"> ▶ Liquid and vapour are flammable. Moderate fire hazard when exposed to heat or flame. Combustion products include: <ul style="list-style-type: none"> ’, carbon monoxide (CO) ’, carbon dioxide (CO₂) ’, other pyrolysis products typical of burning organic material.

SECTION 6 ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

See section 8

6.2. Environmental precautions

See section 12

6.3. Methods and material for containment and cleaning up

Minor Spills	<ul style="list-style-type: none"> ▶ Remove all ignition sources. ▶ Clean up all spills immediately.
Major Spills	<ul style="list-style-type: none"> ▶ Clear area of personnel and move upwind. ▶ Alert Fire Brigade and tell them location and nature of hazard.

6.4. Reference to other sections

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

SECTION 7 HANDLING AND STORAGE

7.1. Precautions for safe handling

Safe handling	<ul style="list-style-type: none"> ▶ Containers, even those that have been emptied, may contain explosive vapours. ▶ Do NOT cut, drill, grind, weld or perform similar operations on or near containers. ▶ Electrostatic discharge may be generated during pumping - this may result in fire. ▶ Ensure electrical continuity by bonding and grounding (earthing) all equipment. ▶ Avoid all personal contact, including inhalation. ▶ Wear protective clothing when risk of overexposure occurs. ▶ DO NOT allow clothing wet with material to stay in contact with skin
Fire and explosion protection	Extinguishing Media: Foam, Dry chemical powder.
Other information	<ul style="list-style-type: none"> ▶ Store in original containers in approved flammable liquid storage area. ▶ Store away from incompatible materials in a cool, dry, well-ventilated area.

7.2. Conditions for safe storage, including any incompatibilities

Suitable container	<ul style="list-style-type: none"> ▶ Packing as supplied by manufacturer. ▶ Plastic containers may only be used if approved for flammable liquid. ▶ For low viscosity materials (i) : Drums and jerry cans must be of the non-removable head type. (ii) : Where a can is to be used as an inner package, the can must have a screwed enclosure.
Storage incompatibility	<p>Xylenes:</p> <ul style="list-style-type: none"> ▶ may ignite or explode in contact with strong oxidisers, 1,3-dichloro-5,5-dimethylhydantoin, uranium fluoride ▶ attack some plastics, rubber and coatings ▶ may generate electrostatic charges on flow or agitation due to low conductivity. ▶ Vigorous reactions, sometimes amounting to explosions, can result from the contact between aromatic rings and strong oxidising agents. ▶ Aromatics can react exothermically with bases and with diazo compounds. <p>For alkyl aromatics:</p>

p-Xylene

The alkyl side chain of aromatic rings can undergo oxidation by several mechanisms. The most common and dominant one is the attack by oxidation at benzylic carbon as the intermediate formed is stabilised by resonance structure of the ring.

7.3. Specific end use(s)

Raw material for use in the chemical industry to manufacture Purified Terephthalic acid.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Control parameters

