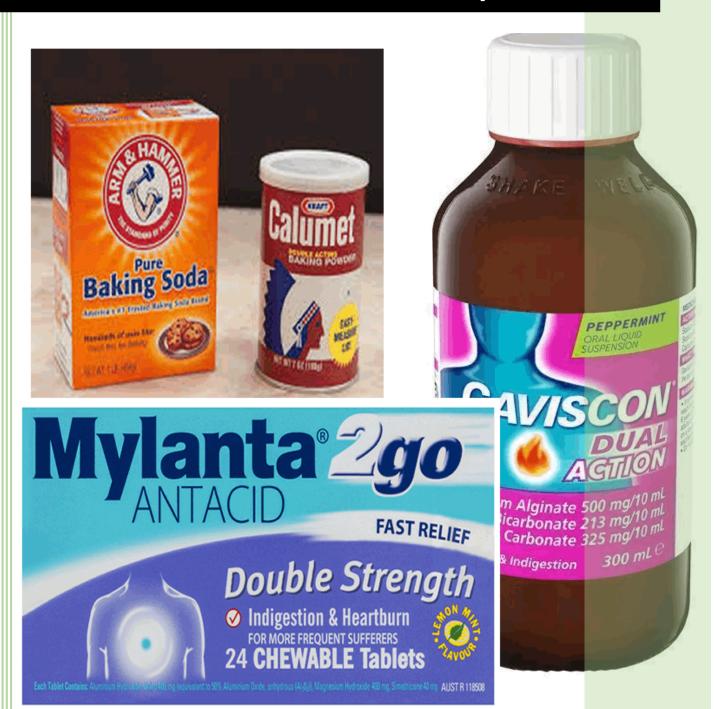
# Acids and bases in daily life



Peter Razos

# **Acids and Bases**

#### In every day life.

1. Give the balanced overall and ionic equations, states included, for the acid base reaction

View the accompanying video on the website for answers and background information.

taking place with HCl in the stomach for the following ingredients found in antacids.				
a.	Magnesium hydroxide (Mg(OH) <sub>2</sub> )			
	i.	Overall		
	ii.	lonic		
b.	Alumir	nium hydroxide (Al(OH) <sub>3</sub> )		
	i.	Overall		
	ii.	lonic		
c.	Calciur	n carbonate (CaCO₃)		
	i.	Overall		
	ii.	lonic		
d.	Sodiun	n hydrogen carbonate (NaHCO₃)		
	i.	Overall		
	ii.	Ionic		

2. Mylanta is a registered off-the -shelf antacid medication.



- a. The packaging clearly gives the amount of each active ingredient in mg.
   Aluminium hydroxide = 400 mg
   Magnesium hydroxide = 400 mg
  - i. Give the chemical formulae of each active ingredient.

\_\_\_\_\_

- ii. Find the percentage composition of OH- in each of the two active ingredients.
  - Aluminium hydroxide.
  - Magnesium hydroxide
- iii. Given that an average tablet of Mylanta has a mass of 2.00 g, give the combined concentration of, OH<sup>-</sup> in %m/m, found in each tablet.

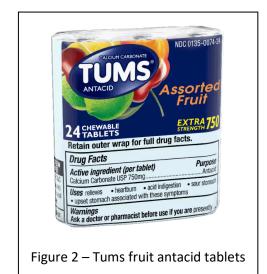
c. A student places a finely crushed Mylanta tablet in a 100 mL conical flask filled with 50 mL of distilled water and stirs the mixture until the tablet is fully dissolved. The contents of the conical flask is the titrated against a standard, 1.00 M HCl. Calculate the average titre expected in mL.	
	C.
d. Using table 1 comment on why aluminium hydroxide and magnesium hydroxide are both present in Mylanta when one will act as effective antacid?    Construction   Construct	d.

A template for you to follow, if needed, when writing a scientific report. See the accompanying video on the website.

# Scientific Investigation Report

Investigation: Determining the calcium carbonate content of antacid tablets

Student Name: _	 	
Class:	 	
Date:	 	



#### Title

The title of a quantitative research investigation should include the independent and dependent variables to clearly show the relationship being studied

# Background

Provide scientific background information about the reaction between calcium carbonate and acids. Include balanced equations and any relevant chemical theory.

#### Hypothesis

State your hypothesis clearly written in the form If [cause], then [effect], because [scientific reason]

#### Safety

Hazard / Risk	Mitigation / Safety Measure	Action taken if hazard happens

#### Variables

independent variable one only):	
Dependent Variable (one only):	-
Controlled Variables (all possible variables):	

# Materials

A detailed and comprehensive list of materials.

#### Procedure

Write numbered, step-by-step instructions for your titration. Include detail of apparatus (eg. 100mL beaker), volumes, and concentrations. Use repeat statements.

# Results

Record all your titration readings and calculations in a properly formatted table for trial and average titres.

#### Discussion

Consider the following questions when discussing your results. Always refer to data you have collected.

- Were your titration results **consistent (precise)** between trials? Refer to your data.
- Were your measurements close to the expected value (accurate)?
- What **errors** may have affected your results, such as reading the burette incorrectly, incomplete reaction?
- Does your calculated CaCO<sub>3</sub> content agree with the manufacturer's claim?
- What limitations existed and what improvements could be made next time?

# Conclusion

**Restates the hypothesis** in brief.

State whether the hypothesis was supported or not supported.

Summarises the main evidence from the data (e.g calculated mass of CaCO<sub>3</sub>).