

X. CONCLUSIONS

The goals of this research were to investigate the rare earth diantimonides to determine if compounds which could not be made by ordinary techniques could be synthesized under high pressure, high temperature conditions and to transform the heavy rare earth sesquisulfides to the cubic form. Both of these goals were accomplished.

A total of eight new compounds were synthesized in the rare earth diantimonides. Besides the eight new compounds eight new polymorphs were made. This shows the powerful applicability of high pressure, high temperature techniques to the field of inorganic synthesis.

Several additional series of rare earth compounds could probably be synthesized using these techniques. The work of Wang and Steinfink (1) suggests that the rare earth diarsenides, disellinides, ditellurides and others might yield additional compounds. In fact, compilations such as "Rare Earth Intermetallic Compounds" by McMasters and Gschneidner (42) have revealed enough incomplete series of rare earth compounds to furnish high pressure workers with almost endless possibilities for productive research.