**Chemical Risk Assessment (Part 2)**

**Safe Operating Procedure**

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| **Activity/ Experiment Title:** |  |
| **Location of work:** |  |
| Schematic (if required):        |
| **Chemicals (used/ generated):** see attached Chemical Risk - Summary Sheet |
|  |
| **Equipment:** |  |
| **Activity:  Step by step description of the task** *It may help to complete this column at the start of your risk assessment, so hazards are identified in a systematic way.  This may also be used as a detailed record of your experiment.*  | **ControlsGN2** * Hazardous substances have been replaced by less hazardous substances where possible
* Lab rules are followed**GN**
* Lab coat, safety glasses, chemical resistant nitrile gloves
 |
| **Step**  | **Method:**  | **Additional controls:**  |
| 1  |   |   |
| 2  |   |   |
| 3  |   |   |
| 4  |   |   |
| 5  |   |   |
| 6  |   |   |
| 7  |   |   |
| 8  |   |   |
| 9  |   |   |
| 10  |   |   |

**Emergency plans:**

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**Waste:**

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| **Chemical Activity Risk Assessment** |
| **College/ PSU**  |  | **Assessment Date:** |  |
| **Location:** |  | **Assessor:** |  |
| **Approval:** |  | **Review Date:**(if applicable)  |  |
| **Activity:** |  |
| **Associated documents:** |  |  |  |

**1. Chemical Risk - Summary Sheet below.**

**2. Who or what may be harmed?**

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| --- | --- |
| [ ]  Staff/ PG student carrying out the activity[ ]  UG student carrying out activity[ ]  Other staff/ students in the vicinity **Vulnerable groups present:**  [ ]  U18/ U16 [ ]  New or expectant mother [ ]  Other:  | [ ]  Contractors [ ]  Visitors[ ]  Cleaners [ ]  Maintenance staff[ ]  **Environment** (via release to air/ water/ ground, or incorrect disposal) |

**3. Controls**

**3.1 Eliminate or substitute/ reduce**

Modify the process so that non-hazardous or less hazardous chemicals are used or produced. Use a less hazardous, less concentrated, less dusty or less volatile, less flammable chemicals. Use less chemical – by minimising the scale of your experiment. Work at lower temperatures.

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**3.2 Engineering controls required to reduce the risk. What and when?**

Consider enclosed systems and glove boxes for the highest risk. Fume cupboards *(options: ducted/ recirculating).* If using a recirculating fume cupboard, check you have suitable filtration – active carbon/ HEPA/ scrubber. Other forms of local exhaust ventilation, Class 2 MSC, a fire suppression system, other engineering controls.

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**3.3 Admin controls required to reduce the risk.**

In addition to lab rules, e.g. exclusion of non-essential personnel/ SOPs (e.g. safe handling of sharps)/ warning signs, etc.

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**3.4 Personal Protective Equipment required to reduce the risk. What and when?**

Minimum requirements: a lab coat, safety glasses and chemical resistant nitrile gloves. Specify below if additional/ alternative PPE is required.

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|  | **Type:** | **When to be worn:** |
| Eye protection: |  |  |
| Face protection |  |  |
| Hand protection: |  |  |
| Special clothing: |  |  |
| Respiratory protective equipment: |  |  |

**4. Supervision**

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| State what supervision, if any, is required for persons undertaking this task/ method: |

**5. Instruction and Training**

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| State any health and safety instructions or training required for persons undertaking this task/ method: |

**6. Emergency Plans**

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| [ ]  A chemical safety information sheet is readily available for each chemical used/ produced; this details actions to take in the event of an emergency with a single chemical.  |
| **Other Emergency Plans**  |
| **First aid:** |  |
| **Fire:** |  |
| **Spill:** |  |
| **Other:** |  |

**7. Waste disposal**

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| State how wastes produced will be stored and disposed: |

**8. Is exposure monitoring required to demonstrate adequate control? Yes/ No**

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| If yes, give details: |

**9. Is health surveillance required for the protection of health? Yes/ No**

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| If yes, give details: |

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| **Chemical Risk – Summary sheet** |
| GHS symbols– SH (*serious* health hazard), T (toxic), H (health hazard), C (corrosive), Ex (explosive), F (flammable), O (oxidiser), Env (environment), CG (compressed gas). A copy of each Chemical Safety Information Sheet should be readily available in the lab for use (e.g. in an emergency) |
| **Chemical Name (& Conc.)** for chemicals to be used and generated | **GHS symbols** | **Skin/Eyes**(SA, SB, SC,SD, SE) | **Inhalation Group** (A,B,C,D,E) | **Quantity**(Small/ Medium)  | **In use dustiness or volatility**(High/ Medium/ Low) | **Other comments:** **In use factors – affecting exposure***(e.g. <15 mins duration/ frequency/ splash protection only/ hand immersion/ spraying)***Safety/ environmental hazards (H2XX/H4XX)** |
|  |  | Choose an item. | Choose an item. | Choose an item. | Choose an item. |  |
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**General Risk Assessment**

| **OTHER HAZARDS ARISING FROM THE ACTIVITY** (e.g. equipment used/ operations) e.g. risk of fire or explosion, exothermic reactions, novel experiments carried out for the first time, compressed gas, cryogenic liquids, use of sharps, heat, pressure, vacuum, environmental damage, etc. |
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| **What are the hazards?** | **Who or what might be harmed and how?** | **What are you already doing?**(including relevant SOP’s to be followed) | **Do you need to do anything else to manage this risk?** |
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A **specific DSEAR risk assessment** must be carried out if:

* The work activity involves the use or storage of **flammable, oxidising or corrosive gas cylinders**.
* The work activity is likely to create an explosive atmosphere even after the application of controls stated in the chemical risk assessment.
* The work activity involves the **use of explosives**.