

**Volcano Stoichiometry Lab**

Many people make “volcanos” in elementary or middle school reacting Baking Soda and Vinegar (Acetic Acid). When baking soda and vinegar react it bubbles and foams due to carbon dioxide gas being released. Today you will make a miniature “volcano” in a beaker. Your job is to calculate how much of each reactant to start with, and to determine how much carbon dioxide gas is produced. The density of vinegar is 1.05 g/mL. When baking soda and vinegar react they form sodium acetate, water and carbon dioxide. You will measure out your grams of baking soda into a beaker and then pour in your volume of vinegar from a graduated cylinder.

**Balanced Equation INCLUDING PHASES!**

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**Based on the phases you determined above, what do you predict will happen to your carbon dioxide? Where will it go?**

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Formula for Baking Soda	Formula for Acetic Acid
Molar Mass of Baking Soda	Molar Mass of Acetic Acid

Molecules of Baking Soda Used	Grams of Baking Used (Show dimensional analysis!)
7.17 x 10 <sup>22</sup> molecules	
Volume of Vinegar Used	Mass of Vinegar Used (calculated with density NOT measured on the scale)
60 mL	

**Vinegar is only 5% Acetic Acid. Using this information calculate the grams of Acetic Acid you used.**

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Mass of Empty Beaker	Mass of Beaker + Reactants (CALCULATED by adding numbers above) <b>DO THIS BEFORE YOU MIX YOUR REACTANTS TOGETHER!!!</b>
Mass of Beaker AFTER Reaction	What do you notice about the mass of your beaker AFTER compared to the mass of the beaker BEFORE the reaction?