Supporting Online Material for

Highly Active Au-Cu-based Catalysts for Acetylene Hydrochlorination Prepared by Organic Aqua Regia

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Table 1. Catalytic performance of different Au-Cu-based catalysts.

Catalysts	Temperature °C	GHSV h^{-1}	Maximum Conversion %	Deactivation Rate[a] h^{-1}	Ref
Au–Cu/C	170	1200	72	0.92	[1]
Au–Cu/AC	180	1200	89	6.75	[2]
Au–Co(III)–Cu(II)/AC	150	360	99	0.08	[3]
Au/TCCA/AC	180	600	90	0.83	[4]
0.1Au1.0Cu/AC	150	120	99	24.6	[5]
Au-Cu-SH/AC	180	1200	75	1.66	[6]
AuCuCs/AC	180	740	89	0.76	[7]
Au-Cu-IL/AC	180	740	75	−0.25	[8]
$AuCu_1$/AC(OAR)	180	1480	80	0.04	This work

[a] Deactivation rate (h^{-1}) was calculated from ($X_{Maximum}$ % − X_{Stop}%) /(T_{Stop} − $T_{Maximum}$). X represents for the acetylene conversion.

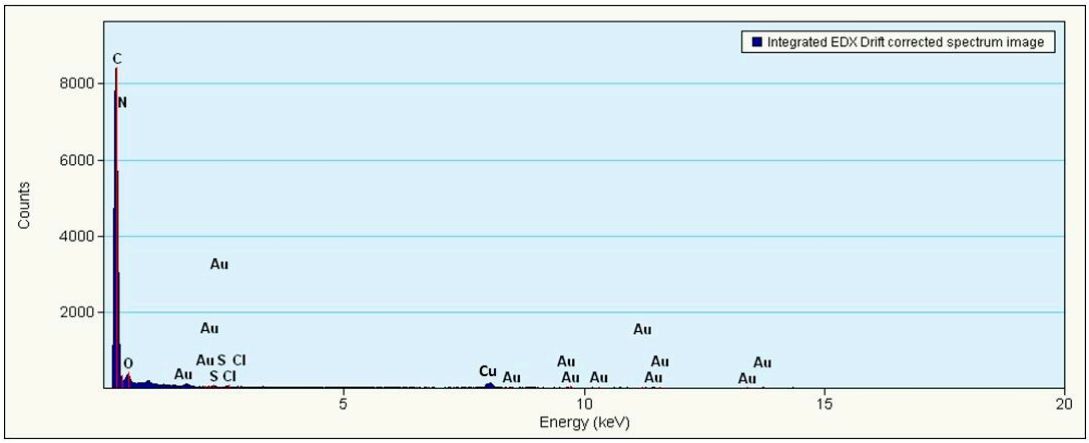

Figure 1. EDX spectra of fresh $AuCu_1$/AC(OAR) catalyst.

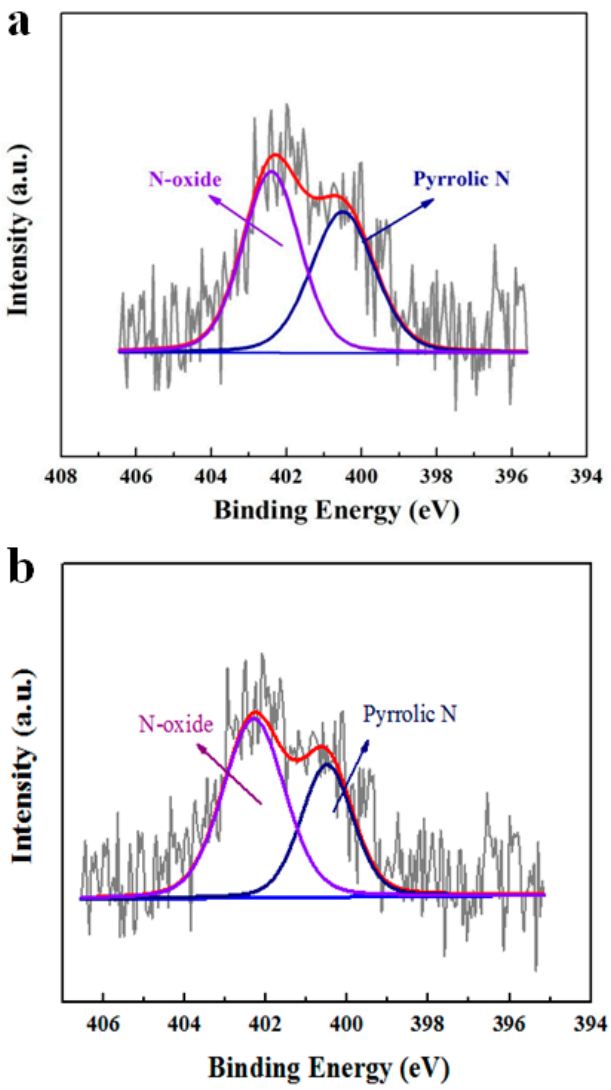

Figure 2. High-resolution N 1s spectra of the (**a**) fresh and (**b**) used $AuCu_1$/AC(OAR) catalysts.