Ingredient	DNELs		PNECs	
	Exposure Pattern	Worker	Compartment	
p-xylene		Dermal 212 mg/kg bw/day (Systemic, Chronic) Inhalation 221 mg/m ³ (Systemic, Chronic) Inhalation 221 mg/m ³ (Local, Chronic) Inhalation 442 mg/m ³ (Systemic, Acute) Inhalation 442 mg/m ³ (Local, Acute) Dermal 125 mg/kg bw/day (Systemic, Chronic) * Inhalation 65.3 mg/m ³ (Systemic, Chronic) * Oral 12.5 mg/kg bw/day (Systemic, Chronic) * Inhalation 65.3 mg/m ³ (Local, Chronic) * Inhalation 260 mg/m ³ (Systemic, Acute) * Inhalation 260 mg/m ³ (Local, Acute) *		0.042 mg/L (Water (Fresh)) 0.042 mg/L (Water - Intermittent release) 0.25 mg/L (Water (Marine)) 14.33 mg/kg sediment dw (Sediment (Fresh Water)) 14.33 mg/kg sediment dw (Sediment (Marine)) 2.41 mg/kg soil dw (Soil) 5 mg/L (STP)
m-xylene		Dermal 212 mg/kg bw/day (Systemic, Chronic) Inhalation 221 mg/m ³ (Systemic, Chronic) Inhalation 221 mg/m ³ (Local, Chronic) Inhalation 442 mg/m ³ (Systemic, Acute) Inhalation 442 mg/m ³ (Local, Acute) Dermal 125 mg/kg bw/day (Systemic, Chronic) * Inhalation 65.3 mg/m ³ (Systemic, Chronic) * Oral 12.5 mg/kg bw/day (Systemic, Chronic) * Inhalation 65.3 mg/m ³ (Local, Chronic) * Inhalation 260 mg/m ³ (Systemic, Acute) * Inhalation 260 mg/m ³ (Local, Acute) *		0.25 mg/L (Water (Fresh)) 0.25 mg/L (Water - Intermittent release) 0.25 mg/L (Water (Marine)) 14.33 mg/kg sediment dw (Sediment (Fresh Water)) 14.33 mg/kg sediment dw (Sediment (Marine)) 2.41 mg/kg soil dw (Soil) 5 mg/L (STP)
o-xylene		Dermal 3 182 mg/kg bw/day (Systemic, Chronic) Inhalation 221 mg/m ³ (Systemic, Chronic) Inhalation 221 mg/m ³ (Local, Chronic) Inhalation 442 mg/m ³ (Systemic, Acute) Inhalation 442 mg/m ³ (Local, Acute) Dermal 1 872 mg/kg bw/day (Systemic, Chronic) * Inhalation 65.3 mg/m ³ (Systemic, Chronic) * Oral 2.5 mg/kg bw/day (Systemic, Chronic) * Inhalation 65.3 mg/m ³ (Local, Chronic) * Inhalation 260 mg/m ³ (Systemic, Acute) * Inhalation 260 mg/m ³ (Local, Acute) *		0.042 mg/L (Water (Fresh)) 0.042 mg/L (Water - Intermittent release) 0.25 mg/L (Water (Marine)) 14.33 mg/kg sediment dw (Sediment (Fresh Water)) 14.33 mg/kg sediment dw (Sediment (Marine)) 2.41 mg/kg soil dw (Soil) 5 mg/L (STP)
ethylbenzene		Dermal 180 mg/kg bw/day (Systemic, Chronic) Inhalation 77 mg/m ³ (Systemic, Chronic) Inhalation 293 mg/m ³ (Local, Acute) Inhalation 15 mg/m ³ (Systemic, Chronic) * Oral 1.6 mg/kg bw/day (Systemic, Chronic) *		0.1 mg/L (Water (Fresh)) 0.01 mg/L (Water - Intermittent release) 0.1 mg/L (Water (Marine)) 13.7 mg/kg sediment dw (Sediment (Fresh Water)) 2.68 mg/kg soil dw (Soil) 9.6 mg/L (STP) 0.02 g/kg food (Oral)

* Values for General Population

OCCUPATIONAL EXPOSURE LIMITS (OEL)

INGREDIENT DATA

Source	Ingredient	Material name	TWA	STEL	Peak	Notes
UK Workplace Exposure Limits (WELs)	p-xylene	Xylene, o-,m-,p- or mixed isomers	50 ppm / 220 mg/m ³	441 mg/m ³ / 100 ppm	Not Available	Sk, BMGV
EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)	p-xylene	p-Xylene	50 ppm / 221 mg/m ³	442 mg/m ³ / 100 ppm	Not Available	Skin
UK Workplace Exposure Limits (WELs)	m-xylene	Xylene, o-,m-,p- or mixed isomers	50 ppm / 220 mg/m ³	441 mg/m ³ / 100 ppm	Not Available	Sk, BMGV

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p-Xylene


EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)	m-xylene	m-Xylene	50 ppm / 221 mg/m ³	442 mg/m ³ / 100 ppm	Not Available	Skin
UK Workplace Exposure Limits (WELs)	o-xylene	Xylene, o-,m-,p- or mixed isomers	50 ppm / 220 mg/m ³	441 mg/m ³ / 100 ppm	Not Available	Sk, BMGV
EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)	o-xylene	o-Xylene	50 ppm / 221 mg/m ³	442 mg/m ³ / 100 ppm	Not Available	Skin
UK Workplace Exposure Limits (WELs)	ethylbenzene	Ethylbenzene	100 ppm / 441 mg/m ³	552 mg/m ³ / 125 ppm	Not Available	Sk
EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)	ethylbenzene	Ethyl benzene	100 ppm / 442 mg/m ³	884 mg/m ³ / 200 ppm	Not Available	Skin

