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**ANGLE GRINDERS**

## Scope

This document is to be completed for staff and student use of machinery,   
plant and equipment as a part of a school curriculum activity or program.

Refer to the [ITD Guidelines](http://education.qld.gov.au/health/pdfs/healthsafety/itd-staff-guidelines.pdf) for further staff advice on the risk management   
process for practical ITD curriculum activities in schools.

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| --- | --- |
| Plant/Equipment Description: | |
| Teachers/Leaders: | |
| Room Locations: | |
| Assessment Date: | Review Date: |

*N.B. This assessment can remain active for up to 5 years. However, an annual monitoring and review process should be undertaken and recorded – refer to the last page of this document.*

*Below are the details of the manufacturing or production processes attributed to this item of equipment categorised by their assessed inherent risk levels (refer to the Equipment/Process Risk Matrix). The actions required for approval for each level of inherent risk are mandatory.*

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| --- | --- | --- | --- |
| **Inherent Risk Level** | | **Details of Processes** | **Action Required/ Approval** |
| 🗹 | **High** | * When grinding metals ≤ 125 mm dia. * When grinding tools with discs >115 mm are designed with a spring loaded trigger switch – (i.e. NOT a sliding toggle switch). * When grinding metals securely held in a vice. * When grinding large, stable metal projects that do not require securing. * Where grinding flat surfaces and edges of materials where the disc does not ‘cut’ the metal – surface grinding. * When grinding where the disc performs a trenching action. This may cause severe kickback. * When the grinding process allows for noise minimisation and for comfortable operational movement, directing any sparks away from others. | * A *Plant Risk Assessment* is required to be completed. * Principal or Classified Officer  (i.e. DP, HOD, HOC, HOSES) approval prior to conducting this activity is required. * Obtaining parental permission is recommended. |
| 🗹 | **Extreme** | * When using larger, heavy duty grinding tools with discs >125 mm dia. * When grinding tools with discs >115 mm are NOT designed with a spring loaded trigger switch (i.e. only fitted with a sliding toggle switch). * When grinding tools with discs >115 mm are NOT fitted with an ergonomic long length handle. * When cutting concrete, stone, slate or marble, etc. * When cutting metals with a cutting disc, regardless of material thickness. | * Consider alternatives to using the plant/equipment. * A *Plant Risk Assessment* is required to be completed. * Principal approval prior to conducting this activity is required. * Parental permission must be obtained for student participation. |

Minimum standards

| Minimum qualifications and experience *Listed below are the general “minimum” recommendations for the management of this Plant/Equipment.*  🗹 *Indicate the minimum management controls.* |
| --- |
| Registered teachers with experience, ability and competency in the safe use of this plant/equipment  *(indicate one or more of the following):*  Specific knowledge of the safe and correct use of this plant/equipment  Experience (i.e. previous involvement and familiarity) in the safe use of this plant/equipment  Demonstrated expertise, ability and competency with this plant/equipment  Documented qualifications relating to the use of this plant/equipment (e.g. in a staff profile)  **OR**  An adult staff member or leader, other than a registered teacher, with:  Expertise in the safe and correct use of this plant/equipment  Documented qualifications that demonstrate experience, ability and competency in the safe use of this plant/equipment. |
| Will any ITD staff require initial and/or ongoing training for the safe use of this plant/equipment?  If yes, give details: |
| Will students be operating this plant/equipment?  If yes, state how student use of this plant/equipment will be managed (e.g. Workshop Safety Induction)  Give details: |
| Further information if required: |
|  |
| Minimum control requirements |
| Supporting documentation available in the school on this plant/equipment includes:  Operators Manual  Safe Operating Procedures (SOP)  Equipment Maintenance Records (EMR)  A process for recording student safety induction e.g. Student induction register  A process for recording staff training and experience, e.g. ITD Staff induction register |
| All guards are in place and in good working order for this plant/equipment |
| Safe Working Zones are defined for this plant/equipment (e.g. yellow lines and/or appropriate signage) |
| Suitable personal protective equipment (PPE) is available to be used by all operators |
| This plant/equipment complies with relevant safety standards |
| Further information if required: |

Hazards and control measures

*Listed below are indicative hazards/risks and suggested control measures. These are by no means exhaustive lists. Add details of any other hazards/risks or additional controls you intend to implement.*

