**Risk Assessment School of Physics and Astronomy**



| **Date:** | **Assessed by:** | **Checked / Validated\* by:** | **Location:** | **Assessment ref no** | **Review date:**  One year from issue or if significant changes |
| --- | --- | --- | --- | --- | --- |
| **Task / premises:**  Use of vacuum equipment | | | | | |

| **Activity** | **Hazard** | **Who might be harmed and how** | **Existing measures to control risk** | **Risk rating** | **Result** |
| --- | --- | --- | --- | --- | --- |
| Setting up, commissioning and moving vacuum systems | Manual handling, sudden changes in pressure in the vacuum system, use of hand tools, ingestion or inhalation of chemicals. | Users and others in the vicinity.  Musculo skeletal problems, slips trips and falls.  Personal injury or illness. Contamination of lab equipment or furniture. | Always refer the the manufuctuer information. Selection and installation of vacuum equipment must be carried out by competent person who is familiar with the apparatus. If necessary advice or guidance may be sought by consulting the Technical Operations Manager.  If large/ heavy/ bulky/ awkward equipment is involved a specific manual handling risk assessment must be written and signed off by the Safety Advisor. Where necessary lifting equipment is used.  If the experimental apparatus to be evacuated contains air or inert gas only, the only harmful airborne contaminant will be oil mist, so an exhaust filter can be fitted and the output exhausted into the lab. If the apparatus to be evacuated contains harmful or toxic materials the pump’s exhaust must be connected to a Local Exhaust Ventilation system. A chemical risk assessment should also be complated. | Low | A |
| Use of electrical equipment. | Burns, shock, arcing, fire, explosion. | Users and others in the vicinity | All portable electrical equipment in labs is PAT tested annually as per Departmental policy. Users should check for any physical damage, signs of overheating or water ingress prior to use. Faulty equipment must be taken out of service immediately.  If high voltages are present suitable insulated connectors are used. | Low | A |
| Oil leaks | Slips trips falls, contamination of lab equipment, clothing, risk of pumps seizing up. | All lab users, personal injury, damage to lab equipment, fire. | Vacuum equipment should be inspected regularly to check for oil leaks. Pumps shoud be placed in plastic or metal trays to contain spillage.  Any spills will be cleaned up promptly.  Vacuum equipment is installed by competent personnel only.  Ensure pump is store out of walkways and preistraisn route and leads are not placed where they could cause a trip hazard. | Low | A |
| Noise/ vibration | High level of background noise in lab, leading to communication issues, distraction, loss of concentration. Vibration may lead to damage to other lab equipment and noise being transmitted to other areas of the building. | All lab users | Noise measurements and noise surveys may be carried out if necessary. Inform your Safety Advisor if you indentifuy an potential issue.  Vacuum pumps are mounted on rubber feet and/or vibration absorbent materials. Pumps may be located under benches behind acoustic shielding. | Low | A |
| Chemical hazards from vacuum pump oil | Ingestion or inhalation of vacuum pump oil or other chemicals used in vacuum systems. | All lab users. | Vacuum equipment is inspected regularly by users to check for oil leaks. Where necessary vacuum equipment is connected to Local Exhaust Ventilation systems.  Consumption of food and drink is prohibited in all labs and workshops.  A Chemical Risk Assessment (CRA) is carried out for all chemicals to be used including vac. pump oil, vacuum grease etc | Low | A |
| Changing vacuum pump oil | Exposure to waste oil, slips trips and falls, manual handling | Lab Technicians | Vacuum pump oil changes should occur in line with manufacturers recommendations. Wear lab coat, gloves and safety glasses when removing oil. Clean up any spills promptly. Label waste accordingly. Waste oil is disposed of as hazardous waste. | Low | A |
| Fitting vacuum components | Pinching of skin on hands | Lab Technicians  Students | Ensure the vacuum clamps and fittings such as pipes, elbow, crosses or vacuum pieces do not have rough edges, avoid using them if they do. When closing clamps avoid trapping fingers or skins when tightening the clamps. | Low | A |

I confirm that I have read this Risk Assessment and that I understand the hazards and risks involved and will follow all of the safety procedures stated.

| **Name (please print)** | **Signed** | **Line manager /PI countersignature** | **Date** |
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