

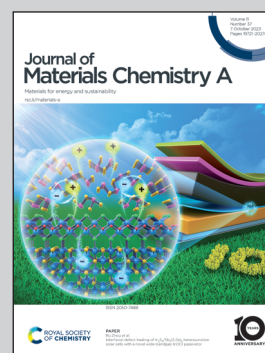


**Showcasing research from Professor Miyatake's laboratory, Clean Energy Research Center and Hydrogen and Fuel Cell Nanomaterials Center, University of Yamanashi, Kofu, Japan.**

The effect of the piperidinium structure on anion-exchange membranes for applications in alkaline water electrolysis cells

This work reports a series of aromatic polymer-based anion-exchange membranes, in which effect of piperidinium head groups on the membrane properties such as hydrophilicity, hydroxide ion conductivity, and chemical and mechanical stability is investigated. Membranes containing unhindered and unsubstituted piperidinium groups exhibit the best-balanced properties. The alkaline water electrolysis cell is operated with the optimized membrane to achieve high current efficiency, high performance, and longevity (1,000 h).

### As featured in:



See Kenji Miyatake *et al.*,  
*J. Mater. Chem. A*, 2023, **11**, 19925.