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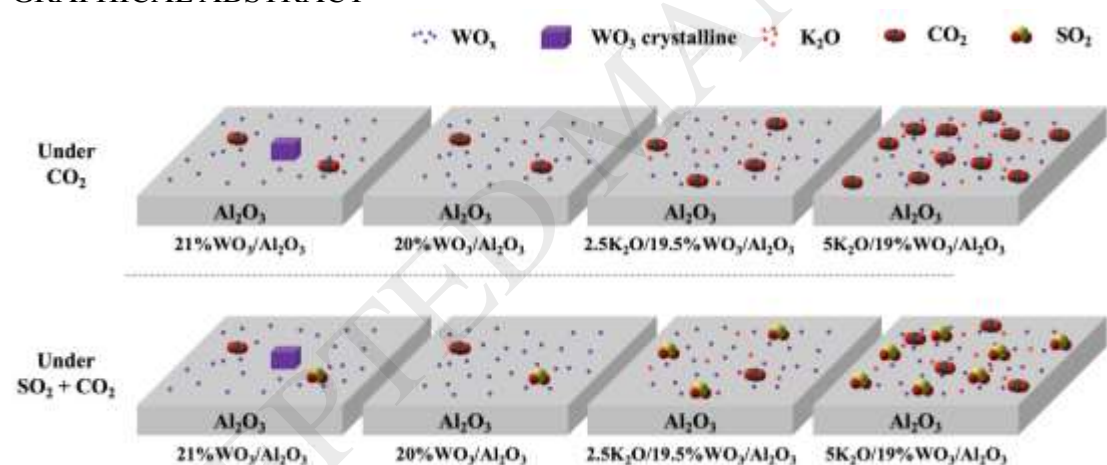
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Molecular Structure and Sour Gas Surface Chemistry of Supported $K_2O/WO_3/Al_2O_3$ Catalysts

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GRAPHICAL ABSTRACT



Highlights

- 20% WO_3/Al_2O_3 contains isolated and oligomeric surface WO_x species on Al_2O_3
- addition of K_2O increased the concentration of isolated surface WO_x species with no WO_3 nanoparticles
- K_2O presence results in carbonate upon CO_2 adsorption while SO_2 inhibits its formation

Abstract

Molecular structures of the unpromoted and K_2O -promoted supported WO_3/Al_2O_3 catalysts were studied with *in situ* Raman and UV-vis spectroscopy. *In situ* Raman spectra revealed that supported 20% WO_3/Al_2O_3 corresponds to near monolayer coverage of isolated and oligomeric

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