# GENERAL RISK ASSESSMENT FORM (S20)

Persons who undertake risk assessments must have a level of competence commensurate with the significance of the risks they are assessing. It is the responsibility of each Head of Department or Director of Service to ensure that all staff are adequately trained in the techniques of risk assessment. The University document "Guidance on Carrying Out Risk Assessments" will be available, in due course, to remind assessors of the current practice used by the University. However, reading the aforementioned document will not be a substitute for suitable training.

**Prior to the commencement of any work involving non-trivial hazards**, a suitable and sufficient assessment of risks should be made and where necessary, effective measures taken to control those risks.

Individuals working under this risk assessment have a legal responsibility to ensure they follow the control measures stipulated to safeguard the health and safety of themselves and others.

## SECTION 1

| **1.1 OPERATION / ACTIVITY** | | | Complete the relevant details of the activity being assessed. |
|---|---|---|---|
| **Title:** | Development of a rheometer to study jamming in colloidal suspensions | | |
| **Department:** | Department of Chemical & Process Engineering | | |
| **Location(s) of work:** | TG | **Ref No.** | LL-2017 |
| **Brief description:**<br>This project involves constructing a rheometer, controlled and monitored by a Raspberry Pi, which will be used to study the dynamics of jamming in dense colloidal suspensions. | | | |

| **1.2 PERSON RESPONSIBLE FOR MANAGING THIS WORK** | | | |
|---|---|---|---|
| **Name:** | Leo Lue | **Position:** | Reader |
| **Signature:** | | **Date:** | 2017-01-23 |
| **Department:** | Chemical and Process Engineering | | |

| **1.3 PERSON CONDUCTING THIS ASSESSMENT** | | | |
|---|---|---|---|
| **Name:** | Christopher Boyle | **Signature:** | |
| **Name:** | | **Signature:** | |
| **Name:** | | **Signature:** | |
| **Date risk assessment undertaken:** | 2017-01-23 | | |

**1.4 ASSESSMENT REVIEW HISTORY**

This assessment should be reviewed immediately if there is any reason to suppose that the original assessment is no longer valid. Otherwise, the assessment should be reviewed annually. The responsible person must ensure that this risk assessment remains valid.

| | **Review 1** | **Review 2** | **Review 3** | **Review 4** |
|---|---|---|---|---|
| **Due date:** | | | | |
| **Date conducted:** | | | | |
| **Conducted by:** | | | | |

## SECTION 2

**Work Task Identification and Evaluation of Associated Risks**  **Ref No. LL-2017**

| Component Task / Situation | Hazards Identified | Hazard Ref No. | Who Might be Harmed and How? | Existing Risk Control Measures (RCM) | Likelihood | Severity | Risk Rating | Risk L, M, H, VH | RCM's Acceptable Y/N |
|---|---|---|---|---|---|---|---|---|---|
| Working with electronic circuits | Relatively high voltages (~12v) could cause electric shocks | 1 | Persons handling/working with the circuits might touch live wires and causing them to receive a small shock. | All wiring fitted with insulated jackets; Ensure that no one and nothing is touching the circuits before they are powered; Keep circuits in fixed, relatively isolated location; Ensure circuit is not live longer than required. | 2 | 2 | 4 | L | Y |
| | Transistors and other components may become quite hot | 2 | Persons handling/working with the circuits could handle a component that has heated up beyond a safe level, burning them. | Keep components fixed, relatively isolated, and away from flammables; Attach heat sink where appropriate; Place label near component warning that it may become hot | 2 | 3 | 6 | L | Y |
| Soldering electrical components | Hot soldering iron | 3 | Persons in the lab at the time, person doing the soldering. Accidentally touching the hot tip of a soldering iron will result in a burn, the soldering iron could also set fire to/damage any desks/equipment it is set down near. | Lab coat, safety goggles; Soldering iron holder (keeping hot iron in safe location); Ensure lead from the soldering iron never becomes entangled with other objects, etc.; Solder only in a designated location, that is free from flammables; | 2 | 2 | 4 | L | Y |
| | Specks of molten solder liable to spit away from soldering iron | 4 | Persons in the lab, person doing the soldering. Hot solder may hit the individuals causing mild pain and a spot of solder to be stuck to them. | Lab coat, safety goggles; Only solder in a designated area, free from flammables, etc. | 2 | 2 | 4 | L | Y |