EMERGENCY LIMITS

Ingredient	Material name	TEEL-1	TEEL-2	TEEL-3
p-xylene	Xylene, m-(includes o-(95-47-6) and p-(106-42-3) isomers)	130 ppm	920 ppm	2500* ppm
m-xylene	Xylene, m-(includes o-(95-47-6) and p-(106-42-3) isomers)	130 ppm	920 ppm	2500* ppm
o-xylene	Xylene, m-(includes o-(95-47-6) and p-(106-42-3) isomers)	130 ppm	920 ppm	2500* ppm
ethylbenzene	Ethyl benzene	Not Available	Not Available	Not Available

Ingredient	Original IDLH	Revised IDLH
p-xylene	900 ppm	Not Available
m-xylene	900 ppm	Not Available
o-xylene	900 ppm	Not Available
ethylbenzene	800 ppm	Not Available

8.2. Exposure controls

8.2.1. Appropriate engineering controls	<p>CARE: Use of a quantity of this material in confined space or poorly ventilated area, where rapid build up of concentrated atmosphere may occur, could require increased ventilation and/or protective gear</p> <p>Engineering controls are used to remove a hazard or place a barrier between the worker and the hazard. Well-designed engineering controls can be highly effective in protecting workers and will typically be independent of worker interactions to provide this high level of protection.</p>
8.2.2. Personal protection	
Eye and face protection	<ul style="list-style-type: none"> ▸ Safety glasses with side shields. ▸ Chemical goggles.
Skin protection	See Hand protection below
Hands/feet protection	<ul style="list-style-type: none"> ▸ Wear chemical protective gloves, e.g. PVC. ▸ Wear safety footwear or safety gumboots, e.g. Rubber <p>The selection of suitable gloves does not only depend on the material, but also on further marks of quality which vary from manufacturer to manufacturer. Where the chemical is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.</p>
Body protection	See Other protection below
Other protection	<ul style="list-style-type: none"> ▸ Overalls. ▸ PVC Apron. ▸ Some plastic personal protective equipment (PPE) (e.g. gloves, aprons, overshoes) are not recommended as they may produce static electricity. ▸ For large scale or continuous use wear tight-weave non-static clothing (no metallic fasteners, cuffs or pockets).

Recommended material(s)

GLOVE SELECTION INDEX

Glove selection is based on a modified presentation of the:

"Forsberg Clothing Performance Index".

The effect(s) of the following substance(s) are taken into account in the **computer-generated** selection:

Respiratory protection

Type A Filter of sufficient capacity. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

Where the concentration of gas/particulates in the breathing zone, approaches or exceeds the "Exposure Standard" (or ES), respiratory protection is required. Degree of protection varies with both face-piece and Class of filter; the nature

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p-Xylene

p-Xylene

Material	CPI
VITON	A
NITRILE	C
PVA	C
TEFLON	C

* CPI - Chemwatch Performance Index

A: Best Selection

B: Satisfactory; may degrade after 4 hours continuous immersion

C: Poor to Dangerous Choice for other than short term immersion

NOTE: As a series of factors will influence the actual performance of the glove, a final selection must be based on detailed observation. -

* Where the glove is to be used on a short term, casual or infrequent basis, factors such as "feel" or convenience (e.g. disposability), may dictate a choice of gloves which might otherwise be unsuitable following long-term or frequent use. A qualified practitioner should be consulted.

of protection varies with Type of filter.

Required Minimum Protection Factor	Half-Face Respirator	Full-Face Respirator	Powered Air Respirator
up to 5 x ES	A-AUS / Class 1	-	A-PAPR-AUS / Class 1
up to 25 x ES	Air-line*	A-2	A-PAPR-2
up to 50 x ES	-	A-3	-
50+ x ES	-	Air-line**	-

^ - Full-face

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

- ▶ Cartridge respirators should never be used for emergency ingress or in areas of unknown vapour concentrations or oxygen content.
- ▶ The wearer must be warned to leave the contaminated area immediately on detecting any odours through the respirator. The odour may indicate that the mask is not functioning properly, that the vapour concentration is too high, or that the mask is not properly fitted. Because of these limitations, only restricted use of cartridge respirators is considered appropriate. Cartridge performance is affected by humidity. Cartridges should be changed after 2 hr of continuous use unless it is determined that the humidity is less than 75%, in which case, cartridges can be used for 4 hr. Used cartridges should be discarded daily, regardless of the length of time used

