Using this interpretation we can foresee the effect of the presence of oxygen in the gas phase. In the case of noble metal catalysts, gas phase oxygen cannot but increase the oxygen activity at the surface. This had already been shown in the oxygen/nitric oxide/carbon monoxide system (6). We therefore expect that the presence of oxygen will mainly increase the rate of nitrous oxide formation and suppress its further reduction to nitrogen. In that case the observed acceleration in the nitric oxide conversion rate by oxygen, reported in several studies (4, 9–12), would merely be due to an increased nitrous oxide formation, which has already been observed (9, 11). This point of view is further supported by the fact that under high vacuum conditions the addition of oxygen does not accelerate the nitric oxide conversion (13), since under these conditions the domain of high oxygen activity at the surface cannot be attained.

Preliminary results obtained in the three reactant system ammonia/nitric oxide/oxygen have already confirmed the estimated influence of gas phase oxygen.

Acknowledgements

This work has been supported by the Deutsche Forschungsgemeinschaft through the SFB "Selektive Reaktionsführung an festen Katalysatoren". Cand. chem. ing. Ursula Stenger and Markus Bonse assisted with the experimental work.

References

1 J. Ando, "Air Pollution by Nitrogen Oxides", ed. T. Schneider and L. Grant, Amsterdam, Elsevier, 1982, p. 699

2 H. Bosch and F. J. J. G. Janssen, *Catal. Today*, 1988, **2**, 369

3 B. Harrison, A. F. Diwell and M. Wyatt, *Platinum Metals Rev.*, 1985, **29**, (2), 50

4 H. C. Andersen, W. J. Green and D. R. Steele, *Ind. Eng. Chem.*, 1961, **53**, 199

5 H.-G. Lintz and C. G. Vayenas, *Angew. Chem. Int. Ed. Engl.*, 1989, **28**, 708

6 E. Häfele and H.-G. Lintz, *Ber. Bunsenges. Phys. Chem.*, 1988, **92**, 188

7 C. G. Takoudis and L. D. Schmidt, *J. Phys. Chem.*, 1983, **87**, 958

8 T. Katona, L. Guczi and A. Somorjai, *J. Catal.*, 1991, **132**, 440

9 R. J. Pusateri, J. R. Katzer and W. H. Manogue, *AIChE J.*, 1974, **20**, 219

10 M. Markvart and V. Pour, *J. Catal.*, 1967, **7**, 297

11 G. L. Bauerle, S. C. Wu and K. Nobe, *Ind. Eng. Chem.*, 1975, **14**, 123

12 J. Blanco and P. Avila, *An. Quim.*, 1984, **80**, 645

13 J. L. Gland and V. N. Korchak, *J. Catal.*, 1978, 55, 324

Cobalt-Platinum Alloys as Recording Media

The magneto-optical properties of both cobalt/platinum multilayer and alloy thin films have been widely discussed in the literature, and abstracts of such reports have appeared here on numerous occasions. At infrared wavelengths cobalt/platinum multilayers exhibit a similar signal level to that of TbFeCo, the material currently used in magneto-optic recording products, and recently it has been demonstrated that at wavelengths close to 450 nm cobalt/platinum displays a clear advantage. Despite the potential importance of these materials, little work on this alloy system has been reported. Now, however, a communication from the IBM Research Division, Almaden Research Center, San Jose, California, considers in detail the dependence of the perpendicular magnetic anisotropy in cobalt-platinum alloy films on their composition (D. Weller, H. Brändle, G. Gorman, C.-J. Lin and H. Notarys, *Appl. Phys. Lett.*, 1992, **61**, (22), 2726–2728).

By means of electron beam evaporation in an ultra-high vacuum system, alloy films were prepared on fused silica and silicon substrates, at temperatures between 150 and 350°C. Both co-evaporation and subatomic layering of 0.1 nm layers were employed, the latter technique enabled the film compositions to be reproduced conveniently. Binary cobalt-platinum alloy films consisting of about 20 to 40 atomic per cent cobalt were found to have large perpendicular magnetic isotropy, appropriate Curie temperatures, 100 per cent perpendicular remanence and coercivities of the order of 200 kA/m. Also the static magneto-optical signal given by reflectivity, Kerr rotation and Kerr ellipticity was found to be enhanced compared to those of cobalt-platinum multilayers or of TbFeCo.

The combination of magnetic and magneto-optical properties, the potentially high chemical stability and the ease of manufacture make 25 nm cobalt-platinum alloy films (45 to 90 per cent platinum) highly attractive for short wavelength magneto-optic storage.