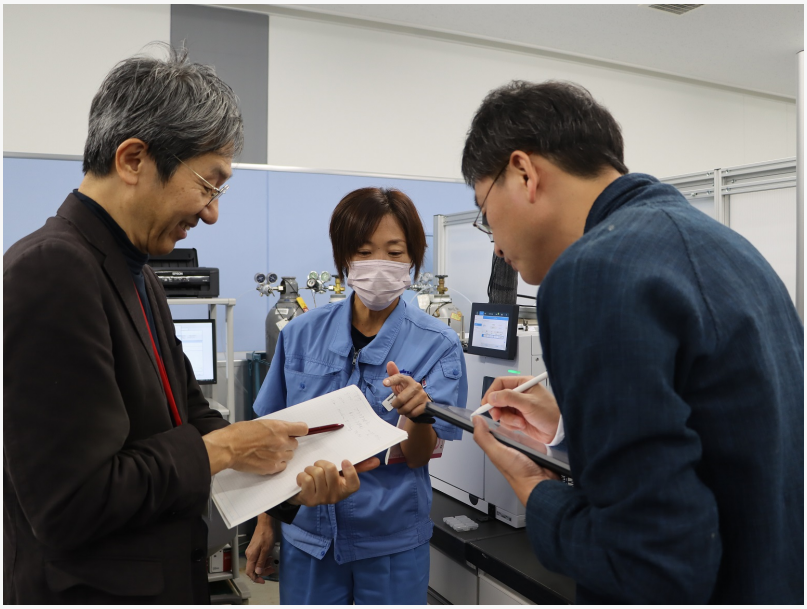
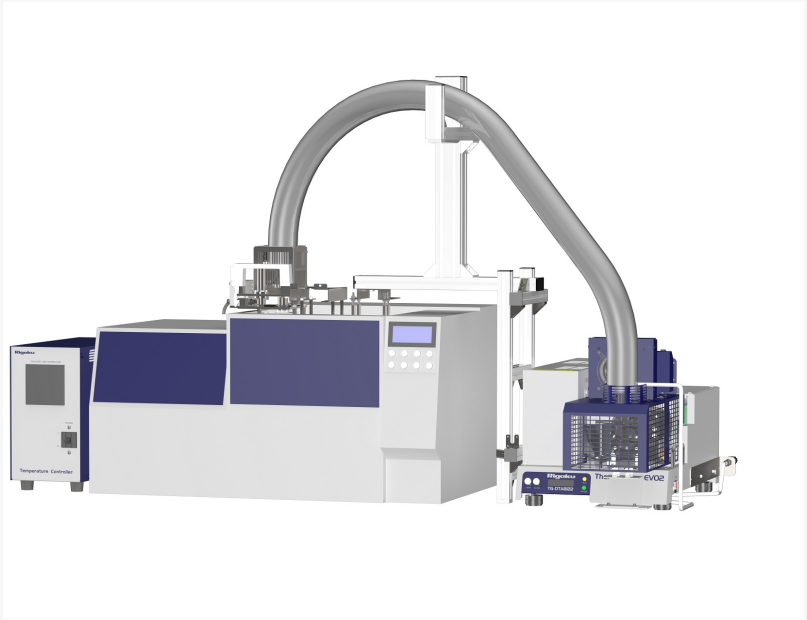
Rigaku Analyzes Samples Collected by NASA's OSIRIS-REx

Thermal analysis produces valuable insights about the evolution of Bennu, a near-earth asteroid



Profs. Yurimoto (left) and Tachibana (right)



TG-DTA/GC-MS for sample observation

TOKYO, JAPAN, January 10, 2024 /EINPresswire.com/ -- Rigaku, a global solution partner in X-ray-analysis and thermal analysis, is pleased to announce that it has conducted analysis of sand grains from Bennu, a near-earth asteroid, using a thermogravimetry-differential-thermal-analysis/gas-chromatography—mass-spectrometry (TG-DTA/GC-MS) system. The sand grains from Bennu were part of a sample collected by OSIRIS-REx, an asteroid-study and sample-return mission of the US National Aeronautics and Space Administration (NASA).

The sand grains from Bennu were analyzed by the Rigaku Application Laboratory Thermal Analysis Group. In attendance were Prof. Hisayoshi Yurimoto of the Graduate School of Science, Hokkaido University and Prof. Shogo Tachibana of the School of Science, University of Tokyo. Prof. Yurimoto had previously analyzed a sample from Ryugu, another near-earth asteroid, brought back by Hayabusa 2, an asteroid sample-return mission operated by the Japanese state space agency JAXA.

The purpose of the thermal analysis was to separately measure the amount of water and carbon contained in the specimen. It is expected that this analysis will provide highly valuable insights into the history of Bennu's evolution from small dust particles to a near-planet-sized object.

This measurement is part of NASA's analytical team's research project, in whichRigaku participates. The team plans to compare these results with those from Ryugu.

"It is still full of unknowns how the solar system was formed, as it happened tens of thousands of years ago," said Prof. Yurimoto. "Therefore, it is significant to keep conducting analyses one by one, patiently gathering data and deepening our understanding until we unravel the phenomenon with a clear explanation."

Driving their partnership with academia, Rigaku strives to contribute to make a better future through the progress of science and technology.

Results of Rigaku's Participation in the Ryugu Sample Analysis Project
In June 2019, Rigaku took part in the Ryugu project as a joint research partner. In 2021, the content percentages of elements in the sample from Ryugu were determined using ZSX Primus IV, a wavelength dispersive X-ray fluorescence (WDXRF) spectrometer. Measurements using TG-DTA/GC□MS determined that the moisture content of the sample from Ryugu differed from that found in meteorites of carbonaceous chondrite, which are thought to reflect the mix of elements in the primordial solar system. These data now serve as the basic data from the Ryugu sample that research groups around the world are using to conduct a wide range of analyses.

Rigaku's analytical results are cited in a paper by the chemical analysis team (led by Prof. Yurimoto) of the initial analytical team of the Hayabusa 2 mission, and are published in Science, a US-based scientific journal.

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