

# Answers to experiment report sheet antacid analysis

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**How to find moles of base in an antacid sample?**

**What technique will be used to determine the effectiveness of an antacid?**

Objective: In this experiment, you will standardize a solution of base using the analytical technique known as titration. Using this standardized solution, you will determine the acid neutralizing power of a commercially available antacid tablet.

**How would we determine the moles of HCl neutralized by just the antacid?**

Therefore, the number of moles of HCl that reacted with the antacid should be equal to the total number of moles of HCl minus the number of moles of excess HCl. Take this amount and divide by the mass of the sample and you have your acid neutralizing capacity.

**How to calculate the amount of moles neutralized?** To find the number of moles of acid neutralized by the tablet, the number of moles of acid neutralized in the titration is subtracted from the moles of acid in the initial solution.

**What is the analysis of an antacid?** Antacids are a combination of various compounds with various salts of calcium, magnesium, and aluminum as active ingredients. The antacids act by neutralizing the acid in the stomach and by inhibiting pepsin, which is a proteolytic enzyme.

**What does an effective antacid contain answer?** Antacid contain an alkaline reactant usually sodium bicarbonate, calcium carbonate, or Aluminium/ Magnesium hydroxide.

**What method is used for quantitative analysis of antacids?** The method used is alkalimetry with a back titration technique, in which excess acid is added to the sample to react with antacids, and the excess acid is titrated using sodium hydroxide with phenolphthalein solution as an indicator.

**How do you determine the neutralizing power of an antacid?** The United States Pharmacopoeia (USP) describes the ANC test as a back-titration method using sodium hydroxide (0.5N solution) to a set endpoint of pH 3.5 to determine the number of milliequivalents of acid (hydrochloric acid 1N solution) neutralized by the minimum labeled dosage (MLD) of an antacid [23].

**What happens when antacid reacts with HCl?** Carbonates are a common active ingredient in antacids, because when the alkaline carbonates react with hydrochloric acid, the products formed are a salt, carbon dioxide gas and water. Hydroxides are also a common active ingredient because when they react with hydrochloric acid, the products formed are salt and water.

**What is the neutralization reaction of antacids?** This limited sol-ubility makes it an ideal compound to use in commercial antacids since it slowly dissolves as it neutralizes stomach acid rather than dissolving all at once. The neutralization reaction is the reaction between  $\text{Mg}(\text{OH})_2$  (a weak base) and  $\text{HCl}$  (a strong acid).

**What is the formula for calculating neutralization?** The general neutralization equation is  $\text{H}^+ \text{A}^- + \text{B}^+ \text{O}^- \rightarrow \text{H}_2\text{O} + \text{A}^- \text{B}^+$ . The pH is the measure of a solution's acidity. The following are types of neutralization reactions: Strong acid + strong base = neutral salt water solution (pH = 7)

**How do I calculate how many moles of HCl that was neutralized by NaOH?** In the neutralization of hydrochloric acid by sodium hydroxide, the mole ratio of acid to base is 1:1. One mole of  $\text{HCl}$  would be fully neutralized by one mole of  $\text{NaOH}$ . If instead the hydrochloric acid was reacted with barium hydroxide, the mole ratio would be 2:1.

**How to find how many moles are needed to neutralize?**

**What is the formula of an antacid?** Calcium hydroxide -  $\text{Ca}(\text{OH})_2$  Magnesium hydroxide -  $\text{Mg}(\text{OH})_2$  Aluminium hydroxide -  $\text{Al}(\text{OH})_3$ . Q.

**What is an antacid answer?** Antacids are a medicine that relieves heartburn and indigestion by reducing the amount of acid in your stomach. Antacids neutralize the acid in your stomach by stopping an enzyme that creates acid to break down food for digestion (pepsin).

**How much acid does an antacid neutralize?** The neutralizing capacity of the antacids, expressed as meq (milliequivalents) per minimum dose of tablets, tea-spoons or capfuls is shown in Table 1. The average meq was 17.2 for tablets, powders and granules and 20.4 for liquids.

**What makes an antacid more effective?** The most effective antacids should have a high acid neutralization capacity and rapid gastric acid neutralization qualities. Antacids such as sodium bicarbonate and calcium carbonate have the greatest neutralizing capacity but are not used for long periods of time due to adverse events.

**What are the two main components of antacids?** Most commercial antacids contain two or more components. The most common combinations are varying concentrations of sodium hydroxide and aluminum hydroxide. Some widely advertised brands, those with additional components and those containing greater concentrations of the effective ingredients, tend to cost more.

