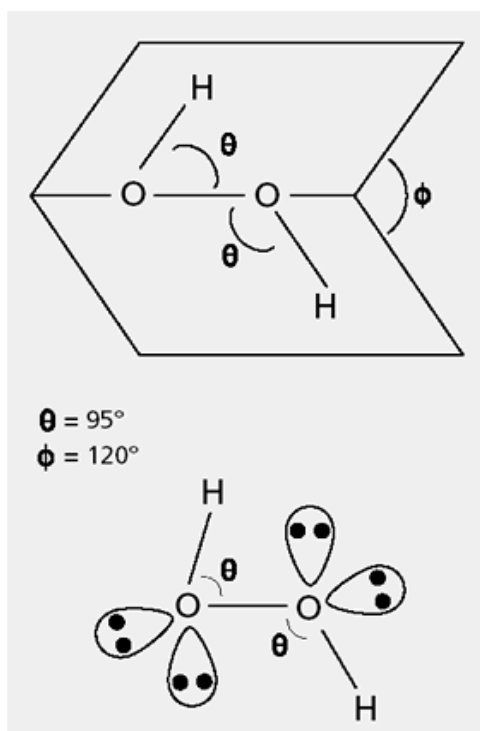


What sank the Kursk nuclear submarine?

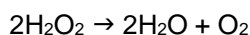
Did you know?

About hydrogen peroxide

Hydrogen peroxide has the formula H_2O_2 - water with an extra oxygen atom. The structure is:-



Hydrogen peroxide is a very pale blue liquid at room temperature. A French scientist called Louis Auguste Thenard discovered the compound in 1818. Hydrogen peroxide can easily break down, or decompose, into water and oxygen by breaking up into two very reactive parts - either 2OHs or an H and HO_2 :



If there are no other molecules to react with, the parts will form water and oxygen gas as these are more stable than the original molecule, H_2O_2 . The reaction happens slowly while hydrogen peroxide is stored, because unevenness in the container's surface can help to split the molecule - one part gets stuck to the surface while the other part pulls away. So, before too long, a bottle of hydrogen peroxide will react to form water! This is why every bottle of hydrogen peroxide has a hole or vent in the cap to allow oxygen gas to escape.

Hydrogen peroxide was used first to bleach straw for straw hats, which were fashionable in the early 1900s when the chemical was first available. Bleaching means 'lose colour'. The colour in straw is lost when part of the hydrogen peroxide molecule bonds with the colour-causing molecule. The new molecule does not reflect light in the same way as the original, so the colour is seen as much lighter. The same reaction happens when hydrogen peroxide is used on hair - a dark hair pigment molecule is seen as blonde after treatment. A false blonde hair colour used to be called 'peroxide blonde'. This is how the famous film star Marilyn Monroe got her hair colour!

Hydrogen peroxide has been used as a propellant in rockets and torpedoes. This is because the decomposition reaction can be speeded up greatly by adding a catalyst. Producing a large volume of gas in a short time and small space creates a lot of power. In the experiment you can investigate the most effective catalysts for the decomposition.

Hydrogen peroxide concentration is measured differently from that of most other chemicals. Bottles are labelled '10 volume' or '20 volume'. '10 volume' means that 10 cm^3 of oxygen gas is produced by every 1 cm^3 of hydrogen peroxide.

