TXRF Analysis of Multiple Droplet Residues

K. Nakano[1, 2)], M. Kawamata[1)], K. Tsuji[1,)]

[1)]Department of Applied Chemistry, Graduate School of Engineering, Osaka City University, 3-3-138 Sugimoto, Sumiyoshi-ku, Osaka 558-8585; Japan

TEL/FAX: +81-(0)6-6605-2164; E-mail: nakano@a-chem.eng.osaka-cu.ac.jp

TEL/FAX: +81-(0)6-6605-3080; E-mail: tsuji@a-chem.eng.osaka-cu.ac.jp

[2)] JST-Innovation Plaza Osaka, 3-1-10 Technostage, Izumi-city, Osaka, 594-1144; Japan

Total Reflection X-Ray Fluorescence (TXRF) is a well-established method to analyzed liquid sample. In the conventional preparation of TXRF analysis for the liquid sample, 1 to several tens μL of a single droplet is dropped on the flat substrate. In this study, we have applied to the fundamental research on the liquid sample preparation for TXRF analysis. Moreover, we proposed the micro-region TXRF analysis by using a simple pinhole. The micro-TXRF instrument was constructed by our laboratory [1]. The pinhole with different inner diameters of 1.0, 0.5 and 0.1 mm was attached to the top of Si(Li) detector. The distance between the pinhole and the sample surface was also changed in 1, 2 and 3 mm. Standard solution including Fe, Cu, and Zn, was dropped on a flat Si substrate, and then dried in air. X-ray elemental maps were taken for this residue sample. The preliminary result indicated the feasibility of a surface sensitive micro TXRF.

[1] Kouichi Tsuji, Masaya Kawamata, Yousuke Nishida, Kazuhiko Nakano, Ken-ichi Sasaki: "Development of confocal 3D XRF spectrometer with Cr-Mo dual excitation", *X-Ray Spectrom*., 35, 375-378 (2006).