

## Production of a gas—Controlling a chemical reaction

### How can you control the amount of gas produced in a baking soda and vinegar reaction?

The amount of baking soda and vinegar used in the demonstration caused the foam to overflow. You will need to adjust the amounts to create a column of foam that rises to the top of the graduated cylinder without overflowing.



#### Procedure

1. Record the amount of vinegar and baking soda you plan to use.
2. Use a graduated cylinder to measure the vinegar. Remember that the bottom of the meniscus should touch the line.
3. Pour the vinegar in a small cup and add 1 drop of detergent. Swirl gently to mix.
4. Add baking soda to the empty graduated cylinder.
5. Stand the graduated cylinder in the center of a plastic waste container.
6. Pour the vinegar and detergent from the cup into the graduated cylinder.
7. Describe the level the foam reached either by the number of milliliters it reaches or using words such as *almost to the top*, *barely overflowed*, etc.
8. Use a sink or a squirt bottle held over a waste container to rinse out the graduated cylinder.

1. Be sure to record the amounts you used and your results in the chart below.

Trials	Demonstration	1st trial	2nd trial	3rd trial
Vinegar	10 ml			
Baking soda	$\frac{1}{2}$ teaspoon			
Detergent	1 drop	1 drop	1 drop	1 drop
How close did the foam get to the top of the cylinder?	It overflowed a lot.			

2. What amount of vinegar and baking soda created a foam that rose to the top of the graduated cylinder without overflowing?

Vinegar \_\_\_\_\_

Baking soda \_\_\_\_\_

Detergent \_\_\_\_\_ 1 drop \_\_\_\_\_