

Stability of ZnMO_x-SAPO-11 (OXZEO) Composite

Catalysts for Syngas Conversion to Gasoline

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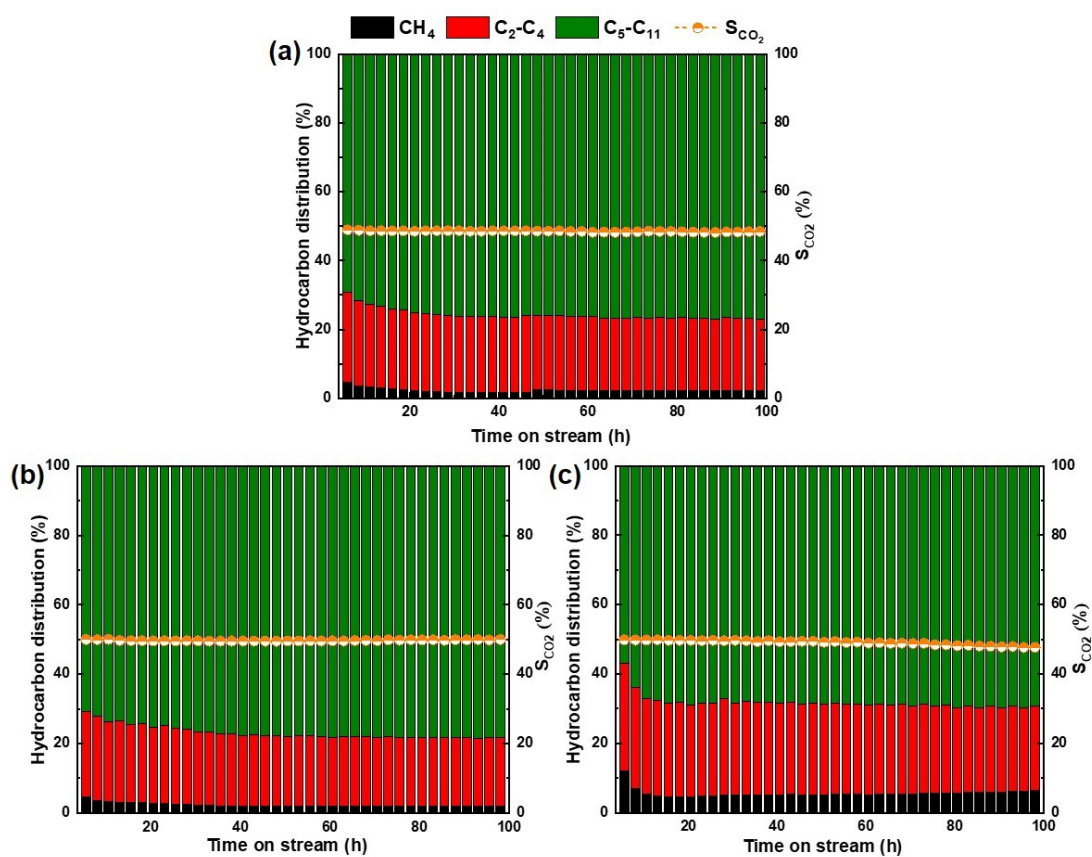


Fig. S1. Hydrocarbon distribution and CO₂ selectivity (S_{CO_2}) of different OX-SAPO-11 composite catalysts in syngas conversion during 100 h reaction. (a) ZnAlO_x-SAPO-11; (b) ZnCrO_x-SAPO-11; (c) ZnMnO_x-SAPO-11. Reaction conditions: OX/SAPO-11 = 1/1 (mass ratio), H₂/CO = 1/1, 360 °C, 4 MPa, GHSV = 1000 mL/g/h.