**SECTION 2 – continuation sheet**

**Work Task Identification and Evaluation of Associated Risks**  **Ref No. LL-2017**

| Component Task / Situation | Hazards Identified | Hazard Ref No. | Who Might be Harmed and How? | Existing Risk Control Measures (RCM) | Likelihood | Severity | Risk Rating | Risk L, M, H, VH | RCM's Acceptable Y/N |
|---|---|---|---|---|---|---|---|---|---|
| Running the Rheometer Experiment | Splashing of experimental fluids | 5 | Persons in the lab. Fluids coming into contact with vulnerable areas (eyes, sensitive skin) may cause adverse reactions. | Lab coat, safety goggles;<br>Keep appropriate materials (e.g., sponge, paper towels, etc.) nearby to immediately deal with spills. | 2 | 3 | 6 | L | Y |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

## SECTION 3

**Identified Actions to Improve Control of Unacceptable Risks** (as evaluated in Section 2) **Page 4 of 6** **Ref No. LL-2017**

| Hazard Ref No. | Risk | Recommended Additional Risk Control Measures | Implemented Y/N | Action By | Target Date | Completion Date | Revised Risk | | | | Revision of Risk Signed Off |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Likelihood | Severity | Risk Rating | Risk L, M, H | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

***SECTION 4***

**RECORD OF SIGNIFICANT FINDINGS**



**Ref No. LL-2017**

Where this Section is to be given to staff etc., without Sections 2 & 3,
please attach to the front of this page, a copy of the relevant Section 1 details.

The significant findings of the risk assessment should include details of the following:

- The identified hazards
- Groups of persons who may be affected
- An evaluation of the risks
- The precautions that are in place (or should be taken) with comments on their effectiveness
- Identified actions to improve control of risks, where necessary

**Alternatively**, where the work activity/procedure is complex or hazardous, then a written Safe System of Work (SSOW) or Standard Operating Procedure (SOP) is advised that should incorporate the significant findings. Such documents should again, have the relevant Section 1 attached. Please state below whether either a SSOW or SOP is available in this case.

| Relevant SSOW available | Yes ☐ | No ☒ | Relevant SOP available | Yes ☐ | No ☒ |
|---|---|---|---|---|---|

**Significant Findings:** (Please use additional pages if further space is required)

- Ensure all wiring is insulated;
- Ensure that no one and nothing is touching the circuits before they are powered;
- Keep circuits in fixed, relatively isolated location, away from flammables;
- Do not operate circuits longer than required;
- Attach heat sinks to electronic components where appropriate;
- Place label near components warning that they may become hot;
- Always wear lab coat and safety goggles;
- Setup a designated area for soldering, free from flammables, etc. and with a soldering iron holder, and only solder in this location. Ensure lead from the soldering iron never becomes entangled with other objects, etc.;
- Keep appropriate materials (e.g., sponge, paper towels, etc.) nearby to immediately deal with all spills.

## SECTION 5

**RECEIPT OF SIGNIFICANT FINDINGS OF RISK ASSESSMENT** 

Please copy this page if further space is required**.** **Ref No. LL-2017**

All individuals working to the risk assessment with the Ref. No. as shown, must sign and date this Section to acknowledge that they have read the relevant risk assessment and are aware of its contents, plus the measures taken (or to be taken by them) to safeguard their health and safety and that of others.

If following review of the assessment revisions are minor, signatories may initial these where they occur in the documentation, to indicate they are aware of the changes made. If revisions are major, it is advisable to produce a new risk assessment and signature page.

| NAME (Print) | SIGNATURE | DATE |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |