

## AC conductivity of binary silver phosphate glasses

### ABSTRACT

Samples of binary silver phosphate glasses with composition  $(\text{Ag}_2\text{O})_x(\text{P}_2\text{O}_5)_{1-x}$  have been prepared and their ac electrical conductivities measured over a range of frequency, composition and temperature. It is observed that a.c. conductivity increases very gradually at low frequency (below 1 kHz), but rapidly at higher frequency (above 10 kHz). Conductivity as high as  $10^{-5} \text{ Scm}^{-1}$  has been observed depending on the composition, frequency and temperature of the samples. It increases almost linearly with the mole fraction of  $\text{Ag}_2\text{O}$ . As a function of temperature, the conductivity increases too with temperature. Arrhenius plot is obeyed and activation energy of 0.41 to 0.46 eV has been obtained.

**Keyword:** AC conductivity; Binary silver phosphate glasses