**How do antacids work in chemistry?** Antacids are relative simply assembled salts and salt-like compounds which neutralize acids. This neutralization reactions lead to several products (other salts, water, and possibly carbondioxid), resulting in steps, like hydrolysis and precipitations of insoluble compounds.

**What is the purpose of analysis of antacids?** In this experiment, several brands of antacids will be analyzed to determine the number of moles of acid neutralized per tablet and the cost analysis of each tablet. The analytical procedure used is known as back titration.

**How could the effectiveness of an antacid be tested in a laboratory?** By using titration methods, students can compare the effectiveness, both the cost and the mass, of varying brands of antacid tablets. Titrations is a laboratory technique used to determine the quantity of an unknown reagent (called analyte) by adding a reagent (called titrant) with a known concentration.

**What is the determination of quantitative analysis?** The quantitative determination of a substance by precipitation, followed by isolation and weighing of the precipitate is called gravimetric analysis. Quantitative analysis is used to determine the percentage of a particular element or ion in a sample.

**How do you find moles of base in a titration?**

**How do you find the moles of a substance in a sample?** To calculate the number of moles of any substance in the sample, we simply divide the given weight of the substance by its molar mass.

**What is the formula for calculating the molarity of a base?** Molarity (M) is defined as the moles of solute (mol) per the liter (L) volume of solution. The molarity formula is:  $\text{Molarity (M)} = \text{moles of solute} / \text{liter of solution}$ .

**How do you find the base of an acid?** The pH scale is the most common and trusted way to measure how acidic or basic a substance is. A pH scale measure can vary from 0 to 14, where 0 is the most acidic and 14 is the most basic a substance can be. Another way to check if a substance is acidic or basic is to use litmus paper.

**What is the formula for calculating acid-base titration?** Note: Many titration calculations use the formula  $M_1V_1 = M_2V_2$ , where M stands for molarity and V stands for volume, but this formula works only if the molar ratio of acid to base is 1:1. You are always safe if you use the molar ratios explicitly in your calculations.

**How to calculate the molarity of NaOH in an acid-base titration?**

**How many moles of base are needed to neutralize one mole of acid?** For example, in a neutralization reaction, stoichiometry tells us how many moles of a base are needed to neutralize a given number of moles of an acid. Neutralizing 1 mole of HCl requires 1 mole of NaOH based on their one-to-one ratio in the balanced chemical equation.

**How do I calculate moles?** If you want to know how many moles of a material you have, divide the mass of the material by its molar mass. The molar mass of a substance is the mass in grams of one mole of that substance. This mass is given by the atomic weight of the chemical unit that makes up that substance in atomic mass

units (amu).

### **How to find moles with molarity and volume?**

**How to calculate the number of molecules?** - To calculate the required number of molecules, firstly calculate the molecular weight of the substance for one mole followed by dividing the molar mass value to the molecular mass and then multiplying it by the Avogadro constant.

### **How to calculate the concentration of an acid in a titration?**

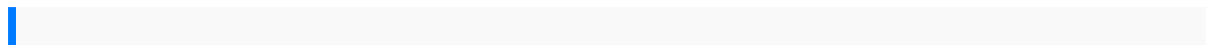
**How to calculate the mole of an acid?** To calculate the moles, divide the mass of the acid (in grams) by the molar mass of the acid (in g/mol). For example, if you have 30 grams of hydrochloric acid, the molar mass of HCl is 36.46 g/mol, so the calculation would be:  $\text{moles} = 30\text{g} / 36.46 \text{ g/mol} = 0.82 \text{ moles}$ .

**How do you solve for molarity step by step?** Molarity is the number of moles of solute per liter of solution. The formula to calculate molarity is:  $\text{molarity} = \text{moles of solute} / \text{liters of solution}$ .

### **How do you write an acid-base equation?**

**How do you calculate the acidity of a base?** The acidity of a base is equal to the number of hydroxyl ions present in it. As bases have low hydrogen ions levels, they have high pH values. The number of  $\text{H}^+$  and  $\text{OH}^-$  ions created determines the strength of acids and bases. Strong acids produce a large amount of  $\text{H}^+$  ions or vice versa.

**How to balance chemical equations?** So how do you go about balancing an equation? These are the steps: First, count the atoms on each side. Second, change the coefficient of one of the substances. Third, count the numbers of atoms again and, from there, repeat steps two and three until you've balanced the equation.



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