8.2.3. Environmental exposure controls

See section 12

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	Colourless		
Physical state	Liquid	Relative density (Water = 1)	0.86 @ 25 °C
Odour	Not Available	Partition coefficient n-octanol / water	Not Available
Odour threshold	Not Available	Auto-ignition temperature (°C)	463-528
pH (as supplied)	Not Available	Decomposition temperature	Not Available
Melting point / freezing point (°C)	-47.8 to 13.25 °C @ 101.3 kPa	Viscosity (cSt)	Not Available
Initial boiling point and boiling range (°C)	138.2-144.5	Molecular weight (g/mol)	Not Available
Flash point (°C)	27-32	Taste	Not Available
Evaporation rate	Not Available	Explosive properties	Not Available
Flammability	Flammable.	Oxidising properties	Not Available
Upper Explosive Limit (%)	Not Available	Surface Tension (dyn/cm or mN/m)	Not Available
Lower Explosive Limit (%)	Not Available	Volatile Component (%vol)	Not Available
Vapour pressure (kPa)	Not Available	Gas group	Not Available
Solubility in water	Not Available	pH as a solution (1%)	Not Available
Vapour density (Air = 1)	0.86	VOC g/L	Not Available

9.2. Other information

Not Available

p-Xylene

SECTION 10 STABILITY AND REACTIVITY

10.1. Reactivity	Xylenes attack some plastics, rubber and coatings
10.2. Chemical stability	<ul style="list-style-type: none"> ▸ Unstable in the presence of incompatible materials. ▸ Product is considered stable.
10.3. Possibility of hazardous reactions	Xylenes may ignite or explode in contact with strong oxidisers, 1,3-dichloro-5,5-dimethylhydantoin, uranium fluoride
10.4. Conditions to avoid	Vigorous reactions, sometimes amounting to explosions, can result from the contact between aromatic rings and strong oxidizing agents
10.5. Incompatible materials	See section 7.2
10.6. Hazardous decomposition products	See section 5.3

SECTION 11 TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Inhaled	<p>Inhalation of vapours or aerosols (mists, fumes), generated by the material during the course of normal handling, may be harmful.</p> <p>The material is not thought to produce respiratory irritation (as classified by EC Directives using animal models). Nevertheless inhalation of vapours, fumes or aerosols, especially for prolonged periods, may produce respiratory discomfort and occasionally, distress.</p> <p>Inhalation hazard is increased at higher temperatures.</p> <p>Inhalation of vapours may cause drowsiness and dizziness. This may be accompanied by sleepiness, reduced alertness, loss of reflexes, lack of co-ordination, and vertigo.</p> <p>Inhalation of high concentrations of gas/vapour causes lung irritation with coughing and nausea, central nervous depression with headache and dizziness, slowing of reflexes, fatigue and inco-ordination.</p> <p>Central nervous system (CNS) depression may include general discomfort, symptoms of giddiness, headache, dizziness, nausea, anaesthetic effects, slowed reaction time, slurred speech and may progress to unconsciousness. Serious poisonings may result in respiratory depression and may be fatal.</p> <p>The acute toxicity of inhaled alkylbenzene is best described by central nervous system depression. These compounds may also act as general anaesthetics.</p> <p>Headache, fatigue, tiredness, irritability and digestive disturbances (nausea, loss of appetite and bloating) are the most common symptoms of xylene overexposure. Injury to the heart, liver, kidneys and nervous system has also been noted amongst workers. Xylene is a central nervous system depressant</p>
Ingestion	<p>The material is not thought to produce adverse health effects following ingestion (as classified by EC Directives using animal models). Nevertheless, adverse systemic effects have been produced following exposure of animals by at least one other route and good hygiene practice requires that exposure be kept to a minimum.</p> <p>Swallowing of the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis; serious consequences may result. (ICSC13733)</p>
Skin Contact	<p>Skin contact with the material may be harmful; systemic effects may result following absorption.</p> <p>This material can cause inflammation of the skin on contact in some persons.</p> <p>The material may accentuate any pre-existing dermatitis condition</p> <p>Open cuts, abraded or irritated skin should not be exposed to this material</p> <p>Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects.</p> <p>Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.</p>
Eye	This material can cause eye irritation and damage in some persons.
Chronic	Long-term exposure to the product is not thought to produce chronic effects adverse to the health (as classified by EC Directives using animal models); nevertheless exposure by all routes should be minimised as a matter of course.