🗹 *Indicate the control measures adopted. Detail their implementation and any additional controls required.*

| **Hazards/Risks** | **Hierarchy of Recommended**  **Control Measures** | **Yes** | **No** | **Details of how this will be implemented***(and any additional controls)* |
| --- | --- | --- | --- | --- |
| **Exposure to Rotating**  **or Moving Parts:**   * **Entanglement and**   **Entrapment**  Could hair, clothing, ties, jewellery or other materials become entangled with moving parts of plant or materials in motion?   * **Striking**   Could anyone be struck by moving objects such as the work piece being ejected, or by the unexpected or uncontrolled movement of the plant or work piece?   * **Cutting, Stabbing and Puncturing**   Can anyone be cut, stabbed or punctured by coming into contact with moving plant or parts, or objects such as ejected work pieces or waste? | 1. Where possible, potentially hazardous portable power tools, including all large and small angle grinders, are substituted or replaced with less hazardous alternatives. |  |  |  |
| 1. All necessary guards and safety devices are in place protecting workers from all moving parts including the oversized rotating abrasive disc. |  |  |  |
| 1. Staff and student training is provided to minimise exposure to these hazards and risks. |  |  |  |
| 1. Safe operating procedures (SOPs) are available and clearly displayed. |  |  |  |
| 1. Ensure a visual check is made of the abrasive grinding or cutting disc prior to each use. Replace if damaged. |  |  |  |
| 1. Warning “Danger” tags (or similar) are affixed to all power tools under repair or maintenance preventing workers from using the equipment. |  |  |  |
| 1. “Safe Working Zones” are clearly defined. Where practical, all angle grinding activates are isolated away from others. |  |  |  |
| 1. Operators are required to remove all jewellery, tuck in loose clothing and tie back long hair. |  |  |  |
| 1. All appropriate and approved personal protective equipment (PPE) is used where required. |  |  |  |
| **Slips, Trips, Falls**  **and Abrasions:**  Can anyone using the plant or in the vicinity of the plant, slip, trip or fall due to the working environment or other factors?  e.g. Poor housekeeping, dust on floors, slippery or uneven work surfaces, power cables across work areas causing injuries and abrasions? | 1. Slip resistant flooring is encouraged in workspaces. Regular checks are made for unsafe wear and damage. Inspections are made for any power leads, etc. |  |  |  |
| 1. Procedures are in place for the disposal of all waste materials around all workspaces where angle grinding activities are to be performed. |  |  |  |
| 1. Staff training is provided to minimise exposure to these hazards. |  |  |  |
| **Environmental:**   * **Noise**   Is it likely that the normal operation of this plant will produce excessive noise levels?   * **Dust, Fumes and**   **Vapours**  Is it likely there will be airborne dust particles, toxic fumes or volatile vapours produced and therefore be present in the workspace?   * **Vibration**   Is the normal operation of this plant likely to create severe or excess vibration that could be transferable to the operator?   * **Lighting**   Is there insufficient lighting to operate this plant in a safe manner? Is there a possible strobe lighting effect caused by faulty fluorescent tubes in the workspace? | 1. Portable power tools are regularly maintained to help minimise the risk of exposures to these hazards. |  |  |  |
| 1. All portable power tool maintenance is documented. |  |  |  |
| 1. Exposure to noisy ITD workshop environments is monitored and evaluated regularly for all workers. |  |  |  |
| 1. Engineering controls (or physical changes) such as mandatory machinery guarding or any protective safety screens and enclosures are in place in all workspaces and all in good working condition. |  |  |  |
| 1. Staff and student training is provided to minimise exposure to these hazards. |  |  |  |
| 1. All fume extraction systems are connected and operational, fully maintained and cleaned as required. |  |  |  |
| 1. Good lighting is provided to all workspaces and this is maintained on a regular basis. Fluorescent tubes are checked and replaced as required. |  |  |  |
| 1. All appropriate and approved personal protective equipment (PPE) is used where required. |  |  |  |
| **Electrical:**  Can the operator be injured by electrical shock due to working near or contacting with damaged or poorly maintained live electrical conductors such as power outlets, extension leads, safety switches, starters and isolators or casual water on the floor near plant and machinery? | 1. Visual checks are made of all portable power tools, their electrical switches, plugs and power leads, etc. |  |  |  |
| 1. Electrical safety inspections, testing and tagging, etc. are completed regularly as per guidelines for all portable power tools. |  |  |  |
| 1. Portable power tools are only to be used where there is a RCD safety trip switch connected. |  |  |  |
| 1. Warning “Danger” tags (or similar) are affixed to all portable power tools under repair or maintenance preventing workers from using them. |  |  |  |
| 1. Electrical maintenance on all portable power tools is documented. |  |  |  |
| **Exposure:**   * **Heat, Burns and Scalds**   Could the plant operator be exposed to heating elements, exposed flame, flashback, molten metals or hot fluids likely to cause scalding or burning? Humid and hot work environments are often uncomfortable resulting in stress and low productivity.   * **Friction**   Is the plant likely to generate heat by friction? Could the plant operator accidentally come into contact with moving materials or machinery components resulting in friction burns to the skin, particularly hands?   * **Hazardous**   **Substances**  Is it likely that the plant operator or others nearby in the workspace could be exposed to hazardous or toxic chemicals such as oils, greases, coolants, volatile vapours, fumes or airborne toxic particulates? | 1. Portable power tools are regularly maintained to help minimise the risk of exposures to these hazards. |  |  |  |
| 1. Any hazardous waste materials or toxic fumes resulting from this metal grinding process are monitored and managed. |  |  |  |
| 1. Staff and student training is provided to minimise exposure to these hazards. |  |  |  |
| 1. “Safe Working Zones” are clearly defined. Where practical, all angle grinding activates are isolated away from others. |  |  |  |
| 1. All appropriate and approved personal protective equipment (PPE) is used where required. |  |  |  |
| **Ergonomics and**  **Manual Handling:**  Can the plant be safely operated, in a suitable location, providing clear and unobstructed access?  Poorly designed work stations often necessitate teachers and students performing manual tasks involving heavy lifting and lowering, pushing, pulling or carrying, etc. Such tasks then contribute to a range of musculoskeletal sprains and strains for workers. | 1. Where possible, practical work benches are planned and adjusted to a comfortable work height thus minimizing any unsafe or excessively strenuous manual tasks. |  |  |  |
| 1. Sufficient workspace is provided in all practical classrooms to help ensure unobstructed, safe operation. |  |  |  |
| 1. Floors are regularly cleaned and free of excessive waste materials and other extraneous objects around work spaces where grinding activities are performed. |  |  |  |
| 1. Staff training is provided with regard to manual handling techniques and procedures to minimise exposure to these hazards. |  |  |  |
| **Explosion and Fire:**  As a consequence of using this particular item of plant and equipment, could anyone be injured by the release of stored energy triggered by volatile, explosive substances such as stored gasses, vapours or liquids? | 1. Fire extinguishers of the correct type are readily available in all workspaces and positioned near exit doorways. |  |  |  |
| 1. Staff training is provided regarding procedures for the correct and appropriate use of fire safety equipment. |  |  |  |
| 1. Exits from buildings and other work areas are defined and access to them kept clear of obstructions. |  |  |  |
| 1. Safety signage is posted clearly denoting the location of all fire safety items and emergency exits. |  |  |  |

