

# Popping Canisters

**Time:** 5 minutes

**Materials:** film canisters + lids / effervescent tablets<sup>1</sup> / water / paper towel

<sup>1</sup> e.g. vitamin tablets such as Berocca

**Preparation:** none (assess risks of flying canisters/loud popping noises)

**Summary:** Demonstrate the explosive force of trapped gas by allowing CO<sub>2</sub> from effervescent tablets to build up in a sealed container and then 'pop'.

**Instructions:** (for a large class, this can be carried out in groups)

1. Fill one canister  $\frac{1}{4}$  full of water, and another  $\frac{3}{4}$  full – ensure lids are to hand
2. Break an effervescent tablet in half
3. At the same time, drop half of the tablet in each canister, put the lids on firmly and turn the canisters upside down
4. Stand back and wait for the canisters to pop, observing which pops first and which pops most forcefully/highest
5. Clean up using paper towel!

**Concepts/explanations:**

This is a useful demonstration to show that gas is a major driving force for violent volcanic eruptions (e.g. Vesuvius, Montserrat, Mount St. Helens).

The canister with more water should pop first as the gas inside will quickly run out of space to fill, but the canister with less water should pop more forcefully as more gas and therefore more force has built up. In volcanoes, if the magma contains less gas or the gas can easily escape, eruptions will generally be more *effusive*. However, if the magma is more viscous (sticky, generally due to +silica) expanding gas can force the magma out creating an *explosive* eruption.