Title	Chemical Studies on Radioactive Indicators. (XIV) : Preparation of Radioactive Manganese (Mn^{56})
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Citation	京都大学化学研究所報告 (1952), 28: 53-53
Issue Date	1952-03-30
URL	http://hdl.handle.net/2433/74415
Right	
Type	Departmental Bulletin Paper
Textversion	publisher

Abstracts of Papers

The following 34 papers are the first part out of 80 papers, read before the semi-aunual meeting of the Institute on November 30 and December 1, 1951.

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1. Chemical Studies on Radioactive Indicators. (XIV)

Preparation of Radioactive Manganese (Mn^{56})

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The authors prepared radioactive manganese Mn^{56} (H.L.=2.59hr) as MnO_2 from $KMnO_4$ solution, by the bombardment of neutron produced from Cockroft-Walton instrument. This nuclear reaction is Mn^{55} (n.γ) Mn^{56}. In $KMnO_4$ solution, the following Szilard-Chlmers process (1) and the chemical process (2) are performed:

$$(1) \quad MnO_4^- \rightarrow Mn^{56}O_3^+ + O^{--}$$

$$(2) \quad 4Mn^{56}O_3^+ + 2H_2O \rightarrow 2Mn^{56}O_2 + 4H^+ + 3O_2$$

150gr of chemical pure $KMnO_4$ solution was enclosed with water tank. The bombardant time was 3 hrs. The $Mn^{56}O_2$, produced by the reaction (2), was suspended in the solution, and collected on filter paper by the filtration. The solution was filtered through Büchner filter with two pieces of filter paper by sucking. The filter papers were ignited in porcelain crucible. Thus the radioactive manganese was obtained as MnO_2. The time required for the experiment was 45 minutes. About 0.4–0.6 μC of Mn^{56} was obtained.

The authors have further tried another method for the filtration, and obtained the good results. At the end of the bombardment of neutron, some of paper pulp was added to the $KMnO_4$ solution and the solution was vigorously shaked and filtered by Gooch crucible which was sheeted with asbestes. After the filtration and the washing, the Gooch crucible was ignited.

In the latter method, the retention of Mn^{56} in the filtrate was as about half as in the first method.
