



Explosion in a Drying Oven

An explosion was recently reported in a laboratory drying oven, resulting in severe damage to the oven. As in many schools, the oven contained a variety of samples, with some of uncertain identity and doubtful provenance. However it is likely that, in this case, the cause of the explosion was traces of ethanol vapour.

An organic compound had been recrystallised from ethanol and left in the oven to allow the last few drops of solvent to evaporate. Ethanol/air mixtures will explode with as little as 3.3% ethanol, i.e. less than 2.3 g in an oven of typical size. Most such ovens (and refrigerators) will tend to spark when the thermostatic switch operates, thus there is a ready source of ignition. This explosion emphasises the dangers of ethanol, and reinforces the two notes which appeared in *Education in Science* in January 1986. It is neither necessary nor desirable to use an oven to dry crystals in this way; such flammable solvents as ethoxyethane (ether), ethanol, and propanone (acetone) present particular dangers.