

Risk Assessment Summary Report/Print (landscape)



Reference	3490	Description of Space or Activity/Task or Equipment	Use of the Electrochemical System coupled to Bruker EMX EPR spectrometers located in Millburn house room G78
Assessment Date	06/09/2024	Publish To Portal	No
Assessor Name	Ben Breeze	Risk Assessment Title	Ex-Situ Electrochemical EPR Setup
Assessment Team Members	Ben Green	Review Date	No Review Set
Role / Space / Project Reference		Current Risk Level (1=Very Low, 2=Low, 3=Moderate, 4=High, 5=Very High)	3
Department	Use the search function above or double click here for org chart -> Academic Faculties -> Faculty of Science, Engineering and Medicine -> Research Technology Platforms - RTPs -> Spectroscopy Research Technology Platform - RTP	Final Risk Level (1=Very Low, 2=Low, 3=Moderate, 4=High, 5=Very High)	3
Location Details	Central Campus-Millburn House-Ground Floor-G78 - (01.005.000.051) Spectroscopy RTP Laboratory Millburn House G78	Risk Assessment Number	0
Risk Assessment Category	Equipment	Additional Information	Users are responsible for having performed a risk assessment for their samples which must be logged at: https://warwick.ac.uk/research/rtp/spectroscopy/Safety/Sample When booking all users will provide a reference to the risk assessment for the sample used. Bookings are restricted to trained users who are recorded in the px-epr-users web group. this is a review and transefor to new system: old records: Version Date Reviewer Comments 1 16/11/2017 Emily Braxton Initial Review 2 25/01/19 Emily Braxton Scheduled Review No Changes. 3 09/09/21 Ben Breeze Scheduled Review Updated Format minor changes.
Date Record Created	06/09/2024		

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Hazard Type & Hazard Description	Who may be at Risk? & How May Person(s) Be Harmed	Existing Control Measures	L	S	R	Where current risk is M, H or VH, what additional Control Measures are required?	L	S	R
Substances Inhalation exposure to hazardous substance. Use of gases for degassing	Laboratory Worker Staff Student Asphyxiation	Substitute - low volumes of gases used Eng/Admin - Oxygen depletion monits in place Admin - Awareness training provided. Admin - Information, instruction, supervision & training. Admin - General ventilation used. Admin - Safe System of Work (SSoW) established and trained out. Admin - University policy & procedure guidance followed.	Serious	Unlikely	Low		Serious	Unlikely	Low
Substances Skin exposure to hazardous substance. Mercury	Laboratory Worker Staff Student Poisoning	Admin - Awareness training provided. Admin - Safe System of Work (SSoW) established and trained out. Admin - University policy & procedure guidance followed.	Major	Unlikely	Low		Major	Unlikely	Low
Work Environment Temperature (too hot or cold). Equipment and Samples may be at elvated temperatures	Laboratory Worker Staff Student Burns	Admin - Awareness training provided. Admin - Emergency response plan established and trained out. Admin - Safe System of Work (SSoW) established and trained out. Admin - Signage used to raise awareness. PPE - Personal Protective Equipment (PPE) or suitable clothing is issued and worn (thermal gloves).	Serious	Unlikely	Low		Serious	Unlikely	Low
Work Environment Restricted or blocked access or egress. rear of instrument is not easy to access	Laboratory Worker Staff Student trips falls	Eng - Adequate lighting in place. Admin - Awareness training provided.	Minor	Possible	Low		Minor	Possible	Low

