

# Safety Data Sheet

## Toluene

### Section 1: Identification of the material and Supplier

<b>Product name:</b>	<b>Toluene</b>
<b>Other names:</b>	Toluol, Methyl Benzene
<b>Product Codes/Trade Names:</b>	TE
<b>Recommended use:</b>	Histology reagent, industrial coatings
<b>Applicable in:</b>	Australia
<b>Supplier:</b>	Labtech Service & Supplies
<b>Address:</b>	PO Box 453, Windsor NSW 2756
<b>Telephone:</b>	02 8064 2333
<b>Email address:</b>	<a href="mailto:info@labtech.net.au">info@labtech.net.au</a>
<b>Web site:</b>	<a href="http://www.labtech.com.au">www.labtech.com.au</a>
<b>Facsimile:</b>	02 8064 7813
<b>Emergency phone number:</b>	000 Fire Brigade and Police (available in Australia only) 1800 774 557 Transpacific Emergency Response (available in Australia only)
<b>Poisons Information Centre:</b>	13 11 26 (available in Australia only)

This Safety Data Sheet (SDS) is issued by the Supplier in accordance with National Standards and Guidelines from Safe Work Australia (SWA – formerly ASCC/NOHSC). The information in it must not be altered, deleted or added to. The Supplier will not accept any responsibility for any changes made to its SDS by any other person or organization. The Supplier will issue a new SDS when there is a change in product specifications and/or Standards, Codes, Guidelines, or Regulations.

### Section 2: Hazard identification

**Statement of hazardous nature:** Classified as **Hazardous** according to the Approved Criteria For Classifying Hazardous Substances [NOHSC:1008] 3rd Edition.

**Toluene** is classified as **Dangerous Goods** according to the Australian Code for the Transport of Dangerous Goods by Road and Rail.

Risk Phrases		Safety Phrases	
R11	Highly Flammable	S36	Wear suitable clothing
R22	Harmful if swallowed	S51	Use only in a well ventilated area
R36/38	Irritating to the eyes and skin	S13	Keep away from food, drink
R63	Possible risk of health to unborn child	S46	Is swallowed contact a doctor immediately
R67	Vapours may cause drowsiness		

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## Section 3: Composition / Information on ingredients

Chemical Name:	Proportion:	CAS Number:
Toluene	>99%	108-88-3

## Section 4: First aid measures

If poisoning occurs contact a doctor or Poisons Information Centre.	
<b>Swallowed:</b>	If a minor amount has been accidentally swallowed, then, if conscious, rinse mouth with water and then dilute stomach contents by giving large amounts of water. Seek medical attention. Do not attempt to induce vomiting or give anything by mouth to an unconscious person. If person vomits place person on their side in recovery position.
<b>Eyes:</b>	Flush eye with flowing water for a minimum of 15 minutes. Seek medical attention promptly if irritation persists or any loss of vision occurs.
<b>Skin:</b>	Remove contaminated clothing. Wash contaminated skin with water. Seek medical attention if irritation persists. Launder contaminated clothing before re-use.
<b>Inhaled:</b>	Remove promptly to fresh air. If there are signs of drunkenness (intoxication or inebriation) or respiratory irritation, dizziness, nausea or headache occurs, seek immediate medical attention. Treat unconsciousness by placing the person in the coma position. Apply artificial respiration if breathing stops.
<b>First Aid Facilities:</b>	Safety showers, eye wash stations and First Aid kits.
<b>Advice to Doctor:</b>	Treat symptomatically and as for a narcotic substance.

## Section 5: Fire fighting measures

<b>Flammability:</b>	Flammable liquid. May form flammable mixtures with air. The vapour is heavier than air and may travel along the ground; distant ignition and flash back are possible. Run off to sewers and drains may cause explosions. Isolate for at least 800 metres in all directions if tanks or tankers are involved. The use of compressed air for filling, discharging, mixing or handling is prohibited due to the vapour hazard. All vessels must be earthed to avoid generation of static charges when agitating or transferring solvents. Avoid all ignition sources. Intrinsically safe equipment is necessary in areas where this chemical is being used.
<b>Suitable extinguishing media:</b>	Dry chemical or carbon dioxide may also be used.
<b>Hazards from combustion products:</b>	Burning can produce carbon monoxide and/or carbon dioxide.
<b>Special protective precautions and equipment for fire fighters:</b>	Flammable liquid. Full fire kit and breathing apparatus is required. Use water to cool exposed containers. Heating can cause expansion or decomposition leading to violent rupture of containers. If safe to do so, remove containers from path of fire. Spills and leaks may be washed away with copious volumes of water, fog or spray. Prevent run-off from entering drains and watercourses.
<b>HAZCHEM Code:</b>	3[Y]E

