

LIQUID-LIQUID EXTRACTION OF PLATINUM FROM CHLORIDE MEDIA BY *N,N'*-DIMETHYL-*N,N'*-DICYCLOHEXYLTETRADECYLMALONAMIDE

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*Liquid-liquid extraction of platinum(IV) from chloride media was carried out using *N,N'*-dimethyl-*N,N'*-dicyclohexyltetradecylmalonamide (DMDCHTDMA) in 1,2-dichloroethane. Platinum can be effectively extracted by DMDCHTDMA without addition of tin(II) chloride, since extraction percentages (%E) of 88% and 99% have been achieved from 6 M and 8 M HCl, respectively. Moreover, platinum can be successfully stripped through a simple contact with a 1 M HCl solution. The effect of some experimental parameters such as equilibration time, diluent, extractant and HCl concentrations was systematically investigated. The loading capacity of DMDCHTDMA was also evaluated. Data obtained from successive extraction-stripping cycles suggest a good stability pattern of DMDCHTDMA. Preliminary extraction data achieved with single metal ion solutions pointed out to a possible separation of platinum(IV) from palladium(II).*

Keywords: *Platinum, malonamide derivatives, liquid-liquid extraction, hydrochloric acid*

INTRODUCTION

Platinum is a widely used metal nowadays; its multiple applications have radically increased in the last century, spreading from catalysis, jewelry, electronic and electric devices, to medical instruments, dental equipment, space materials, and even included in anticancer drugs. One of its essential uses is in automotive catalytic converters, where it converts the harmful emissions into carbon dioxide, nitrogen, and water. Nearly one-third of newly mined platinum is estimated to be used in this fashion. In addition, new applications are being discovered almost daily, amidst a supply that is extremely scarce.^[1] In fact, platinum is a very rare metal in the Earth's crust, the worldwide reserves being concentrated only in two regions, South Africa and Siberia.^[2]

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