

C216921 : MAJOR NUCLEAR TECHNOLOGY

KEY WORD: POLONIUM-210 / EXTRACTIVE SCINTILLATOR / ALPHA LIQUID SCINTILLATION
COUNTER

NAWARAT WATTHANACHAI : ALPHA RADIATION MEASUREMENT FROM
POLONIUM-210 IN SEA FOOD SAMPLES USING A LIQUID SCINTILLATION
COUNTER. THESIS ADVISOR : ASST. PROF. CHYAGRIT SIRIUPATHUM,
THESIS CO-ADVISOR : MANIT SONSUK. 58 PP. ISBN 974-584-712-7

The object of this work is to develop the process for cocktail formulation and the measurement of α -radiation from Po-210 in sea food by liquid scintillation spectrometer using extractive scintillator. The optimum cocktail formula was composed of 0.2 M tri-n-octylphosphine oxide as extractant, using 8 g/l of butyl-PBD in toluene as scintillator. The chemical yield of the whole process was $85.16 \pm 4.59\%$. When applying the developed process for the determination of Po-210 in sea food samples, it was observed that the addition of 0.1 M HBr during the extraction followed by stripping with 0.3 M H_2SO_4 enhanced the chemical yield of the process. The activity of the extracted solutions were found to be in accordance with those results from direct α -spectrophotometric method.