Chemistry 260 Summer 2025

E7/T7: Iodination of Vanillin

**<< Complete this report form by inputting the information indicated by red text. Delete red text instructions before submitting (there are marks associated with doing so).>>**

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Section: \_\_\_\_\_\_\_\_\_\_Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Abstract (2 marks)**

<<Delete this text and insert an abstract with a reaction scheme>>

**Procedure and Observations**

**Procedure: (0.5 marks)**

**Observations: (1.5 marks)**

**Reagents and Products Tables (1 mark)**

<<Insert Reagent and Product tables like in your previous reports for the reaction that you performed. The products table should indicate both a crude % yield and a % recovery from the recrystallization.>>

**Results**

**Percent Yield: (1 mark)**

**Results of Melting Range Analysis: (1 mark)**

**1H NMR Analysis**

Table <<X>>. NMR analysis of the starting material, vanillin, in CDCl3. **(1 mark)**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Chemical Shift (δ, ppm)** | **Multiplicity** | **Coupling constant(s) (Hz)** | **Integration** | | **Assignment** | **Coupled to** |
| **Actual** | **Relative** |
| 9.83 |  |  |  |  |  |  |
| 7.45 – 7.41 |  |  |  |  |  |  |
| 7.27 | Singlet | - | - | - | CHCl3 in CDCl3 | - |
| 7.05 |  |  |  |  |  |  |
| 6.29 |  |  |  |  |  |  |
| 3.97 |  |  |  |  |  |  |

The provided NMR spectrum and expansion are attached to this report as Appendix <<X>>.



Table <<X>>. Predicted chemical shifts for the aromatic signals of the three possible iodination products. **(1 mark)**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | | |  | | |  | | |
| **Proton** | **Shift** | **Multiplicity** | **Coupling Constant** | **Shift** | **Multiplicity** | **Coupling Constant** | **Shift** | **Multiplicity** | **Coupling Constant** |
| a |  |  |  |  |  |  | - | | |
| b |  |  |  | - | | |  |  |  |
| c | - | | |  |  |  |  |  |  |

**1H NMR Analysis of experimentally obtained reaction product: (4 marks)**

<<Delete this text and insert a table summarizing your NMR results. Your processed spectrum and expansions should be included as an appendix.>>

**Discussion: (15 marks; maximum 900 words)**

<<Delete this text and insert your discussion. What was the product of the reaction and how do you know? Be concise and do not assume the reader already knows the answers. Explain *how* you have interpreted your data and what it means – don’t just summarize the tables without commentary on the significance of the data. Connect your discussion back to the underlying chemistry. Was the reaction successful?>>

**Conclusion: (1 mark)**

**References: (1 mark)**

**Appendices:**

**Additional Graded Components:**

**Prelab: 3 marks**

**Samples & Clean-up: 1 mark**

**Appropriate editing and formatting of the report: 1 mark**