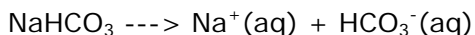


Describing the Chemical Reaction between Baking Soda and Vinegar

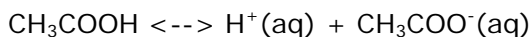
Baking soda, a pure chemical called sodium bicarbonate, has the chemical formula:



When dissolved in water baking soda separates into sodium (Na^+) and bicarbonate ions (HCO_3^-):

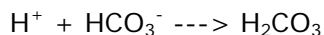


Vinegar, a weak (5%) solution of acetic acid in water, partially dissociates into hydrogen (H^+) and acetate ions (CH_3COO^-):

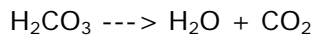


The reaction between baking soda and vinegar is actually two reactions, an acid base reaction followed by a decomposition reaction.

When the two ingredients are mixed, hydrogen ions (H^+) from the vinegar react with the bicarbonate ions (HCO_3^-) from the baking soda to form a new chemical called carbonic acid (H_2CO_3).

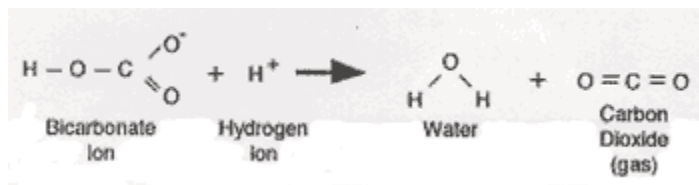


The carbonic acid thus formed then immediately decomposes into carbon dioxide gas (CO_2) and water (H_2O).



It's this carbon dioxide gas that you see bubbling and foaming as soon as you mix baking soda and vinegar together.

Using the molecular structures of only the components **involved**, the chemical reaction can be written:



The overall reaction however, is often written as follows:

