

Hazard Analysis
Measuring Microstructure Changes During
Thermal Treatment

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Table 1: Revision History

Date	Developer(s)	Change
Oct 13, 2022	Abdul Nour Seddiki	Integrated the Template + Added System Boundaries and Components
Oct 14, 2022	Edwin Do	Add introduction, scope and purpose of HA
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1 Introduction

This document is the hazard analysis for Team 30 (ReSprint) Capstone project. This project collaborates with the Department of Materials Engineering to measure the microstructure changes of samples during thermal treatment.

For this document, a hazard will be defined as a scenario where the conditions of a system and environment constitutes the potential of harm to someone or something.

2 Scope and Purpose of Hazard Analysis

The purpose of this hazard analysis is to document any potential unsafe behaviour in this project. This includes risks in this project that can arise from using either the software or hardware components. For each hazard identified, this document will outline one or more methods to help mitigate the hazard.

The scope will be limited to identifying the possible hazards from the system's components, methods of mitigation, potential causes, and any resulting security or safety requirements.

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

[These assumptions that are made about the software or system. You should minimize the number of assumptions that remove potential hazards. For instance, you could assume a part will never fail, but it is generally better to include this potential failure mode. —SS]

5 Failure Mode and Effect Analysis

[Include your FMEA table here —SS]

6 Safety and Security Requirements

[Newly discovered requirements. These should also be added to the SRS. (A rationale design process how and why to fake it.) —SS]

7 Roadmap

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