

Coordination Chemistry for Partitioning and Application of Useful and Rare Elements from Radioactive Wastes for Reducing Environment Load

The amounts of 30-40% of electricity in Japan have been supplied by atomic energy. However, the management of spent nuclear fuels has been important issue. In Japan, the spent nuclear fuels will be treated in the reprocessing plant and the recovered U and Pu will be used as fuels. The generated high level radioactive liquid wastes (HLW) containing transuranium and fission product nuclides will be vitrified and disposed into underground repository.

However, HLW contains useful elements such as Ru, Rh, Pd, lanthanoid, Tc, Se, Te, etc. (10^3 g per spent nuclear fuel of 1ton). Hence, if we can recover such useful elements from HLW, the problem related to exhaustion of natural resources should be overcome.

In order to separate and recover such useful nuclides(platinum group, lanthanoid elements, and so on) from HLW, we need to develop extractants and adsorbents for separating such useful metal ions selectively. The fundamental matters of such fields are coordination and solution chemistry.

In the present symposium, six lectures related to the separation and application of elements of platinum group, lanthanoid, U, Tc, etc will be presented from the viewpoints of coordination chemistry.