

<b>Training Package</b>	Metal and Engineering (MEM05)			<b>HSC Requirements and Advice</b>
<b>Title</b>	<b>Work safely with industrial chemicals and materials</b>			
<b>Unit code</b>	<b>Competency field</b>	<b>Band</b>	<b>Unit weight</b>	<b>HSC Indicative Hours</b>
<b>MEM13003B</b>	Occupational health & safety	A	2	<b>10</b>

<b>Unit descriptor</b>	This unit covers using personal protective equipment (PPEs), identifying the particular hazards and emergency procedures, and observing safe working practices in that environment.
<b>Prerequisites</b>	Nil
<b>Application of the competency</b>	<p>This unit may be applied in a workplace in which materials and chemicals which are subject to codes and regulations are stored and used, for example, chemicals, solvents, dangerous materials, acids, noxious waste products etc.</p> <p>Evidence of competency is to encompass the satisfactory application of current State/Territory OHS legislation, standards and codes of practice, and the hierarchy of hazard control measures with elimination, substitution, isolation and engineering control measures being selected before safe work practices and PPEs.</p> <p>This unit describes the competencies which are beyond those safety requirements normally applied in the workplace as described in Unit MEM13014 (Apply principles of occupational health and safety in the work environment) or specifically described in individual units such as welding.</p>
<b>Related units</b>	None

### Evidence Guide

The evidence guide specifies the evidence required to demonstrate achievement in the unit of competency as a whole. It must be read in conjunction with the unit descriptor, performance criteria, range statement and the assessment guidelines for the Metal and Engineering Training Package.

<b>Overview of assessment requirements</b>	<b>Context of assessment</b>	<b>Interdependent assessment</b>	<b>Method of assessment</b>
A person who demonstrates competency in this unit must be able to work safely and efficiently with various chemicals.	This unit may be assessed on the job, off the job or a combination of both on and off the job. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by an individual working alone	This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with working safely with industrial chemicals and materials or other units requiring the exercise of the skills and knowledge covered by this unit.	Assessors should gather a range of evidence that is valid, sufficient, current and authentic. Evidence can be gathered through a variety of ways including direct observation, supervisor's reports, project work, samples and questioning. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. The candidate must have

	<b>Context of assessment cont/d</b>		<b>Method of assessment cont/d</b>
	or as part of a team. The assessment environment should not disadvantage the candidate.		access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

<b>Evidence Guide cont/d</b>			<b>HSC Requirements and Advice</b>
<b>Consistency of performance</b>	<b>Required skills</b>	<b>Required knowledge</b>	<b>Key Terms and Concepts</b>
Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, including required knowledge, and be capable of applying the competency in new and different situations and contexts.	Look for evidence that confirms skills in: <ul style="list-style-type: none"> <li>• undertaking risk assessment</li> <li>• communicating with others</li> <li>• performing proper manual handling techniques</li> <li>• interpreting safety signage, labelling and placarding.</li> </ul>	Look for evidence that confirms knowledge of: <ul style="list-style-type: none"> <li>• dangerous goods classification and labelling/placarding</li> <li>• testing, use and maintenance of PPE</li> <li>• inherent hazardous properties of the chemicals to be used</li> <li>• interpretation of the relevant MSDS</li> <li>• basic fire fighting procedures</li> <li>• site-specific emergency plan procedures</li> <li>• chemical spill confinement procedures</li> <li>• dangerous occurrence (near miss) reporting procedures</li> <li>• hierarchy of control.</li> </ul>	<ul style="list-style-type: none"> <li>• basic fire fighting procedures</li> <li>• chemical application equipment</li> <li>• chemical inventory</li> <li>• chemical labels</li> <li>• chemical safety labels, symbols and signage</li> <li>• chemical safety policies</li> <li>• correct handling, application, transport and storage of hazardous and non-hazardous materials and chemicals</li> <li>• decanting chemicals</li> <li>• emergency plans and procedures</li> <li>• hazardous areas</li> <li>• hazardous materials</li> <li>• hazards</li> <li>• hierarchy of risk control measures</li> <li>• housekeeping procedures</li> <li>• industrial chemicals and materials</li> <li>• Material Safety Data Sheet (MSDS)</li> <li>• methods of poisoning</li> <li>• occupational health and safety (OHS)</li> <li>• OHS legislation</li> <li>• permits</li> <li>• personal protective equipment (PPE)</li> <li>• reporting</li> <li>• risk management</li> <li>• risk minimisation</li> <li>• safe manual handling</li> <li>• safe work practices and procedures</li> <li>• selection, use, maintenance and storage of PPE</li> <li>• spill procedures</li> <li>• standard operating procedures (SOP).</li> </ul>