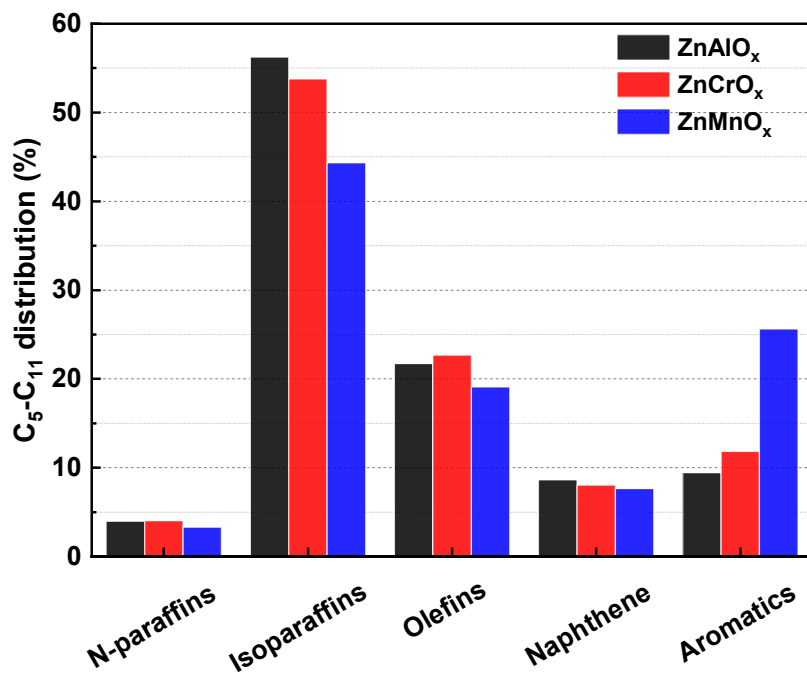


Fig. S2. C₅-C₁₁ hydrocarbon distribution over ZnMO_x-SAPO-11 in syngas conversion at time on stream of around 16 h. “M” stands for Al, Cr or Mn.

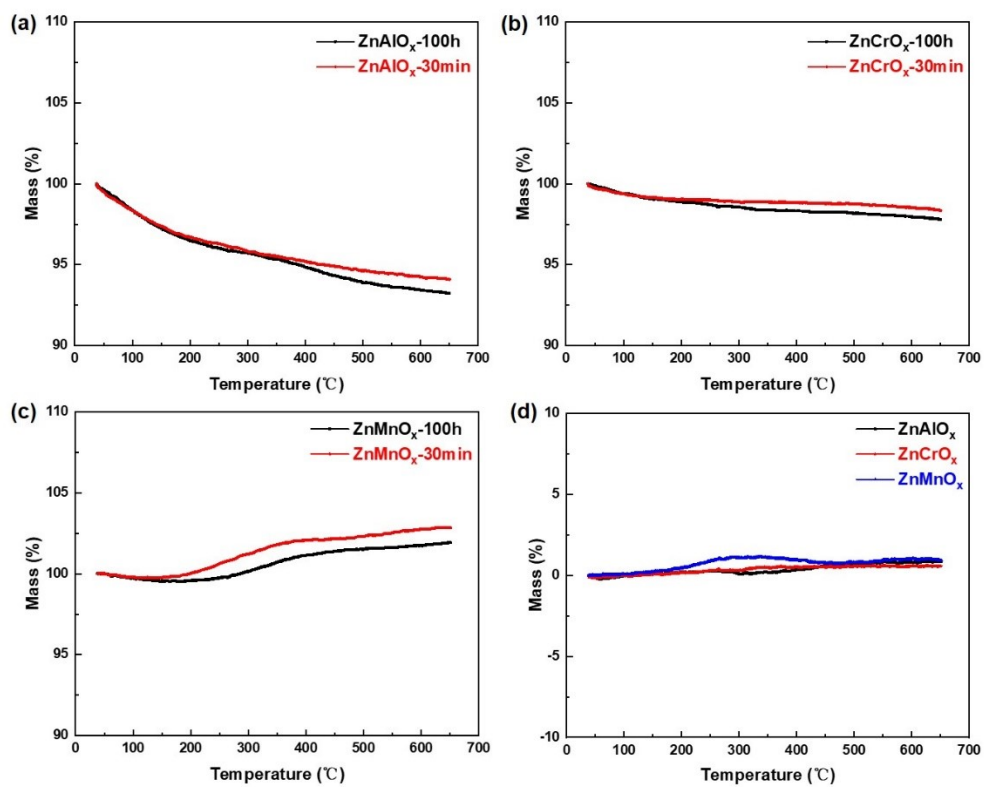


Fig. S3. TG profiles of different oxides. (a) ZnAlO_x; (b) ZnCrO_x; (c) ZnMnO_x; (d) the result by subtracting the ZnMO_x-100h curve from the ZnMO_x-30min curve. “M” represents for Al, Cr or Mn.

