

## Inorganic-organic composite as proton conductive membrane

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Proton conductive inorganic-organic membranes supported by poly(vinylidene fluoride) pores membrane were prepared from 3-glycidoxypropyltrimethoxysilane and tetraethoxysilane, 1-hydroxyethane-1,1-diphosphonic acid by the sol-gel method. A flexible proton conductive membrane with relatively high mechanical property was obtained. The thickness was almost 90micrometer and the tensile strength was 28MPa. The proton conductivity could reach  $4 \times 10^{-3} \text{Scm}^{-1}$  at 90C when the relative humidity is 90%. The dimensional stability associated with water swelling and temperature and was relatively stable.