Elements	Performance criteria	Range Statement	HSC Requirements and Advice
1 Use personal protective equipment	1.1 Correct and appropriate safety clothing including <i>personal protective equipment</i> is selected and used correctly based on information in relevant material safety data sheet (MSDS).	<p>The range statement provides information about the context in which the unit of competency is carried out. The variables [in bold] and scope [dot points] cater for different work requirements, work practices and knowledge between States, Territories and the Commonwealth, and between organisations and workplaces. The range statement relates to the unit as a whole and provides a focus for assessment. Text in italics in the performance criteria is explained here.</p> <p>The following variables may be present and <i>may include</i>, but are not limited to, the examples listed under the scope. All work is undertaken to relevant legislative requirements, where applicable.</p> <p><b>Personal protective equipment</b></p> <ul style="list-style-type: none"> <li>• personal protective may include appropriate:               <ul style="list-style-type: none"> <li>- goggles/face shields</li> <li>- respirators</li> <li>- air supplied or self-contained helmets</li> <li>- safety boots, gloves and appropriate clothes/garments.</li> </ul> </li> </ul>	<p><b>Learning experiences for the HSC must address:</b></p> <p>An awareness of methods of poisoning in humans including:</p> <ul style="list-style-type: none"> <li>• inhalation</li> <li>• absorption</li> <li>• ingestion</li> <li>• injection.</li> </ul> <p>Considerations in the selection of personal protective equipment (PPE) including:</p> <ul style="list-style-type: none"> <li>• the chemical/material to be used</li> <li>• the method of application/use</li> <li>• the chemical/material label and Material Safety Data Sheet (MSDS).</li> </ul> <p>Information on chemical labels including:</p> <ul style="list-style-type: none"> <li>• trade name</li> <li>• directions for use</li> <li>• product type</li> <li>• active constituents</li> <li>• broad claims of use</li> <li>• signal heading</li> <li>• net contents</li> <li>• manufacturer</li> <li>• restraints</li> <li>• withholding period</li> <li>• general instructions</li> <li>• precautionary statements</li> <li>• storage and disposal</li> <li>• safety directions and first aid instructions</li> <li>• emergency information</li> <li>• batch number</li> <li>• manufacturer and expiry dates</li> <li>• dangerous goods information.</li> </ul> <p>Information provided in MSDS including:</p> <ul style="list-style-type: none"> <li>• manufacturer/supplier's details</li> <li>• physical description and properties</li> <li>• identification of substance</li> <li>• use</li> <li>• ingredients</li> </ul>
			<ul style="list-style-type: none"> <li>• health hazard information</li> </ul>

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			<ul style="list-style-type: none"> <li>• first aid</li> <li>• precautions for use</li> <li>• safe handling information</li> <li>• control point.</li> </ul> <p>How and where to obtain required MSDS.</p> <p>Application and testing of a range of PPE including:</p> <ul style="list-style-type: none"> <li>• footwear</li> <li>• head protection</li> <li>• gloves</li> <li>• protective clothing</li> <li>• respirator</li> <li>• face mask/shield</li> <li>• hearing protection</li> <li>• eye protection.</li> </ul> <p>Importance of correct fitting PPE.</p> <p>Selection, use, maintenance and storage of PPE appropriate to work task.</p>
2 Identify emergency procedures	2.1 Emergency procedures and plan relevant to the particular work environment are documented, understood and demonstrated as laid down in approved safety instructions.		<p><b>Learning experiences for the HSC must address:</b></p> <p>Site-specific emergency plans and procedures.</p> <p>Spill procedures including:</p> <ul style="list-style-type: none"> <li>• use of PPE</li> <li>• isolation of the spill</li> <li>• containment of the spill</li> <li>• identification of the chemical/material</li> <li>• decontamination of the spill</li> <li>• notification of appropriate authorities <ul style="list-style-type: none"> <li>- NSW Department of Environment and Conservation [incorporating Environment Protection Authority (EPA)]</li> <li>- emergency services</li> </ul> </li> <li>• clean up and disposal of the spill in an approved manner</li> <li>• procedures set out by MSDS</li> <li>• first aid if necessary.</li> </ul>
3 Observe <i>safe working practices</i>	3.1 Hazardous areas and materials are identified and special handling procedures are identified and understood.	<p><b>Safe working practices</b></p> <ul style="list-style-type: none"> <li>• environment is inspected</li> <li>• hazards (and chemical reactive hazards) are assessed and controlled using hierarchy of</li> </ul>	<p><b>Learning experiences for the HSC must address:</b></p> <p>Safe work practices and procedures.</p>

