

Curriculum activity risk assessment

Plastics, Fibre Reinforced/
Composites

clever • skilled • creative

Activity scope

This document relates to working with Fibre-Reinforced Plastics as a curriculum activity.

'Fibre-reinforced plastics' refers to the process of adding fibre material to thermoset resin to produce strength and stability.

With polyester resins, methyl ethyl ketone peroxide (MEKP) is commonly used as a catalyst for curing the resin, the most common application being in:

- glass fibre – reinforced plastic articles
- clear casting polyester resins
- polyester filler pastes, which might be used in the automobile body repair industry.

Activities involving fibre-reinforced plastics should be restricted to senior secondary school students.

Teachers/leaders:		
Activity description:		
Start date:	Finish date:	No of students (approx.):
Class groups:		Supervision ratio (approx.):

Risk level

The actual risk level will vary according to the specific circumstances of the activity and these **must** be considered when assessing the inherent risk level and planning the activity. As a starting point, ask the following questions:

- Which students will be involved?
- What will the students be doing?
- What will the students be using?
- Where will the students be?
- Who will be leading the activity?

Inherent risk level		Action required / approval
<input type="checkbox"/>	High	Activities involving the handling and inhalation of chemicals and solvents <ul style="list-style-type: none"> <input checked="" type="checkbox"/> A <i>Curriculum Activity Risk Assessment</i> must be completed. <input checked="" type="checkbox"/> Principal or delegated Deputy Principal or Head of Program (i.e. HOD, HOSES, HOC) to review and approve risk assessment. <input checked="" type="checkbox"/> Once approved, activity details are to be entered into the <i>School Curriculum Activity Register</i>. <input checked="" type="checkbox"/> Obtaining parental permission is recommended.

Methyl ethyl ketone peroxide (MEKP) is considered a hazardous material by Australian standards and should only be used in the presence of a person who is conversant with its properties and experienced in its use. The concentration of MEKP varies with time and this may lead to the formation of an unstable, explosive product. Aged MEKP should be handled with extreme caution and be disposed of by trained personnel.

Criteria for using MEKP in schools include:

- purchasing only sufficient quantities for current needs
- disposing of stock on hand at the end of each school year in an approved manner
- minimising the risk of contamination by purchasing stock in small containers
- recording the date of receipt on each container
- not mixing the contents of different containers of MEKP
- not storing MEKP in the flammable liquids cupboard.

Listed below are the minimum recommendations for this type of activity. For any items ticked 'No', provide further information regarding the additional or alternate controls to be implemented for the safe conduct of the activity.

Minimum supervision	
Adequate adult supervision is to be provided. In determining what is adequate, consider the number of students, their individual needs, and the nature of the activity. If an adult other than a registered teacher is engaged for instruction, a teacher should be present to take overall responsibility. Blue Card requirements must be adhered to.	
<input type="checkbox"/>	Registered teacher with minimum qualifications as outlined below
OR	
<input type="checkbox"/>	An adult with minimum qualifications as outlined below, in the presence of a registered teacher
Further information:	

Minimum qualifications

The qualifications listed in this section are minimums for each type of situation. Leaders are encouraged to seek training to raise their qualification level above the minimum listed.

- Current first aid qualifications including Cardio Pulmonary Resuscitation (CPR) or ready access to first aid facilities, including qualified personnel.
- [Blue Card](#) requirements met

High — Activities involving the handling and inhalation of chemicals and solvents

For a registered teacher with qualifications in Industrial Technology Design (ITD):

- competence (demonstrated ability) in the preparation and use of fibre-reinforced plastics and other thermoset resins

A teacher could demonstrate their competency through their:

- knowledge of the activity and the associated hazards and risks
- experience (i.e. previous involvement) in undertaking the activity
- demonstrated ability and/or expertise to undertake the activity
- possession of qualifications related to the activity.

OR

For a leader other than a registered teacher:

- competence (demonstrated ability) in the use of fibre-reinforced plastics and industry experience

Further information:

Minimum equipment/facilities <i>If 'No' is ticked, provide further information.</i>	Yes	No
First aid kit suitable for activity	<input type="checkbox"/>	<input type="checkbox"/>
Communication system: <input type="checkbox"/> phone-line at location <input type="checkbox"/> mobile phone <input type="checkbox"/> walkie talkies/UHF radio <input type="checkbox"/> student/adult messenger Other:		
Work benches covered with disposable sheeting	<input type="checkbox"/>	<input type="checkbox"/>
Eye wash facilities	<input type="checkbox"/>	<input type="checkbox"/>
Appropriate and maintained fire safety equipment (extinguisher, blanket, evacuation plan)	<input type="checkbox"/>	<input type="checkbox"/>
Drinking water (students should not share drinking containers)	<input type="checkbox"/>	<input type="checkbox"/>
Safety glasses and appropriate fully-enclosed footwear that protects against falling sharp tools, equipment or project materials	<input type="checkbox"/>	<input type="checkbox"/>

