

<b>Title of project/experiment/activity</b> Use of Flexo printer			
<b>Location of activity</b> Cambridge Graphene Centre : Ink Lab		<b>Start and end dates</b> 24/08/2015 - continuous	
<b>Brief description (or attach procedure/protocol)</b>  The Flexiproof 100 is a commercially made flexo printer and will be used in accordance with the manufacturer's instructions after training. It is used to deposit nanomaterials based inks on a wide range of flexible substrates including paper, plastics and glass.  During each printing, only small volumes of ink are dispensed (< 5 mL), and local extraction is used to prevent solvent vapors escaping from the printer area. Completed samples removed from the flexo printer are dry.			
<b>Hazard</b>	<b>Effect</b>	<b>Control measures</b>	<b>Residual risk</b>
General hazards in lab	Inhalation of solvents Exposure to chemicals harmful to health	During each printing process a small volumes (< 5ml) of ink is used. Mainly water based inks will be processed and a fume extractor will be used in case of using hazardous solvents. (Likelihood: 1, Severity: 1)  The use of various chemicals will be covered in separated risks assessments dealing with the preparation of nanomaterials inks and COSSH forms.  Gloves, eye protection and lab coat must be worn whilst in the laboratory. The Ink Lab rules will be respected.	Low risk
Mechanical: The printer has moving parts leading to potential pinch points.	User may trap fingers. Minor injury/cuts due to the blade of the printer Mechanical damage to equipment	Keep hands, clothes and other objects away from the moving parts of the Flexo Printer.  Pay attention during the installation of the blade after cleaning and while removing it.  (Likelihood: 1, Severity: 1)	Low risk
Electric shock	Shock to user, damage to equipment	Do not get outer parts of the printer wet. Always wipe any potential leakage on or around the printer. (Likelihood: 1, Severity: 1)	Low risk

**Personal Protective Equipment required [eye/face protection, respiratory protection, gloves, lab coat etc]**

Lab coat, gloves (purple nitrile) and eye protection (safety specs) required in the lab at all times.

**Emergency Instructions & First Aid**

**Spillage:**

Spillage here can be dealt with using a standard spill kit or clean room wipes.

**Fire:**

In case of fire, the fire alarm should be sounded and fire service called. If safe to do so, the fire may be extinguished using an extinguisher containing carbon dioxide, located outside the laboratory in the corridor.

**First aid:**

General advice: Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled: if breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact: Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

In case of eye contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**Any special monitoring required [e.g. hearing test, vibration monitoring, health surveillance]**

No

**Further control measures required? If yes, list with actions.**

Waste Disposal Procedures: At the end of the printing, the extra ink can be collected and the dirty components of the printer cleaned using the appropriate solvent (mainly water) close to a sink. Dirty clean room wipes must be disposed into the suitable bins.

In the case of equipment malfunction/failure: shutdown instrument from main switch or directly from plug socket.

**Biological/Laser/Radiation Approval [requires relevant Specialist Safety Officer signature and date]**

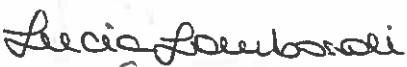
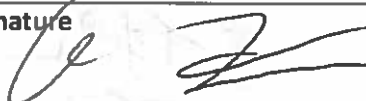
N/A



**Out of hours/Lone working**

Out of hours/lone working permitted if authorized by Supervisor. *Requires permission from Head of Division and overnight running.*

**Department of Engineering – Risk Assessment****Ref No.**

Signature to confirm that this is a suitable and sufficient assessment of risk and that stated control measures are in place. This risk assessment should be reviewed if additional risks not covered in this assessment are identified or if there is any reason to indicate that the control measures are insufficient.

<b>Name of Assessor</b> Dr. Lucia Lombardi Email: ll455@cam.ac.uk	<b>Signature</b> 	<b>Date</b> 08/08/2016
<b>Name of Supervisor</b> Prof A.C. Ferrari Email: acf26@cam.ac.uk	<b>Signature</b> 	<b>Date</b> 2/9/16

<b>Local Safety Coordinator</b>	<b>Signature</b> 	<b>Date</b> 2/11/16
<b>Departmental Safety Office</b> IAN SLACK	<b>Signature</b> 	<b>Date</b> 9 NOV 2016