

12 Quantitative Analysis

Table 12.1 Mass Determination

Items	Mass (g)
empty dry beaker	
iron nails (before reaction)	
iron nails (after reaction)	
beaker and dry product	

Table 12.2 Observations

Data Analysis

Mass of iron lost by the nail	
number of moles of iron lost	
mass of the product produced	
number of copper moles produced	
mole ratio of iron to copper	

Conclusions

1. Calculate the percent error in your value for the mole ratio. Your teacher will give you the accepted value. (1 Fe to 1 Cu).

$$\text{percent error} = \frac{|\text{accepted value} - \text{experimental value}|}{\text{accepted value}} \times 100\%$$

- Assuming that one product is iron (II) chloride, write a balanced equation for the reaction. What type of reaction is this?
- Copper could be lost in this experiment during the steps of washing and decanting. How would this effect the iron:copper mole ratio? Explain.
- What other factors might account for any error in your mole ratio?