Minimum equipment/facilities <i>If 'No' is ticked, provide further information.</i>	Yes	No
Standard operating procedures clear and present for ALL equipment used.	<input type="checkbox"/>	<input type="checkbox"/>
Fixed residual current device on all equipment; For further information refer to: quick reference guide for specified electrical equipment .	<input type="checkbox"/>	<input type="checkbox"/>
Adequate lighting and ventilation	<input type="checkbox"/>	<input type="checkbox"/>
Suitable non-slip floor surface	<input type="checkbox"/>	<input type="checkbox"/>
Material safety data sheets (MSDS) for all chemicals stored in the workshop	<input type="checkbox"/>	<input type="checkbox"/>
Clearly marked work areas delineated with yellow paint or similar material	<input type="checkbox"/>	<input type="checkbox"/>
Suitable and sufficient waste bins	<input type="checkbox"/>	<input type="checkbox"/>
Emergency stop buttons on equipment where required	<input type="checkbox"/>	<input type="checkbox"/>
Properly installed guards and safety devices on all equipment where necessary	<input type="checkbox"/>	<input type="checkbox"/>
Further information:		

Hazards and suggested control measures

All persons engaging in this activity should:

- identify the hazards, including any additional hazards not mentioned here
- assess their significance
- manage the potential risks.

Listed below are indicative hazards/risks and suggested control measures. They are by no means exhaustive lists. After checking these, add details of any other identified hazards/risks and additional controls you intend to implement.

Hazards/risks	Control measures	Yes	No	Implementation plan / Additional controls
Dust and fumes <ul style="list-style-type: none"> • Plastic fumes and dust 	<ul style="list-style-type: none"> • Dust from certain plastics may be harmful if inhaled and may cause irritation to the skin and eyes. Sanding machines should be fitted with dust-extraction equipment where it is considered appropriate. • Toxic fumes given off by heated and thermosetting plastics, such as PVC, are a health hazard and steps should be taken to prevent their being inhaled. Adequate ventilation of the area used for this process should be provided. • Plastic solvents are injurious if inhaled and steps should be taken to minimise this possibility. 	<input type="checkbox"/>	<input type="checkbox"/>	

Hazards/risks	Control measures	Yes	No	Implementation plan / Additional controls
Environmental conditions <ul style="list-style-type: none"> • Weather • Surfaces • Surrounds • Ventilation 	<ul style="list-style-type: none"> • Monitor temperature levels in the workshop. • Keep workspaces and floors clean and clear of debris. • Have appropriate and sufficient waste containers. • Ensure that adequate ventilation is available during sanding, painting and gluing, especially when materials are used that release fumes during use, such as contact adhesives, paints, solvents and glues. • Ensure that there is sufficient free space in the vicinity of the oven or heating devices to allow easy transportation of hot materials from the oven to the forming jig. 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Hazardous substances	<ul style="list-style-type: none"> • Ensure that the handling of materials such as methyl ethyl ketone peroxide (MEKP), is performed by instructors only. • Ensure that syringes are not be used for dispensing MEKP. • Ensure that material contaminated with solvents is removed from the work area and stored in a place where evaporation of the solvents may take place safely. The resulting residue material may be disposed of through the normal school rubbish channels to ensure the absorbent material does not create further hazards. • For large spills of resin, a controlled pre-treatment of the captured contaminated resin will convert the spill to solid resin which can be disposed of through authorised school rubbish channels. • Empty containers retain vapours and product residue and therefore are potentially explosive and/or may contain toxic vapour hazards. 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

Hazards/risks	Control measures	Yes	No	Implementation plan / Additional controls
	<ul style="list-style-type: none"> <li>• Use disposable gloves when handling resin chemicals and MEKP. <li>• Commercial organic peroxides are combustible substances and are also very corrosive. It is recommended that they are only used in the senior section of the school. <li>• Ensure that all teachers involved in the activity are familiar with the contents of the MSDS of the products being used. <li>• Store all chemicals correctly to ensure that no fire or chemical reaction can occur. <li>• Mix chemicals in the proportions set down by the manufacturers' specifications and measure them with appropriate devices. <li>• If a large spillage of acetone occurs, all students should be removed immediately from the area until complete evaporation and ventilation can be effected. <li>• Ensure that medical assistance is obtained as quickly as possible for cases of inhalation of fumes, oral ingestion and/or skin absorption of potentially toxic chemicals. <li>• Ensure that persons who have respiratory ailments or other at-risk ailments have ready access to medication. <li>• Establish emergency procedures for safe handling of MEKP including the following: <ul style="list-style-type: none"> <li>○ for splashes of peroxide on to the skin – wash with soap and water <li>○ for splashes of peroxide into the mouth – rinse out with water and drink plenty of water <li>○ for splashes of peroxide into the eyes – thoroughly rinse out with water immediately. Hold eye open and irrigate from inner eye outwards. 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

