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Abstracts of Forthcoming Articles

Neutron Powder Diffraction and Magnetic Measurements on $RbTiI_3$, $RbVI_3$, and $CsVI_3$. H. W. ZANDBERGEN, Gorlaeus Laboratories, University of Leiden, P.O. Box 9502, 2300 RA Leiden, The Netherlands. $CsVI_3$ ($a = 8.124(1)$, $c = 6.774(1)$ Å, $Z = 2$, $P6_3/mmc$ at 293 K) adopts the $BaNiO_3$ structure. Three-dimensional magnetic ordering takes place at $T_c = 32(1)$ K. At 1.2 K the magnetic moment is $1.64(5)$ μ_B and it forms a 120° spin structure in the basal plane. $RbVI_3$ ($a = 13.863(2)$, $c = 6.807(1)$ Å, $Z = 6$, $P6_3cm$ or $P\bar{3}c1$ at 293 K) and $RbTiI_3$ ($a = 14.024(3)$, $c = 6.796(2)$ Å, $Z = 6$, $P6_3cm$ or $P\bar{3}c1$ at 293 K) adopts a distorted $BaNiO_3$ structure, probably isostructural with $KNiCl_3$. T_c of $RbVI_3$ is 25(1) K. At 1.2 K, $RbVI_3$ has a spin structure similar to the one of $CsVI_3$ with a magnetic moment of $1.44(6)$ μ_B. $RbTiI_3$ shows no magnetic ordering at 4.2 K. It is shown that a deviation from the 120° structure is expected for compounds with a distorted $BaNiO_3$ structure such as $RbVI_3$. The cell dimensions of $CsTiI_3$ are reported.

The Resistivity and Magnetic Susceptibility of V_3O_5 Single Crystals. H. JHANS AND J. M. HONIG,* Department of Chemistry, Purdue University, West Lafayette, Indiana 47907. New resistivity studies on single-crystal V_3O_5 show that the phase transformation at 427 K involves an insulator–metal transition; the resistivities reported here lie somewhat below those cited in numerous earlier investigations. Magnetic susceptibility (χ) measurements exhibit only very small changes at the transition. It is pointed out that the maximum in χ at 125 K should be correlated with the onset of antiferromagnetic ordering near 76 K.

Forces de la Liaison Te–O: Coordination et Localisation de la Paire Libre de l'Atome de Tellure IV dans les Tellurites. E. PHILIPPOT, Laboratoire de Chimie Minerale C, Université des Sciences et Techniques du Languedoc, Place Eugene Bataillon, 34060 Montpellier, France. The calculation of bond valences (S) from the bond lengths (R) observed in many accurate structure determinations of tellurites, Te^{IV}, using the relation $S = S_0(R/R_0)^{-N}$, allows us to refine the R_0 and N values proposed by Brown. If we classify the different TeO_y surroundings by taking into account the three strongest bond valences in their relation to the weakest one, it can be verified that the observed variation allows us to foresee the atomic coordination of tellurium IV atom with respect to the other components of the structure. On the other hand, the probable location of the lone pair $5s^2$ of tellurium IV atom can be related to the evolution of its coordination.

Bidimensional Magnetic Properties of β-Sr_2MnO_4. J. C. BOULOUX, J. L. SOUBEYROUX, G. LE FLEM,* AND P. HAGENMULLER, Laboratoire de Chimie du Solide, Universite de Bordeaux I, 351 cours de la Liberation, 33405 Talence, France. β-Sr_2MnO_4 belongs to the K_2NiF_4-type structure. The magnetic structure studied by neutron diffraction is characterized by antiferromagnetic interactions between nearest-neighbor Mn^{4+} ions. The value of the exchange integral J/k calculated by the high-temperature series expansion method is about -80 K. All magnetic properties of β-Sr_2MnO_4 show the two-dimensional character of the magnetic interactions and illustrate the strong covalency of the Mn–O bonds within the magnetic layers.

Le Système $BaFeO_{2.50}$–$BaZnO_2$.II. Conductivité Mixte et Autres Propriétés Physiques. P. NEU, M. ZANNE, C. GLEITZER,* AND G. DUDLEY, Laboratoire de Chimie du Solide Minéral, Université de Nancy I, 54037 Nancy, France. The α phase, perovskite type, $BaFe_{1-x}Zn_xO_{2.5-x/2}$ ($0.05 < x < 0.40$), shows weak ferrimagnetism for $x < 0.25$, with T_c around 470°C, and paramagnetism (above 77 K) for $x > 0.25$, which means progressive destruction of the antiferromagnetic order observed in $BaFeO_{2.5}$. The β ($Ba_4Fe_2Zn_2O_9$) and γ ($BaZn_{1-y}Fe_yO_{2+y/2}$) phases present properties in agreement with a strong perturbation of the perovskite octahedral site. The electrical conductivity is rather high, of mixed character, with a differing ionic–electronic distribution, depending on the synthesis conditions and on the temperature, due to different activation energies. The oxygen diffusion

Note. Asterisks indicate author to be addressed.

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