Mössbauer Spectroscopic Study of γ-Ray-Irradiated Potassium Borate Glasses. TETSUAKI NISHIDA, YOSHIMASA TAKASHIMA, AND YUSUKE NAKAYAMA. Department of Chemistry, Faculty of Science, Kyushu University 33, Hakozaki, Higashiku, Fukuoka, 812 Japan.

Potassium borate glasses denoted by the formula $x\mathrm{K_2O} \cdot (100-x)\mathrm{B_2O_3} \cdot 7\mathrm{Fe_2O_3}$ were irradiated with ^{60}Co γ-rays at room temperature. Mössbauer parameters for the irradiated glasses containing alkali equal to or higher than 20 mole% showed that the *s*-electron density at the iron nucleus increased without any change of the steric configuration of oxygen atoms around the iron nucleus. The increase of *s*-electron density was ascribed to electron transfer from the nonbridging oxygen to the iron nucleus. The presence of the nonbridging oxygen was also confirmed by the irradiation effect of the borate glass ($x = 30$) prepared using the enriched isotope of $^{57}\mathrm{Fe_2O_3}$. Mössbauer parameters for the irradiated glass suggest that the newly observed Fe^{2+} ions are in tetrahedral symmetry.

Solid State Decomposition Studies on Fluoroperoxo Species of Transition Metals. IV. Photodecomposition of $K_3Zr_2(O_2)_2F_7 \cdot 2H_2O$. G. V. JERE AND S. M. KAUSHIK. Department of Chemistry, Indian Institute of Technology, New Delhi-110029, India.

The kinetics of photodecomposition of solid $\mathrm{K_3Zr_2(O_2)_2F_7 \cdot 2H_2O}$ has been studied under vacuum as a function of intensity and temperature by measuring the evolved oxygen with the help of a McLeod gauge. Pressure–time curves are parabolic in nature and the data fit the empirical equation $p = kt^{1/2}$. The rate of photodecomposition is a linear function of intensity. The activation energy determined from an Arrhenius plot, in the temperature range 15–55°C, of the title compound is 2.15 kcal mole^{-1} (9.00 kJ mole^{-1}).

High-Pressure/High-Temperature Phase Relations and Vibrational Spectra of $CsSbF_6$. W. H. J. DE BEER, ANTON M. HEYNS, P. W. RICHTER, AND J. B. CLARK. National Physical Research Laboratory, P.O. Box 395, Pretoria, South Africa.

$\mathrm{CsSbF_6(II)}$ under ambient conditions is trigonal, space group D^5_{3d}–$R\bar{3}m$. At 187.8°C it undergoes a phase transition with an enthalpy change of 5.267 ± 0.316 kJ mole^{-1}, to phase $\mathrm{CsSbF_6(I)}$. $\mathrm{CsSbF_6}$ decomposes with loss of fluorine at atmospheric pressure at high temperatures, but under pressure the decomposition is prevented and a melting point of 310°C at atmospheric pressure can be inferred. The II/I phase boundary and melting curve were studied as functions of pressure. The infrared and Raman spectra of $\mathrm{CsSbF_6(II)}$ were studied in the temperature range -256 to 20°C, at ambient pressure. The crystal chemistry of the $\mathrm{CsSbF_6}$ and its relationship with other related compounds are discussed.

Silver β″-Alumina. A. KAHN, PH. COLOMBAN, AND J. P. BOILOT. Laboratoire de Chimie Appliquée de l'Etat Solide, 11, rue P. et M. Curie 74231 Paris Cedex 05, France.

The "mean" structure of silver β″-alumina, stabilized by MgO, is refined with an *R* value of 0.037, on single crystals prepared by a self-crucible-heating method. Evidence is given for Ag^+ ion static disorder in a wide temperature range.

Untersuchung von Alkaliantimonaten des Typs $Me^ISb^VO_3 \cdot 1/6Me^IF$ mittels Dielektrischer Spektroskopie. U. STAUDT UND G. SCHÖN. Universität Essen GHS, Fachbereich 8 Chemie, Teilbereich Anorganische und Allgemeine Chemie, D-3400 Essen, Germany.

Compounds of the type $Me^{\mathrm{I}}\mathrm{Sb^VO_3} \cdot 1/6Me^{\mathrm{I}}\mathrm{F}$ ($Me^{\mathrm{I}} =$ Li, Na, K, Rb, and Cs) were tested for their dielectric properties with a new dielectric spectrometer in the frequency range from 100 Hz to 10 MHz and in the temperature range from 238 to 147 K. The results show a high ionic conductivity for some of these compounds. A discussion of the structural properties of these substances suggests a model for a cooperative movement of the monovalent Me^+ cations, which are responsible for the ionic conductivity.

A New Alkali-Metal Titanotantalate, $KTi_2Ta_5O_{17}$—A Compound That Exhibits the "Chemically Twinned" Rutile Structure. B. M. GATEHOUSE AND M. C. NESBITT. Chemistry Department, Monash University, Clayton, Victoria, 3168 Australia.