

## Incompatible Chemicals Explosion

In the 1980's a postdoctoral researcher was involved in a chemical explosion in the UCSB Chemistry building. He inappropriately mixed a strong oxidizing acid (nitric acid) with organic solvents inside a waste container within a fume hood. He walked away from the hood (fortunately) at which time the reaction mixture exploded causing a flash fire within the hood. The student was lucky to escape uninjured and the fire was extinguished.



*The fume hood was seriously damaged. Note the damage to the hood back wall and how the ductwork above the hood is askew. Note also the gas lecture bottles which could have been compromised - hoods should be for chemical use, not chemical storage.*



*The shock wave from the blast continued up through the hood ductwork and into the corridor where a secondary explosion blew out the false ceiling panels.*

When oxidizers and organic materials are mixed a strong, often violent, oxidation-reduction reaction will occur.

Similar, but smaller scale reactions have occurred at other times on campus – once in Biology and once in Physics. Luckily, no one was injured by flying glass, but easily could have been if they had been in the immediate vicinity. In all instances the mixing of incompatible chemicals occurred while consolidating waste chemicals. It is important to understand the properties of all chemicals that one uses. Consult the product label and Material Safety Data Sheet before beginning work. If unsure – ask.