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

TUOM_4COL

| **Date**:  24 April 2014 | **Assessed by:**  Rebecca Davey | **Validated by:**  Christopher Blanford | **Location:**  Manchester Institute of Biotechnology |  | **Review date:**  23 April 2015 |
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| **Task:** Working with graphene suspensions  Hazards associated with the use of nanoparticles are not fully characterised. A precautionary approach, following COSHH guidelines has been implemented. This risk assessment details the control measures to be followed for this type of work. Related documents: see COSHH assessments for graphene suspensions. | | | | | |

| **Activity** | **Hazard** | **Person(s) in danger** | **Existing measures to control risk** | **Risk rating** | **Result** |
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| Forming a solution of carbon nanoparticles from powdered form and subsequent usage. | Biopersistant nanoparticles can enter the lungs when in aerosol form and are thought to be able to cross the skin barrier when in solution. The exact effect on the body is unknown but there is a possibility that they could induce granuloma formation in the lungs (especially if the particles are long and inflexible). | All lab users | * The following items of PPE must be worn: Howie-style laboratory coat, BS EN374 compliant gloves (nitrile) 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. For aerosol work, a face mask should be considered if the particle size can be filtered. If a face mask is required, face fit testing will be undertaken to ensure that the user is adequately protected. * When the powdered and aerosol forms are used, all experimentation MUST be conducted in a fume cupboard. * Containers are kept sealed and upright, within secondary containment, when not in use, and stored in a cool, dry and ventilated place. * Suspensions will be handled in accordance with existing COSHH assessments for carbon suspensions and relevant solvents. All control measures identified on the COSHH form(s) will be followed. | L | A |
| Disposal of nanoparticle sample | Danger of exposure to nanoparticles if samples dry out or if colloidal samples are left to deteriorate | All lab users | Sample must be placed into a labelled tube of aggregating solution if possible (this will cause the nanoparticles to aggregate so that they can longer enter the alveoli or cross the skin barrier). If no aggregating solution is available, then the sample can be placed in a tube of water.  Any solid waste must be placed in two bags to ensure that none of the sample escapes or comes into contact with skin. | L | A |
| Transport of biopersistant nanoparticle samples. | Danger of exposure to nanoparticles if the samples are spilled during transport. | All lab users | Samples and waste must be contained in a sealed screw top tube placed in a container that is designated for transport of nanoparticle samples. | L | 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: Signed:**  **Date:** |

**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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