

 <b>MRAT 053</b>	<b>Dust and fumes from abrading plastics</b>	<b>Applicable to:</b> acrylics; nylon; polypropylene; polystyrene	<b>See also:</b> 059
		<b>Process(es) covered:</b> Shaping and cutting plastic materials by hand and by machine (bandsaw, drilling, metal centre lathe, moulding trimmer).	

### Control Measures

- Wear eye protection.
- Work should be undertaken only in a well-ventilated area.
- Instructions concerning specific hazards associated with particular materials issued by manufacturers must be followed scrupulously.
- To keep the production of dust to a minimum, use water as a lubricant where possible, without introducing electrical hazards.
- When using a circular saw or bandsaw to cut plastic sheet, the material should be fed slowly and steadily to the blade to minimise heating. To prevent the cut being re-welded by melted dust, the surface of the sheet can be covered with sticky tape or paper (eg, masking tape).
- Use a slow speed when drilling plastics, so as not to increase the temperature of the material unduly. 'Soluble oil' can be used as a coolant.
- Clamp work firmly down to lessen the risk of shattering.
- Persons suffering from asthmatic conditions are particularly prone to health hazards from abrading and should not undertake this process.
- Note that there is a risk of explosion from static electricity within local exhaust systems designed to extract wood dust, if the same system is used to extract dust from plastics. Wherever possible separate systems should be used for machines that are only used to machine plastics.

### Immediate Remedial Measures:

Inhalation of fumes	If fumes are inhaled, remove person to fresh air. Call 111 and seek medical attention.
Dust or fumes in the eyes	If eyes water due to fumes or dust, flush with water and remove person to fresh air. If the condition persists. Call 111 and seek medical attention.

<b>Storage</b>	All plastics should be kept in cool, dry conditions. The main store should preferably be outside and built of brick, away from heat sources, open flames and other sources of ignition.  Foamed plastics are more flammable and need extra care in storage.
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<b>Disposal</b>	Small quantities may be added to ordinary dry waste.
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## Risk Assessment

### Hazards:

Dust Harmful	Hazardous by inhalation. Dust LTEL (8 hrs) 10 mg m <sup>-3</sup> . Rigid polystyrene when heated to the point of decomposition may release styrene fumes. [LTEL 98 hrs) 430 mg m <sup>-3</sup> , STEL (15 mins) 1080 mg m <sup>-3</sup> ] is classified as Flammable liquid and vapour [H226]. Causes skin irritation [H315]. Causes serious eye irritation [H319]. Harmful if inhaled [H332]. Suspected of damaging the unborn child [H361d]. Causes damage to organs (hearing) through prolonged or repeated exposure [H372]
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### Risks:

Dust	Many plastics give rise to dust and fine particles when they are machined or abraded. Exposure to high concentrations may cause irritation to nose, throat and eyes. On the scale of school work, this process will not require local exhaust ventilation.
Harmful	Unless care is taken to keep the work cool, machining of rigid polystyrene may release styrene. A coolant is therefore required.

### Further Information:

- Machines such as bandsaws, drills, centre lathes and sanders that were designed for use on wood or metal are often used for working plastics. The risk assessments for these applications can be consulted for plastics work too.