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<p>Equipment/Plant Contact with equipment causing cuts, abrasion, bruising. Contact with rotating mechanical parts (Friction).</p>	<p>Laboratory Worker Staff Student Cuts Bruises</p>	<p>Eng/Admin - Access is restricted to authorised personnel. Admin - Associated equipment installed by competent persons. Admin - Awareness training provided. Admin - Controls are suitably located and identified. Admin - Information, instruction, supervision & training.</p>	<p>Minor</p>	<p>Possible</p>	<p>Low</p>		<p>Minor</p>	<p>Possible</p>	<p>Low</p>
<p>Hand Tools / Powered tools broken glassware Contact with sharp blade (cuts).</p>	<p>Laboratory Worker Staff Student Cuts from broken quartz</p>	<p>Admin - Defective equipment taken out of use. Admin - Information, instruction, supervision & training. PPE - Personal Protective Equipment (PPE) is issued and worn (gloves goggles). Take care, dispose of sharps and broken glass in the approved receptacles provided.</p>	<p>Serious</p>	<p>Unlikely</p>	<p>Low</p>		<p>Serious</p>	<p>Unlikely</p>	<p>Low</p>
<p>Equipment/Plant Explosion/implosion of cryostat/vacuum system</p>	<p>Laboratory Worker Staff Student Cuts from Shards of Glass Metal possibly to eyes</p>	<p>Eng - Automatic pressure release valves in place Eng/Admin - Access is restricted to authorised personnel. Admin - Awareness training provided. Admin - Good levels of housekeeping maintained with clean as you go policy in place. Admin - Information, instruction, supervision & training.</p>	<p>Major</p>	<p>Unlikely</p>	<p>Low</p>		<p>Major</p>	<p>Unlikely</p>	<p>Low</p>

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<p>Substances Cryogenics</p> <p>Contact with substances stored at hazardous temperature. Contact or interaction with dangerous substances. Eye exposure to hazardous substance. Skin exposure to hazardous substance.</p>	<p>Laboratory Worker Staff Student</p> <p>Contact resulting in cryogenic Burns</p>	<p>Admin - Awareness training provided. Admin - Information, instruction, supervision & training. Admin - General ventilation used. Admin - Safe System of Work (SSoW) established and trained out. Admin - Storage in accordance with substance requirement. Admin - University policy & procedure guidance followed. PPE - Personal Protective Equipment (PPE) is issued and worn (specify). Admin - Awareness training provided. Admin - Information, instruction, supervision & training. Admin - General ventilation used. Admin - Safe System of Work (SSoW) established and trained out. Admin - Storage in accordance with substance requirement. Admin - University policy & procedure guidance followed. PPE - Personal Protective Equipment (PPE) is issued and worn (specify).</p>	<p>Major</p>	<p>Unlikely</p>	<p>Low</p>		<p>Major</p>	<p>Unlikely</p>	<p>Low</p>
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<p>Substances Cryogenics</p> <p>Inhalation exposure to hazardous substance. Contact with substances stored at hazardous temperature. Inhalation exposure to hazardous substance.</p>	<p>Laboratory Worker Staff Student</p> <p>Inhalation or ingestion causing loss of consciousness, and or Death</p>	<p>Eng - oxygen depletion sensors throughout lab Admin - Awareness training provided. Admin - Information, instruction, supervision & training. Admin - General ventilation used. Admin - Safe System of Work (SSoW) established and trained out. Admin - Storage in accordance with substance requirement. Admin - University policy & procedure guidance followed. PPE - Personal Protective Equipment (PPE) is issued and worn (specify).</p>	<p>Extreme</p>	<p>Unlikely</p>	<p>Moderate</p>		<p>Extreme</p>	<p>Unlikely</p>	<p>Moderate</p>
<p>NIR Electromagnetic Fields (EMF) High Magnetic Fields upto 0.9T</p>	<p>Laboratory Worker Staff Student</p> <p>Interference with medical Devices</p>	<p>Eng/Admin - Access is restricted to authorised personnel. Admin - Awareness training provided.</p>	<p>Serious</p>	<p>Unlikely</p>	<p>Low</p>		<p>Serious</p>	<p>Unlikely</p>	<p>Low</p>
<p>NIR Electromagnetic Fields (EMF) High Magnetic Field. upto 0.9T</p>	<p>Laboratory Worker Staff Student</p> <p>Bruising, from objects caught in field</p>	<p>Admin - Awareness training provided. Admin - Safe System of Work (SSoW) established and trained out.</p>	<p>Minor</p>	<p>Possible</p>	<p>Low</p>		<p>Minor</p>	<p>Possible</p>	<p>Low</p>

