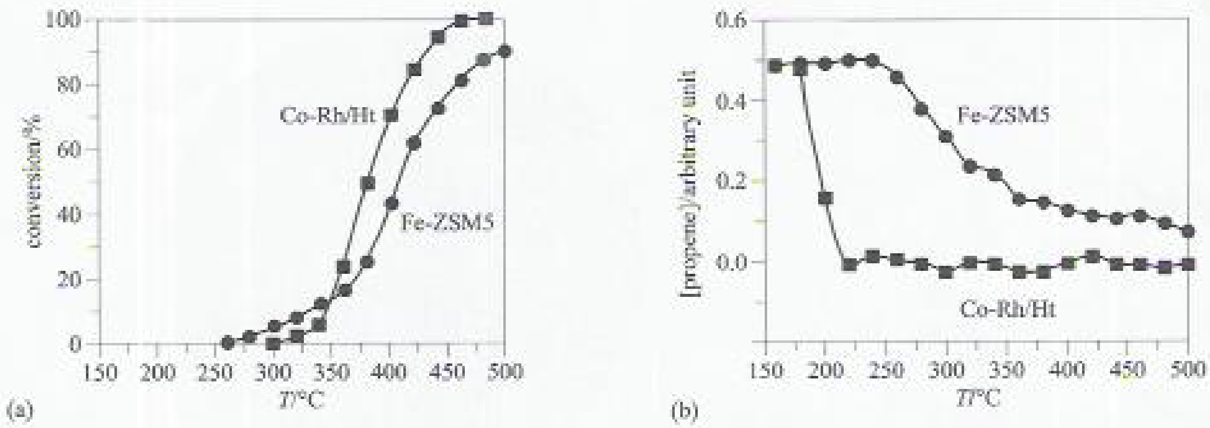

Figure 3 Reduction of N_2O over Co-Rh/Ht and Fe-ZSM5, with propene added to the exhaust stream entering the catalyst bed: (a) N_2O conversion into N_2 and (b) propene consumption, as functions of temperature.

(ii) The propene added in advance of the second bed may chemically reduce the catalyst surface and/or take part as a reactant in the reduction of N_2O. The concentration of C_3H_6 in the gases leaving the bed is shown as a function of temperature in Figure 3b. For each catalyst, compare the temperature range over which the hydrocarbon is consumed with that over which the N_2O activity of the catalyst changes (Figure 3a). Hence, discuss very briefly whether it is possible to identify which, if either, of the processes involving propene predominates. (*three or four sentences*)

(iii) For the Co-Rh/Ht catalyst and for the same material with added magnesium, Co-Rh-Mg/Ht, both operated at 425 °C, Figure 4 shows the variation in N_2O reduction activity with time on stream. Outline possible reasons for the continuous decrease in the activity of Co-Rh/Ht. (*About 50 words*)

It is clear that magnesium does not play a direct chemical role in the catalytic process because its addition has no effect on the initial reaction rate. Suggest what its function may be in maintaining the N_2O reduction activity at a constant level. (*one or two sentences*)

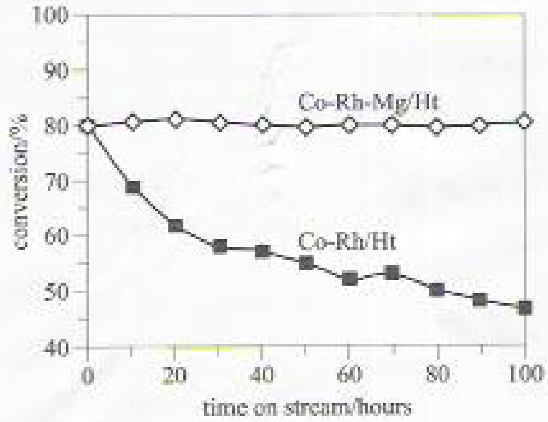

Figure 4 Reduction of N_2O over Co-Rh/Ht and Co-Rh-Mg/Ht at 425 °C, with propene added to the exhaust stream entering the catalyst bed, as a function of time on stream.