Elements	Performance criteria	Range Statement	HSC Requirements and Advice
		hazard control <ul style="list-style-type: none"> <li>• properly maintained PPE is available</li> <li>• emergency management plan is documented/understood</li> <li>• work to be undertaken in safe 'thermal' environments and all possible ignition sources are to be identified and controlled.</li> </ul>	<p>An awareness of hazardous areas in the engineering, manufacturing and related services industries workplace.</p> <p>An awareness of a range of hazardous materials commonly used in the engineering, manufacturing and related services industries including:</p> <ul style="list-style-type: none"> <li>• chemicals</li> <li>• solvents</li> <li>• dangerous materials</li> <li>• acids</li> <li>• flammable materials</li> <li>• noxious waste products.</li> </ul> <p>A basic understanding of risk management:</p> <ul style="list-style-type: none"> <li>• identify hazards</li> <li>• assess associated risks</li> <li>• use appropriate control measures to eliminate/minimise risks</li> <li>• monitor and review the control measures.</li> </ul> <p>An awareness of potential hazards associated with:</p> <ul style="list-style-type: none"> <li>• mixing and preparation of chemicals</li> <li>• application of chemicals</li> <li>• re-entry into areas where chemicals have been used</li> <li>• bystanders and general public</li> <li>• manual handling</li> <li>• machinery and equipment</li> <li>• adverse weather conditions.</li> </ul> <p>Risk minimisation including:</p> <ul style="list-style-type: none"> <li>• correct use of PPE</li> <li>• appropriate application timing</li> <li>• appropriate quantity and strength</li> <li>• correct application methods</li> <li>• signage</li> <li>• chemical selection</li> <li>• re-entry restrictions</li> <li>• alternative chemical/material.</li> </ul>
			<p>A basic awareness of the hierarchy of risk control measures:</p> <ul style="list-style-type: none"> <li>• Level 1 – eliminate the risk (such as discontinue the activity or not use the equipment)</li> <li>• Level 2 – minimise the risk by:               <ul style="list-style-type: none"> <li>- substituting the system of work/equipment (with</li> </ul> </li> </ul>

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	<p>3.2 Permits to work (if necessary) are obtained.</p> <p>3.3 All equipment and hazardous materials are used in accordance with relevant OHS legislation, manufacturers' instructions and standard operating procedures.</p>		<p>something safer)</p> <ul style="list-style-type: none"> <li>- modifying the system of work/equipment (to make it safer)</li> <li>- isolating the hazard (such as introducing a restrictive work area)</li> <li>- introducing engineering control (such as guarding, fencing or safety screens)</li> </ul> <p>• Level 3 – other controls:</p> <ul style="list-style-type: none"> <li>- adopt administrative controls and safe work practices</li> <li>- use PPE.</li> </ul> <p>Correct handling, application, transport and storage of a range of hazardous and non-hazardous chemicals and materials used in a range of work tasks/projects.</p> <p>Procedures to follow in the event of an emergency.</p> <p>Correct use of fire fighting equipment:</p> <ul style="list-style-type: none"> <li>• fire blanket</li> <li>• fire extinguishers <ul style="list-style-type: none"> <li>- class and type of fire</li> <li>- type of extinguisher and identifying colour</li> </ul> </li> <li>• fire hydrant and hose.</li> </ul> <p><b>Learning experiences for the HSC must address:</b></p> <p>An awareness of:</p> <ul style="list-style-type: none"> <li>• permits that may be required</li> <li>• personnel responsible for obtaining permits</li> <li>• process for obtaining permits</li> <li>• time required to obtain permit.</li> </ul> <p><b>Learning experiences for the HSC must address:</b></p> <p>Application of State/Territory legislation, standards and codes of practice in relation to use of chemicals and materials within engineering, manufacturing and related services industries.</p>
			<p>Consideration/s for the selection of chemical application equipment including:</p> <ul style="list-style-type: none"> <li>• area where chemical will be applied</li> <li>• chemical to be applied</li> <li>• rate of application</li> <li>• item to which chemical will be applied.</li> </ul>

