

Nano Ni, Pt/Al₂O₃, Ce_{1-x}Pt_xO_{2-δ} and TiO₂ materials for Catalysis

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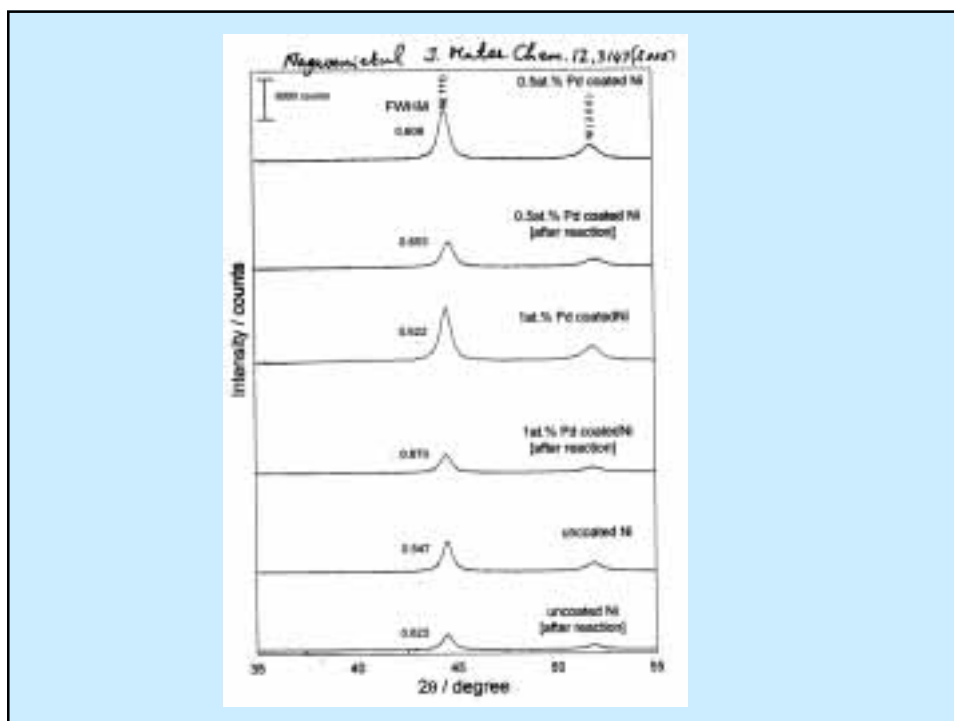
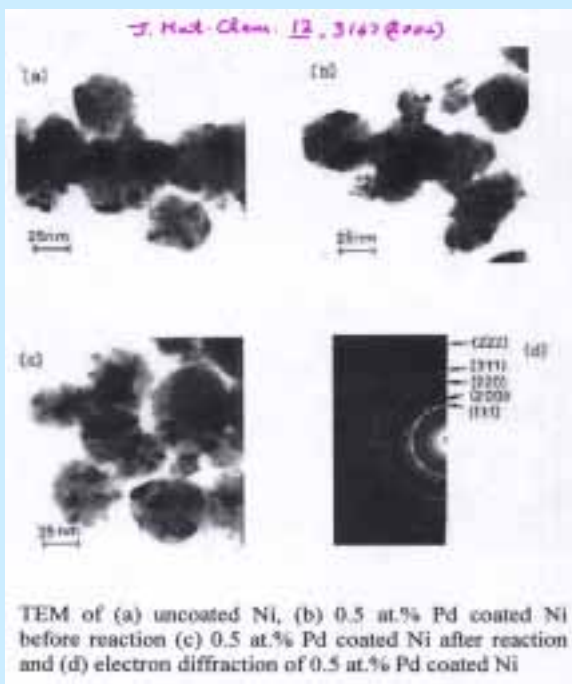
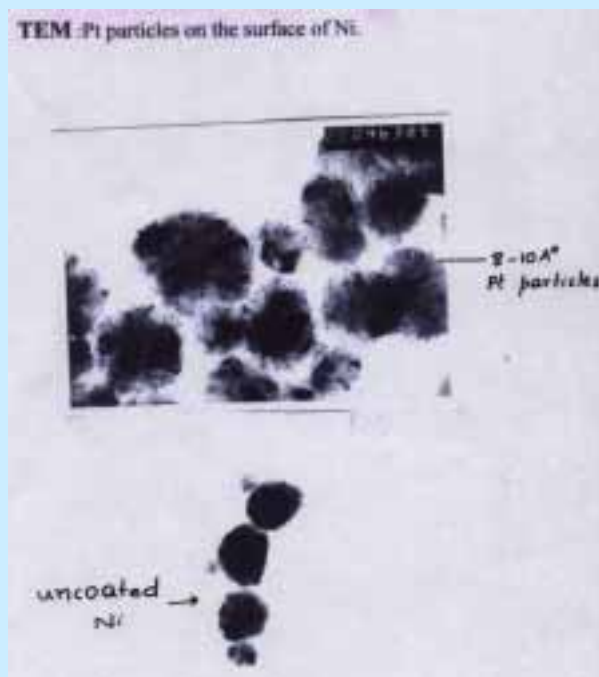
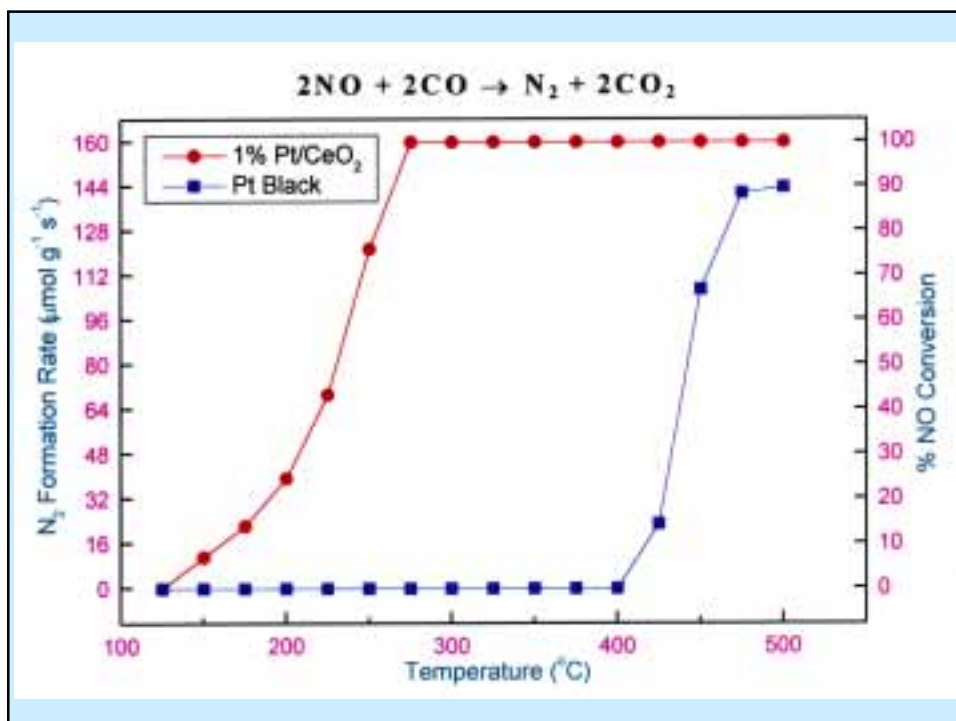
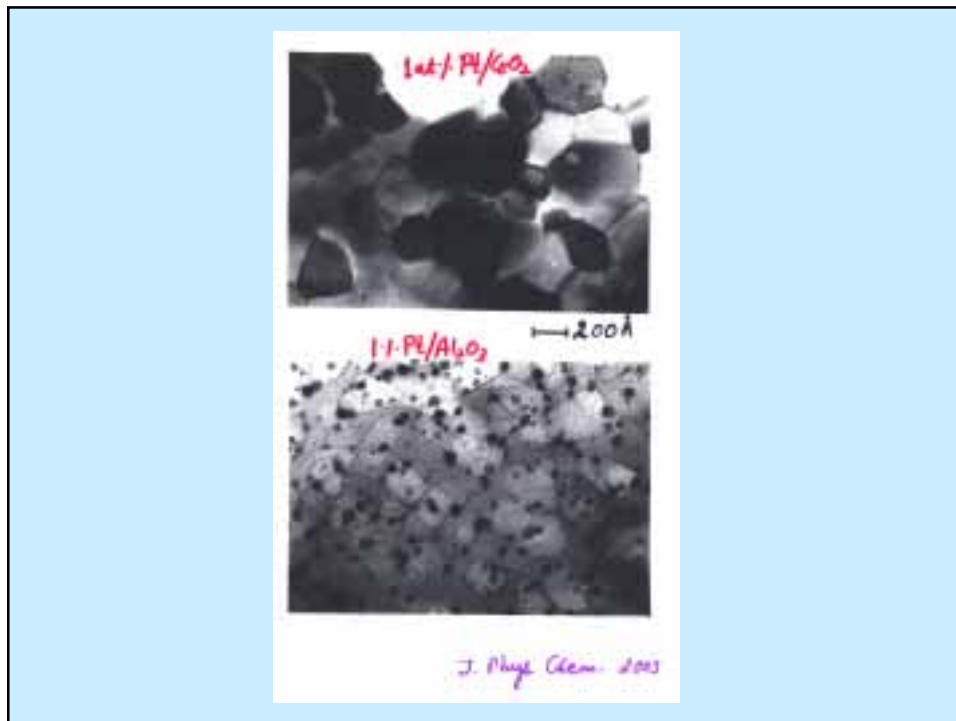


