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## An Everyday Substance, Potent When Concentrated

By [KENNETH CHANG](#)

Hydrogen peroxide, the chemical that the German police say two terrorism suspects planned to use to make bombs, is a simple molecule — two oxygen atoms and two hydrogen atoms — with myriad uses.

The hydrogen peroxide available in drugstores is just 3 percent hydrogen peroxide by weight; the other 97 percent is water. Such highly dilute solutions are used to bleach hair and disinfect wounds. But at greater concentrations, above 70 percent, hydrogen peroxide can be used as a rocket propellant — or as an ingredient for explosives.

The suspects arrested in [Germany](#) on Tuesday had obtained 1,500 pounds of moderately concentrated solution, made up of 35 percent hydrogen peroxide.

That concentration is potent enough to make at least one type of explosive. If the hydrogen peroxide were mixed with acetone — the primary ingredient of most nail polish removers — the resulting chemical reactions could generate significant amounts of the explosive triacetone triperoxide, or TATP.

TATP, which can be used as a detonator or as a primary explosive, has been used by [Palestinian](#) suicide bombers and is believed to have been the explosive in the attacks on the London transit system in 2005.

German officials said the peroxide could have been made into an explosive equivalent to 1,200 pounds of TNT. However, investigators have not said what other chemicals they found or what they believed the suspects planned to make.

Outside experts like George Smith, a senior fellow at the research organization [GlobalSecurity.org](#), said that without additional information, it was not possible to guess the size of the threat. “That they accumulated so much material certainly deserved scrutiny,” Dr. Smith said.

Common industrial uses for 35 percent hydrogen peroxide solution include the bleaching of wood pulp for paper production and the treatment of wastewater. “You have an everyday product, more or less, that is used under normal circumstances to improve people’s lives,” said William Gullledge, manager of the hydrogen peroxide panel at the American Chemistry Council, an industry group.

While 35 percent hydrogen peroxide solution is readily available for purchase, even over the Internet, “I think 1,500 pounds would draw someone’s attention pretty quick,” Mr. Gullledge said.

The federal Department of Transportation regulates solutions containing 8 percent or more hydrogen peroxide by weight as hazardous materials.

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## Fact-Based Article Analysis

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