

การพัฒนาวิธีการวิเคราะห์ธาตุยูเรเนียมในน้ำ



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DEVELOPMENT OF AN ANALYTICAL METHOD FOR THE
DETERMINATION OF URANIUM IN WATER

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บทคัดย่อ

ได้พัฒนาวิธีวิเคราะห์ปริมาณธาตุยูเรเนียมในน้ำ ด้วยวิธีเทอร์มอลนิว-
ตรอนแอกทีเวชัน และดูดซับยูเรเนียมกับมันตรังสีด้วยแอนไอออนเอกซ์เชนจ์เรซิน
ในสารละลายผสมของ เอทานอลและกรดไฮโดรคลอริก วิเคราะห์เปรียบเทียบผล
การทดลองระหว่างวิธีนี้กับวิธีฟลูออโรเมตรี ซึ่งกระทำโดยการสกัดยูเรเนียมด้วย
เอธิลอะซิเตต แล้วหลอมกับฟลักซ์ผสมหนัก 0.3 กรัม ที่อุณหภูมิ 600-700 องศา-
เซลเซียส หลังจากนั้นได้ประยุกต์ใช้วิธีทั้งสองวิเคราะห์ ตัวอย่างน้ำจากหลุมเจาะ
จำนวน 21 ตัวอย่าง นำจากแม่น้ำและลำคลองบริเวณต่าง ๆ 6 ตัวอย่าง นอกจากนี้
นั้นยังได้ทดลองกับน้ำทะเลบริเวณอ่าวไทยอีก 1 ตัวอย่างด้วย.

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ABSTRACT

A rapid procedure has been developed for the quantitative analysis of uranium in water using thermal neutron activation and selective adsorption of the radio-uranium on an anion exchange resin column from ethanol/hydrochloric acid mixture. The analytical results were compared to those obtained by the fluorometric method where uranium was first extracted with ethyl acetate and then fused with 0.3 g flux mixture at $600^{\circ} - 700^{\circ}\text{C}$. A total of 21 drill-hole water samples, 6 fresh water from rivers and canals and one sea water sample from the Gulf of Thailand were analysed.



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CONTENTS

	PAGE
ABSTRACT (in Thai).....	iv
ABSTRACT.....	v
ACKNOWLEDGEMENTS.....	vi
LIST OF TABLES.....	x
LIST OF FIGURES.....	xii
CHAPTER	
I INTRODUCTION.....	1
II THEORY.....	4
2.1 Neutron Activation Analysis.....	4
2.1.1 Basic Concepts of Neutron Activa- tion Analysis (NAA).....	4
2.1.2 Sensitivity of the Method of NAA	6
2.1.3 Errors in the Method of NAA....	7
2.1.4 Quantitative Analysis of Uranium by NAA.....	8
2.1.5 Separation of Uranium on Anion Exchange Resin.....	11
2.2 FLUOROMETRY.....	14
2.2.1 Basic Concepts of Fluorometry	14
2.2.2 Quantitative Analysis of Uranium by the Fused Pellet Method.....	18
2.2.3 Solvent Extraction of Uranium	20



	PAGE
III EXPERIMENTS.....	23
3.1 NEUTRON ACTIVATION ANALYSIS.....	23
3.1.1 Reagents and Chemicals.....	23
3.1.2 Neutron Irradiation.....	25
3.1.3 Radiation Measurements.....	26
3.1.4 Chemical Separation.....	32
3.1.5 Data Processing.....	35
3.1.6 Effect of Amounts of Resin on the Separation of Uranium.....	37
3.1.7 Effect of Flow-Rate.....	38
3.1.8 Limit of Detection.....	38
3.2 FLUOROMETRY.....	40
3.2.1 Reagents and Chemicals.....	40
3.2.2 Apparatus.....	43
3.2.3 Fluorometric Determination of Uranium.....	43
3.2.4 Effect of Amounts of Flux Mixture	51
3.2.5 Relation between Fluorometric Reading and Uranium Concentration	51
3.2.6 Extraction Yield of Uranium by Ethyl acetate.....	51
3.2.7 Limit of Detection.....	52
IV RESULTS.....	53
4.1 NEUTRON ACTIVATION ANALYSIS.....	53
4.1.1 Low Energy Spectra of Uranium	53
4.1.2 Effect of Amounts of Resin on the Percentage Adsorption of Uranium	53

