

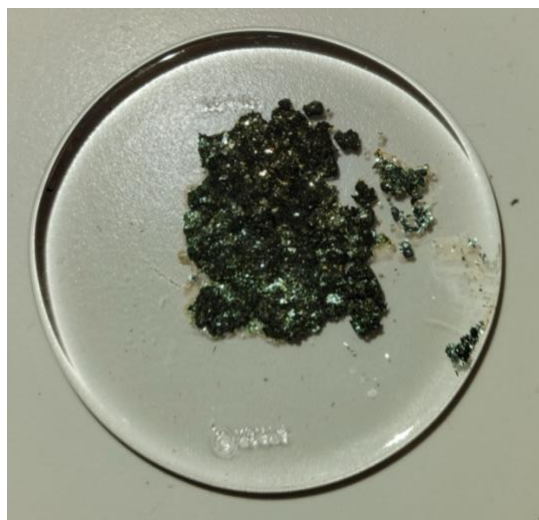
# Chem 101 Lab Note

**Name** : Arfaz Hossain  
**Quad** : 2  
**Lab Section** : B12  
**Date** : November 9, 2023

## Procedure

In the lab experiment, I synthesized tetramethylammonium triiodide ( $\text{NMe}_4\text{I}_3$ ) and Tetramethylammonium Pentaiodide ( $\text{NMe}_4\text{I}_5$ ) by reacting iodine ( $\text{I}_2$ ) with Tetramethylammonium Iodide ( $\text{NMe}_4\text{I}$ ) in a controlled stoichiometry. I weighed approximately 0.521 g of  $\text{NMe}_4\text{I}$  and 0.531 g of  $\text{I}_2$  for the triiodide synthesis, and 0.508 g of  $\text{NMe}_4\text{I}$  and 1.332 g of  $\text{I}_2$  for the pentaiodide synthesis. I dissolved the reactants in 12 mL of 95% ethanol, gently heating the mixture on a hot plate with stirring until complete dissolution occurred. After cooling, I obtained crystalline products (0.146 g  $\text{NMe}_4\text{I}_3$  and 1.329 g  $\text{NMe}_4\text{I}_5$ ). I performed vacuum filtration using a Buchner funnel and filter paper to separate the crystals from the filtrate, washing them twice with hexanes. The crystals were left to dry under vacuum for 10 minutes, and I collected and weighed the samples accurately for further analysis. This method allowed for the controlled synthesis and isolation of tetramethylammonium triiodide and pentaiodide salts.

## Products (Pictures, Colour, Product Names)



**Figure 1:** 0.146 g  $\text{NMe}_4\text{I}_3$



**Figure 2** 1.329 g  $\text{NMe}_4\text{I}_5$

### **3 Chemicals as References**

*Commercial Products:* Iodine, Lot: N9823360 ;  
Tetramethylammonium Iodide ( $\text{NMe}_4\text{I}$ ), Sigma Aldrich, Co., 3050  
Spruce Street, St. Lois, MO 63103 USA 314-771-5765 ; Hexane,  
Anachemia 23H1761046