## ABSTRACT

The utilization of halogen compounds, namely chlorine and bromine, had been widely used in many different sectors. Therefore, the analysis of the halogen compound held an important role. The method for the analysis of the halogen in an organic and an inorganic compound was presented in the study. Usually, there were two separate steps in the analysis of a halogen compound. The first step in the study was the dissolution of the compound into an aqueous phase. For an organohalogen compound, the compound was transformed to become hydrogen halides and it was absorbed into the absorption solution, in which the oxygen combustion flask method was employed. The prepared analyte solution was then titrated against the $AgNO_3$ solution. There were two standard precipitation titration methods employed in the study which were the Fajans and the Mohr titration that utilized visual indicators in the endpoint determination. Another one was the potentiometric precipitation titration which utilized the electrochemical principle that used an electrode as the indicator.

The data analyzed showed that the halogen compound can be determined at as low as **$2.5 \times 10^{-5}$ mol in 5 mL of solution** or equivalent to **0.8863 mg** of chlorine and **$5 \times 10^{-6}$ mol in 5 mL of solution** or equivalent to **0.3995 mg** of bromine. There were three different organohalogen compounds tested in the study, they were 3-Chlorobenzoic acid, 5-Bromovanillin, and 1-Bromo-4-chlorobenzene. Six data samples were taken for 3-Chlorobenzoic acid with a result of **22.80 ± 0.23% Cl (mass fraction recovery %)** with the mean absolute percentage error value (MAPE) of **0.17%**. While for the 5-Bromovanillin and 1-Bromo-4-chlorobenzene, there were 4 data samples taken each. The result of 5-Bromovanillin was **34.23 ± 0.61% Br** with the MAPE value of **0.23%**. The latter one was the 1-Bromo-4-chlorobenzene result, which was **41.05 ± 0.73% Br** with the MAPE value of **0.28%** and **18.70 ± 0.09% Cl** with the MAPE value of **0.18%**. From the data result, it can be concluded that the methods employed in the study were successfully established.

***Keywords***: *Argentometric Titration, Fajans Titration, Mohr Titration, Potentiometric Titration, Oxygen Combustion Flask.*