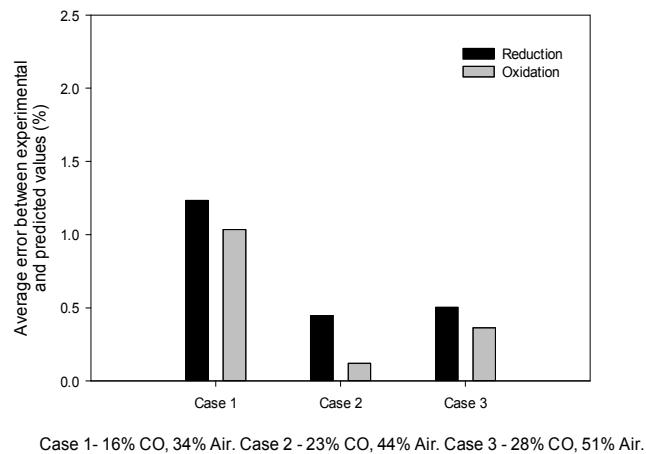


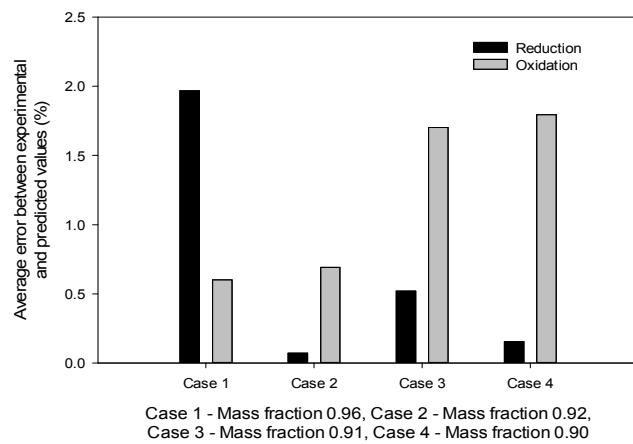
## SUPPORTING INFORMATION AVAILABLE

Supporting information to the results is included in this section.



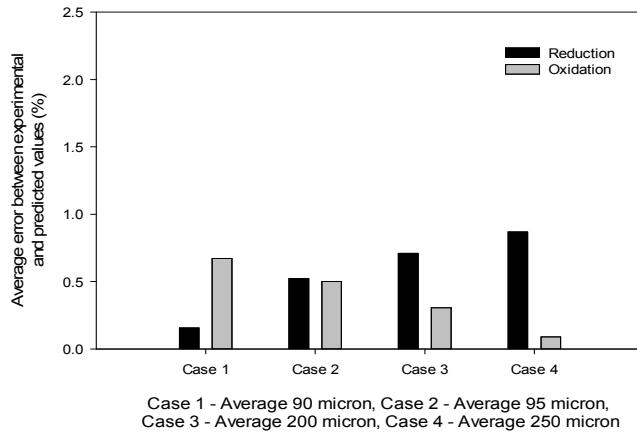
Case 1- 16% CO, 34% Air. Case 2 - 23% CO, 44% Air. Case 3 - 28% CO, 51% Air.