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<p>NIR Electromagnetic Fields (EMF) Exposure to electromagnetic fields (sensory/thermal effects) near to action levels (ALs) or exposure limit values (ELVs)</p> <p>Microwave source X-Band (0.2W maximum at 9.8 Ghz)</p>	<p>Laboratory Worker Staff Student</p> <p>Burns to Skin and/or Eyes</p>	<p>Eng/Admin - Access is restricted to authorised personnel.</p> <p>Eng - Specific guarding in place to reduce exposure.</p> <p>Admin - Safe System of Work (SSoW) established and trained out.</p> <p>Eng - Microwaves are contained with the system under normal operation</p> <p>Eng/Admin - Microwave guides not to be tampered with by untrained personell</p> <p>Admin - All microwave sources to be turned off prior to maintenance/modification</p> <p>Admin - Awareness training provided.</p> <p>Admin - Information, instruction, supervision & training.</p>	<p>Serious</p>	<p>Unlikely</p>	<p>Low</p>		<p>Serious</p>	<p>Unlikely</p>	<p>Low</p>
<p>Electricity Water leak from Cooling System</p>	<p>Laboratory Worker Staff Student</p> <p>Leak from from cooling water near electric equipment causing electrification and burns</p>	<p>Eng - Flood Sensors in place to shut off water supply in event of leak in local system</p> <p>Eng - Pressure drop sensors in place on recicualtion units to stop water flow in event of major leak in system</p> <p>Admin - Visual checks completed before use.</p> <p>Eng - Cables and leads are appropriately insulated.</p>	<p>Major</p>	<p>Unlikely</p>	<p>Low</p>		<p>Major</p>	<p>Unlikely</p>	<p>Low</p>
<p>Work Environment Water leak from Cooling system</p>	<p>Laboratory Worker Staff Student</p> <p>Leak from from cooling water may cause: Slips/Falls</p>	<p>Eng - Flood Sensors in place to shut off water supply in event of leak in local system</p> <p>Eng - Pressure drop sensors in place on recicualtion units to stop water flow in event of major leak in system</p> <p>Admin - Visual checks completed before use.</p>	<p>Minor</p>	<p>Unlikely</p>	<p>Very Low</p>		<p>Minor</p>	<p>Unlikely</p>	<p>Very Low</p>

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<p>Electricity Contact with ive 3 phase electrical supply and live wires.</p>	<p>Laboratory Worker Staff Student Electric Shock and/or burns</p>	<p>Eng - Cables and leads are appropriately insulated. Eng - Fixed guarding is in place preventing access. Eng - Electrical equipment is suitably fused and earthed. Admin - Information, instruction, supervision & training. Admin - All fixed wire electrical installations are tested as per regime. Admin - Associated electrical equipment installed by competent persons. Admin - Safe System of Work (SSoW) established and trained out.</p>	<p>Major</p>	<p>Unlikely</p>	<p>Low</p>		<p>Major</p>	<p>Unlikely</p>	<p>Low</p>
<p>Electricity Contact with live electrics.</p>	<p>Laboratory Worker Staff Student Electric Shock and/or burns</p>	<p>Eng - Cables and leads are appropriately insulated. Eng - Fixed guarding is in place preventing access. Admin - Awareness training provided. Admin - Portable Appliance Testing (PAT) conducted as per regime. Admin - Safe System of Work (SSoW) established and trained out. Admin - Visual checks completed before use.</p>	<p>Major</p>	<p>Unlikely</p>	<p>Low</p>		<p>Major</p>	<p>Unlikely</p>	<p>Low</p>

Assessment Conclusion Existent system that has been safely operating for years, This update is effectively a review with minor changes. subject to sample RA