Composite hydrophilic pervaporation membranes were prepared from chitosan blended with hydroxyethylcellulose using cellulose acetate as a porous support. The membranes were tested for dehydration performance of ethanol-water mixtures of ethanol concentrations 70-95 wt.% in the laminar flow region, at temperatures 50-70 °C and at permeate pressures of 3-30 mmHg. The composite membrane showed an improved dehydration performance compared with dense CS/HEC membrane developed earlier. The effects of operating conditions also revealed that pervaporation of low water content feed carried out at high feed flow rate and at low temperature and permeate pressure was an advantage.