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| Health and safety services |

Risk assessment form

Using the freeze dryer

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| **RISK ASSESSMENT DETAILS** | | | | | | | | | | **DEGREE OF RISK** | | | | | **RISK RATING MATRIX** | | | | | | |
| |  |  | | --- | --- | | Faculty/School/Service | Earth and Environment | | Team | Cohen |  |  |  | | --- | --- | | Risk Assessment Title | Using the freeze dryer | | Risk Assessment Log Reference |  | | Date | 09/02/2016 | | Name of Assessors | Andy Connelly | | Manager Responsible | Caroline Peacock | | Location | Cohen lab suit (level 8 & 9) 9.133 | | Details of Activity  Using the freeze dryer to dry samples by sublimation of ice at low pressures. This is for the Scanvac CoolSafe 110-4 freeze dryers (Labogene) | |   Other assessments which might also be required, ✓ if needed:  Manual Handling REF  COSHH ✓ REF  Personal Protective Equipment (PPE) ✓ REF  Noise REF  Other REF | | | | | | | | | | |  |  | | --- | --- | | **LIKELIHOOD (L)** | | | 5 | Inevitable | | 4 | Highly Likely | | 3 | Possible | | 2 | Unlikely | | 1 | Remote Possibility | | | | | | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | |  |  | **SEVERITY** | | | | | | **LIKELIHOOD** |  | 1 | 2 | 3 | 4 | 5 | | 1 | 1 | 2 | 3 | 4 | 5 | | 2 | 2 | 4 | 6 | 8 | 10 | | 3 | 3 | 6 | 9 | 12 | 15 | | 4 | 4 | 8 | 12 | 16 | 20 | | 5 | 5 | 10 | 15 | 20 | 25 | | | | | | | |
| |  |  | | --- | --- | | **SEVERITY (S)** | | | 5 | Very High -Multiple Deaths | | 4 | High - Death, serious injury, permanent disability | | 3 | Moderate - RIDDOR over 3 days | | 2 | Slight - First Aid treatment | | 1 | Nil - Very Minor | | | | | | **PERSONS AT RISK** | | | | | | |
| |  | | --- | | PERSONS AT RISK | | Employees | | Students | | Clients | | Contractors | | Members of the public | | Work Experience students | | Other Persons | | | | | | | |
| |  |  | | --- | --- | | **REVIEW DATES** | | |  |  | |  |  | |  |  | | | | | | | | | | | |  |  | | --- | --- | | RISK RATING SCORE | ACTION | | 1 - 4 | Broadly Acceptable - No action required | | 5 - 9 | Moderate - Reduce risks if reasonably practicable | | 10 -15 | High Risk - Priority Action to be undertaken | | **16 -25** | Unacceptable **-Action must be taken IMMEDIATELY** | | | | | | | | | | | | |
| **HAZARD AND RELATED ACTIVITIES**  e.g. trip, falling objects, fire, explosion, noise, violence etc. | | **PERSONS**  **AT RISK**  e.g. Employees, Customers, Contractors, Members of the public | | **POSSIBLE OUTCOME** | | **RISK RATING BEFORE CONTROLS (LxS)** | | **EXISTING CONTROLS**  e.g. Guards, Safe Systems of Work, Training, Instruction, Authorised Users, Competent Persons, Personal Protective Equipment (PPE) | | | | | **RISK RATING AFTER CURRENT CONTROLS (LxS)** | | | **FURTHER CONTROLS REQUIRED?** | | | | **RISK RATING AFTER ADDITIONAL CONTROLS (LxS)** | |
| Experiment specific hazards | | Users must carry out risk and COSHH assessments to identify issues with their own experiments. Any lab users at risk from the experiment must be informed. | | | | | | | | | | | | | | | | | | | |
| Contact with very cold surfaces | | Users and others close by | | Burns from cold surfaces | | 3(l) x 2(s) = 6 | | Do not touch the inside  of the refrigeration  chamber whilst the  fridge is on or  immediately afterwards  as inside temperatures  can be as low as -110°C. | | | | | 2(l) x 2(s) = 4 | | |  | | | |  | |
| Vacuum pressure used in operation | | Users and others close by | | Implosion, personal injury | | 2(l) x 3(s) = 6 | | Follow SOP. Handle the Perspex  flask carefully and  check regularly for any  abrasions or fractures  that might impair the  strength of the  chamber. Wear appropriate PPE | | | | | 1(l) x 3(s) = 3 | | |  | | | |  | |