p-Xylene	TOXICITY	IRRITATION
	Not Available	Not Available
p-xylene	TOXICITY	IRRITATION
	Inhalation (rat) LC50: 4544.80845 mg/l/4h ^[2]	Eye: adverse effect observed (irritating) ^[1]
	Oral (rat) LD50: >3392-4779 mg/kg ^[2]	Skin: adverse effect observed (irritating) ^[1]
m-xylene	TOXICITY	IRRITATION
	Dermal (rabbit) LD50: 12267 mg/kg ^[2]	Eye (rabbit): 5 mg/24h - SEVERE
	Inhalation (mouse) LC50: 7891.4855295 mg/l/6H ^[2]	Eye: adverse effect observed (irritating) ^[1]
	Oral (rat) LD50: 4988 mg/kg ^[2]	Skin (rabbit): 20 mg/24h - mod
		Skin (rabbit):0.01 mg/24h(open)
	Skin: adverse effect observed (irritating) ^[1]	

p-Xylene

	TOXICITY	IRRITATION
o-xylene	Inhalation (mouse) LC50: 6884.6356575 mg/l/6H ^[2]	Eye: adverse effect observed (irritating) ^[1]
	Oral (rat) LD50: 3567 mg/kg ^[2]	Skin: adverse effect observed (irritating) ^[1]
	TOXICITY	IRRITATION
ethylbenzene	Dermal (rabbit) LD50: >5000 mg/kg ^[2]	Eye (rabbit): 500 mg - SEVERE
	Inhalation (mouse) LC50: 17.75 mg/l/2H ^[2]	Eye: no adverse effect observed (not irritating) ^[1]
	Oral (rat) LD50: 3500 mg/kg ^[2]	Skin (rabbit): 15 mg/24h mild
		Skin: no adverse effect observed (not irritating) ^[1]
Legend:	1. Value obtained from Europe ECHA Registered Substances - Acute toxicity 2. * Value obtained from manufacturer's SDS. Unless otherwise specified data extracted from RTECS - Register of Toxic Effect of chemical Substances	

M-XYLENE	The material may cause severe skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin. Repeated exposures may produce severe ulceration. Effects on fertility, specific developmental abnormalities (craniofacial) recorded.
O-XYLENE	Paternal effects recorded.
ETHYLBENZENE	Liver changes, uterine tract, effects on fertility, foetotoxicity, specific developmental abnormalities (musculoskeletal system) recorded. The material may cause skin irritation after prolonged or repeated exposure and may produce on contact skin redness, swelling, the production of vesicles, scaling and thickening of the skin. Ethylbenzene is readily absorbed when inhaled, swallowed or in contact with the skin. It is distributed throughout the body, and passed out through urine. NOTE: Substance has been shown to be mutagenic in at least one assay, or belongs to a family of chemicals producing damage or change to cellular DNA. WARNING: This substance has been classified by the IARC as Group 2B: Possibly Carcinogenic to Humans.
M-XYLENE & ETHYLBENZENE	The material may produce severe irritation to the eye causing pronounced inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

Acute Toxicity	✓	Carcinogenicity	✗
Skin Irritation/Corrosion	✓	Reproductivity	✗
Serious Eye Damage/Irritation	✓	STOT - Single Exposure	✗
Respiratory or Skin sensitisation	✗	STOT - Repeated Exposure	✗
Mutagenicity	✗	Aspiration Hazard	✗

Legend: ✗ – Data either not available or does not fill the criteria for classification
 ✓ – Data available to make classification

SECTION 12 ECOLOGICAL INFORMATION

12.1. Toxicity

	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
p-Xylene	Not Available	Not Available	Not Available	Not Available	Not Available
	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
p-xylene	LC50	96	Fish	0.002mg/L	4
	EC50	48	Crustacea	3.2mg/L	2
	EC50	72	Algae or other aquatic plants	3.2mg/L	4
	NOEC	73	Algae or other aquatic plants	0.44mg/L	2
	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
m-xylene	LC50	96	Fish	0.0092mg/L	4
	EC50	48	Crustacea	3.2mg/L	2
	EC50	72	Algae or other aquatic plants	3.2mg/L	2
	NOEC	73	Algae or other aquatic plants	0.44mg/L	2

Continued...

