CHATER V
CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Morphology of Au/NiO and Au/Y_2O_3 were apparently changed when calcination temperature increased whereas changing in morphology of Au/MnO_2 was not obvious. The 0.22 wt.% Au/NiO calcined at 400°C gave the lowest desorption temperature. For Au/MnO_2, desorption temperature could be reduced when gold was introduced. When Au/MnO_2 catalysts were calcined at 500°C, desorption temperature did not decrease as compared to that for other calcination temperatures. For any given gold loading, the BET surface area of Au/NiO catalysts decreased substantially with increasing calcination temperature and slightly increased with increasing gold loading. The BET surface area of Au/MnO_2 catalyst slightly decreased with increasing calcination temperature. However, gold did not enhance adsorption and desorption property of Y_2O_3. For the case of Au/Y_2O_3 catalysts, the precursor used was not completely transformed to Y_2O_3 unless calcination temperature was up to 500°C. Interestingly, an increase in gold loading resulted in reduction of the surface area. It is believed that an addition of gold may influence the phase transition of $Y(OH)_3$ to Y_2O_3.

5.2 Recommendations

As described in results, discussion, and conclusions, it is interesting to use Au/NiO and Au/MnO_2 to apply for study of VOC oxidation reaction whereas Au/Y_2O_3 catalysts are not recommended for VOC oxidation because they have not adsorption and desorption properties of oxygen.