

Internal Assessment: Chemistry

**Investigating the relationship between the amount of  
MnO<sub>2</sub> catalyst and the rate of reaction in the  
decomposition of H<sub>2</sub>O<sub>2</sub>.**

April 29, 2025

Word count: 123

# 1 Preliminary Research Plan

## Materials:

- Water for dilution
- $\text{H}_2\text{O}_2(l)$ , will be diluted to 3%
- $\text{MnO}_2(s)$  powder, about 2g needed

## Apparatus:

- Addition funnel
- Two- or multi-neck flask
- Clamp and stand
- Pressure sensor with tubing
- Graduated pipette and beakers for  $\text{H}_2\text{O}_2$
- Thermometer to ensure constant initial temperature

This image is captured from the video *How to make an Oxygen Generator ( $MnO_2/H_2O_2$  Method)* uploaded to YouTube by NileRed, <https://youtu.be/eI-HMUCEJsl>.



Figure 1: Example setup

My apparatus will be very similar to this; the only difference is that my rubber hosing will be connected to a pressure sensor. In every trial, after checking that the initial temperature and pressure are constant, I precisely measure the amount of  $MnO_2$  to add to the flask. Then I add some constant volume of  $H_2O_2$  through the addition funnel into the flask and close the funnel so air doesn't escape. I will record the change in pressure over time using Logger Pro.