

Volcanic Eruptions

We know from our previous lab that magma can either be very *viscous* or it can be thin and runny. The type of eruption that a volcano experiences is in large part due to the type of magma found in the magma chamber. Volcanoes with less viscous magma have very different eruptions than volcanoes with viscous magma.

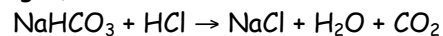
Part I: Escaping Gas

On your lab table are two cups. One is filled with water and one is filled with corn syrup. Using the straws, blow bubbles into each of these liquids.

- Which liquid is more viscous?
- Observe which liquid allows gas to escape more easily. Listen to the sounds of the bubbles - how do they compare?
- Which liquid do the bubbles rise faster in?
- Do the bubbles get trapped in either liquid? Why would this happen?

Part II: Gas Pressure

Now we will observe what happens if gas is able to escape freely or if it gets trapped, causing the *gas pressure* build up. Red glitter will be used to represent volcanic ash and tephra. Lemon juice (HCl) and sodium bicarbonate (NaHCO₃), baking soda, will be used to create our eruption. When lemon juice and baking soda are mixed, they produce salt, water and carbon dioxide (a gas).



Eruption #1:

- Add half of your red glitter to the bottom of your film canister
- Add 1 spoonful of sodium bicarbonate and 2 spoonfuls of lemon juice to the film canister
- Rest the lid on the canister, but do not completely close it
- Describe your observations:
 - What happens to the gas that is produced?
 - What happened to the glitter?
 - If ash and tephra were ejected from the canister, trace out the eruption pattern on your newspaper.
 - When the eruption is over, dump out the remaining liquids on to the newspaper and rinse out your canister. Use a paper towel to dry the inside of the canister before continuing to the second eruption.

