

Liquid Organic Hydrogen Carriers
for High Capacity and Long Distance Transportation

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To mitigate the current energy and environmental problems, clean and sustainable energy carriers alternative to fossil fuels are being explored continuously. Hydrogen is considered as a clean renewable energy carrier because of its carbon-free nature and high gravimetric energy storage density. However, the low volumetric energy density of hydrogen gas limits its use particularly for high density storage and long distance transportation. In this context, liquid organic hydrogen carriers (LOHCs) have attracted significant attention because they can store and release molecular hydrogen reversibly with high volumetric hydrogen storage densities ($>55 \text{ g-H}_2 \cdot \text{L}^{-1}$). Moreover, LOHCs have high compatibility with the existing fossil based infrastructure for mass storage and supply. In the presentation, recent trend on chemical hydrogen storage technology involving LOHCs will be introduced in the context of fuel cell applications.