

THE BACK-TITRATION OF CHEMISORBED ATOMIC OXYGEN ON COPPER BY CARBON MONOXIDE INVESTIGATED BY MICRO-CALORIMETRY AND TRANSIENT KINETICS

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The back-titration of atomic oxygen chemisorbed on metallic copper using carbon monoxide is investigated by microcalorimetry. Results from simulations based on a microkinetic model of the back-titration are used for processing of microcalorimetric data. In addition, surface oxidation of copper by nitrous oxide is investigated by microcalorimetry. The results are compared with results obtained by nitrous oxide reactive frontal chromatography and by static oxygen adsorption studied by microcalorimetry. The heat of adsorption of nitrous oxide on copper amounts to 304 kJ mol^{-1} , and the heat of adsorption of carbon monoxide on surface-oxidized copper is in the range from 120 to 70 kJ mol^{-1} .

Keywords: *adsorption microcalorimetry, carbon monoxide, copper, methanol synthesis, nitrous oxide*