	PAGE
4.1.3 Effect of Flow-Rate.....	59
4.1.4 Limit of Detection.....	62
4.1.5 Results of the Quantitative Analysis	67
4.2 FLUOROMETRY.....	77
4.2.1 Effect of the Amounts of Flux Mixture at very low Uranium Concentration (part per billion region).....	77
4.2.2 Relation between Fluorometric Reading and Uranium Concentration	79
4.2.3 Extraction Yield of Uranium by Ethyl acetate.....	81
4.2.4 Limit of Detection.....	84
4.2.5 Results of the Quantitative Analysis	85
V CONCLUSION.....	91
REFERENCE.....	94
VITA.....	97

LIST OF TABLES

TABLE		PAGE
2.1	Neutron capture cross-section of uranium with thermal and resonance neutron.....	11
2.2	Strong Base Anion Exchange Resin from different Producers.....	13
3.1	Standard x-rays for the calibration of the HpGe Detector.....	27
4.1	Effect of amounts of resin on the adsorption of uranium.....	58
4.2	Effect of flow-rate on the adsorption of uranium on resin.....	59
4.3	Minimum determinable concentration of uranium	62
4.4	Detection limit for the non-destructive neutron activation analysis of uranium in tri-distilled water.....	65
4.5	Detection limit for the non-destructive neutron activation analysis of uranium in stripped drill-hole water.....	66
4.6	Comparison of the limit of detection of uranium in water at different irradiated position.....	67
4.7	Results of the quantitative analysis of uranium in water samples by NAA.....	73
4.8	Fluorometric reading of 50 $\mu\text{g}/\text{dm}^3$ uranium at different amount of flux mixture.....	77

TABLE		PAGE
4.9	Relation between fluorometric reading and uranium concentration.....	79
4.10	Results of ethyl acetate extraction in the recovery of uranium from water.....	81
4.11	Percent recovery of uranium from water at various sequential extraction stages.....	84
4.12	Minimum determinable concentration of uranium in water by fluorometry.....	85
4.13	Results of the quantitative analysis of uranium in water samples by fluorometry	88
5.1	Uranium concentration in water.	92

LIST OF FIGURES

FIGURE		PAGE
2.1	The decay scheme of U^{239}	10
2.2	The decay scheme of Np^{239}	10
2.3	Structure of a quaternary ammonium anion exchange resin.....	12
2.4	Examples of molecules with π electrons in various spin configuration.....	16
2.5	Schematic energy-level diagram illustrating the energy changes involved in absorption, fluorescence, and phosphorescence.....	17
3.1	Block diagram of the gamma-counting system	28
3.2	The set-up of the gamma counting system	29
3.3	Calibration curve of the HpGe Detector at gain 10/10.....	30
3.4	Counting geometry (in cm).....	31
3.5	Schematic diagram of the experimental set-up.....	33
3.6	Simplified flow diagram of the uranium separation process.....	34
3.7	Gamma ray pulse height distribution curve	36
3.8	Schematic diagram of the pellet puncher	41
3.9	Working mechanism of the puncher.....	42
3.10	Galvanek-Morrison Fluorometer Mark V Jarrell-Ash Company.....	44

FIGURES	PAGE
3.11	Schematic diagram of a fluorometric measurement for solids sample 45
3.12	Spectral energy distribution Sylvania Black-light Blue lamps..... 46
3.13	Simplified flow diagram for the determination of uranium by Fluorometry..... 50
4.1	Gamma spectrum of the standard uranium solution after the separation process..... 54
4.2	Gamma spectrum of the sample after the separation process..... 55
4.3	Gamma spectrum of the sample before the separation process..... 56
4.4	Decay curve of the 74.5 keV peak from the separated sample..... 57
4.5	Effect of amounts of resin on the adsorption of uranium..... 60
4.6	Effect of flow-rate on the adsorption of uranium..... 61
4.7	Relation between the concentration and the activity of uranium after the separation procedure..... 64
4.8	Uranium in tri-distilled water by the non-destructive activation analysis at Rotary Specimen Rack position..... 68

FIGURE		PAGE
4.9	Uranium in tri-distilled water by the non-destructive activation analysis at CA-2 position.....	69
4.10	Uranium in stripped drill-hole water by non-destructive activation analysis at Rotary Specimen Rack position.....	70
4.11	Uranium in stripped drill-hole water by non-destructive activation analysis at CA-2 position.....	71
4.12	Fluorometric reading of $50 \mu\text{g}/\text{dm}^3$ uranium at different amount of flux mixture.....	78
4.13	Fluorometric reading of $10 \mu\text{g}/\text{cm}^3$ uranium at different amount of flux mixture.....	80
4.14	Relation between uranium concentration and fluorometric reading.....	82
4.15	The relation between the concentration and the fluorescence intensity of uranium....	86