

ENHANCEMENT OF Li^+ - ION CONDUCTIVITY IN
THE Li_2SO_4 - Li_2WO_4 SYSTEM BY THE COMPOSITE EFFECT

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Ionic conductivity of different compositions of the binary systems Li_2SO_4 - Li_2WO_4 has been measured using complex impedance techniques. Conductivity isotherms at various temperatures exhibit two clear conductivity maxima, one at ~ 33 mole% Li_2WO_4 and the other at ~ 70 mole % Li_2WO_4 , separated by a conductivity minimum at 50 mole % composition. At 400°C , the conductivity of the mixture with 33 mole % Li_2WO_4 is $\sim 4.9 \times 10^{-5}$ (ohm cm) $^{-1}$ and that of the mixture with 70 mole % Li_2WO_4 is $\sim 1.0 \times 10^{-4}$ (ohm cm) $^{-1}$, whereas the conductivity of pure beta- Li_2SO_4 at this temperature is $\sim 1.8 \times 10^{-5}$ (ohm cm) $^{-1}$. The observed conductivity enhancement could possibly be attributed to the "composite effect" in the two-phase mixtures on either side of the equimolar composition.

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