

Optical Activity

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Abstract

This experiment investigates the phenomenon of optical activity, where certain molecules rotate the plane of polarization of light. The focus is on sugar solutions, which are optically active due to their chiral structure. The experiment utilizes a laser, polarizer, analyzer, and sugar solutions of varying concentrations. By measuring the rotation angle of the light after passing through the solution, the relationship between optical activity and concentration is explored. The specific rotation, a characteristic property of the sugar molecule, is not directly measured but can be calculated using the observed rotation angle, path length, and concentration. The experiment allows for the classification of the sugar solution as dextrorotatory (rotating the plane to the right) or levorotatory (rotating the plane to the left).

1 Introduction

In the introduction you should give a brief overview of the experiment. You should start with a brief description of the theoretical background behind the experiment. You should also mention the methods used in the experiment. You are expected to cite your sources[1] midtext.¹

You can insert an inline equation using the \$ sign. As in $E = mc^2$. To display an equation in the middle of the page use the following:

$$\int \frac{1}{x} dx = \ln |x| + C \tag{1}$$

2 Data & Results

| | | | |
|-----------|-----------|-----------|-----------|
| Something | Something | Something | Something |
| 1234 | 1234 | 1234 | 1234 |

Table 1: This is a caption for the table.

¹More information on how to do this can be found in the references section.

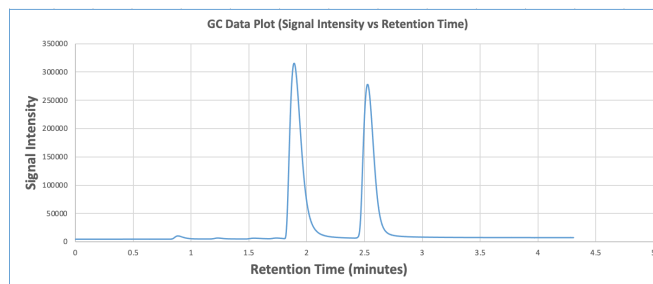


Figure 1: This is a caption for the figure.

In this section, you are to present the data you obtain from the experiment, which is mostly going to be presented in the form of a table as in Table 1 or in the form of a graph as in Figure 1. The manuals for the experiments have instructions on how to present the data, and in the case of any ambiguity you TA will provide you with the necessary information. You should also include any calculations you do in this section. A brief discussion of the results should also be included.

3 Discussion & Conclusion

In this section, you are expected to discuss the limitations of the experiment and how these limitations may have affected the results. Meaning, you are to discuss the possible errors, the approximations you made in obtaining physical data, and the discrepancies you see between the results you obtain and the theoretical values or the values reported in the literature. You should also discuss the possible improvements that can be made to the experiment.

References

- [1] Sergey Bravyi et al. In: 125.26 (Dec. 2020). DOI: 10.1103/physrevlett.125.260505. URL: <https://doi.org/10.1103/physrevlett.125.260505>.