19.13.1: Lecture Demonstrations on Mass Energy Relationships

Get an idea of the magnitude of binding energy by comparing the energy produced by exploding a hydrogen/oxygen mixture in a balloon with 400 mL hydrogen and 200 mL oxygen (about 0.04 g of hydrogen). Alternatively, soap bubbles with the mixture can be exploded. Caution: No bigger! Loud! Use hearing protectors.

With ΔE ~-125 kJ/g, this will give about 5 kJ. Compare to the binding energy for deuterium:

3.57×10^{-13}J/atom x (1 atom / 2.14 amu) x (1 amu / 1.66×10^{-24} g)

$= 1.0 \times 10^{11}$ J/g

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