University of Utah Chemistry Demonstration:

Elephant's Toothpaste

<u>Reagents</u>
For 2 L graduated cylinder:

50 mL 30% H_2O_2
~ 5 mL dish soap
~ 8 g KI
Food coloring

For 6 L volumetric flask:

100 mL 30% H_2O_2
~ 10 mL dish soap
~ 15 g KI
Food coloring optional
Long matches

<u>Instructions:</u>
Since this reaction will fizz over, place graduated cylinder/volumetric flask in something easy for clean up (we recommend using the large rectangular plastic container). **Be sure to wear gloves when handling the hydrogen peroxide.**
- Add H_2O_2 to the graduated cylinder/volumetric flask – please measure carefully as the cost of the H_2O_2 is significant.
- Add dish soap
- If you like, add food coloring
- Add KI

The reaction will occur instantaneously. The reaction is exothermic. The foam generated is hot.

If you use the volumetric flask you can light a long match and drop it into the flask. Turn off the lights in the room, and you can see the oxygen in the flask light on fire. This will burn out shortly.

<u>Disposal:</u> Once the foam has cooled, clean up the foam and rinse down the drain.

Before the KI is added to the flask, H_2O_2 is very slowly breaking down into H_2O and O_2. KI is added to act as a catalyst. As H_2O_2 rapidly breaks down, the soap combines with the H_2O and turns into foam. The O_2 gas also produced will push out, which makes the foam shoot out of the flask. Because there is an excess of O_2 produced, when you drop a match into the flask the O_2 bubbles will catch on fire.