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High Temperature X-ray Diffraction Study to Determine the Thermal Expansion of Perovskite Based Microwave Materials. C.J. Rawn¹, P.K. Davies², N. Yongvanich², T. Negas³, ¹Metals and Ceramics Div., Oak Ridge National Laboratory, Oak Ridge, TN 37831, ²Dept. of Materials Science and Engineering, Univ. of Pennsylvania, Philadelphia, PA 19104, ³TCI Ceramics, Hagerstown, MD 21742.

To examine issues related to the ordering of cations in $\text{Ba}(\text{Ni}_{1/3}\text{Ta}_{2/3})\text{O}_3$ high temperature x-ray diffraction (HTXRD) data have been collected to determine the coefficients of thermal expansion in the *a* and *c*-directions. It is possible that some observations might be explained in terms of different thermal expansion coefficients of the ordered and disordered polymorphs. The HTXRD results will be compared to those obtain using dilatometry to explore the difference in expansion between a dense ceramic sample and a powder.

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