Hydrogen Peroxide Encyclopedia Article

Hydrogen Peroxide

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Hydrogen Peroxide

Like **water** (H_2, **hydrogen** peroxide is a compound of hydrogen and **oxygen**. However, as the its formula (H_2O_2) indicates, water are quite different. At room **temperature**, hydrogen peroxide is a pale-blue, syrupy, weakly acidic liquid. Pure, it is a stable compound, but any impurities, such as dust, may cause an explosive decomposition to oxygen and water. Since this explosive reaction is always a possibility, hydrogen peroxide is stored in bottles that allow the release of oxygen.

Typically, hydrogen peroxide is an oxidizing and reducing agent. As an oxidizing agent, it is used to oxidize particular water pollutants, such as hydrogen sulfide (H_2S). For example, when hydrogen sulfide is exposed to hydrogen peroxide, it oxidizes to **sulfate ion** (SO_4^{2}), which is not toxic.

In everyday life, hydrogen peroxide (a 3% solution) is used as an antiseptic. When hydrogen peroxide is applied to a superficial wound, it is reduced to oxygen and water by the action of a particular **enzyme**, catalase, which is found in blood and tissue.

Used as a hair bleach, hydrogen peroxide is also effective for bleaching **paper** pulp and textiles. It is also used in the manufacture of rocket fuels.