Supplementary Materials [of]

Atmospheric-Pressure Atomic Layer Deposited Bimetallic MCu/CeO_2 Catalysts for Enhanced Removal of CO from Fuel-Cell Hydrogen by Preferential Oxidation

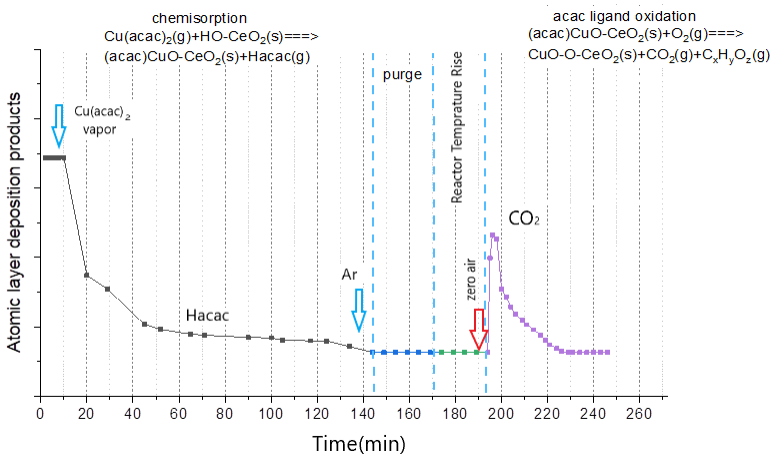

Fig.1. Variation of gas phase Hacac in self-limiting chemisorption step at 210°C and CO_2 of acac ligand oxidation step at 350°C.

Table.1. BET Surface area, average particle size,dispersion, reducibility and elemental analysis data of the catalysts.

Catalyst	BET (m^2/g)	Average particle size (nm)	%Dispersion	Cu wt.%	M[a] wt.%	µmol H_2 / g cat.	TPR First peak position	TPR Second peak position
CeO_2	95	8.7	-	-	-	-	-	-
ALD-Cu/CeO_2	79	10.5	93	2.30	-	687	165°C	188°C
ALD-NiCu/CeO_2	77	10.8	84	2.34	0.30	733	190°C	222°C
IMP-NiCu/CeO_2	62	13.4	66	2.20	0.30	639	285	302
ALD-RuCu/CeO_2	68	12.3	70	2.45	0.86	747	117°C	-

[a] M represents the second deposited metal.

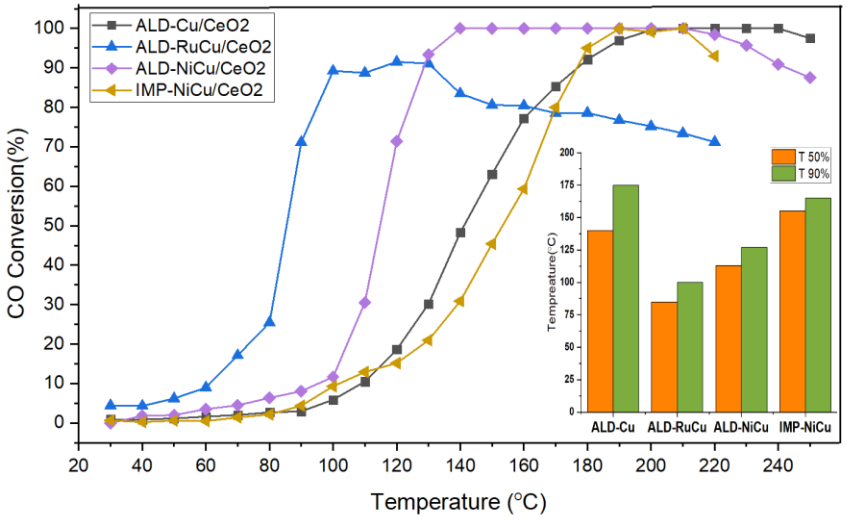

Fig.2. CO conversion versus temperature for the catalysts.