

7.4.1: Lecture Demonstrations

The concepts of VSEPR are illustrated with NH_3 and NI_3 . NI_3 actually has a central N surrounded by four very large I atoms^[1], which sterically repel, leading to the sensitivity of NI_3 (better, $\text{NI}_3 \cdot \text{NH}_3$) to explosive detonation.

Prepare NI_3 according to ^[2]: "Specifically, 0.2-0.3 g of iodine are placed in a 30-ki beaker with 5 mL of concentrated aqueous ammonia and stirred briefly. The mixture is allowed to stand for 5 min, and the supernatant liquid is decanted from the brown solid. It is then washed 5 times with water that is decanted off each time after allowing most of the brown solid to settle. The brown solid is then scraped onto a few pieces of filter paper and patted to absorb most of the water, then scraped onto a new filter paper. In our hands the nitrogen triiodide always has exploded totally 45 min later when touched with a long pole."

1. J. Chem. Educ., 2002, 79 (5), p 558
2. J. Chem. Educ., 1993, 70 (11), p 943

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