

Abstract Submitted
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Structural Studies of Technetium and Rhenium Oxides¹ EFRAIN E. RODRIGUEZ , Materials Research Laboratory, University of California, Santa Barbara & Manuel Lujan Neutron Scattering Center, Los Alamos National Laboratory, FREDERIC POINEAU, Harry Reid Center for Environmental Studies, University of Nevada, Las Vegas, ANNA LLOBET, Manuel Lujan Neutron Scattering Center, Los Alamos National Laboratory, ALFRED P. SATTELBERGER, Argonne National Laboratory, KEN CZERWINSKI, Harry Reid Center for Environmental Studies, University of Nevada, Las Vegas, ANTHONY K. CHEETHAM, Materials Research Laboratory, University of California, Santa Barbara — The oxide chemistry of technetium-99 ($t_{1/2} = 2.12 \times 10^5$ y) has not been investigated to any significant extent and presents an opportunity to explore new structural, electronic and magnetic regimes. The chemistry of rhenium broadly resembles that of technetium, and although ReO_3 is a widely studied material with a prototypic structure, it exhibits an unusual thermal expansion evolution that we have studied using neutron powder diffraction. The results of the thermal expansion study will be presented. The structural study of TcO_2 and of a new ternary oxide containing technetium and bismuth $\text{Bi}_2\text{Tc}_2\text{O}_7$ will be also presented and discussed. Some new reactions of TcO_2 and other oxides of heavy elements will be described.

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