**Risk Assessment Form**

|  |  |  |  |
| --- | --- | --- | --- |
| Title of Risk Assessment | Risk Assessment for Superconductivity and Magnetism Group Labs | Date of assessment | 13/10/2021 |
|  |  |  |  |  |
| Department | Physics | Date review due | Continuous |
|  |  |  |  |  |
| Description of Task/Process | General risk assessment for the work relating to the PhD project of David Jonas |
|  |  |  |
| Assessment carried out by | David Jonas |  |
|  |  |  |
| **Additional information** | Other users of the Superconductivity and Magnetism Group Labs are affected by this risk assessment. |

| [**Hazards and how they may cause harm**](https://www2.warwick.ac.uk/services/healthsafetywellbeing/managingrisks/hazidentification/) | [**Who may be at Risk?**](https://www2.warwick.ac.uk/services/healthsafetywellbeing/managingrisks/peopleatrisk/) | **Existing** [**Control Measures**](https://www2.warwick.ac.uk/services/healthsafetywellbeing/managingrisks/riskcontrols/) | **Current** [**Risk Level**](https://www2.warwick.ac.uk/services/healthsafetywellbeing/managingrisks/riskassess/matrix_for_risk_evaluation.pdf)(**VL,L,M,H,VH**) | **Where current risk is** **M, H or VH, what additional** [**Control Measures**](https://www2.warwick.ac.uk/services/healthsafetywellbeing/managingrisks/riskcontrols/) **are required?** | **Action required by whom & by when?** | **Final**[**Risk Level**](https://www2.warwick.ac.uk/services/healthsafetywellbeing/managingrisks/riskassess/matrix_for_risk_evaluation.pdf) |
| --- | --- | --- | --- | --- | --- | --- |
| **COVID-19 – Risk of contracting or spreading the virus** | All users of the laboratory | Maximum occupancies of each room have been implemented to minimise contact with other users, and risk assessments have been updated. Social distance when possible, and wear a face mask at all times unless medically exempt. Before entering any rooms, wash hands thoroughly. Wipe down or wash any equipment with allocated ethanol spray prior to use. Work from home when possible, and self-assess for COVID symptoms before travelling onto campus. | **L** | N/A | N/A | **L** |
| **Use of Rooms – Cuts from broken glassware** | The glassware user and others present in the laboratory | Wear PPE (eyewear, lab coat, gloves) when handling chemicals and glassware. Dispose of any broken glassware by putting it in the specified bins. | **VL** | N/A | N/A | **VL** |
| **Use of Rooms – Burns or electrocution from mains electricity or wires** | All users of the laboratories | Do not tamper with the apparatus in the room. | **M** | Perform regular checks on circuitry and apparatus. | N/A | **L** |
| **Use of Rooms – Chemical hazards from handling chemicals, particularly poisoning from harmful chemicals** | All users of chemicals in the laboratories | Wear PPE (lab coat, gloves). Consult COSHH (Control of Substances Hazardous to Health) to be aware of potential hazards. Wash hands after handling chemicals. | **VL** | N/A | N/A | **VL** |
| **Use of Rooms – Eye or skin irritation or poisoning from chemical residues in dirty glassware** | All users of chemicals in the laboratories | Wear PPE (eyewear, lab coat, gloves). Clean glassware with isopropanol and acetone before and after use. | **VL** | N/A | N/A | **VL** |
| **Use of Rooms – Exposure to chemical fumes** | All users of the laboratories | Wear PPE (face mask, gloves). Consult COSHH to be aware of potential hazards and use a fume cupboard where appropriate. | **L** | N/A | N/A | **L** |
| **Use of Rooms – Contamination of food and drink** | All users of the laboratories | Do not eat or drink in the laboratories. After working in the laboratories, thoroughly wash hands before eating or drinking. | **VL** | N/A | N/A | **VL** |
| **Use of Rooms – Wet floors leading to a trip hazard** | All users of the laboratories | Be aware of a potential hazard. Dry the floor if wet. | **VL** | N/A | N/A | **VL** |
| **Use of Rooms – Obstructed walkways leading to a trip hazard** | All users of the laboratories | Be aware of a potential hazard. Do not block the walkways. | **VL** | N/A | N/A | **VL** |
| **Use of Rooms – Going up and down stairs leading to a potential fall** | All users of the laboratories | Be aware of a potential hazard. Be careful when using the stairs. | **VL** | N/A | N/A | **VL** |
| **Use of Rooms – Cables on the floor leading to a trip hazard** | All users of the laboratories | Be aware of a potential hazard. Do not step on the cables. | **VL** | N/A | N/A | **VL** |
| **Use of Rooms and High Vacuum Furnace – Chemical hazards from escaped chemical gases, such as asphyxiation or poisoning** | The high vacuum furnace user and others present in the laboratory | Do not tamper with the gas ventilation systems. Indicate on the furnace user sheet the nature of the samples. Be aware of hazards from other samples placed in other furnaces. | **L** | N/A | N/A | **L** |
| **High Vacuum Furnace and Arc Furnace – Fire or burns from the furnace** | The high vacuum furnace user | Wear PPE (welding gloves, nitrile gloves, lab coat). Do not open furnaces unless they are cool. Do not touch hot surfaces. | **M** | Training is required for use. | None. Previously trained by Dr Martin Lees prior to use. | **L** |
| **Use of Cryogenic Liquids – Cold burns and/or frostbite** | The user of the cryogenic liquids and others present in the laboratory | Wear PPE (eyewear, insulating gloves). | **M** | Training is required for use. | None. Previously trained by Tom Orton prior to use. | **L** |
| **Use of Cryogenic Liquid Nitrogen – Asphyxiation** | The user of the cryogenic liquid nitrogen and others present in the laboratory | Nitrogen is filled in an area with oxygen detectors or outside. All laboratory rooms that use liquid nitrogen are well ventilated. Wear PPE (eyewear, insulating gloves). | **M** | Training is required for use. | None. Previously trained by Tom Orton prior to use. | **L** |
| **Use of Cryogenic Liquid Helium – Overly pressurized storage apparatus** | The user of the cryogenic liquid helium and others present in the laboratory | Do not leave apparatus open to the atmosphere. Make sure all safety valves are open. | **M** | Training is required for use. | None. Previously trained by Tom Orton prior to use. | **L** |
| **Use of High Magnetic Fields – Damaged from impact of a magnetized object** | The user of the high magnetic fields and others present in the laboratory | Ensure that no magnetizable objects come near the high magnetic fields. | **L** | N/A | N/A | **VL** |
| **Evacuable Pellet Die – Ingestion of fine powders used to make samples, leading to poisoning from harmful chemicals** | The evacuable pellet die user and others present in the laboratory | Wear PPE (eyewear, lab coat, gloves, face mask) when using the pellet die, and clean the workstation after use. | **L** | N/A | N/A | **L** |
| **Evacuable Pellet Die – Damage to the apparatus due to the failure of a component** | The evacuable pellet die user and others present in the laboratory | Do not tamper with the apparatus. If unsure, ask for help. | **M** | Training is required for use. A user manual will be followed when used. | None. Previously trained by Dr Martin Lees prior to use. | **VL** |
| **Arc Furnace – looking directly at the electrical arc can cause damage to eyes from burning to blindness** | The arc furnace user and others present in the laboratory | A welding shield is fitted in front of the furnace when in use to protect the user, and there is a curtain surrounding the area to protect others. | **M** | Training is required for use. A user manual will be followed when used. | None. Previously trained by Dr Martin Lees prior to use. | **L** |
| **Arc Furnace – risk of fire/explosion if exposed to oxygen rich atmosphere if opened too early.** | The arc furnace user and others present in the laboratory | Ensure equipment and sample is sufficiently cooled before opening. | **M** | Training is required for use. A user manual will be followed when used. | None. Previously trained by Dr Martin Lees prior to use. | **VL** |
| **Arc Furnace – high pressure argon gas is used to produce an inert atmosphere** | The arc furnace user and others present in the laboratory | Make sure all of the transport tubes are working and sealed properly. | **M** | Training is required for use. A user manual will be followed when used. | None. Previously trained by Dr Martin Lees prior to use. | **VL** |
| **Arc Furnace – pump creates a vacuum in the sample chamber which puts pressure on the quartz window** | The arc furnace user and others present in the laboratory | Check there are no cracks in the quartz window before turning the pump on. Wear PPE (lab coat, gloves). | **M** | Training is required for use. A user manual will be followed when used. | None. Previously trained by Dr Martin Lees prior to use. | **VL** |
| **Low Speed Diamond Saw – cut injury from the diamond blade** | The diamond saw user | Use the guard provided. Avoid distractions and ask if unsure. | **L** | Training is required for use. | None. Previously trained by Dr Martin Lees prior to use. | **VL** |
| **Low Speed Diamond Saw – burns possible from melting the glue that holds the sample to the holder** | The diamond saw user | Wear PPE (lab coat, gloves). Avoid distractions and ask if unsure. | **M** | Training is required for use. | None. Previously trained by Dr Martin Lees prior to use. | **VL** |

