this hydroxide is not the same as the high pressure modification prepared by Shafer and Roy. It is derived from a high-pressure modification of SmOOH.

In addition to these studies, high pressure x-ray diffraction studies have been performed with a camera similar to that described by Mariano. In this camera, high pressure is achieved between diamond anvils. A collimated beam is brought through one diamond. The diffracted rays pass out through the other diamond and impinge on a flat photographic plate or film.

With powder specimens, Debye rings are formed and the interplanar spacings d may be calculated from the formula

$$d = \frac{\lambda}{\sqrt{2}\left[1 - (1/1 + x^2)^{1/2}\right]^{1/2}}$$

where λ is the wavelength of the radiation employed and x is the ratio of the measured radius of the Debye ring to the sample-to-film distance.

The compressibility β_T is defined as $-1/V\ (\partial V/\partial P)_T$ but this is just three times the linear dilatation $1/d\ (\partial d/\partial P)$. Differentiating the expression above with respect to pressure, we can obtain

$$\beta = \frac{3X \quad \partial X/\partial P}{2\ (1 + x^2)\ \left[(1 + x^2)^{1/2} - 1\right]}$$

or for finite changes

$$\beta = \frac{3X \quad \Delta X/\Delta P}{2\ (1 + x^2)\ \left[(1 + x^2)^{1/2} - 1\right]}$$