**Figure 1.** Average error between experimental and predicted values at each condition

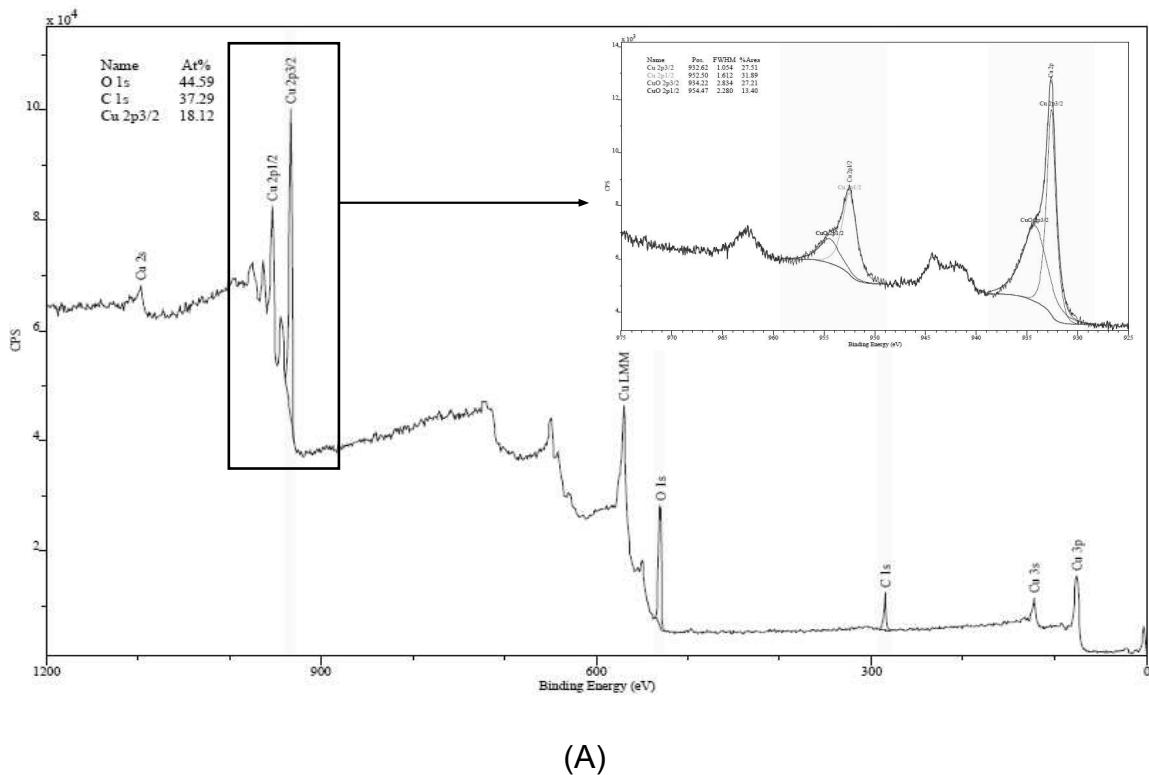


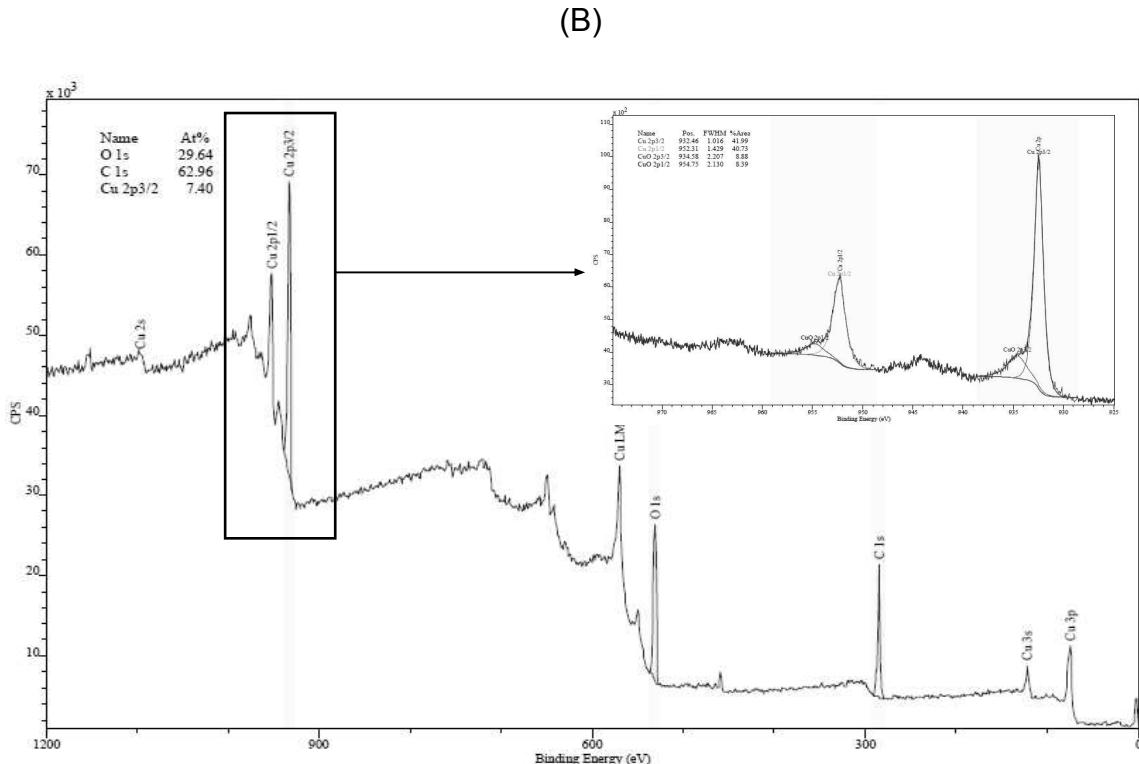
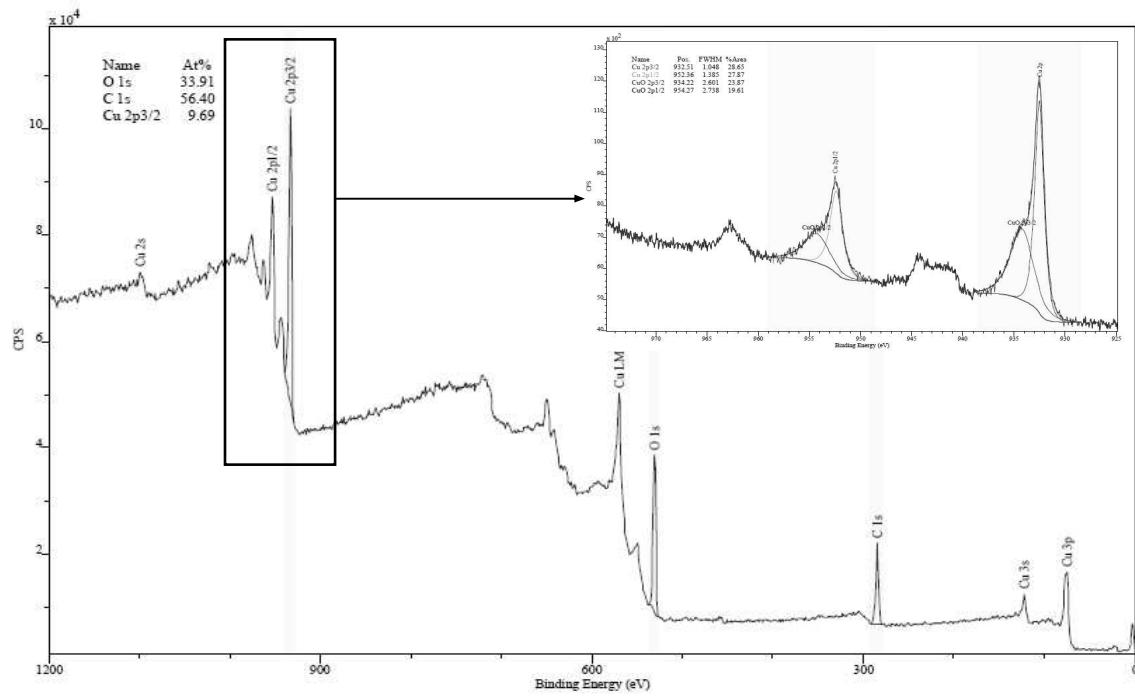
Case 1 - Mass fraction 0.96, Case 2 - Mass fraction 0.92,  
Case 3 - Mass fraction 0.91, Case 4 - Mass fraction 0.90

**Figure 2.** Average error between experimental and predicted values at each condition



**Figure 3.** Average error between experimental and predicted values at each condition





**Figure 4.** XPS of CuO particles (A) fresh (B) used at 800°C five re-dox cycles (C) 800°C reduced particles in CO

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