MATERIAL CLASSIFICATION METHOD FOR STAINLESS STEEL SERIES USING MULTI-ELEMENT COMPONENT DATA OBTAINED BY ICP-MS IN PARTIALLY DISSOLVING MATERIALS. **Tamao Tanji**[1], Makoto Furukawa[1,2], Katsushige Fujimoto[1],and Yoshitaka Takagai*[1,3] [1]Faculty of Symbiotic Systems Science, Fukushima University, 1 Kanayagawa, Fukushima, Japan; [2]PerkinElmer Japan G.K., 1-1-32 Shinurasima, Yokohama, Kanagawa, Japan; [3]Institute of Environmental Radioactivity, Fukushima University, 1 Kanayagawa, Fukushima, Japan. (s015@ipc.fukushima-u.ac.jp)

In quantitative analysis by ICP-MS, simultaneous multi-element analysis can be achieved quickly and easily. However, it is difficult to identify and classify materials from the quantitative values of inorganic ionic components in current analytical techniques. For example, stainless steel has a composition of mainly Fe, Cr and Ni; however, it is difficult to distinguish between this composition and a sample whose quantitative value agrees with it. In this study, a portion of a material such as stainless steel was dissolved and was applied to the multivariate analysis method to identify the classification of material. This approach was employed to classify the type of material that could not be determined by conventional analytical techniques. In this presentation, 42 materials were immersed in a pH10 solution (acetic acid-boric acid-phosphoric acid buffer solution; pH was adjusted with 2M NaOH), and the eluted components were quantitatively analyzed for 65 elements by ICP-MS. The quantitative values of 39 significant elements were used in hierarchical cluster analysis (HCA) and principal component analysis (PCA) to discriminate between basic austenitic stainless steel and stainless steel with special functions.