Ain Shams University
Faculty of Science

EXTRACTTION OF URANIUM AND COPPER FROM CALCAREOUS SHALE, UM BOGMA FORMATION, G. ALLOUGA, SOUTH WESTERN, SINAI-EYGPT.

A Ph.D. Thesis Submitted

To

Chemistry Department
Faculty of Science
Ain Shams University

By

Soaad Mohamed Sabry Ahmed Elashry

M. Sc. (**Inorganic Chemistry**)
Nuclear Materials Authority

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Chemistry Department
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For the requirements
Degree of Doctor of Philosophy (Ph.D.) in Science (Chemistry)

Under Supervision of

Prof. Dr. Mohamed M. Abo-Aly
Prof. of Inorganic Chemistry
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Prof. Dr. Sofia Yahia Afifi
Prof. of Geochemistry
Vice Chairman of Nuclear Materials Authority

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Soaad M. El-Ashry

Abbreviations used

ADU	Ammonium diuranate
AMP	Ammonium molybdophosphate
BSE	Back scatter electronic
Cuprizone	Oxalic acid bis(cyclohexylidene hydrazide)
DEHPA	Diethylhexyl-phosphoric acid
Ea	Activation energy
EDTA	Ethylene di amine tetra acetic acid
EDX	Energy dispersive X-ray
ESEM	Environmental scanning electron microscope
g/L	Gram per litre
HCHO	Formaldehyde
hr	Hour
IAEA	International Atomic Energy Agency
ICP-AES	Inductively coupled plasma mass spectrometer
ICP-OES	Inductively coupled plasma optical emission spectrometer
IRA-400	Amberlit IRA-400 resin
ISL	Insitu leaching
K_d	Distribution constant
L.O.I	Loss on ignition
LIX984N	2- hydroxy-5-nonylacetophenone oxime
NMA	Nuclear Materials Authority
ppm	Part per million
R	Universal gas constant, 8.314 $Jmol^{-1}$ K^{-1}
REEs	Rare earth elements
RIa-mag	Glycidyl methacrylate chelating resin
rpm	Round per minute

S/L	Solid- liquid ratio
T	Reaction temperature, K^o
TBP	Tributyl phosphate
TPPO	Triphenyl phosphine oxide
w.s.r	Wet settled resin
XRD	X-ray diffraction
XRF	X-ray fluorescence
ΔH	Enthalpy change
ΔS	Entropy change

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