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	<p>3.4 All site-specific safety policies, safety signs, symbols and labels are correctly identified and understood.</p> <p>3.5 Material safety data sheets are understood and applied.</p>		<p>Maintenance of chemical application equipment including:</p> <ul style="list-style-type: none"> <li>• cleaning of residues</li> <li>• replacement of worn or malfunctioning equipment and components.</li> </ul> <p><b>Learning experiences for the HSC must address:</b></p> <p>Knowledge of chemical safety policies, signage, symbols and labels used in the engineering, manufacturing and related services industries workplace.</p> <p>Dangerous goods classification and labelling.</p> <p>Purposes for chemical inventories including:</p> <ul style="list-style-type: none"> <li>• stock control</li> <li>• out-of-date stock</li> <li>• legislative requirements.</li> </ul> <p>Requirements of a chemical inventory including:</p> <ul style="list-style-type: none"> <li>• date of purchase</li> <li>• product name</li> <li>• supplier</li> <li>• batch number</li> <li>• expiry date/date of manufacture</li> <li>• dangerous goods class</li> <li>• date used</li> <li>• quantity used</li> <li>• quantity remaining</li> <li>• disposal of chemicals</li> <li>• signature.</li> </ul>
	<p>3.6 Safe manual handling procedures (including equipment) are used.</p>		<p><b>Learning experiences for the HSC must address:</b></p> <p>Correct manual handling techniques.</p> <p>Chemicals handling including:</p> <ul style="list-style-type: none"> <li>• mixing</li> <li>• loading</li> <li>• application</li> <li>• decontamination</li> </ul>

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	<p>3.7 Decanted chemicals and <i>storage</i> is to <i>State/Territory</i> dangerous goods and OHS <i>legislation and requirements</i>.</p>	<p><b>Storage</b></p> <ul style="list-style-type: none"> <li>all storage containers (minor quantities and in consumer packages) are suitable for chemical exposure and are properly labelled and/or placarded. Chemical manifests are updated at completion of work activity.</li> </ul> <p><b>State or Territory legislative requirements</b></p> <ul style="list-style-type: none"> <li>appropriate OHS, dangerous goods acts and regulations, Australian Standards, Australian Code for the Transport of Dangerous Goods by Road and Rail (ADGC), NOHSC codes of practice.</li> </ul>	<ul style="list-style-type: none"> <li>disposal.</li> </ul> <p><b>Learning experiences for the HSC must address:</b></p> <p>An understanding of dangers involved with decanting chemicals.</p> <p>Identification of the requirements for chemical transport, handling and storage found on MSDS and chemical labels.</p> <p>Chemicals transport requirements including:</p> <ul style="list-style-type: none"> <li>use of separate compartment from persons and foodstuffs</li> <li>protection from extreme weather</li> <li>undamaged containers</li> <li>securing load</li> <li>locking vehicle when not attended to prevent access to chemicals by unknown persons</li> <li>quantities that can be safely transported</li> <li>groups of chemicals that can be safely transported together</li> <li>chemical signage.</li> </ul> <p>Considerations for the storage of chemicals including:</p> <ul style="list-style-type: none"> <li>signage</li> <li>ventilation and fume exhaust systems</li> <li>concrete flooring and door sills</li> <li>bunding</li> <li>lockable door</li> <li>sufficient lighting</li> <li>spills kit</li> <li>fire extinguisher</li> <li>access to water.</li> </ul> <p>Chemicals storage including:</p> <ul style="list-style-type: none"> <li>segregation of classes of chemicals</li> </ul>
	<p>3.8 Housekeeping duties are performed according to standard operating procedures to maintain a</p>		<ul style="list-style-type: none"> <li>sealing chemical containers</li> <li>intact labels</li> <li>order of stock usage</li> <li>securing leaking or damaged containers</li> <li>accessible first aid kit.</li> </ul> <p><b>Learning experiences for the HSC must address:</b></p> <p>Points to consider when storing industrial chemicals and materials to ensure compatibility and avoid cross-</p>

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	safe working environment.		<p>contamination:</p> <ul style="list-style-type: none"> <li>• physical state <ul style="list-style-type: none"> <li>- solid</li> <li>- liquid</li> <li>- gas</li> </ul> </li> <li>• MSDS requirements</li> <li>• new or recycled</li> <li>• hazardous or non-hazardous</li> <li>• size</li> <li>• weight.</li> </ul> <p>Clean-up procedures according to MSDS and chemical label with due consideration to the environment and occupational health and safety (OHS).</p> <p>The disposal of containers including:</p> <ul style="list-style-type: none"> <li>• use of approved disposal sites</li> <li>• use of approved collection groups</li> <li>• directions from the MSDS and chemical label</li> <li>• consideration of environmental and legislative requirements.</li> </ul> <p>The disposal of unwanted chemicals including:</p> <ul style="list-style-type: none"> <li>• government collection</li> <li>• manufacturer recall.</li> </ul>