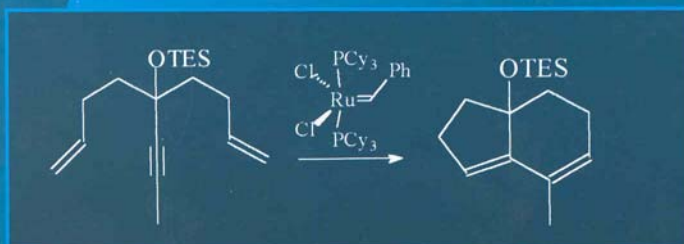


# Organic Syntheses Based on Name Reactions

Second Edition

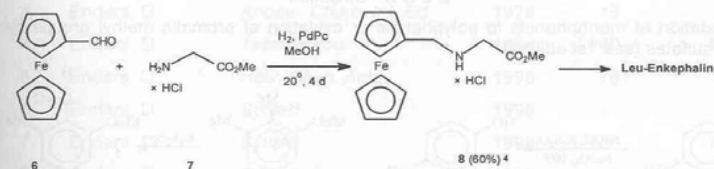
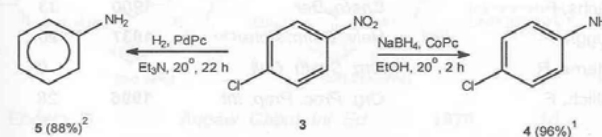
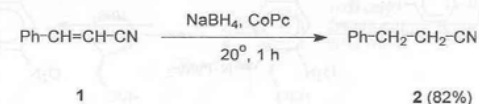


A. HASSNER AND C. STUMER



## E C K E R T Hydrogenation Catalysts

Metal phthalocyanines MPc (M=V, Mn, Fe, Co, and especially Pd) as very stable and selective hydrogenation or hydrogenolysis catalysts with adjustable chemospecificity, sometimes pH dependent.



1	Eckert, H.	<i>Angew. Chem. Int. Ed.</i>	1981	20	473
2	Eckert, H.	<i>Angew. Chem. Int. Ed.</i>	1983	22	881
		<i>Angew. Chem. Suppl.</i>	1983		1291
3	Eckert, H.	<i>Angew. Chem. Int. Ed.</i>	1986	25	159
4	Eckert, H.	<i>Z. Naturforsch.</i>	1991	46b	339

**p-Chloroaniline 4.**<sup>1</sup> To a well stirred mixture of NaBH<sub>4</sub> (2.7 g, 70 mmol) and Co-phthalocyanine, Co Pc catalyst, (0.5 g, 0.9 mmol) in ethanol (50 ml) **3** (1.58 g, 10 mmol) was added and stirred for 2 h at r.t.. Under ice cooling 5 N HCl was added until a pH=6-7. The catalyst was removed by filtration over a layer of sodium sulfate, the solvent evaporated and the residue partitioned with 1 N NaOH and ether. Drying and concentration of the organic layer afforded 1.22 g of **4** (96 %). For re-use the catalyst is washed with water and dried.