

## Supporting Information

**Manuscript Title:** Metal Recovery from Hydroprocessing Spent Catalyst : A Green Chemical Engineering Approach

**Manuscript ID:** ie-2013-024484

### List of Figures

Figure 1 : Effect of stirring speed on (%) metal extraction to investigate the external mass transfer resistance (**Reaction Conditions:** molar conc. of EDTA = 0.4M, S/L = 1/15, temperature = 120°C, time = 4h, particle size = 100-300 $\mu$ , pH = 9)

Figure 2 : Effect of particle size distribution on (%) metal extraction to investigate the internal mass transfer resistance (**Reaction Conditions:** molar conc. of EDTA = 0.4M, S/L = 1/15, temperature = 120°C, time = 4h, stirring speed = 400 rpm, pH = 9)

Figure 3 : Extraction efficiency of Fresh EDTA and Recovered EDTA (**Reaction Conditions:** molar conc. of EDTA = 0.4M, S/L = 1/15, temperature = 120°C, time = 4h, stirring speed = 400 rpm, particle size = 100-300 $\mu$ )

Figure 4 : NMR spectra of (A) Fresh EDTA (B) REDTA-IIcycle (C) RETDA-IVcycle

Figure 5 : FT-IR Spectra of (A) Fresh EDTA (B) REDTA-II cycle

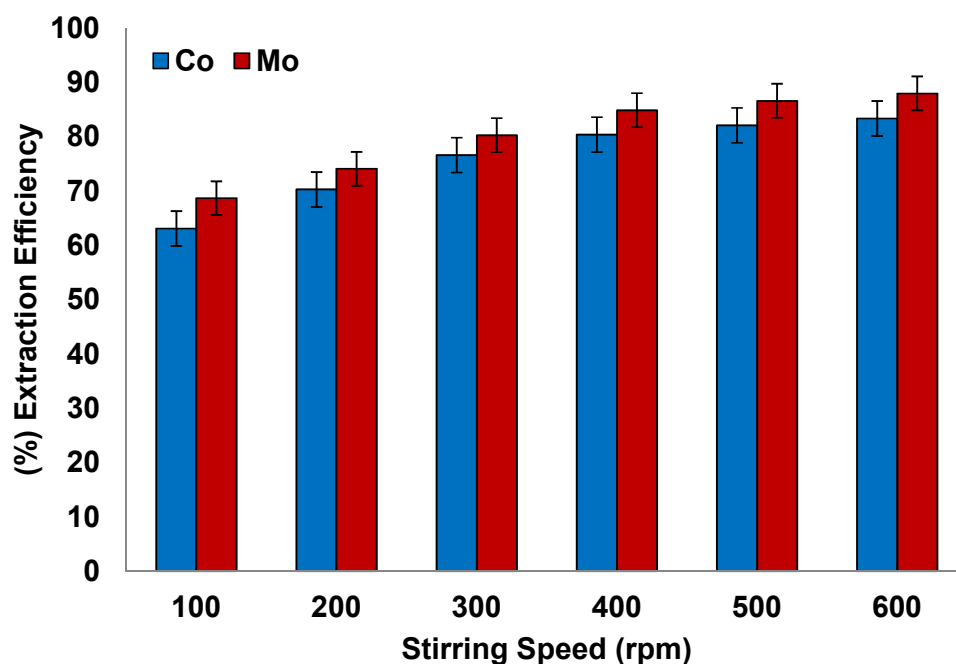


Figure 1 : Effect of stirring speed on (%) metal extraction to investigate the external mass transfer resistance (**Reaction Conditions:** molar conc. of EDTA = 0.4M, S/L = 1/15, temperature = 120°C, time = 4h, particle size = 100-300 $\mu$ , pH = 9)