p-Xylene

	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	o-xylene	LC50	96	Fish	0.011mg/L
EC50		48	Crustacea	<1.39mg/L	4
EC50		72	Algae or other aquatic plants	3.2mg/L	2
NOEC		73	Algae or other aquatic plants	0.44mg/L	2
	ENDPOINT	TEST DURATION (HR)	SPECIES	VALUE	SOURCE
	ethylbenzene	LC50	96	Fish	0.0043mg/L
EC50		48	Crustacea	1.184mg/L	4
EC50		96	Algae or other aquatic plants	3.6mg/L	4
NOEC		168	Crustacea	0.96mg/L	5
Legend:	Extracted from 1. IUCLID Toxicity Data 2. Europe ECHA Registered Substances - Ecotoxicological Information - Aquatic Toxicity 3. EPIWIN Suite V3.12 (QSAR) - Aquatic Toxicity Data (Estimated) 4. US EPA, Ecotox database - Aquatic Toxicity Data 5. ECETOC Aquatic Hazard Assessment Data 6. NITE (Japan) - Bioconcentration Data 7. METI (Japan) - Bioconcentration Data 8. Vendor Data				

For Aromatic Substances Series:

Environmental Fate: Large, molecularly complex polycyclic aromatic hydrocarbons, or PAHs, are persistent in the environment longer than smaller PAHs.

Atmospheric Fate: PAHs are 'semi-volatile substances' which can move between the atmosphere and the Earth's surface in repeated, temperature-driven cycle of deposition and volatilization.

For Xylenes:

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

Environmental Fate: Most xylenes released to the environment will occur in the atmosphere and volatilisation is the dominant environmental fate process.

DO NOT discharge into sewer or waterways.

12.2. Persistence and degradability

Ingredient	Persistence: Water/Soil	Persistence: Air
p-xylene	HIGH (Half-life = 360 days)	LOW (Half-life = 1.75 days)
m-xylene	HIGH (Half-life = 360 days)	LOW (Half-life = 1.08 days)
o-xylene	HIGH (Half-life = 360 days)	LOW (Half-life = 1.83 days)
ethylbenzene	HIGH (Half-life = 228 days)	LOW (Half-life = 3.57 days)

12.3. Bioaccumulative potential

Ingredient	Bioaccumulation
p-xylene	LOW (BCF = 2.2)
m-xylene	LOW (BCF = 1.37)
o-xylene	LOW (BCF = 219)
ethylbenzene	LOW (BCF = 79.43)

12.4. Mobility in soil

Ingredient	Mobility
p-xylene	LOW (KOC = 434)
m-xylene	LOW (KOC = 434)
o-xylene	LOW (KOC = 443.1)
ethylbenzene	LOW (KOC = 517.8)

12.5. Results of PBT and vPvB assessment

	P	B	T
Relevant available data	Not Applicable	Not Applicable	Not Applicable
PBT Criteria fulfilled?	Not Applicable	Not Applicable	Not Applicable

12.6. Other adverse effects

No data available

p-Xylene

SECTION 13 DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Product / Packaging disposal	<ul style="list-style-type: none"> ▸ Containers may still present a chemical hazard/ danger when empty. ▸ Return to supplier for reuse/ recycling if possible. <p>Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area.</p> <ul style="list-style-type: none"> ▸ DO NOT allow wash water from cleaning or process equipment to enter drains. ▸ It may be necessary to collect all wash water for treatment before disposal. ▸ Recycle wherever possible. ▸ Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified.
Waste treatment options	Not Available
Sewage disposal options	Not Available

SECTION 14 TRANSPORT INFORMATION

Labels Required

	
Marine Pollutant	NO
HAZCHEM	3Y

Land transport (ADR)

14.1. UN number	1307												
14.2. UN proper shipping name	XYLENES												
14.3. Transport hazard class(es)	<table border="0"> <tr> <td>Class</td> <td>3</td> </tr> <tr> <td>Subrisk</td> <td>Not Applicable</td> </tr> </table>	Class	3	Subrisk	Not Applicable								
Class	3												
Subrisk	Not Applicable												
14.4. Packing group	III												
14.5. Environmental hazard	Not Applicable												
14.6. Special precautions for user	<table border="0"> <tr> <td>Hazard identification (Kemler)</td> <td>30</td> </tr> <tr> <td>Classification code</td> <td>F1</td> </tr> <tr> <td>Hazard Label</td> <td>3</td> </tr> <tr> <td>Special provisions</td> <td>Not Applicable</td> </tr> <tr> <td>Limited quantity</td> <td>5 L</td> </tr> <tr> <td>Tunnel Restriction Code</td> <td>3 (D/E)</td> </tr> </table>	Hazard identification (Kemler)	30	Classification code	F1	Hazard Label	3	Special provisions	Not Applicable	Limited quantity	5 L	Tunnel Restriction Code	3 (D/E)
Hazard identification (Kemler)	30												
Classification code	F1												
Hazard Label	3												
Special provisions	Not Applicable												
Limited quantity	5 L												
Tunnel Restriction Code	3 (D/E)												

