## ABSTRACT

The microstructure and physical properties of dense oxides prepared at ultrahigh pressure and low temperature have been studied. Completely dense, transparent magnesium oxide has been prepared in submicron grain sizes with hardness values twice that of single crystal material and 30 to 50 percent greater than that of hot pressed material. A new modification of samarium oxyhydroxide has been found and characterized. X-ray determinations of the compressibility of alkali halides (RbCl, RbBr) are reported.

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