



May 13, 2013

## CASE STUDY: PerkinElmer Chromatography Techniques Used to Verify Dairy Authenticity and Adulteration

### Summary:

**Disguising Conventional Milk as Organic** – With the rise in popularity of organic milk and the higher price that organic milk can demand, it is important for dairy processors to protect their investments and verify the authenticity of the milk powders and conventional milks they are sourcing from producers. To be considered organic, milk must adhere to strict rules governing dairy cow grazing conditions and comply with the requirements for the absence of any pesticides, antibiotic residues and bovine growth hormone (BGH) traces. Although these factors can be difficult to trace, analytical testing technologies are enabling dairy processors to verify the authenticity of organic milk by looking at the molecular level to ensure all criteria are met. This ultimately assures processors that when they buy organic milk, the product received is organic.

**Adulterating Dairy Products with Melamine** – In addition to verifying authenticity, dairy processors are also concerned with testing milk products to find potential adulterants, like melamine. In 2008, it was widely reported that the melamine milk adulteration scandal in China produced one of the largest-scale food safety crises the World Health Organization had faced. Thousands of children were sickened from milk adulterated with melamine by adulterators seeking to raise the product's protein levels, thus falsely giving it a higher price value. Since then, many processors have implemented analytical testing with chromatography techniques to confirm their milk products are safe.

**The Technological Solutions** – With PerkinElmer's [AxION™ Direct Sample Analysis \(DSA\)](#) system integrated to the [AxION™ 2 Time of Flight Mass Spectrometer \(TOF MS\)](#), milk can be quickly verified as organic or conventional. This technology lets users determine whether hippuric acid levels, suggested to be found in higher levels if more grass or silage are consumed, are consistent with organic milk or conventional milk as a way to verify the authenticity of an organic milk product. The technology is easily operable and allows the user to analyze the sample in less than 30 seconds, whereas traditional chromatography methods can take an hour.

Solid phase extraction (SPE) and the PerkinElmer GC/MS technology are combined in the [PerkinElmer® EcoAnalytix® Melamine Analyzer](#) to detect trace levels of melamine. This type of analyzer is the first of its kind with abilities to detect melamine traces well below regulatory limits.

Click [here](#) to access the full milk authenticity case study.

Click [here](#) to access the application note for melamine detection in dairy products.

**Interviews & Images:** To schedule an interview with a PerkinElmer expert on dairy product analysis or request high-resolution product images, please contact Brittney Haynes at [Brittney.Haynes@edelman.com](mailto:Brittney.Haynes@edelman.com) or (404) 460-9664 | .

### About PerkinElmer:

PerkinElmer, Inc. is a global leader focused on improving the health and safety of people and the environment. The company reported revenue of approximately \$2.1 billion in 2012, has about 7,500 employees serving customers in more than 150 countries, and is a component of the S&P 500 Index. Additional information is available through 1-877-PKI-NYSE | , or at [www.perkinelmer.com](http://www.perkinelmer.com).

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