# Press Release

**Rigaku Corporation**
Michael Nelson
Global Marketing Coordinator
michael.nelson@rigaku.com

## New food science article from Rigaku demonstrates analysis of complex organic mixtures by XRD

*Analysis of pancake mix shows how phase identification using X-ray diffraction (XRD) can be used to identify ingredients of food components.*

**May 16, 2017 – The Woodlands, Texas.** Rigaku Corporation has published an application report on its global website demonstrating the utility of X-ray diffraction (XRD) in the analysis of complex organic mixtures. The analysis described was performed using the Rigaku MiniFlex general purpose X-ray diffractometer and highlights the capacities of the instrument's analysis software.

The ingredients of food components can be difficult to identify. The example presented in the article describes the analysis of pancake mix. In this case, primary ingredients such as brown sugar, baking powder, and flour are the important factors to control in the production process, rather than the molecular compounds that make up the ingredients.

Phase identification using X-ray diffraction involves the collection of XRD patterns on unknown samples and comparing them to patterns obtained from known materials. Although the primary database for these XRD patterns is compiled and maintained by the International Center for Diffraction Data (ICDD), the preferred XRD patterns for the primary ingredients may not all be present in the database.

In such cases, the MiniFlex analysis software allows users to make their own databases based on user- collected patterns from common or significant materials in the process. Phase identification and quality control of the pancake mix can therefore be done by collecting XRD patterns of the individual ingredients and adding them to the user database of the software.

The results displayed in the report are derived from the individual raw ingredients being scanned and overlaid. Each of the individual raw materials was scanned and the patterns were saved to a database. The results show the overlay of newly added patterns to the database with the original XRD pancake mix pattern, confirming the identity of the individual compounds.

**Rigaku MiniFlex benchtop X-ray diffraction (XRD) instrument**

The pancake article, along with other food science-related XRD analyses, can be seen at https://www.rigaku.com/en/products/xrd/miniflex/apps/2.

**About Rigaku**
Since its inception in Japan in 1951, Rigaku has been at the forefront of analytical and industrial instrumentation technology. Rigaku and its subsidiaries form a global group focused on general-purpose analytical instrumentation and the life sciences. With hundreds of major innovations to their credit, Rigaku companies are world leaders in X-ray spectrometry, diffraction, and optics, as well as small molecule and protein crystallography and semiconductor metrology. Today, Rigaku employs over 1,400 people in the manufacturing and support of its analytical equipment, which is used in more than 90 countries around the world supporting research, development, and quality assurance activities. Throughout the world, Rigaku continuously promotes partnerships, dialog, and innovation within the global scientific and industrial communities.
For further information, contact:

Michael Nelson
Global Marketing Coordinator
Rigaku Corporation
michael.nelson@rigaku.com