

## Glass Wool as an Oxidation Catalyst

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*Summary* Glass wool catalyses the oxidation of carbon monoxide, and adsorbs both oxygen and carbon dioxide.

SINCE many workers in the field of catalysis use glass wool both as 'inert' plugs to hold the catalyst in place, and as an 'inert' catalyst support<sup>1</sup> it is important that they be made aware that glass wool may in part catalyse their reaction. It has already been established in these laboratories that glass wool acts as a good adsorbent for gaseous oxygen.<sup>2</sup>

We have recently found that under micro-catalytic conditions using oxygen as a carrier gas and reactant that Corning glass wool catalyses the oxidation of carbon monoxide to carbon dioxide. The reaction is initially first order in carbon monoxide but falls to zero order with

large reactant pulses owing to reversible poisoning by the product, carbon dioxide. A total weight of 0.04 g of catalyst was used, with fractional conversions for pulses of *ca.*  $10^{-8}$  mol/pulse ranging from 0.106 at 217 °C to 0.418 at 298 °C. Specific conditions were a flow rate of 50 ml/min of oxygen at S.T.P. at a total pressure of 118 cmHg. The apparent activation energy over the temperature range 190–300 °C was 12 kcal/mol. The catalytic activity of the glass wool drops to almost zero if the wool is first leached with aqua regia and then washed in distilled water. The design and parameters of the microcatalytic system used in this investigation have been fully described elsewhere.<sup>3</sup>

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<sup>1</sup> G. H. Twigg, *Proc. Roy. Soc.*, 1946, A188, 92.

<sup>2</sup> W. R. MacDonald and K. E. Hayes, *J. Catalysis*, 1970, 18, 115.

<sup>3</sup> R. W. Macdonald and K. E. Hayes, *J. Catalysis*, 1969, 15, 301.