

Chemical reactions of the rare earth diantimonides were found to be very similar. The compounds were treated with one normal solutions of HCl, HNO<sub>3</sub>, H<sub>2</sub>SO<sub>4</sub> and NH<sub>4</sub>OH and with H<sub>2</sub>O, acetone, methanol and anisole. No reactions occurred with any of the organic solvents during 24 hours exposure. All diantimonides, including both crystal forms, reacted similarly to the inorganic reagents used. The samples reacted with one normal acid solutions with rapid gas evolution initially which slowed after a few minutes and eventually stopped. After two days the samples were taken to dryness and a metallic residue plus a salt were obtained. The metallic residue was identified as pure antimony in all cases by X ray diffraction analysis. The salts from HCl were mostly pale yellow, from HNO<sub>3</sub> either white or light yellow and from H<sub>2</sub>SO<sub>4</sub> either white or colorless. It is presumed that these salts were the salts of the rare earths and the corresponding acid.

All compounds reacted with H<sub>2</sub>O and one normal NH<sub>4</sub>OH with very slow gas evolution. Residues from these reactions after two days were very similar. X ray diffraction analysis showed antimony metal was present in the residue along with a very complex pattern which was probably the rare earth oxide.

The diantimonides were quite stable when stored in a dessicator or even when exposed to the atmosphere. No decomposition was detected by X ray diffraction analysis