Supporting Information

Comparison of SiO_2-Supported Molybdena, Tungsta and Rhenia Catalysts for Olefin Metathesis

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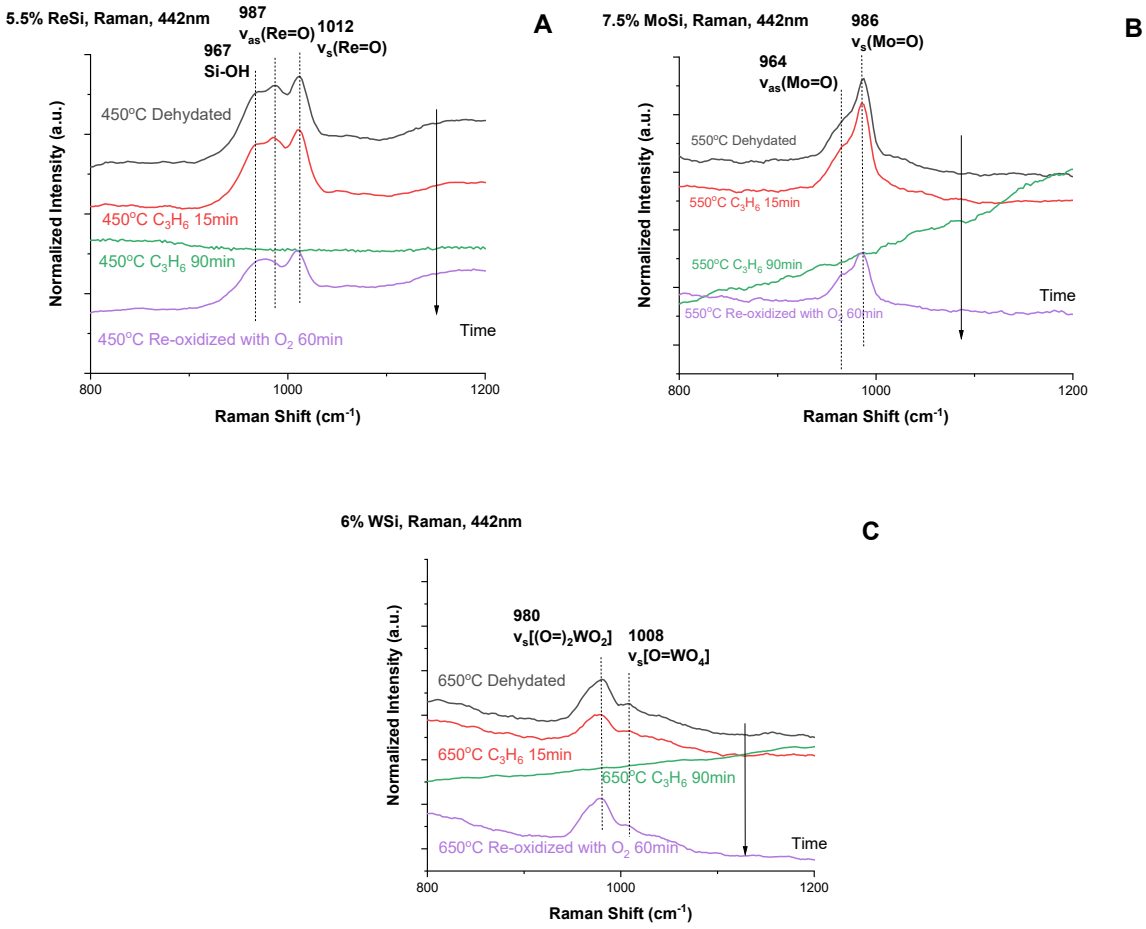


Figure S1. *In situ* Raman spectra (800-1200 cm^{-1}) of the SiO_2-supported metal oxide catalysts after dehydration, propylene activation and re-oxidization conditions: (A) ReO_x/SiO_2 at 450 °C , (B) MoO_x/SiO_2 at 550 °C and (C) WO_x/SiO_2 at 650 °C.