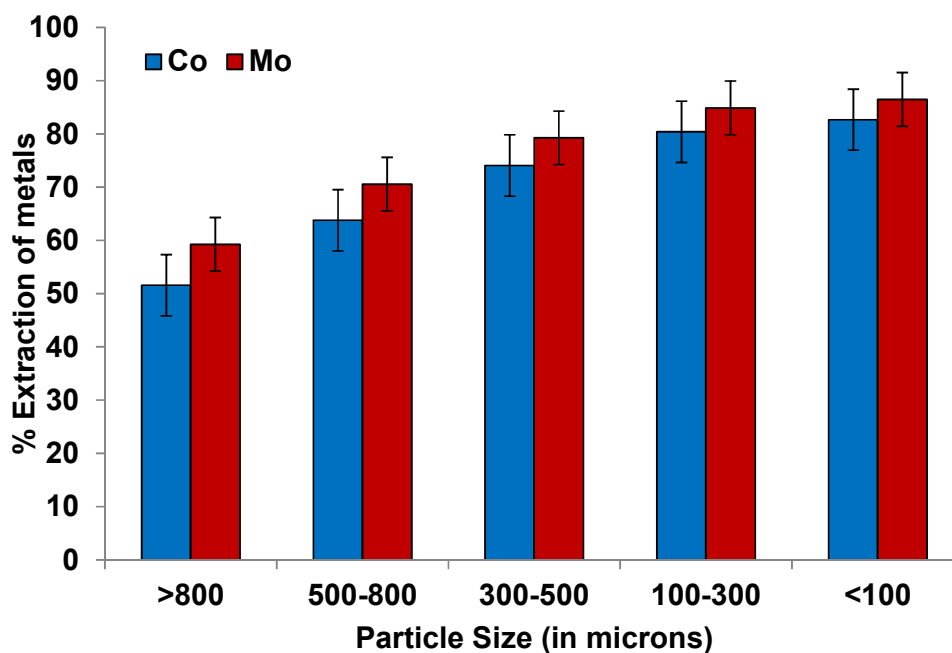


Figure 2 : Effect of particle size distribution on (%) metal extraction to investigate the internal mass transfer resistance (**Reaction Conditions:** molar conc. of EDTA = 0.4M, S/L = 1/15, temperature = 120°C, time = 4h, stirring speed = 400 rpm, pH = 9)

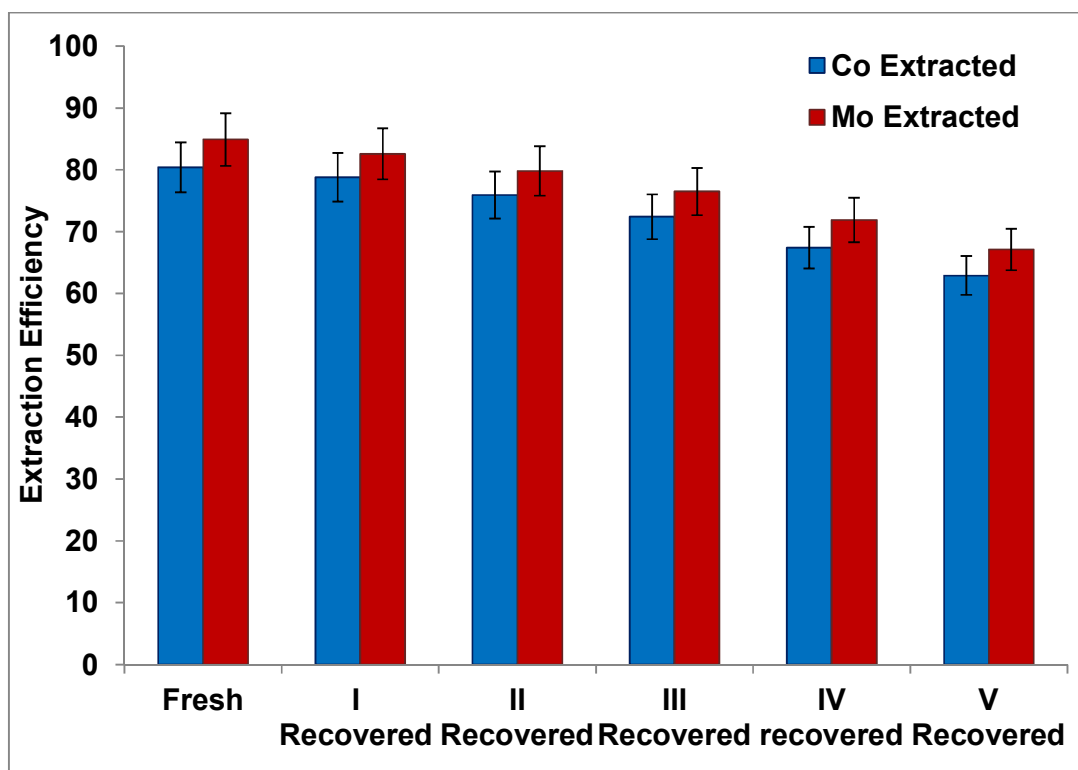


Figure 3 : Extraction efficiency of Fresh EDTA and Recovered EDTA (**Reaction Conditions:** molar conc. of EDTA = 0.4M, S/L = 1/15, temperature = 120°C, time = 4h, stirring speed = 400 rpm, particle size = 100-300 $\mu$ )