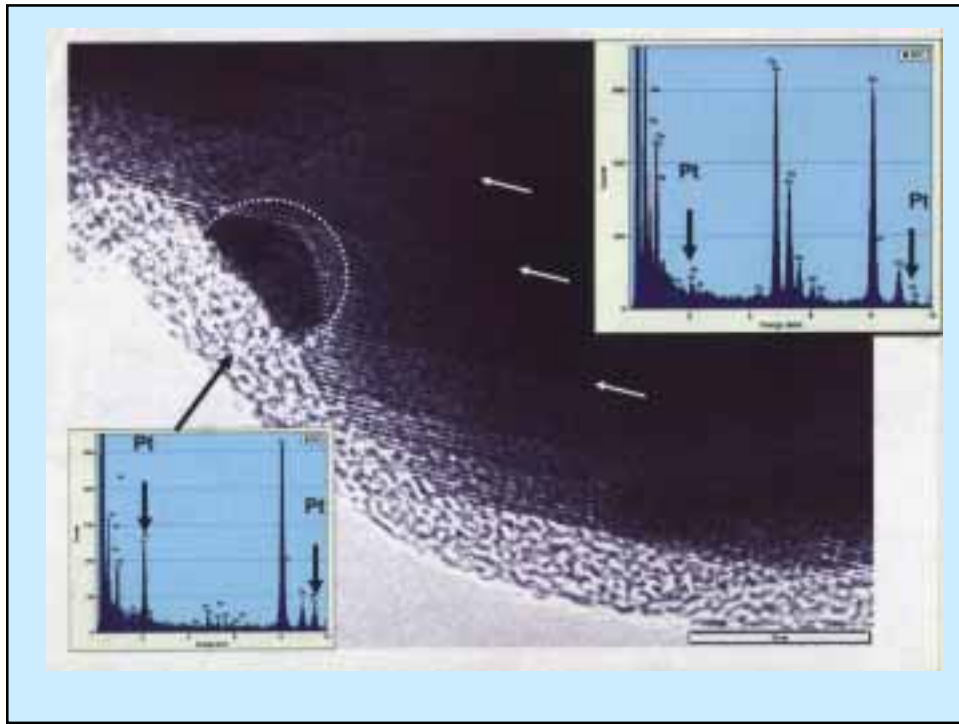
Table 1. Percentage conversion from nitrobenzene to aniline under 1.0 atm. H₂ (g) at room temperature in methanol solution and 6 hours reaction time.