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## Section 6: Accidental release measures

<b>Emergency Procedure:</b>	<p>In the event of a spill eliminate all sources of ignition and take measures to prevent static discharge. No smoking. Use water spray to disperse vapour.</p> <p>Clear area of all personnel not directly involved in the clean up.</p> <p>All personnel involved in the containment and disposal procedures to wear protective equipment as described in Section 8 to prevent skin and eye contamination and inhalation of vapours.</p> <p>Ventilate area well and ensure the atmosphere is safe before personnel return to the work area.</p>
<b>Containment Procedure:</b>	<p>Stop and contain the spill for salvage or absorb in inert absorbent material (e.g. soil, sand, vermiculite) for disposal by an approved method. Prevent run-off into drains and waterways.</p> <p>If contamination of sewers or waterways has occurred, advise the local emergency services.</p>
<b>Clean Up Procedure:</b>	<p>Wash the cleaned-up area with copious volumes of water to remove any trace amounts of product. Non-returnable containers should be de-gassed prior to disposal. Dispose of all waste containers and used drums in accordance with local authority guidelines.</p>

## Section 7: Handling and storage

<b>Handling:</b>	<p>Use in well ventilated areas away from all ignition sources. Intrinsically safe equipment only must be used in areas where this chemical is being used.</p> <p>The use of compressed air for filling, discharging, mixing or handling is prohibited due to the vapour hazard. Containers must be earthed to avoid generation of static charges when agitating or transferring product.</p>
<b>Storage:</b>	<p>Store in tightly closed containers in cool, dry, isolated and well-ventilated areas away from heat, sources of ignition and incompatibles (see below). Store away from oxidizing agents. Keep containers closed at all times - check regularly for leaks.</p> <p>Do not eat, drink or smoke in areas of use or storage. Observe State Regulations concerning the storage and handling of Dangerous Goods. Store with all precautions required for handling flammable liquids.</p> <p>The requirement of Australian Standard AS 1940 should be observed in addition to AS 1020, AS 1076, AS 2380 and AS 3000.</p> <p>Empty containers retain residue (liquid and/or vapour) and are dangerous. Do not pressure cut, weld, braze, solder, drill, grind or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition.</p>
<b>Incompatibilities:</b>	<p>Not to be stored with explosives (Class 1), flammable gases in bulk (Class 2.1), poisonous gases (Class 2.3), spontaneously combustible substances (Class 4.2), oxidizing agents (Class 5.1), organic peroxides (Class 5.2), radioactive substances (Class 7).</p> <p>Exemptions may apply.</p>

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## Section 8: Exposure controls / Personal protection

<b>Exposure Standards:</b>	<b>Workplace Exposure Standards for Airborne Contaminants, Safe Work Australia</b>				
	Methyl Benzene TWA - 100 ppm (434 mg/m <sup>3</sup> ) STEL - 125 ppm (543 mg/m <sup>3</sup> )				
<b>Biological Limit Values:</b>	Material	Determinant	Sampling Time	BEI	Reference
	Toluene	Methylhippuric acid in urine	End of Shift	1.5g/g creatinine	ACGIH (2003)
<b>ENGINEERING CONTROLS</b>					
<input type="checkbox"/> <b>Ventilation:</b>	Local exhaust ventilation and/or mechanical (general) exhaust is recommended where vapours are likely to be generated. All such equipment must be intrinsically safe.				
<input type="checkbox"/> <b>Special Consideration for Repair &amp;/or Maintenance of Contaminated Equipment:</b>	<p>Empty containers retain residue (liquid and/or vapour) and are dangerous. Do not pressure cut, weld, braze, solder, drill, grind or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition.</p> <p>Vapour is heavier than air - prevent concentration in hollows or sumps. Do not enter confined spaces where vapour may have collected. Keep containers closed when not in use.</p>				
<b>PERSONAL PROTECTION</b>					
<input type="checkbox"/> <b>Personal Hygiene:</b>	<p>Protective clothing (gloves, coveralls, boots, etc.) should be worn to prevent skin contact. Always wash hands before smoking, eating, drinking or using the toilet.</p> <p>Wash contaminated clothing and other protective equipment before storing or re-using.</p>				
<input type="checkbox"/> <b>Skin Protection:</b>	Avoid skin contact by the use of approved chemical resistant gloves and aprons - PVC or Neoprene (AS 2161).				
<input type="checkbox"/> <b>Eye Protection:</b>	<p>Avoid eye contact by wearing chemical goggles with side-shields or face-shield (AS/NZS 1336) whenever exposed to vapour or mist or if there is a risk of splashing liquid in the eyes.</p> <p>Safety showers with eye-wash should be provided in all areas where product is handled.</p>				