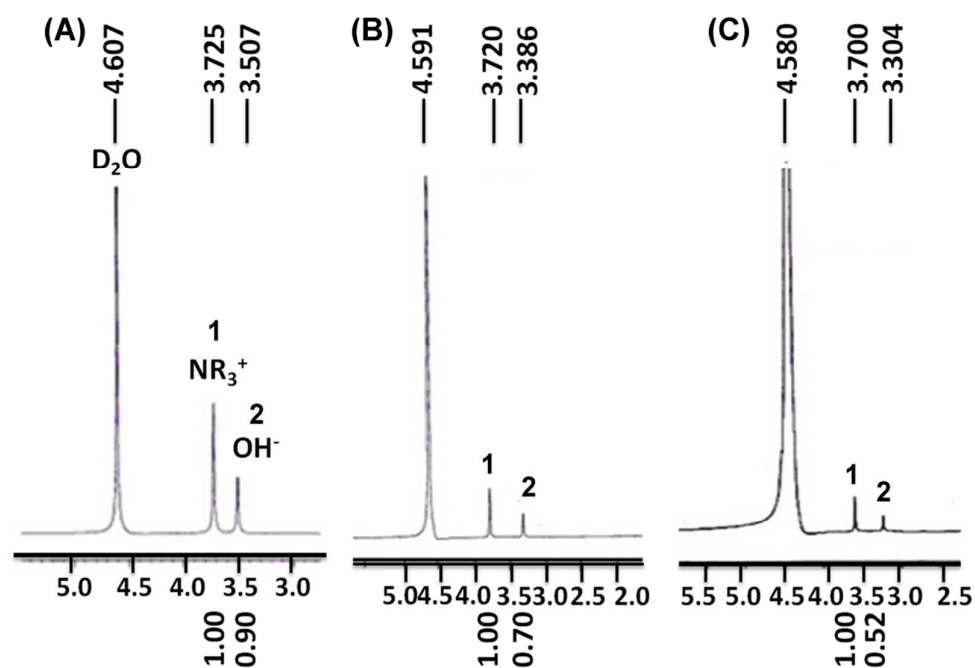


Figure 4 : NMR spectra of (A) Fresh EDTA (B) REDTA-IIcycle (C) RETDA-IVcycle

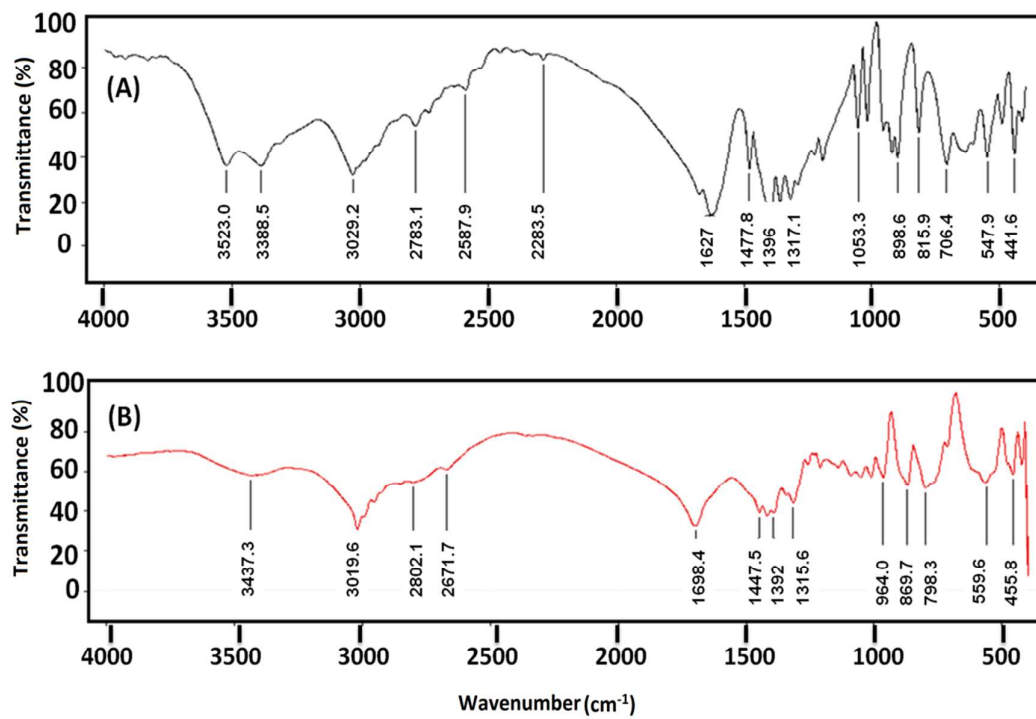


Figure 5 : FT-IR Spectra of (A) Fresh EDTA (B) REDTA-II cycle