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Analysis:

Mass of Sn 2.00 g/118.7 g/mol=0.0168 mol Sn

39.71g-39.21g=0.5g O

mass O 0.5 g/16.00 g/mol=0.0313 mol O

0.0313 mol O/0.0168 mol Sn=1.86≈2 O

0.0168 Sn/0.0168 Sn=1 Sn

Empirical Formula=SnO_2

Conclusion:

The purpose of the lab was to determine the empirical formula for a tin-oxygenated product. We achieved this by combining granulated tin and nitric acid, burning out the excess nitric acid and water, and weighing the tin and product to find the moles of tin and oxygen to derive the empirical formula. We got the formula $SnO_{1.86}$, which we rounded to SnO_2, which is the correct formula. We got this formula by calculating the moles of tin, subtracting the final mass from the initial mass, and using that to calculate the moles of oxygen. Then, we divided both answers by the moles of tin to get the empirical formula. If I were to do it again, I would use closer to 5mL of nitric acid, and try to lose less product. Sources of error likely include losing the product from it falling out while heating, and sticking to the stir rod. This would affect the final weight, thus skewing the how much oxygen is calculated, such as with the mole calculations. Not losing any product would have yielded a better result. Other than losing product, everything else went really smoothly.

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