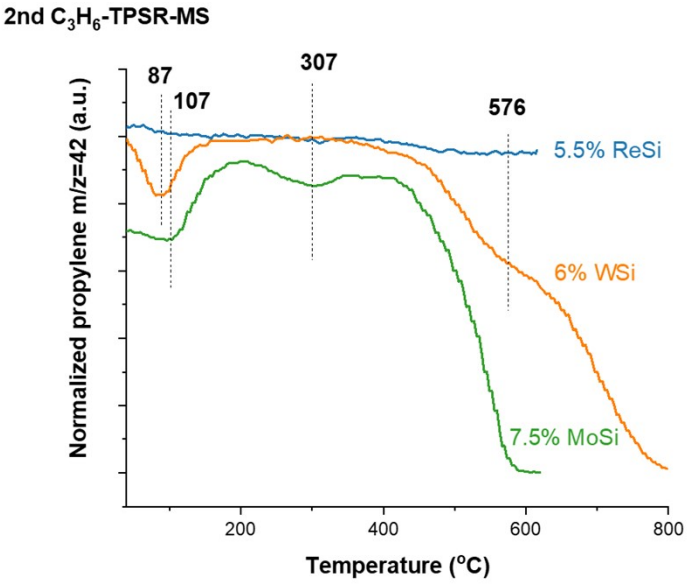
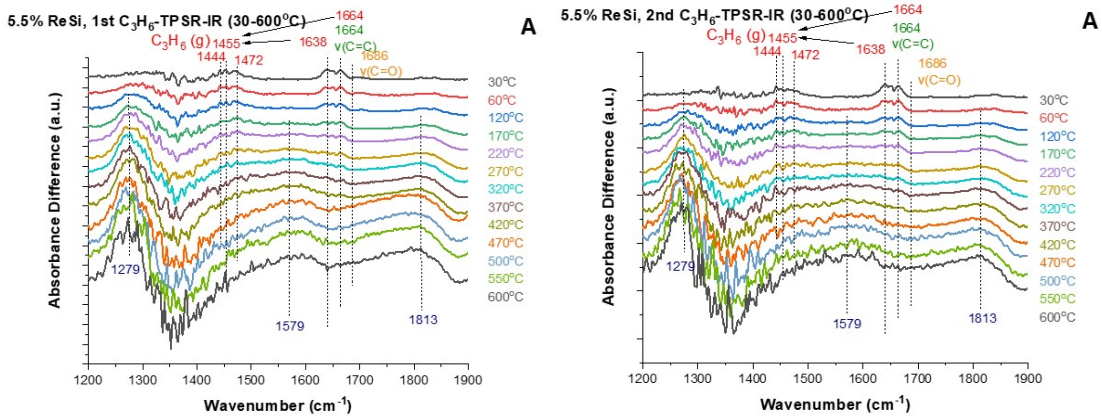


Figure S2. The consumption of C_3H_6 during the 2nd C_3H_6-TPSR-MS (30-600/800 °C) cycles with online MS for the SiO_2-supported metal oxide catalysts. The MS signals of C_3H_6 were normalized against the Ar carrier gas.