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<input type="checkbox"/> <b>Respiratory Protection:</b>	None should be needed if engineering, storage and handling controls are adequate to ensure that atmospheric contamination is kept below the Exposure Standard.  Where vapour concentrations are likely to approach or exceed the Exposure Standard, an approved organic vapour respirator (AS/NZS 1715 and 1716) must be worn.  In high vapour concentrations, or in suspected oxygen-deficient atmospheres such as empty vessels or confined spaces, use air-supplied hood.
<input type="checkbox"/> <b>Thermal Protection:</b>	None should be needed under normal circumstances.
<input type="checkbox"/> <b>Smoking &amp; Other Dusts:</b>	Smoking must be prohibited in all areas where this product is used. See safety information on flammability above.

## Section 9: Physical and chemical properties

<b>Appearance:</b>	Mobile clear colourless liquid
<b>Odour:</b>	Aromatic
<b>pH, at stated concentration:</b>	Not available
<b>Vapour Pressure:</b>	293 mm Hg at 20°C
<b>Vapour Density:</b>	3.7 (air = 1.0)
<b>Boiling Point/range (°C):</b>	100 - 110.6°C
<b>Freezing/Melting Point (°C):</b>	-95°C
<b>Solubility:</b>	0.175kg/m <sup>3</sup> v/v (25°C)
<b>Specific Gravity (H<sub>2</sub>O = 1):</b>	0.878
<b>FLAMMABLE MATERIALS</b>	
<input type="checkbox"/> <b>Flash Point:</b>	4.4°C
<input type="checkbox"/> <b>Flash Point Method:</b>	Tag closed cup / Tag open cup
<input type="checkbox"/> <b>Flammable (Explosive) Limit - Upper:</b>	7%
<input type="checkbox"/> <b>Flammable (Explosive) Limit - Lower:</b>	1%
<input type="checkbox"/> <b>Autoignition Temperature:</b>	250°C
<b>ADDITIONAL PROPERTIES</b>	
<input type="checkbox"/> <b>Evaporation Rate:</b>	240 (n-Butyl Acetate = 100)
<input type="checkbox"/> <b>Molecular Weight:</b>	92.14
<input type="checkbox"/> <b>Volatile Organic Compounds Content (VOC):</b> (as specified by the Green Building Council of Australia)	100%
<input type="checkbox"/> <b>% Volatiles:</b>	100%

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## Section 10: Stability and reactivity

<b>Chemical Stability:</b>	Stable
<b>Incompatible Materials:</b>	Will react with strong oxidising agents.
<b>Conditions to avoid:</b>	Heat, sparks, flame and build-up of static electricity.
<b>Hazardous Decomposition Products:</b>	Burning can produce carbon monoxide and/or carbon dioxide.
<b>Hazardous Reactions:</b>	Hazardous polymerisation will not occur.

## Section 11: Toxicological information

### Toxicological Data:

LD50/oral/rat: 50>2000 mg/kg

LD50/dermal/rat: 50>2000 mg/kg

Health effects information is based on reported effects in use from overseas and Australian reports.

### Effects: Acute

<b>Swallowed:</b>	Unlikely under normal occupational exposures, but swallowing a minor amount may result in nausea, vomiting, shortness of breath, headache, diarrhoea and abdominal discomfort. Dizziness and drowsiness may also occur. Ingestion of larger amounts may cause narcotic effects, and lead to coma and death. Swallowing the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis.
<b>Eyes:</b>	Vapours may irritate the eyes. Liquid and mists may severely irritate or damage the eyes.
<b>Skin:</b>	Contact with skin may result in very slight irritation.
<b>Inhaled:</b>	Vapours in high concentrations may cause minor irritation of the upper respiratory tract.

