

Selective recovery of platinum from secondary sources using molecularly imprinted dithiadiamide ligand-based polymer

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Polymerizable bidentate Pt-selective, sulfur-containing amide ligands were synthesized from dibromoalkanes and mercaptoacetanilide. The resulting dithiadiamides with different number of carbons (i.e. 1–3) in alkane linker were characterized by high-resolution ¹H and ¹³C NMR spectroscopic methods. These ligands were complexed with Pt(II) salt to prepare the molecularly imprinted ligands (MIL). Molecularly imprinted polymers (MIP) were prepared by copolymerizing the Pt(II)–MIL complex with ethylene glycol dimethacrylate (EGDMA) via radical copolymerization. Three types of MIPs based on alkane chain linker were evaluated for their adsorption capacity and selectivity for Pt. This research was supported by the National Research Foundation of Korea (NRF) funded by the Ministry of Science and ICT (No. 2018R1D1A1B07047503 and No. 2017R1A2B2002109) and by the Ministry of Education (No. 2009–0093816).