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Measurement of the Adsorption Kinetics of CO and CO_2 on Cr(110) JENNIFER WALTERS, ALAN HARRISON, CHRISTOPHER CUMBY, GABRIEL ARELLANO, HEIKE GEISLER, CARL VENTRICE, Dept. of Physics, Texas State University — Previous studies of the adsorption of CO on the catalytically active Cr(110) surface have found that the CO molecule dissociates upon adsorption at 300 K. One aspect of the CO adsorption process that has not been studied in detail is the temperature dependence of the dissociation and the influence of oxygen on the dissociation process. Therefore, we have performed temperature programmed desorption (TPD) and low energy electron diffraction (LEED) studies of the adsorption of CO, CO with oxygen, and CO_2 on the Cr(110) surface. Deposition of CO was performed at 120 K on either the clean or oxygen dosed Cr(110) surface before performing the TPD measurements. For deposition below 0.5 Langmuir (L), no CO is detected with TPD, which indicates that all of the CO is dissociating and reacting with the Cr(110) surface. As the CO dose is increased, a broad peak centered at 300 K is first observed, followed by a second peak at 200 K. Oxygen coadsorption increases the rate at which the CO desorption is observed but does not result in CO_2 desorption. For comparison, TPD measurements have also been performed for adsorption of CO_2 at 120 K.

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