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# Selective Recovery of Palladium from PGM Containing Hydrochloric Acid Solution Using Thiocarbamoyl-substituted Adsorbents

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Two thiocarbamoyl compounds, monomer-type 4-*tert*-butyl(dimethylthiocarbamoyloxy) benzene (**1**) and dimer-type 1,1'-bis[(dimethylthiocarbamoyl)oxy]-2,2'-thiobis[4-*t*-butylbenzene] (**2**), were impregnated on ambertite XAD-7 resin for selective recovery of palladium from platinum group metals (PGM) containing a HCl solution. Pd(II)-ion adsorption performance of **1** and **2** impregnated resins were carried out in batch mode by varying HCl concentration, shaking time, Pd(II) concentration, and adsorbent amount. The monomer-impregnated adsorbent showed high Pd(II) sorption (94.1%) as compared with dimer-impregnated adsorbent (74.4%) in 1 M HCl media. Both monomer- and dimer-impregnated adsorbents exhibited a selective Pd(II) sorption from a mixed solution of PGM (Pd, Pt, and Rh). Pd(II)-ion desorption from Pd(II) adsorbed adsorbents were carried out using HCl-thiourea mixture as a desorption reagent. The results showed that both resins were suitable for selective separation of Pd(II) from PGM secondary resources.

***Keywords*** : Platinum group metals, Thiocarbamoyl- impregnated adsorbents, Pd(II) recovery