LA-ICP-MS, ICP-AES

Feature:

Laser Ablation Inductively Coupled Plasma Mass Spectrometry (LA-ICP-MS) can be used for the precise determination of minor and trace elements in solid samples. The high energy YAG laser (λ=213nm) ablation system produces craters (4μm - 250μm) in the sample surface. The ablated material is then swept from the sample cell directly into the plasma of the ICP-MS, and ionized similarly to any sample aerosol.

ICP Atomic Emission Spectroscopy (ICP-AES) is an analytical technique used for the elemental determination in liquid samples. Using ICP-MS and ICP-AES together can increase efficiency of analysis works.

Purpose:

For the barrier performance assessment of the radioactive waste repository, it is important to clarify the migration behavior of radionuclides in cementitious materials. The analysis technique of LA-ICP-MS makes it possible to understand the migration behavior of radionuclides (e.g. diffusion, adsorption and desorption) in the cementitious materials.

Specifications:

1. LA-ICP-MS (UP213-A/F by New Wave Research and X series II ICP-MS by Thermo Fisher Scientific)
   - Mass Analyzer : Quadrupole
   - Detection Limit : ppt order
   - Sample : Liquid, Solid
   - Analisis Mode : Qualitative, Quantitative
2. ICP-AES (IRIS Intrepid II XSP DUO by Thermo Fisher Scientific)
   - Detection Limit : ppb order
   - Sample : Liquid
   - Analysis Mode : Qualitative, Quantitative

Location and Date of Installation:

Komae Campus, March 2006