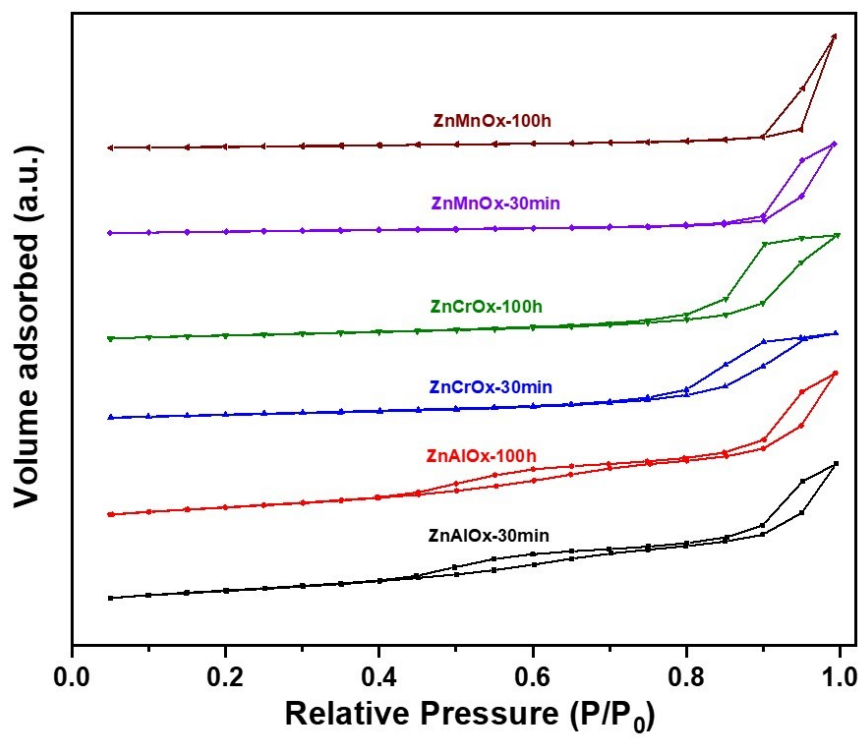


Fig. S4. N_2 adsorption-desorption isotherms of the samples.

