Hazard Analysis
Measuring Microstructure Changes During Thermal Treatment

Team #30, ReSprint
Edwin Do
Joseph Braun
Timothy Chen
Abdul Nour Seddiki
Tyler Magarelli

Table 1: Revision History

Date	**Developer(s)**	**Change**
Oct 13, 2022	Abdul Nour Seddiki	Integrated the Template + Added System Boundaries and Components
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Contents

[You are free to modify this template. —SS]

1 Introduction

[You can include your definition of what a hazard is here. —SS]

2 Scope and Purpose of Hazard Analysis

3 System Boundaries and Components

This hazard analysis is conducted on the system that consists of the following components:

1. Thermally treated samples
2. The current source
3. A thermometer
4. The nano-voltmeter
5. Interfaces between above devices and control computer
6. The control computer
7. The software application that will be installed on the control computer

These components comprise the system in question. And they each are also considered the boundaries for this system. Some of the components mentioned are not controllable by ReSprint team, such as the thermally treated samples and all of the measurement devices and hardware including the current source, the thermometer, the nano-voltmeter, the communication interfaces and the control computer. Therefore, the only component controllable by ReSprint team is the software application and its sub-systems.

4 Critical Assumptions

The following is a list of assumptions to protect ourselves during the development of ReSprint from unforeseen hazards:

- Thermal treated samples will be contained in a safe area away from the control computer and operator.
- Curret source device will be used as intended and will not be misuse by the operator.
- Wires will not come loose during operation by the operator.

- Data collected from the samples will be saved correctly on the control device.
- Plugs and wires are attached correctly into the devices and control computer.

5 Failure Mode and Effect Analysis

[Include your FMEA table here —SS]

6 Safety and Security Requirements

Safety Requirements

SFR1. Graphics shall avoid changing of brightness at rapid rate to take account for users prone to seizures.

SFR2. Colours should avoid brightness that can be damaging to users' eyes.

SFR3. Untrained users should not need to interact with any electronic equipment to avoid potential injury.

Security Requirements

SCR1. Interface shall prevent any modifications or injections of data from the user.

SCR2. Only authorized users are allowed to modify concealed calculations, settings and/or parameters.

Hardware Requirements

HWR1. All hardware components must be properly setup and configured to perform their required functions.

HWR2. All hardware components must be functioning properly i.e. not faulty.

Software Requirements

SWR1. The App must be designed to be compatible with the operating system running on the lab computer. The operating system used may be changed over the course of the project.

SWR2. The App must be able to identify and connect to the correct serial port so that it is able to receive data from the hardware.

SWR3. The App must perform the resistivity calculations and any other required calculations using the correct formulae.

7 Roadmap

[Which safety requirements will be implemented as part of the capstone timeline? Which requirements will be implemented in the future? —SS]