form true solid solutions. The change of the lattice parameters of the compositions and of the c/a values and their relation to the ionic radii of the alkali ions are discussed.

Free Energies of Formation of Metal–TCNQ Anion Radical Salts. S. ARONSON* AND J. S. MITTELMAN, Department of Chemistry, Brooklyn College, City University of New York, Brooklyn, New York 11210. Free energies of formation are determined for the TCNQ anion radical salts of Li, Na, K, Ba, Ag, Cu, Ni, and Pb. Aqueous electrochemical cell measurements at room temperature are used. The results are qualitatively similar to data on the corresponding metal iodides.

Phase Transitions and Surface Stability of the WO_3–γAl_2O_3 System. P. TITTARELLI,* A. IANNIBELLO, AND P. L. VILLA, Stazione Sperimentale per i Combustibili, Viale De Gasperi 3, 20097-S. Donato Milanese, Milan, Italy. The solid-state transitions of the WO_3–$\gamma$$Al_2O_3$ system have been investigated in the temperature range 873–1323 K. The formation of α-Al_2O_3 and $Al_2(WO_4)_3$ phases and the thermal desorption of W(VI) attached to γ-Al_2O_3 have been studied as function of the treatment time. The inhibition of the phase transition to α-Al_2O_3 and therefore the stabilization of the surface has been observed at 1323 K for samples with 7% WO_3 content. This stabilization is critically affected by the tungsten content. An explanation for the stabilization of the alumina surface is proposed.

Hydroxyhydrogénosels: Le phosphate et l'arséniate non stoechiométriques de formule idéale $Na_3Al(OH)(HXO_4)(XO_4)(X = P$ ou $As)$. F. D'YVOIRE* AND M. PINTARD-SCRÉPEL, Laboratoire de Chimie Appliquée, Université Paris-Sud, 91405 Orsay, France. An aluminum–sodium phosphate and the corresponding isotypic arsenate have been synthesized. Chemical analysis, density measurements, thermogravimetry, X-ray powder diffraction, and ir spectroscopy lead to the conclusion that they are nonstoichiometric hydroxyhydrogen salts of ideal formula $Na_3Al(OH)(HXO_4)$ $(XO_4)(X =$ P, As), the nonstoichiometry being a result of the presence of cation vacancies which are compensated by protons. The monoclinic unit-cell parameters have been determined. The space group is $C2/m$, C2, or $Cm.Z = 4$.

Electrical and Optical Behavior of One-Dimensional Organic Conductors at High Pressures. ICHIMIN SHIROTANI,* AKIFUMI ONODERA, AND HIROYUKI ANZAI, The Institute for Solid State Physics, The University of Tokyo, Roppongi, Minato-ku, Tokyo 106, Japan. Electrical and optical behavior of 10 one-dimensional organic conductors has been studied at high pressures. The electrical resistivity of the organic conductors decreases with increasing pressure in the low-pressure region and reaches each resistivity minimum. The lowest resistivity of TTF–TCNQ and TTF derivative salts at high pressures is much lower than that of other salts. For conducting TCNQ salts, a pressure-induced absorption band has been observed around 20×10^3 cm^{-1}; it may be assigned to the new charge transfer band between TCNQ. A pressure-induced band is not found in TTF–TCNQ, but the change of spectra with pressure is observed around 12×10^3 cm^{-1}. Above certain pressures, the electrical resistivity of the organic conductors increases rapidly with increasing pressure and drifts upward with time. These phenomena arise from the solid-state reaction. The differences of the physicochemical properties of one-dimensional organic conductors will be discussed.

The Isostructural γ-Sulfur Phase of Selenium–Sulfur, Se_nS_{8-n}. ROBERT A. BOUDREAU AND HELMUT M. HAENDLER,* Department of Chemistry, University of New Hampshire, Durham, New Hampshire 03824. Two new selenium–sulfur species, $Se_{1.1}S_{6.9}$ (yellow) and $Se_{3.7}S_{4.3}$ (orange), have been isolated as single crystals, and the corresponding structures have been determined. The space group is $P2/c$, and the parameters are $a = 8.34$ Å, $b = 13.11$ Å, $c = 9.30$ Å, $\beta = 123.9°$, and $a = 8.40$ Å, $b = 13.26$ Å, $c = 9.37$ Å, $\beta = 124.5°$, respectively. They are isostructural with γ-sulfur, having two distinct pairs of eight-membered rings in the unit cell. The selenium and sulfur atoms appear scrambled throughout all atomic positions, but are not scrambled equally. When atomic site occupancy data are combined with other data from the literature, a wide compositional continuum of γ-sulfur isostructures is revealed that extends from γ-sulfur to SeS. It appears unlikely that selenium–sulfur crystals exist having the γ-sulfur structure with more than half the atoms as selenium.

Determination Precise de la Structure de la Chiolite $Na_5Al_3F_{14}$ et Etude par RPE de $Na_5Al_3F_{14}$: Cr^{3+}. C. JACOBONI, A. LEBLE, AND J. J. ROUSSEAU,* Laboratoire de Spectroscopie du Solide, Faculté