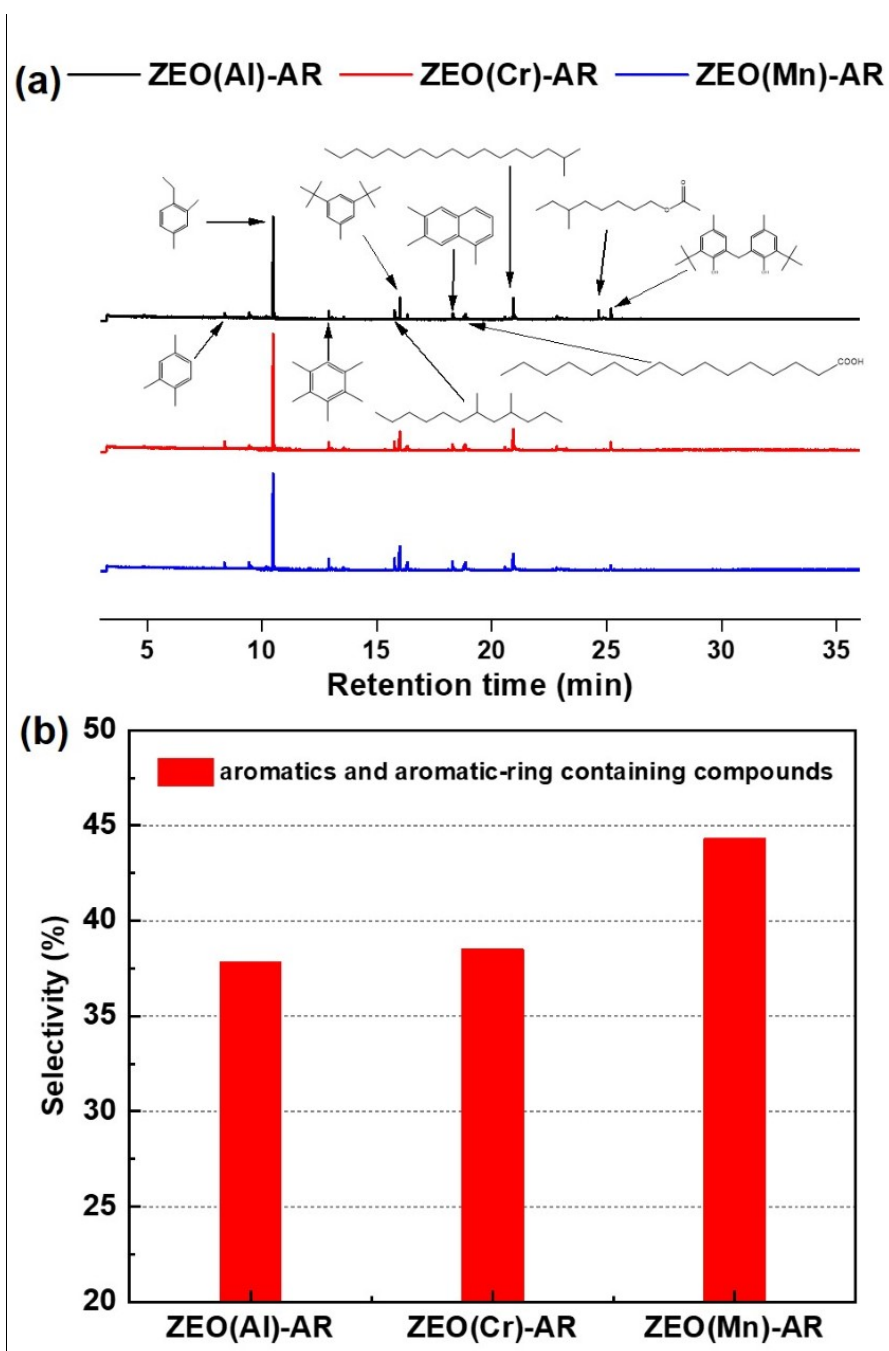


Fig. S5. (a) Gas chromatography-mass spectrometry chromatograms of organic species in different SAPO-11 after reaction; (b) The fraction of aromatics and aromatic-ring containing compounds in the accumulated carbonaceous species.

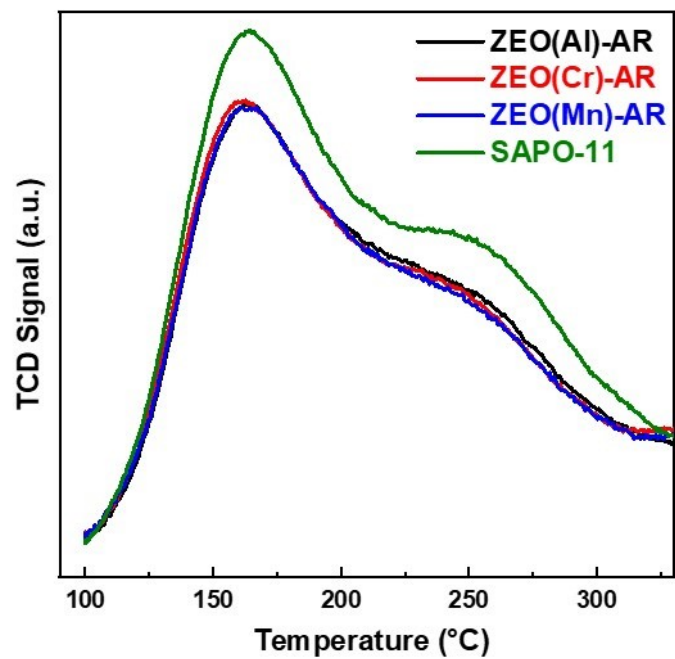


Fig. S6. NH₃-TPD profiles of used and fresh SAPO-11. Note that all the samples were pretreated at 300 °C before NH₃ adsorption.

Table S1. Textural property of different oxides.

Samples	Specific surface areas (m²/g)
ZnAlO _x -30min	143.1
ZnAlO _x -100h	128.9
ZnCrO _x -30min	53.1
ZnCrO _x -100h	48.3
ZnMnO _x -30min	23.2
ZnMnO _x -100h	19.6