Air transport (ICAO-IATA / DGR)

14.1. UN number	1307						
14.2. UN proper shipping name	Xylenes						
14.3. Transport hazard class(es)	<table border="0"> <tr> <td>ICAO/IATA Class</td> <td>3</td> </tr> <tr> <td>ICAO / IATA Subrisk</td> <td>Not Applicable</td> </tr> <tr> <td>ERG Code</td> <td>3L</td> </tr> </table>	ICAO/IATA Class	3	ICAO / IATA Subrisk	Not Applicable	ERG Code	3L
ICAO/IATA Class	3						
ICAO / IATA Subrisk	Not Applicable						
ERG Code	3L						
14.4. Packing group	III						
14.5. Environmental hazard	Not Applicable						
14.6. Special precautions for user	<table border="0"> <tr> <td>Special provisions</td> <td>A3</td> </tr> <tr> <td>Cargo Only Packing Instructions</td> <td>366</td> </tr> </table>	Special provisions	A3	Cargo Only Packing Instructions	366		
Special provisions	A3						
Cargo Only Packing Instructions	366						

p-Xylene

Cargo Only Maximum Qty / Pack	220 L
Passenger and Cargo Packing Instructions	355
Passenger and Cargo Maximum Qty / Pack	60 L
Passenger and Cargo Limited Quantity Packing Instructions	Y344
Passenger and Cargo Limited Maximum Qty / Pack	10 L

Sea transport (IMDG-Code / GGVSee)

14.1. UN number	1307
14.2. UN proper shipping name	XYLENES
14.3. Transport hazard class(es)	IMDG Class 3 IMDG Subrisk Not Applicable
14.4. Packing group	III
14.5. Environmental hazard	Not Applicable
14.6. Special precautions for user	EMS Number F-E , S-D Special provisions 223 Limited Quantities 5 L

Inland waterways transport (ADN)

14.1. UN number	1307
14.2. UN proper shipping name	XYLENES
14.3. Transport hazard class(es)	3 Not Applicable
14.4. Packing group	III
14.5. Environmental hazard	Not Applicable
14.6. Special precautions for user	Classification code F1 Special provisions Not Applicable Limited quantity 5 L Equipment required PP, EX, A Fire cones number 0

14.7. Transport in bulk according to Annex II of MARPOL and the IBC code

Not Applicable

SECTION 15 REGULATORY INFORMATION

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

P-XYLENE IS FOUND ON THE FOLLOWING REGULATORY LISTS

EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)

EU European Chemicals Agency (ECHA) Community Rolling Action Plan (CoRAP) List of Substances

EU REACH Regulation (EC) No 1907/2006 - Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Europe EC Inventory

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

European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI

UK Workplace Exposure Limits (WELs)

M-XYLENE IS FOUND ON THE FOLLOWING REGULATORY LISTS

Continued...

p-Xylene

EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)

EU European Chemicals Agency (ECHA) Community Rolling Action Plan (CoRAP) List of Substances

EU REACH Regulation (EC) No 1907/2006 - Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Europe EC Inventory

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

European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI

UK Workplace Exposure Limits (WELs)

O-XYLENE IS FOUND ON THE FOLLOWING REGULATORY LISTS

EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)

EU European Chemicals Agency (ECHA) Community Rolling Action Plan (CoRAP) List of Substances

EU REACH Regulation (EC) No 1907/2006 - Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Europe EC Inventory

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

European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI

UK Workplace Exposure Limits (WELs)

ETHYLBENZENE IS FOUND ON THE FOLLOWING REGULATORY LISTS

Chemical Footprint Project - Chemicals of High Concern List

EU Consolidated List of Indicative Occupational Exposure Limit Values (IOELVs)

EU REACH Regulation (EC) No 1907/2006 - Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Europe EC Inventory

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

European Union (EU) Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures - Annex VI

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs

International Agency for Research on Cancer (IARC) - Agents Classified by the IARC Monographs - Group 2B : Possibly carcinogenic to humans

UK Workplace Exposure Limits (WELs)

This safety data sheet is in compliance with the following EU legislation and its adaptations - as far as applicable - : Directives 98/24/EC, - 92/85/EEC, - 94/33/EC, - 2008/98/EC, - 2010/75/EU; Commission Regulation (EU) 2015/830; Regulation (EC) No 1272/2008 as updated through ATPs.

