Electronic Supporting Information
One-pot synthesis of Pt catalysts based on layered double hydroxides: an application in propane dehydrogenation

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Performance of Pt/Mg(Pt)(Al)O_x monometallic and Pt-Ga/Mg(Pt)(Ga)(Al)O_x bimetallic catalysts

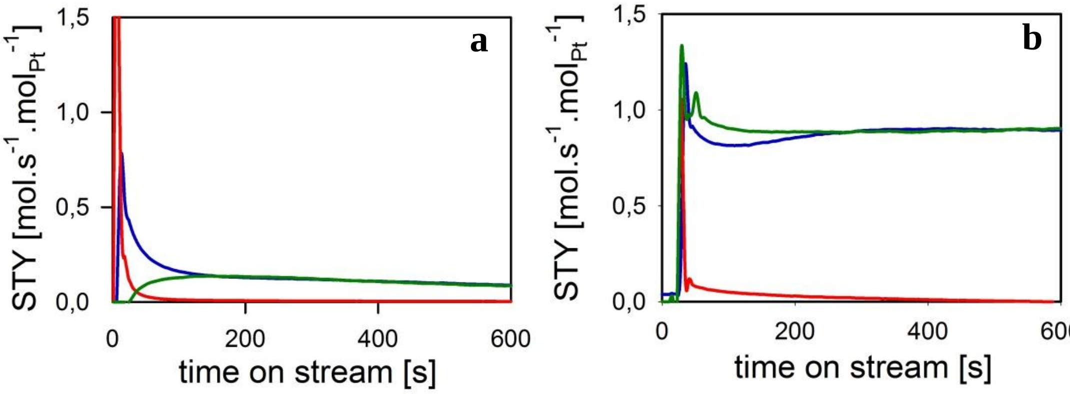

Figure S-1: Catalytic propane dehydrogenation at 600 °C ($W_{cat}/F_{propane,0}$ = 4 $kg_{cat}\cdot s\cdot mol^{-1}$ and $P_{propane,0}$ = 5 kPa at a total pressure of 101.3 kPa): site-time yield (STY) vs. time on stream: (a) one-pot synthesized Pt/Mg(Pt)(Al)O_x and (b) one-pot synthesized Pt-Ga/Mg(Pt)(Ga)(Al)O_x (red = CH_4, blue = H_2, green = C_3H_6).

Stability test for Pt-In/Mg(Pt)(In)(Al)O_x

The stability of the one-pot synthesized Pt-In/Mg(Pt)(In)(Al)O_x catalyst was tested for 6 hours. Figure S-2 shows the products obtained during catalytic propane dehydrogenation at 600 °C. Notably, the partial pressure of propane was set to 20 kPa, in contrast to 5 kPa for other catalytic experiments (Figure S-1 and Figure 4). This was done to subject the catalyst to more severe reaction conditions, which could more directly uncover deactivation phenomena.

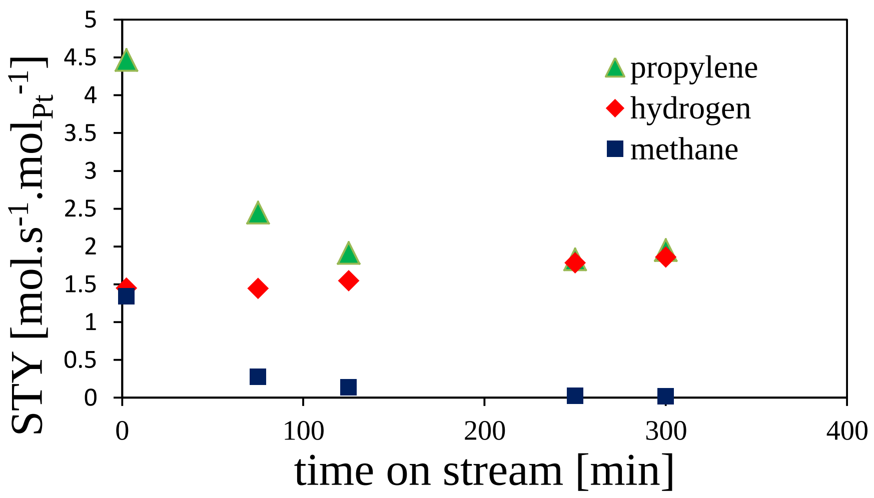

Figure S-2: Catalytic propane dehydrogenation at 600 °C ($W_{cat}/F_{propane,0}$ = 4 $kg_{cat}\cdot s\cdot mol^{-1}$ and $P_{propane,0}$ = 20 kPa at a total pressure of 101.3 kPa): site-time yield (STY) vs. time on stream.