Catalyst	Amount/mg	% conversion	TOF, s ⁻¹
Bulk Ni (Fluka)	50	2.5	
Raney Ni	55	8.9	
Uncoated Ni	50	9.3	
Pd	4.2	55	0.013
Pt	5.9	45	0.014
5wt% Pd/C as obtained	23	49	0.032
5wt% Pd/C activated	25	100	0.076
0.5at% Pd coated Ni	50	90	0.172
1 at% Pd coated Ni	50	100	0.102

TEM :Pt particles on the surface of Ni.



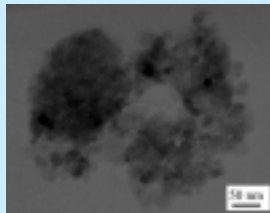




TEM



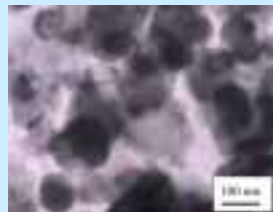
TiO₂(G)



TiO₂(H)



TiO₂(O)

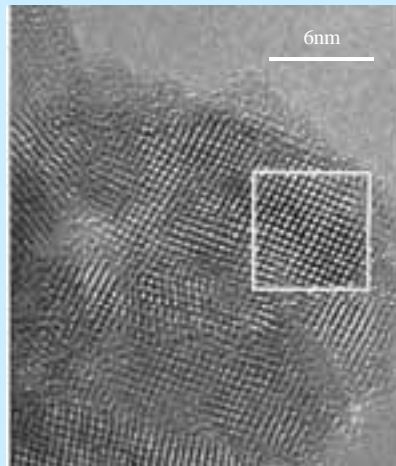


Degussa P25 TiO₂

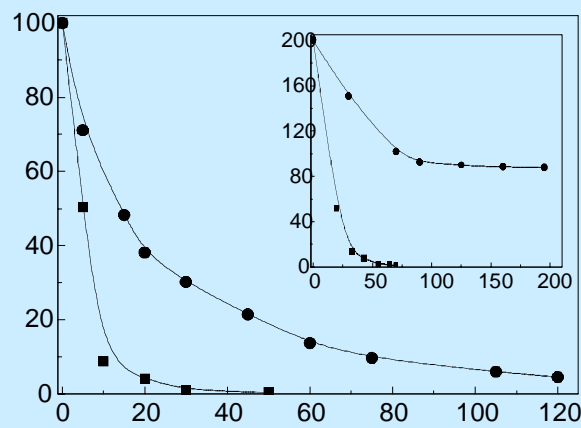


TiO₂(G)

High resolution image of combustion TiO₂



Methylene Blue Degradation under UV exposure



Rate coefficients,
 $\mu\text{mol L}^{-1}\text{s}^{-1}$

TiO₂(G) = 0.427

Degussa P25 = 0.271