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Abstracts of Forthcoming Articles

Crystalline Structure and OH Torsional Motion in Calcium–Strontium Arsenate Apatites. P. F. GONZALEZ-DIAZ* AND P. G. FERNANDEZ, Instituto de Optica "Daza de Valdes," CSIC, Serrano, 121, Madrid 6, Spain. The crystalline structure of $Ca_{10-x}Sr_x(AsO_4)_6(OH)_2$ has been studied, and the lattice parameters determined. It has been found that the unit cell expands with x. Geometric parameters of the unit cell, which are defined in relation to the hindered rotation of the OH group around the c axis, have also been obtained. From the ir data, the torsional potential function in first and second approximations has been calculated. A method for computing that function in any order approximation is given. A semiempirical curve is found, relating the stretching and torsional motions for both the OH and OD groups.

Defect Structures in the Brannerite-type Vanadates. IV. The Crystal Structure of $Mn_{1-x}\phi_xV_{2-2x}Mo_{2x}O_6$; $x = 0.53$. R. KOZLOWSKI* AND K. STADNICKA, Institute of Catalysis and Surface Chemistry, Polish Academy of Sciences, Krakow, Poland. The crystal structure of $Mn_{1-x}\phi_xV_{2-2x}Mo_{2x}O_6$; $x = 0.53$ of the brannerite type has been refined to $R = 0.029$. The space group is $C2$. The bond length bond strength calculations indicate a short-range ordering of Mo^{6+} and vacancies, resulting in the formation of Mo–O–ϕ–O–Mo clusters which are distributed at random in the host vanadate structure.

Origin of the Yellow Color of Complex Nickel Oxides. G. R. ROSSMAN,* R. D. SHANNON, AND R. K. WARING. Division of Geological and Planetary Sciences, California Institute of Technology, Pasadena, California 91125. Single-crystal optical absorption spectra of NiO, $NiTiO_3$, $NiWO_4$, NiV_2O_6, $NiNb_2O_6$, Ni_2SiO_4, $Ni_3V_2O_8$, $LiNiPO_4$, $Li_2Ni_2Mo_3O_{12}$, $SrNiTeO_6$, $LiScSiO_4$: Ni, $MgSiO_3$: Ni, and $(Mg,Ni)_2SiO_4$ are presented for the purpose of comparing the spectra of yellow and green Ni^{2+} compounds. Powder spectra of $NiTiO_3$, $NiWO_4$, NiV_2O_6, $NiNb_2O_6$, and $Ni_3V_2O_8$ in the ultraviolet region help elucidate the more intense charge transfer bands. Bright yellow color results when Ni^{2+} is in a six-coordinated site significantly distorted from octahedral symmetry. Increased absorption intensity occurs when the metal ion d–d bands are in proximity to an ultraviolet charge transfer band.

The Crystal Chemistry of the New Rare-Earth Sodium Borates $Na_3Ln(BO_3)_2$ (Ln = La,Nd). J. MASCETTI, M. VLASSE,* AND C. FOUASSIER, Laboratoire de Chimie du Solide, Université de Bordeaux I, 351, cours de la Libération, 33405 Talence Cédex, France. The ternary borate systems Na_2O–Ln_2O_3–B_2O_3 (Ln = La, Nd) have been investigated in view of obtaining high-neodymium-concentration materials with weak concentration quenching. A ternary phase of composition $Na_3Ln(BO_3)_2$ (Ln = La, Nd) has been found. It crystallizes in the monoclinic space group $P2_1/c$. The structure has been determined for $Na_3Nd(BO_3)_2$. A full-matrix least-squares refinement led to $R = 0.040$. The structure is formed by isolated BO_3 triangles held together by the neodymium and sodium ions. The rare-earth atoms have a complex eightfold coordination in a covalent BO_3 matrix.

Preparation and Properties of the System $Fe_{1-x}V_xNbO_4$. B. KHAZAI, R. KERSHAW, K. DWIGHT, AND A. WOLD,* Department of Chemistry, Brown University, Providence, Rhode Island 02912. Members of the system $Fe_{1-x}V_xNbO_4$ were prepared and their crystallographic, electrical, and magnetic properties were determined. The wolframite structure is formed for $x \leq 0.2$, but for $x \geq 0.4$, a phase transformation to the rutile structure takes place. Magnetic studies established the formal valencies of the elements for members crystallizing with the wolframite phase. However, similar analyses of compounds with the rutile structure did not provide a unique assignment of the formal valencies.

Mechanism of Ni–Zn Ferrites Formation. V. V. PAN'KOV AND L. A. BASHKIROV,* Institute of Solid State Physics and Semiconductors, Byelorussian Academy of Sciences, Minsk, Podlesnaya 17, 220726, USSR. The regularities in the change of character of the ferrite formation process as a function of $Ni_{1-x}Zn_xFe_2O_4$ solid solution and of the degree of zinc oxide saturation of the $Ni_{1-x}Zn_xO$ solid

Note. Asterisks indicate author to be addressed.

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