15.2. Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

ECHA SUMMARY

Ingredient	CAS number	Index No	ECHA Dossier
p-xylene	106-42-3	601-022-00-9	01-2119484661-33-XXXX

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Flam. Liq. 3; Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2; Acute Tox. 4	GHS02; GHS07; Wng	H226; H312; H315; H319; H332

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
m-xylene	108-38-3	601-022-00-9	01-2119484621-37-XXXX

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Flam. Liq. 3; Asp. Tox. 1; Acute Tox. 4; Skin Irrit. 2; Eye Dam. 1; Acute Tox. 4	GHS02; GHS08; GHS05; Dgr	H226; H304; H312; H332; H315; H318

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

Ingredient	CAS number	Index No	ECHA Dossier
o-xylene	95-47-6	601-022-00-9	01-2119485822-30-XXXX

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Flam. Liq. 2; Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2; Acute Tox. 4	GHS02; GHS07; Dgr	H225; H312; H332; H315; H319

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

p-Xylene

Ingredient	CAS number	Index No	ECHA Dossier
ethylbenzene	100-41-4	601-023-00-4	01-2119489370-35-XXXX

Harmonisation (C&L Inventory)	Hazard Class and Category Code(s)	Pictograms Signal Word Code(s)	Hazard Statement Code(s)
1	Flam. Liq. 2; Acute Tox. 4	GHS02; GHS07; Dgr	H225; H332
1	Skin Irrit. 2; Eye Irrit. 2; Aquatic Chronic 2	GHS09; GHS07; Wng	H315; H319; H411

Harmonisation Code 1 = The most prevalent classification. Harmonisation Code 2 = The most severe classification.

National Inventory Status

National Inventory	Status
Australia - AICS	Yes
Canada - DSL	Yes
Canada - NDSL	No (p-xylene; m-xylene; o-xylene; ethylbenzene)
China - IECSC	Yes
Europe - EINEC / ELINCS / NLP	Yes
Japan - ENCS	Yes
Korea - KECI	Yes
New Zealand - NZIoC	Yes
Philippines - PICCS	Yes
USA - TSCA	Yes
Taiwan - TCSI	Yes
Mexico - INSQ	Yes
Vietnam - NCI	Yes
Russia - ARIPS	Yes
Legend:	Yes = All CAS declared ingredients are on the inventory No = One or more of the CAS listed ingredients are not on the inventory and are not exempt from listing(see specific ingredients in brackets)

SECTION 16 OTHER INFORMATION

Revision Date	29/05/2020
Initial Date	27/05/2020

Full text Risk and Hazard codes

H225	Highly flammable liquid and vapour.
H304	May be fatal if swallowed and enters airways.
H318	Causes serious eye damage.
H373	May cause damage to organs through prolonged or repeated exposure.
H411	Toxic to aquatic life with long lasting effects.

SDS Version Summary

Version	Issue Date	Sections Updated
1.2.1.1.1	29/05/2020	Classification, Exposure Standard, Ingredients

Other information

Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

The SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings.

For detailed advice on Personal Protective Equipment, refer to the following EU CEN Standards:

EN 166 Personal eye-protection

EN 340 Protective clothing

Continued...

p-Xylene

EN 374 Protective gloves against chemicals and micro-organisms
EN 13832 Footwear protecting against chemicals
EN 133 Respiratory protective devices

Definitions and abbreviations

PC—TWA: Permissible Concentration-Time Weighted Average
PC—STEL: Permissible Concentration-Short Term Exposure Limit
IARC: International Agency for Research on Cancer
ACGIH: American Conference of Governmental Industrial Hygienists
STEL: Short Term Exposure Limit
TEEL: Temporary Emergency Exposure Limit.
IDLH: Immediately Dangerous to Life or Health Concentrations
OSF: Odour Safety Factor
NOAEL :No Observed Adverse Effect Level
LOAEL: Lowest Observed Adverse Effect Level
TLV: Threshold Limit Value
LOD: Limit Of Detection
OTV: Odour Threshold Value
BCF: BioConcentration Factors
BEI: Biological Exposure Index

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