Hazards/risks	Control measures	Yes	No	Implementation plan / Additional controls
Noise <ul style="list-style-type: none"> • Continuous, repetitive noise • One-off noise exposure 	<ul style="list-style-type: none"> • Provide personal hearing protection and provide training for relevant staff in the correct use and storage of the hearing protection. • Minimise the number of students working at one time. • Redesign tasks so that staff and students are not exposed to loud noise over extended periods. • Refer to: Health and Safety; Noise for further information. 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Students <ul style="list-style-type: none"> • Student numbers • Special needs • High risk behaviours • Medical conditions 	<ul style="list-style-type: none"> • Obtain parental permission, including relevant medical information. • When students with medical conditions are involved, ensure relevant medical/emergency plans and medications are readily available (insulin, Ventolin, Epipen, etc.) • Refer to Individual education plan/Educational adjustment plan/Behaviour management plan and other student documents. • Where necessary, obtain advice from relevant advisory visiting teachers or specialist teachers. • Ensure there is adequate adult supervision. 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	
Tools, plant or equipment	<ul style="list-style-type: none"> • Ensure that loose jewellery and clothing is secured or removed. • Ensure that long hair is tied back. • Clearly designate work areas. • Monitor use of tools and equipment. • Check equipment for damage before lesson. • Regularly maintain and sharpen equipment where appropriate. Maintain tools properly. Blunt edged tools are more dangerous than properly maintained tools because of the extra pressure required to use them. 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

Hazards/risks	Control measures	Yes	No	Implementation plan / Additional controls
	<ul style="list-style-type: none"> Refer to and follow standard operating procedures for all equipment. Avoid the use of extension leads where possible. Securely fix any jobs to a bench, table, floor or other suitable surface. Ensure that all guards are correctly adjusted and securely fixed before beginning operations. Ensure that all solvents are stored in a well-ventilated cupboard away from direct access by all students. Ensure that the buffing mop is in sound condition, is suited to the job to be performed and is properly and firmly secured to the spindle. 	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	

Additional control measures

These would relate to the specific student needs, location and conditions in which you are conducting your activity.

Hazards/risks	Control measures

Submitted by:

Date:

List the names of those who were involved in the preparation of this risk assessment.

Approval	
<input type="checkbox"/>	Approved as submitted:
<input type="checkbox"/>	Approved with the following condition(s):
<input type="checkbox"/>	Not approved for the following reason(s):
By:	Designation:
Signed:	Date:
Once approved, activity details should be entered into the <i>School Curriculum Activity Register</i> by administrative staff.	Reference no.

Monitor and review <i>To be completed during and/or after the activity and/or at the completion of the series of activities.</i>	Yes	No
Are the control measures still effective?	<input type="checkbox"/>	<input type="checkbox"/>
Have there been any changes?	<input type="checkbox"/>	<input type="checkbox"/>
Are further actions required?	<input type="checkbox"/>	<input type="checkbox"/>
Details:		

Important links

- HLS-PR-003: First Aid
<http://education.qld.gov.au/strategic/eppr/health/hlspr003/>
- HLS-PR-004: Infection Control and Management of Prescribed Contagious Conditions
<http://education.qld.gov.au/strategic/eppr/health/hlspr004/>
- Infection Control Guideline:
http://education.qld.gov.au/health/pdfs/healthsafety/infection_control_guideline.pdf
- HLS-PR-005: Health and Safety Incident Reporting and Notification
<http://education.qld.gov.au/strategic/eppr/health/hlspr005/>
- HRM-PR-010: Working with Children Check – Blue Cards
<http://education.qld.gov.au/strategic/eppr/hr/hrmpr010/>
- HLS-PR-006: Managing Occupational Risks with Chemicals
<http://education.qld.gov.au/strategic/eppr/health/hlspr006/hs16.pdf>
- Standard Operating Procedures for Education Queensland sites
<http://education.qld.gov.au/health/safety/hazards/equip-resources.html#sop>
- Hearing Protection Fact Sheet
<http://education.qld.gov.au/health/pdfs/healthsafety/hearing-protection-factsheet.pdf>
- 2004 Noise Code of Practice
http://www.deir.qld.gov.au/workplace/resources/pdfs/noise_code2004.pdf
- Managing a Practical ITD Workspace
<http://education.qld.gov.au/strategic/eppr/health/hlspr012/resources/pracitdworkspace.pdf>

Further information

For further information on incorporating risk management strategies into curriculum activity planning refer to [HLS-PR-012 Managing Risks in Curriculum Activities](#) and the associated list of [Curriculum Activity Risk Assessment Guidelines](#). (See: <http://education.qld.gov.au/strategic/eppr/health/hlspr012/index1.html>)

For further support with risk management training and advice, contact trained staff in schools such as Workplace Health and Safety Officers (WHSOs) and Workplace Health and Safety Representatives (WHSRs), and regional staff such as Senior Health and Safety Consultants.

Uncontrolled copy. Refer to *HLS-PR-012: Curriculum Activity Risk Management* at <http://education.qld.gov.au/strategic/eppr/health/hlspr012/> for master.