







## Safe Work Procedure

<b>Process/Equipment:</b> Handling of Arsenic		<b>Location :</b> Lab 18.111	
<b>Procedure Developed by :</b> Dr C. Dillon, Kristie Munro, Sandra Chapman		<b>Approved by :</b> Will Price	<b>Date :</b> June 2007
<b>Referenced UOW Guidelines, legislation, codes of practice, Australian Standards etc:</b>	NSW OHS Regulations 2001 NOHSC Guidance Note for the Assessment of Health Risks arising from the use of Hazardous Substances in the workplace [NOHSC:3017 (1994)] NOHSC <i>Arsenic and its compounds</i> 1989 AS2242.2 (1997) Laboratory safety – Chemical aspects OHS114.3 Working with Hazardous Substances Guidelines OHS 119.4 Contaminated waste Disposal Guidelines ChemAlert Report and MSDS – Arsenic ??????		
<b>Personal Protective Equipment Required:</b>			
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">             Appropriate Gloves         </div> <div style="text-align: center;">             Safety glasses/goggles         </div> <div style="text-align: center;">             Covered footwear         </div> <div style="text-align: center;">             labcoat         </div> </div>			
<b>Activity</b> <i>(Steps in the process/task)</i>	<b>Hazards Identified</b> <i>(What could cause an injury)</i>	<b>Risk Score</b> <i>(How harmful is it)</i>	<b>Controls</b> <i>(What can be done to minimise the risk of injury)</i>
1. Retrieve arsenic compound from storage	The bottle is dropped or broken resulting in a spill	13 (medium)	Spills kit for arsenic present on laboratory.  Current users are trained in how to clean up an arsenic spills and induction into the procedure on arrival. Induction and training records are documented and archived.
	The bottle is dropped or broken resulting or skin or eye contact	13 (medium)	All spills are cleaned up immediately. Arsenic spills should be cleaned up with the "arsenic sponge", kept in the spill box. Any liquid should be squeezed into a beaker and disposed of in the arsenic waste disposal bottle.  For larger spills (>1L), apply sand, sweep up into bag, label as

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			contaminated waste and dispose as per contaminated waste.  Correct PPE must be worn at all times in laboratory.  When handling containers holding arsenic compounds, nitrile gloves must be worn. Integrity of gloves is maintained by the regular renewal of gloves.  All incidents are reported to Supervisor (SafetyNet)
2. Get spatula, then open container holding arsenic compound.	Bottle being knocked over or Grains released from lid, dropped from spatula resulting spill Possible skin or eye contact	13 (medium)	Open bottle over bench cloth. Dispose of bench cloth after a known spill and at regular intervals.
3. Take a small amount on to spatula and transfer to container.	Spill from spatula – skin and eye contact	13 (medium)	Use of right sized, curved spatulas to minimize spillage. Minimise transfer distance by placing arsenic bottle next to container
4. Put lid on arsenic bottle and container and return bottle to cupboard	Arsenic is left on open bench and taken by someone to use inappropriately.	17 (low)	Training to reinforce the use of locked cupboard for the storage of arsenic compounds. Laboratory access is for authorized staff and students only.
5. Add solvent (water or PBS or DCM) to container using a pipette	Solution spilt resulting in skin eye contact.	13 (medium)	Correct PPE is worn. Training is given in the use of correct gloves for DCM.
6. Mix and Dispense	Spill resulting in skin and/or eye contact if lid not on container properly or from a spill from pipette tip	13 (medium)	When mixing contents of container, the container is not shaken or inverted but tapped gently.  Pipette tips are put directly into waste beaker after use and then transferred to cytotoxic waste bin.
7. Clean up Glass is rinsed	Spill resulting in skin and/or eye contact  Breakage of glass resulting in injury  Washings go down sink	18 (low)  21 (low)  18 (low)	Correct PPE is worn  Avoidance of gloves getting wet  All washings are rinsed into residue container.

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			<p>Specific procedure for broken glass involved in arsenic work</p> <p>Glass is removed with tongs and/or tweezers Spilt solution is mopped up using tongs holding paper towel Glass and towel placed in cytotoxic bin.</p>
8. Disposal of containers	Containers are discarded inappropriately and cleaning personnel are exposed	13 (medium)	<p>Procedures for disposal:</p> <ul style="list-style-type: none"> <li>-Glass is decontaminated and placed in glass bin</li> <li>-plastic vials, gloves, pipette tips are placed in cytotoxic bin</li> <li>-Arsenic solution put in hazardous substances residue container</li> </ul>
9. Storage of arsenic compounds	Arsenic is taken out of the laboratory and ingested. Arsenic is toxic and a potential carcinogen.	4 (high)	<p>Arsenic compounds are kept in locked cupboard within a laboratory 18.111 that has authorized access only.</p> <p>A record of material used is logged in a logbook which has entries – type of arsenic compound, amount used and date.</p> <p>Supervisor monitors well being of laboratory workers/</p>
	Arsenic decomposes	24(low)	<p>The chemicals should be stored away from oxidising agents and metals. Arsenic compounds are stored in desiccator in a dark, dry locked cupboard.</p> <p>Desiccant is regularly checked.</p> <p>Integrity of arsenic container is periodically checked.</p>