**Work should not be carried out until the assessment is completed and all required control measures are in place.**

|  |  |
| --- | --- |
| **Overall Final Risk Rating** (Highest level in final column above) | **L** |
|

|  |  |
| --- | --- |
| **Additional Comments from Risk Assessor**(e.g. funding or practical implications) |  |
|  |  |  |  |
| Approved By | Prof. Martin Lees |  | Position | Supervisor |
| Date | 13/10/2021 |  |  |  |

Please print a copy, sign it and keep for your records

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Severity** |  |  | **Risk Level** |
| **Likelihood** | Superficial | Minor | Serious | Major | Extreme |  | **Very low** | Acceptable risk - no action required |
| Unlikely | **Very low** | **Very low** | **Low** | **Low** | **Moderate** |  | **Low** | Tolerable risk - further control measures not required, but status must be monitored |
| Possible | **Very low** | **Low** | **Low** | **Moderate** | **High** |  | **Moderate** | Further control measures required to reduce risk as far as is reasonably practical |
| Likely | **Low** | **Low** | **Moderate** | **High** | **Very high** |  | **High** | Urgent action required to allow activity to continue |
| Very likely | **Low** | **Moderate** | **High** | **Very high** | **Very high** |  | **Very high** | Risk intolerable - activity must cease until the risk has been reduced |
| Extremely likely | **Moderate** | **High** | **Very high** | **Very high** | **Very high** |  |  |  |

See ‘[Matrix for risk evaluation](file:///%5C%5Cads.warwick.ac.uk%5Cshared%5CSF%5COCH%202006%5CManagement%20System%5C01%20Hazards%20and%20Risk%5C0104%20General%20Risk%20Assessment%5C02%20Templates%20and%20Master%20Versions%5CRisk%20Evaluation%20Matrix%20v3%2013%2009%2017.pdf)’ for further guidance.