



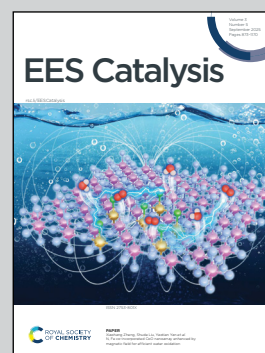
**Showcasing research from the laboratory of
Dr Kazuhide Kamiya at the Graduate School of
Engineering Science, The University of Osaka, Japan.**

Alkali-cation-free electrochemical CO₂ reduction to
multicarbon products in aqueous electrolytes containing
tetraalkylammonium cations

Alkali-cation-free CO₂ electrolysis is important to address
the issue of salt precipitation. We investigated the effect
of tetraalkylammonium cations on C₂₊ formation. With
tetramethylammonium, the C₂₊ selectivity on Cu reached
69.6% at 1 A cm⁻². Theoretical simulations show that smaller
cations intensify the electric fields within the electric double
layer that stabilize the reaction intermediates, boosting
C₂₊ formation. These findings offer valuable insights into
the design of alkali-cation-free, pure-water-fed membrane
electrode assembly electrolysis.

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As featured in:



See Kazuhide Kamiya *et al.*,
EES Catal., 2025, **3**, 1055.