



Agriculture and Food Industry Alliance



The Radio Kitchen



A new Fraunhofer approach allows complex fate studies of substances in real-life processing operations.

Most of our food is processed before it is consumed. Many foods only acquire their desired properties through the effects of cooking, baking, or frying processes, for example.

When foodstuffs are processed, complex chemical reactions occur that produce, among other things, desirable and undesirable reaction products.

In this context, the behavior of pesticide residues during food processing is also of great interest for food safety.

In technological processing, numerous desirable substances are also newly formed, such as the aroma of freshly roasted coffee.

To date, most formation pathways of these aroma-bearing substances have not been identified in detail yet. However, knowledge of how

exactly these pathways are formed is of great interest when it comes to optimizing recipes and processes.

By using radioactive nuclides – in this case the radioactive carbon nuclide ^{14}C – source compounds of interest can be labeled specifically, and their fate can be determined and quantified using appropriate analytics.

Radioactivity tracing as a shortcut

The results show the significant advantages of radioanalytical methods:

- Tracking radioactivity allows complete balancing of the source compound.
- This method simplifies and accelerates the identification of new breakdown products immensely.
- This technique can make food technology processes more transparent and optimizable. A prominent example is the minimization of process contaminants.

For further information, please follow the QR code.

