Supporting Information

CO_2 conversion to synthesis gas *via* DRM on the durable $Al_2O_3/Ni/Al_2O_3$ sandwich catalyst with high activity and stability

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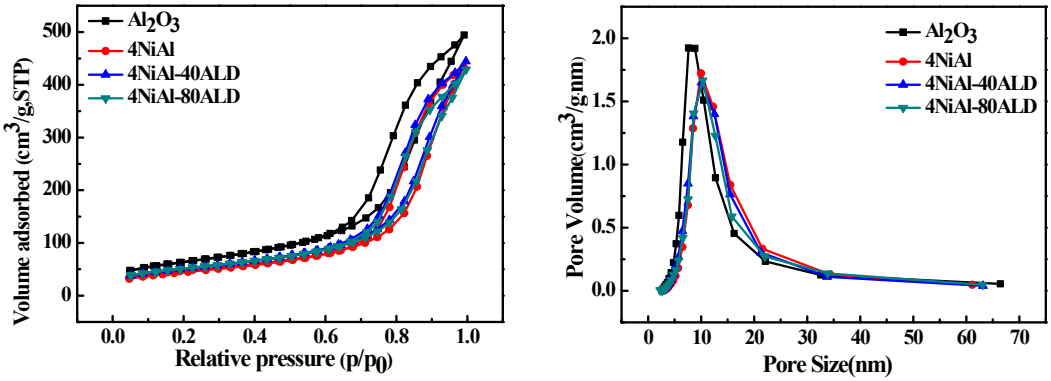

Figure S1. (Left) N_2 adsorption-desorption isotherms of different catalysts and (Right) pore size distribution calculated from the adsorption branch of BET isotherms.

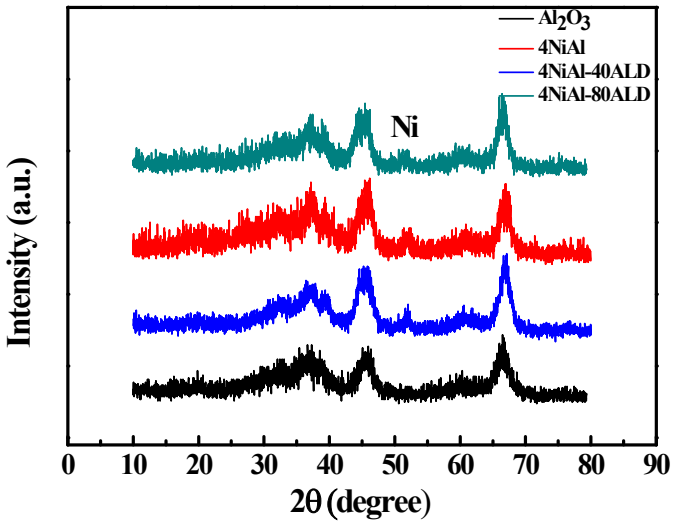

Figure S2. XRD patterns of different catalysts.

Table S1. CO_2 and CH_4 conversions on Ni/Al_2O_3 catalysts with different Ni loadins[a]

Catalysts	1NiAl	2NiAl	4NiAl	6NiAl
Conversion/CH_4 (%)	91.9	92.9	95.7	30.1
Conversion/CO_2 (%)	92.6	93.6	95.6	32.8

[a] Reaction conditions: reaction temperature = 800°C, volume ratio of CH_4 : CO_2 : N_2 = 1 : 1 : 1, GHSV = 300 $L \cdot g_{Ni}^{-1} \cdot h^{-1}$

Table S2. CO_2 and CH_4 conversions on 4NiAl catalysts achieved after calcinations at different temperatures[a]

Catalysts	4NiAl-700	4NiAl-800	4NiAl-900
Conversion/CH_4 (%)	94.6	95.7	91.3
Conversion/CO_2 (%)	94.3	95.6	91.5

[a] Reaction conditions are given in Table S1.

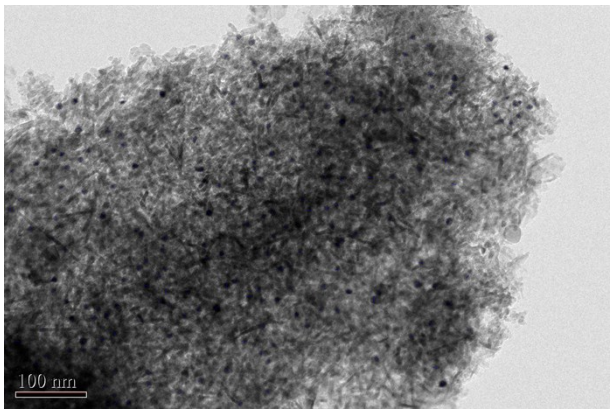

Figure S3. Detail of particle size distribution for 4NiAl catalyst after H_2 reduction.