

## Evaluation of novel ligand with highly extractability and selectivity for Palladium

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**D**esign and evolution of a new promising extractants for selective extraction and separation of palladium from aqueous solutions was done, which is an important subject not only from the point of monetary and high demand but also from waste treatment management.

Recently, attentions have been removed to hydrometallurgical process for recovery of platinum group metals (PGMs) from secondary sources because most of the PGMs produce in the world is recovery by solvent extraction techniques. This represents one of the most important subject from economic and environment viewpoints. For this purpose, many ligands have been developmental and used during the last decades.

Theses ligands have many limitations like slow kinetics of extraction, low solubility, poor decontamination factor, pH sensitivity and instability in acidic medium.

The present study focusing on using of novel multidentate ligand namely; N,N,N',N'-tetra-octyl-dithiodiglycolamide (TODTDGA) as promising solvent extraction reagent to mainly perform the separation of Pd from other PGMs and from some commonly associated elements (Pt(IV), Rh(III), Fe(III), Cu(II), Ni(II) and Zn(II)) contained in concentrated hydrochloric acid or nitric acid media. Liquid-liquid batch extraction studies were investigated to understand the influence of various parameters on the extraction behavior of palladium. The extractant showed great extractability and selectivity for palladium than the other investigated metal ions, which showed negligible extraction values. The obtained results indicated that, the novel ligand could be a potential candidate for separation and recovery of palladium from spent catalyst dissolver (SSCD) solution.

### Biography:

At present Prof. Emad Mowafy, working as a professor in chemistry department, faculty of Science, University of Hail, Saudi Arabia (2009-present). Before coming to Saudi Arabia, Dr. Mowafy had been working in leading research centers (Hot Labs. Center- EAEA) and many international advanced research projects. He earned all his degrees and titles in Atomic Energy Authority, Egypt: Doctor of inorganic and nuclear chemistry 1999, the title of professor in nuclear and radiation chemistry in 2009. He has more than 80 technical publication including reputed journal paper, international conference proceeding and book chapters. He has served as Ph.D examiner for some international universities as well as reviewer in several reputed international journals. He has successfully supervised over 15 (MS and Ph.D) students in chemistry. A major research focus is solvent extraction technology. In addition, Dr. Mowafy designed and developed many novel organic extractants and inorganic ion exchanger advanced materials for selective separation of economic and strategically elements from their aqueous waste solutions. Prof. Mowafy is a member of more than ten societies including American Chemical Society. He has served as organizing committee member of several international symposium and conferences related to the new trends in chemistry, material and separation technology. He received many medals and the state Prize in science (chemistry) 2008.