Quest to the Mystery Metal

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The reason behind this experiment was to discover the identity of a material found in an old classroom. In order to accomplish this goal, we observed the physical characteristics of the metal (this is how we refer to the material), tested how it reacted with other substances and finally, conducted a flame test, to try and get more definitive results. The series of tests allowed us to observe many characteristics of the metal. First, we learned that the material is silvery-white, almost lustrous, solid at its normal state, and can be bent easily. At first it appeared to be aluminium, but, using the density formula, we found that it was thicker than a standard piece of aluminum foil should be. Next, we tested for magnetism and found that it was not magnetic. Then, we submerged the metal foil in hydrochloric acid and Tin Chloride, to see if it would dissolve and observed the metal's reactivity trends. Finally, using the dissolved metal in HCl, we conducted a flame test, and compared the color of the flame to other known colors. The number of tests conducted ruled out many metals that this material could not be, such as iron, lead, magnesium, cobalt among others. Some of the last metals it could have been were Tin and Nickel. The flame test and reaction with Tin chloride proved that there was at least a small amount of Tin in the material. We were then able to conclude that the metal must be Tin or a Tin alloy.

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