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Abstracts of Forthcoming Articles

A Study of the MgO–V_2O_5 System. G. M. Clark and R. Morley, Department of Applied Chemical and Biological Sciences, The Polytechnic, Huddersfield HD1 3DH, England. An investigation was made of solid–solid reactions in MgO/V_2O_5 mixtures of various stoichiometries. Three compounds were obtained, viz. $Mg_3V_2O_8$, $Mg_2V_2O_7$, and MgV_2O_6; no evidence was obtained to indicate formation of other $MgO–V_2O_5$ compounds reported in the literature. DTA data are listed for the three compounds and some observations are made on the mechanism of formation of the compounds. A new polymorph of $Mg_2V_2O_7$ was prepared and its space group and cell parameters were deduced from the X-ray powder diffraction pattern. This polymorph undergoes a transition, reversible with difficulty, at 980–990°K.

Structure Cristalline des Hydroxytellurites de Nickel et de Cobalt. G. Perez and F. Lasserre, Lab de Chimie Minerale Structurale, 6 blvd de Broglie, 76130 Mont Saint Aignan, France and J. Moret and M. Maurin, Lab de Chimie Minerale C, Universite des Sciences et Techniques du Languedoc, 34060 Montpellier, France. The hydroxytellurites of nickel and cobalt crystallize in the hexagonal system. Parameters are $a = 12.693$, $c = 4.958$ Å and $a = 13.034$, $c = 5.016$ Å, respectively. The space group is $P6_3mc$ (C_{6v}^4). The Ni and Co atoms are located in oxygen octahedra sharing common faces. The chains of octahedra are joined to each other through corner sharing and are disposed about the sixfold axis. The tellurium atoms are placed above an equilateral triangle formed by three oxygen atoms.

Etude Cristallographique et Magnetique d'Oxydes Mixtes de Formule $Ba_3Fe_{2-x}Y_xUO_9$. J. C. Grenet and P. Poix, Lab de Chimie Minerale Bat. 420, Universite de Paris-Sud, 91400 Orsay, France. Crystallographic study of the title compounds ($0.2 \leqslant x \leqslant 1.2$) shows that they are perovskite-type compounds of probable space group $Fm3m$ with ordering between $4a$ and $4b$ sites. The $8c$ sites contain the Y^{3+} ions. The compounds show ferrimagnetic properties. For each composition, the distribution of ions in the different crystallographic sites is given.

Etude a Haute Temperature des Systemes Formes par le Sesquioxyde de Lanthane et les Sesquioxydes de Lanthanides. I. Diagrammes de Phases ($1400°C < T < T$ Liquide). J. Coutures, A. Rouanet, R. Verges, and M. Foex, Lab des Ultra-Refractaires, 66120 Odeillo-Fontromeu, France. Studies involving thermal and X-ray diffraction analyses have been carried out at high temperature on the systems $La_2O_3–Ln_2O_3$ (Ln = lanthanon element). Homogeneity and thermal stability of cubic (Tl_2O_3 form), monoclinic (Sm_2O_3 form), hexagonal A or H (La_2O_3 form), and cubic X solutions have been examined. Tentative equilibrium diagrams have been drawn from 1400°C through the liquid state.

High Temperature Rutile-Derived Crystallographic Shear Structures. I. $(020)_r$ CS Structures. L. A. Bursill, Physics Department, University of Melbourne. I. E. Grey, CSIRO Division of Mineral Chemistry, P.O. Box 124, Port Melbourne. and D. J. Lloyd, Chemistry Department, University of Melbourne, Parkville, Victoria 3052, Australia. Electron diffraction and single crystal X-ray diffraction techniques have been applied to a study of the structures of phases in the $Fe_2O_3–TiO_2$ system, for compositions in the range 14–16 wt% Fe_2O_3 and for temperatures above 1450°C. The compounds in this system may be described as $(020)_r$ *CS* phases in which adjacent rutile slabs, infinitely extended along $[100]_r$ and $[001]_r$, are displaced by $\frac{1}{2}[011]_r$ across $(020)_r$ *CS* planes. In the *CS* planes, about two-thirds of the available metal-atom octahedral sites are occupied in a deficient NiAs arrangement. The composition range studied is spanned by a continuous series of $(020)_r$ intergrowths formed by the ordered mixing of structures with two different *CS* plane spacings, namely $9 \times d_{(020)_r}$ and $11 \times d_{(020)_r}$. Conventional structure solution methods could not be applied to these infinitely adaptive structures because of the small intensity data to parameter ratios for the high-order intergrowths. We describe a method of structure solution based on a series of successive approximations. The method was applied to determine