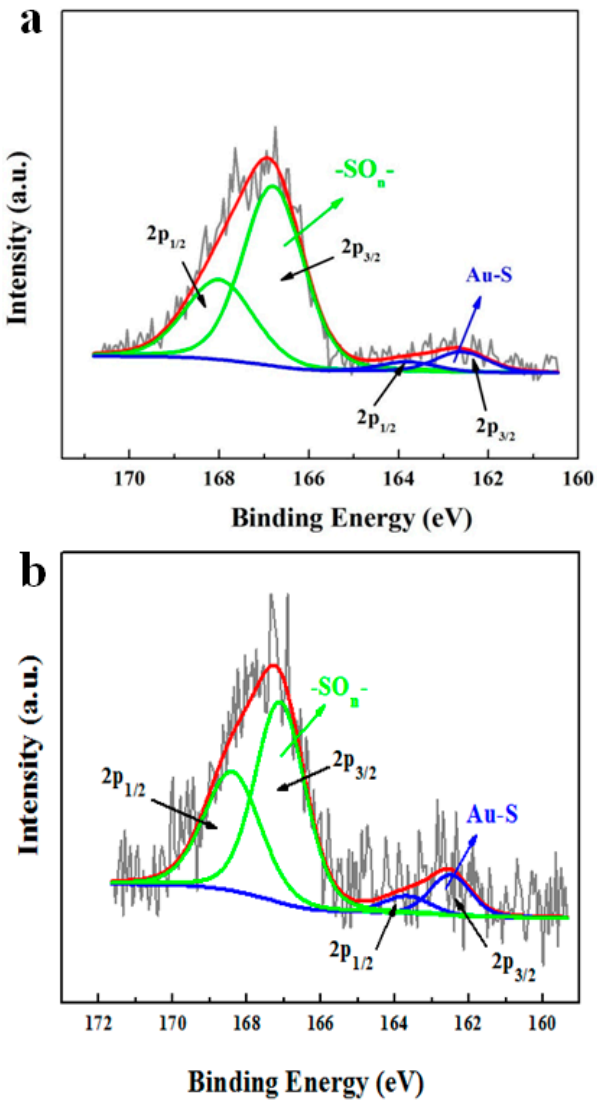

Figure 3. High-resolution S 2p spectra of the (**a**) fresh and (**b**) used AuCu$_1$/AC(OAR) catalysts.

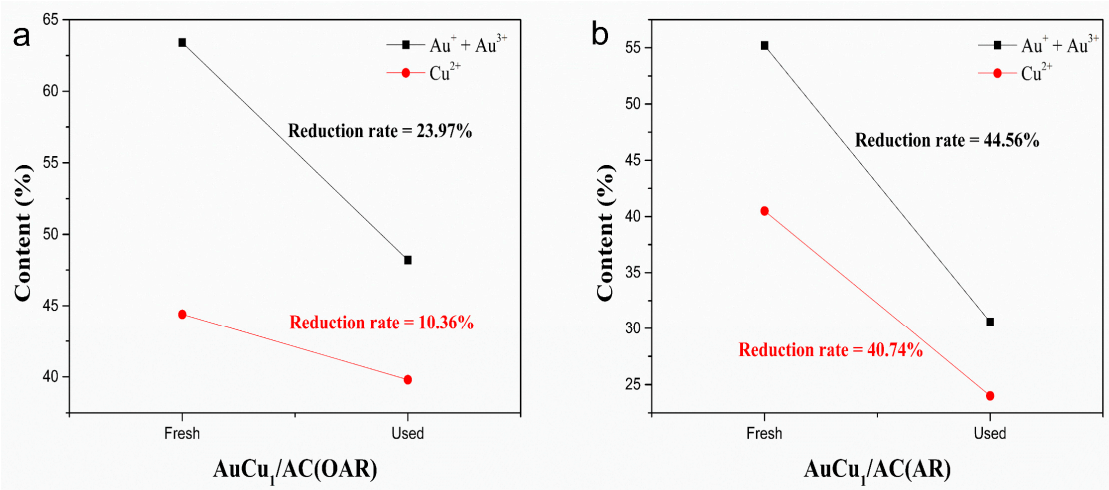

Figure 4. The reduction rate for cationic Au and Cu species: (**a**) AuCu1/AC(OAR) and (**b**) AuCu1/AC(AR) catalysts.

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