Steam reforming of ethanol to \( \text{H}_2 \) over \( \text{Rh/Y}_2\text{O}_3 \): Crucial roles of \( \text{Y}_2\text{O}_3 \) oxidizing ability, space velocity, and \( \text{H}_2/\text{C} \)

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Supplementary Data

Fig. A TPR-H$_2$ analysis of four oxide catalyst supports

Fig. A shows that CeO$_2$ or Al$_2$O$_3$ was reduced at ~845°C or ~795°C respectively, while Y$_2$O$_3$ or La$_2$O$_3$ was respectively reduced at ~650°C or ~695°C. Since easier reducibility of catalyst support indicates that the hydrogen from ethanol is more easily oxidised to form hydrogen gas, the TPR results show that Y$_2$O$_3$ is easily reduced and has stronger oxidizing ability.