| Freeze drying with glass vessels | | Implosion of glass within Perspex cover | | Danger of cuts from sharp glass | | 3(l) x 2(s) = 6 | | Wear appropriate PPE and follow SOP. | | | | | 2(l) x 2(s) = 4 | | |  | | | |  | |
| Fumes from vacuum pump | | Lab users | | Potential toxic output from natural samples | | 2(l) x 3(s)=6 | | Oil collection filter and activated carbon filter placed on the pump outlet | | | | | 1(l) x 3(s)=3 | | |  | | | |  | |
| Electric Shock | | User | | Electrocution or electric burns | | 2(l)x4(s)=8 | | Regular PAT testing of all electrical equipment | | | | | 1(l)x4(s)=4 | | |  | | | |  | |
| Slips, trips and falls | | Personal injury | |  | |  | | Do not climb onto stools  to load the freeze drier -  use the step-stool. | | | | |  | | |  | | | |  | |
| Handling of isopropanol and silicon grease | | See COSHH assessment | | | | | | | | | | | | | | | | | | | |
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| **MANAGEMENT AGREED**  **ADDITIONAL CONTROL MEASURES REQUIRED** | | | | | **ACTIONED BY** | | | | | | | | | **ACTION COMPLETE** | | | | | | | |
| **POSITION** | | **NAME** | | | | **DATE** | | | **MANAGER SIG** | | | | | **DATE** | | |
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| **COMMUNICATION OF RISK ASSESSMENT FINDINGS TO STAFF** | | | | | | | | | | | | | | | | | | | | |
| **REFERENCE OF FORMAL COMMUNICATION TO STAFF** | | | **METHOD** | | | | | | **YES** | | | **DATE** | | | | | **COMMENTS** | | | |
| Copy of risk assessment issued to staff | | | | | |  | | |  | | | | |  | | | |
| Controls covered in team procedure issued to staff | | | | | |  | | |  | | | | |  | | | |
| Staff Handbook issued to staff | | | | | |  | | |  | | | | |  | | | |
| Other - | | | | | |  | | |  | | | | |  | | | |
| **ADDITIONAL METHODS OF COMMUNICATION** | | | Induction | | | | | |  | | |  | | | | |  | | | |
| Toolbox Talk | | | | | |  | | |  | | | | |  | | | |
| Team Meeting | | | | | |  | | |  | | | | |  | | | |
| E-mail circulation | | | | | |  | | |  | | | | |  | | | |
| Other - | | | | | |  | | |  | | | | |  | | | |

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| **COMMENTS AND INFORMATION**  (Use this section to record any dynamic risk assessment comments and information) |
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| **Do additional controls adequately lower high risk activities to an acceptable level?** | **YES / ~~NO~~**  If NO explain in comments box above | **SIGNATURE OF MANAGER**  "The risks identified in this assessment are controlled so far as is reasonably practicable" | |
| Signature: | Date: |

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| **DATE OF REASSESSMENT**  (Every two years minimum) | **ARE THERE ANY CHANGES TO THE ACTIVITY SINCE THE LAST ASSESSMENT?** | **SIGNATURE OF MANAGER** |
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| **LOCATION OF CURRENT SIGNED RISK ASSESSMENT** |  |

**RISK ASSESSMENT LOG - SAMPLE**

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| RISK ASSESSMENT LOG | | | | | | | | | | | |
| Directorate: | | | | | | Area: | | | | | |
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| Section/Team | Risk Assessment Title | Version No. | Risk Assessment Category | Code  /Location | Risk Assessor | Manager responsible for signing off risk assessment | Date assessment signed off | Review Due | Review Date | Outstanding Controls/Actions  Yes/No | Comments |
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