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Elephant's Toothpaste

This classic experiment has been done many times with many variations. This version has been painstakingly perfected by “Science Bob” Pflugfelder to produce the best possible results with these narrow mouth 5 Liter Erlenmeyer Flasks and is the formula used in his world record demonstration. Of course, you can use the flask with many other versions of this experiment (or any other use), but this provides by far the most dramatic Elephant's Toothpaste results.

CAUTION – READ THOUGHLY BEFORE PROCEEDING:

The foam produced can exit the flask to a height of 3 to 5 meters (~10' – 15') and can stain some surfaces, therefore it is usually best to perform this demonstration outdoors.



Hydrogen Peroxide, 30% acts as an oxidizing agent with almost any substance. This substance is severely corrosive to the skin, eyes, and respiratory tract; a very strong oxidant; and a dangerous fire and explosion risk. Do not heat this substance.

Wear appropriate chemical splash goggles, chemical-resistant gloves, and a chemical-resistant apron.

Sodium Iodide is slightly toxic by ingestion.

Although dishwashing liquid is considered non-hazardous, do not ingest.

Do not stand over the reaction; steam and oxygen are produced quickly.

Note that the reaction is exothermic and generates temperatures up to 93°C (200°F), so take appropriate precautions.

Materials Required:

250ml of 30% H₂O₂ (Hydrogen Peroxide)

20g NaI (Sodium Iodide) Powder

75ml Distilled Water

20ml Dish Soap

10ml Food Coloring of your choice

Instructions:

Place 250ml of 30% H_2O_2 into the Flask, following the safety notes above. Add 20ml of dish soap and 10ml of food coloring of your choice. Carefully swirl the flask to mix the three components. In a beaker, mix 20g of Sodium Iodide powder with 75ml of distilled water. Be sure to dissolve completely.

When ready, and wearing the safety equipment noted above, rapidly pour the contents of the beaker into the flask, and immediately back off to a safe distance.
Enjoy the show!

Clean up: Note that the foam produced is not particularly hazardous, but should, nonetheless, be handled with protective gear, as there may be traces of un-reacted peroxide present. For cleanup, rinse thoroughly down the drain with plenty of water.