### Effects: Chronic

Ingestion of larger amounts may cause narcotic effects, and lead to coma and death.

Prolonged or repeated contact and heavy skin contamination may cause skin drying and cracking and/or dermatitis with redness, itching, and swelling. This may lead to secondary infection.

Higher concentrations can cause drowsiness, headaches and vomiting. May also produce central nervous system depression, which can lead to loss of co-ordination, impaired judgement and, if exposure is prolonged, unconsciousness.

### Additional Notes

Toluene has been implicated in substance abuse (sniffing).

Prolonged or repeated over-exposure or deliberate habitual sniffing can cause liver damage.

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## Section 12: Ecological information

<b>Eco-toxicity:</b>	Toxicity to fish (acute): LC50/Fathead minnow: 56-64 mg/l/96 h Toxicity to daphnia: EC50/Daphnia magna: 318 mg/l/24 h
<b>Persistence and Degradability:</b>	Degree of elimination:> 60% Evaluation: readily biodegradable
<b>Mobility:</b>	Highly mobile. Float on water

## Section 13: Disposal considerations

Refer to local authorities, otherwise disposal must be in accordance with local waste authority requirements. Product must be contained and not disposed to sewerage systems, drains or waterways. Advise flammable nature. Empty containers must be decontaminated by rinsing with water.

## Section 14: Transport Information

<b>Proper Shipping Name:</b>	Toluene
<b>UN number:</b>	1294
<b>DG Class:</b>	3
<b>Subsidiary Risk 1:</b>	None Allocated
<b>Packaging Group:</b>	II
<b>HAZCHEM code:</b>	3[Y]E
<b>Special Precautions for User:</b>	Refer to incompatibilities in Section 7 and stability and reactivity information in Section 10.
<b>ADDITIONAL TRANSPORT REQUIREMENTS:</b>	
Nil	

## Section 15: Regulatory information

<b>Poisons Schedule:</b>	S6
<b>Other:</b>	Nil

## Section 16: Other information

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## Additional Information

### Australian Standards References:

AS 1020	The Control of Undesirable Static Electricity.
AS 1076	Code of Practice for selection, installation and maintenance of electrical apparatus and associated equipment for use in explosive atmospheres (other than mining applications) – Parts 1 to 13
AS/NZS 1336	Recommended Practices for Occupational Eye Protection
AS/NZS 1715	Selection, Use and Maintenance of Respiratory Protective Devices
AS/NZS 1716	Respiratory Protective Devices
AS 1940	The Storage and Handling of Flammable and Combustible Liquids
AS 2161	Industrial Safety Gloves and Mittens (excluding electrical and medical gloves)
AS 2380	Electrical equipment for explosive atmospheres – Explosion Protection Techniques (Parts 1 to 9)
AS 3000	Electrical installations (known as the Australian/New Zealand Wiring Rules).

### Other References:

NOHSC:1008 (2004)	Approved Criteria for Classifying Hazardous Substances
NOHSC:10005 (1999)	List Of Designated Hazardous Substances, April 1999, National Occupational Health and Safety Commission, Sydney.
NOHSC:2007 (1994)	National Code of Practice for the Control of Workplace Hazardous Substances (Australian States have similar Codes of Practice in each State).
Model Code of Practice	Preparation of Safety Data Sheets for Hazardous Chemicals, December 2011, Safe Work Australia.
Model Code of Practice	Labelling of Workplace Hazardous Chemicals, December 2011, Safe Work Australia.
WES	Workplace Exposure Standards for Airborne Contaminants, December 2011, Safe Work Australia.
ADG Code	Australian Code for the Transport of Dangerous Goods by Road and Rail, 7th edition, National Transport Commission.
GHS	Globally Harmonized System of Classification and Labelling of Chemicals (GHS), 3rd revised edition, United Nations, New York and Geneva, 2009.
Safe Work Australia HSIS	<a href="http://hsis.safeworkaustralia.gov.au/HazardousSubstance">http://hsis.safeworkaustralia.gov.au/HazardousSubstance</a>

## Authorisation

Authorised by:	Quality & Technical Manager
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