**Manchester Institute of Biotechnology – Risk Assessment Form**



| **Date**: 12/02/15 | **Assessed by:** Rebecca Davey | **Validated by:** Christopher Blanford | **Location:** Manchester Institute of Biotechnology |  | **Review date:** 11/02/16 |
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| **Task / premises:** Airbrush for spray deposition of graphene suspension Related documents: see risk assessments for handling graphene suspensions and COSHH assessments for graphene suspensions |

| **Activity**  | **Hazard**  | **Person(s) in danger**  | **Existing measures to control risk**  | **Risk rating**  | **Result** |
| --- | --- | --- | --- | --- | --- |
| Using airbrush | Mechanical injuries from compressed gas | All lab users | * Nitrogen gas (from building supply, NOT cylinder) with pressure gauge used to monitor flow and regulate flow
* Tubing kept tidy and off ground to prevent obstruction of flow
 | Low | A |
| Mechanical injury from airbrush needle tip | User | * Avoid removing the protective cone around the needle tip.
* If the needle tip becomes blocked, or when cleaning, the pressure hose must be removed and the reservoir emptied; care must be taken to avoid the needle tip.
 | Low | A |
| Airborne nanoparticles | All lab users | * Work carried out in fume cupboard
* The following items of PPE must be worn: Howie-style laboratory coat, BS EN374 compliant gloves (nitrile; double glove when handling nanomaterials) and BS EN166 compliant eye protection (chemical splash proof safety glasses). A selection of safety glasses and goggles are available from MIB Stores; users are advised to visit Stores and select eye protection which fits well and is comfortable to use. Regular lab inspections monitor the wearing of PPE; users found not to be wearing PPE when the risk assessment states that it must be worn will be subject to the MIB compliance policy.
* Use minimal quantity of suspension possible
 | Low | A |
| Leakage from airbrush | User | * Wear PPE as described above
* Check fittings on airbrush before use
 | Low | A |
| Fumes from solvents | User, persons in close proximity | * All work MUST be carried out in fume cupboard
* Use minimal quantity of suspension possible
 | Low | A |
| Residual nanoparticles | User, cleaning staff, later users of the space | * Use backdrop (e.g., cardboard box) to capture particles that do not end on substrate
* Line backdrop with disposable coating, e.g., blotting paper, for easy disposal according to COSHH form
 | Low | A |
| Using hotplate to heat substrate | Burns from hot surface | User, persons in close proximity | * Ensure workspace is kept tidy and people working nearby are aware of hotplate use
 | Low | A |
| Fire from heated solvents | All lab users | * Work must be carried out in fume cupboard
* Minimal possible quantities of suspension used and lowest possible hotplate temperature used
* Remove local sources of ignition
* Use of inert gases such as argon or nitrogen
 | Low | A |

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| **Authorisation by PI** **I confirm that I have considered and understand the experiment and the associated hazards. I am satisfied that all of the hazards have been identified and that the control measures to be followed will reduce the risks to acceptable levels.** **Print name: Christopher Blanford Signed:****Date: 25 April 2014** |

**Declaration by researcher**

**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.** **Where PPE has been identified as a control measure, I will ensure that it is worn.**

**Declaration by PI**

**I confirm that the researcher who has signed below is competent to undertake the work. My counter-signature indicates that I am happy for the work to proceed.**

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| **name (please print)** | **signed** | **PI countersignature** | **date** |
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