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Zinc Pyrotechnics Demonstration Worksheet

Discussion Questions

1. Describe what happened in this demonstration.

2. The *exact* mechanism of this reaction is unknown, but it is believed to begin with the heat produced by the addition of water to zinc melting the solid ammonium nitrate.

a) Write a balanced chemical equation showing the volatilization of liquid ammonium nitrate into nitrous oxide and water.

b) The heat from the volatilization reaction causes the zinc to dissolve in the ammonium nitrate. Write a balanced chemical equation for this step.

c) Then, a cloud of white and yellow particles is produced. What do you think this cloud is?

3. Looking over the reaction as it is described above, notice that one of the solids in the original beaker is nowhere mentioned. Propose an idea for what the purpose of the ammonium chloride was.

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