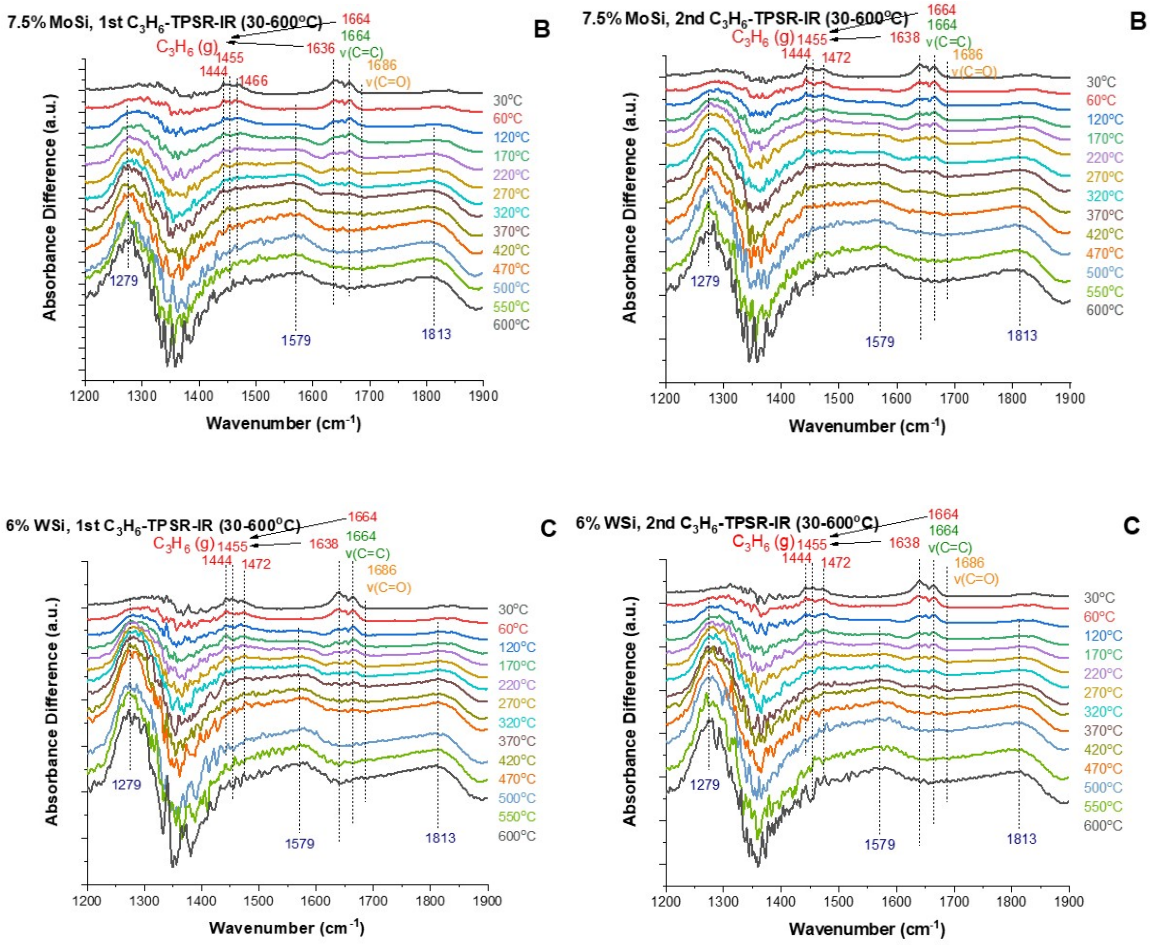


Figure S3. C_3H_6-TPSR-IR (30-600°C) with *in situ* DRIFTS difference spectra of SiO_2 supported metal oxide catalysts. The spectra of dehydrated SiO_2 supported catalysts at 30°C were subtracted from the spectra of catalysts during C_3H_6-TPSR: (A) ReO_x/SiO_2, (B) MoO_x/SiO_2, and (C) WO_x/SiO_2.

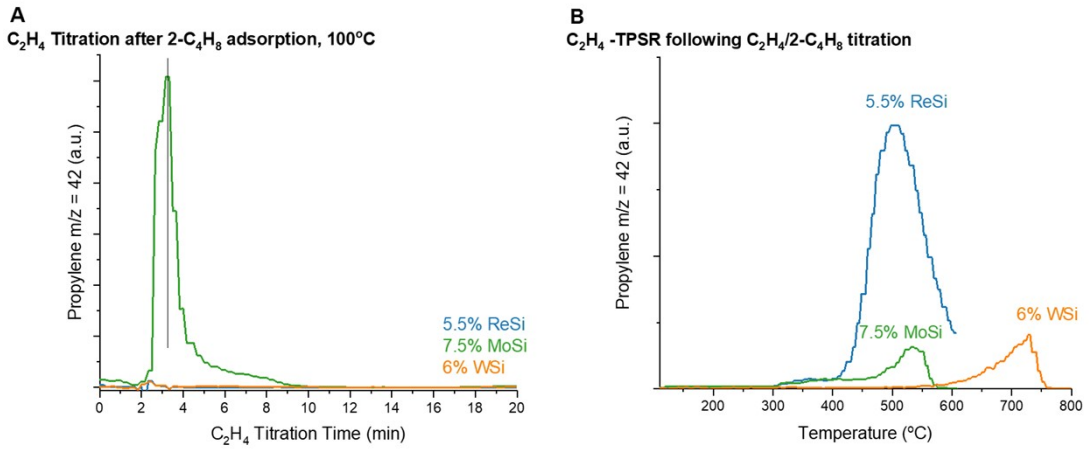


Figure S4. Production of C_3H_6 during (A) C_2H_4/2-C_4H_8 titration at 100 °C and (B) subsequent C_2H_4-TPSR.