

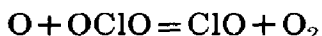
- Acquisition and costs of reagents
- Typical stabilization/solidification equipment

Together these two reports make an excellent book. However, the Noyes Data editors have added a third approximately 150-page section reproducing the speaker's slides and (limited) supporting information from the U.S. EPA's Immobilization Technology Seminar. While much valuable information is transmitted its value is limited without seminar attendance. Personally, I would not have published this material.

GARY F. BENNETT

Report on OCIO Explosion Mishap Investigation Board Report of Small Explosion of OCIO and Ethanol in Building 2A Chemistry Laboratory, May 24, 1991, Goddard Space Flight Center, Health and Safety Branch/Code 205.2, Greenbelt, MD 20771, released October 3, 1991, 15 pp., No charge.

Oxides of chlorine are known to be unstable and explosive. In the Spring atmospheres of the earth's polar regions, chlorine dioxide is suspected to be a key ingredient in the removal of protective ozone from the stratosphere. The purpose of the experiment was to measure the rate coefficient for the reaction



Previous explosions of relatively minor magnitude had been reported, which prompted metal shields around the glass bulbs containing OCIO and its vapors, plexiglass shields separating parts of the glass apparatus, and personal protection (face shields). Helium was used to dilute the OCIO and its vapors, and as a "pusher" gas to insure the ready flow of OCIO into the reactor.

On May 24, 1991, a Teflon stopcock was opened to permit flow of stabilized OCIO vapors at 120 torr and -30°C into a 2 liter bulb called the expansion bulb. Dissociation of the OCIO for an unknown reason is the likely initiator of the explosion. Ethanol, used to help cool the OCIO at -30°C was the likely fuel. In the explosion, the expansion bulb, the cold-bath Dewar, associated glass tubing and stopcocks were destroyed. Damage to the laboratory was significant. Two chemists operating the experiment were injured by flying glass, although protective equipment minimized the injuries. One received second- and third-degree burns, principally to arms when his clothing ignited. The other chemist received severe cuts due to flying glass. Both were transported to the Washington Hospital Center by helicopter. One was released after overnight observation, but the second was hospitalized for a week and received skin grafts. No further investigations of this reaction are planned at Goddard.

HOWARD H. FAWCETT