| **Other Hazards/Risks** | **Additional Control Measures** *These would relate to the specific student needs, locations and conditions in which you are conducting your activity.* |
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| **Approval** | | | |
| Submitted by: | | | Date: |
|  | Approved as submitted. | | |
|  | Approved with the following condition(s): | | |
|  | Not Approved for the following reason(s): | | |
| By: | | Designation: | |
| Signed: | | Date: | |

|  |  |
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| ITD staff members involved in the use of this risk assessment and the associated plant and equipment: | |
|  | *Signature:*  ……………………………….. *Date:*  *Signature:*  ……………………………….. *Date:*  *Signature:*  ……………………………….. *Date:*  *Signature:*  ……………………………….. *Date:*  *Signature:*  ……………………………….. *Date:*  *Signature:*  ……………………………….. *Date:*  *Signature:*  ……………………………….. *Date:*  *Signature:*  ……………………………….. *Date:* |

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| **Monitoring and Review** *This Plant and Equipment Risk Assessment is to be monitored and reviewed annually for a further four (4) years.* |

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| **Review 1:** | | **Yes** | **No** |
| * Are allocated risk levels and “Actions required” unchanged over the past 12 months? * Are Minimum Standards and Recommended Control Measures unchanged over 12 months? * ITD staffing details at this school have remained unchanged over the past 12 months? | |  |  |
| If the responses are “NO” for any question, record current details here, and list all staff changes *(with signatures)* | | | |
| Reviewed by: | Designation: | | |
| Signed: | Review Date : | | |

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| **Review 2:** | | **Yes** | **No** |
| * Are allocated risk levels and “Actions required” unchanged over the past 12 months? * Are Minimum Standards and Recommended Control Measures unchanged over 12 months? * ITD staffing details at this school have remained unchanged over the past 12 months? | |  |  |
| If the responses are “NO” for any question, record current details here, and list all staff changes *(with signatures)* | | | |
| Reviewed by: | Designation: | | |
| Signed: | Review Date : | | |

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| **Review 3:** | | **Yes** | **No** |
| * Are allocated risk levels and “Actions required” unchanged over the past 12 months? * Are Minimum Standards and Recommended Control Measures unchanged over 12 months? * ITD staffing details at this school have remained unchanged over the past 12 months? | |  |  |
| If the responses are “NO” for any question, record current details here, and list all staff changes *(with signatures)* | | | |
| Reviewed by: | Designation: | | |
| Signed: | Review Date : | | |

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| **Review 4:** | | **Yes** | **No** |
| * Are allocated risk levels and “Actions required” unchanged over the past 12 months? * Are Minimum Standards and Recommended Control Measures unchanged over 12 months? * ITD staffing details at this school have remained unchanged over the past 12 months? | |  |  |
| If the responses are “NO” for any question, record current details here, and list all staff changes *(with signatures)* | | | |
| Reviewed by: | Designation: | | |
| Signed: | Review Date : | | |