

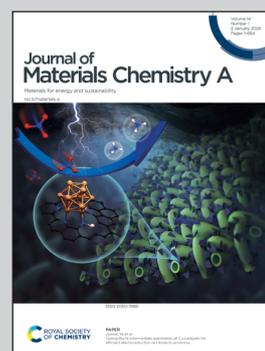
Showcasing joint research from Dr. Kee Young Koo's group at Korea Institute of Energy Research, Professor Ki Bong Lee at Korea University, and Professor Byung-Hyun Kim at Hanyang University ERICA, Republic of Korea.

Roles of alkaline-earth metals and electron density of Al^{3+} in octanol dehydration for linear alpha-olefin production

Linear α -olefins (LAOs), key petrochemical feedstocks, are selectively produced through 1-octene formation *via* alcohol dehydration. Impregnating $\gamma\text{-Al}_2\text{O}_3$ with alkaline-earth metals (Ba, Sr, Ca, and Mg) donates electrons to Al^{3+} sites, suppresses double-bond isomerization, and enhances 1-octene purity. The modified electron-rich surface lowers Lewis acidity and limits 1-octene re-adsorption, as supported by experimental and DFT analyses.

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See Byung-Hyun Kim, Ki Bong Lee, Kee Young Koo *et al.*, *J. Mater. Chem. A*, 2026, **14**, 403.