

Online Multiple Reaction Process Monitoring

Track Code: 2016-COOK-67419

Categories:

- Chemical Engineering
- Chemistry and Chemical Analysis

Keywords:

- Chemical Engineering
- Chemistry and Chemical Analysis
- Electrospray
- Mass Spectrometry

Mass spectrometry is an analytical technique used to analyze molecules based on their mass and charge ratio and is an important component of research and development across many industries. Mass spectrometers can analyze solid, liquid, and gas samples. Aside from gaseous samples; however, mass spectrometry is generally not used in reaction monitoring.

Researchers at Purdue University have developed a system utilizing a single mass spectrometer for the continuous online monitoring of multiple chemical reactions. Using continuous nanoelectrospray ionization, the design enables multiple reaction vessels to connect to the main mass spectrometer on a time shared basis, allowing constant monitoring of multiple reactions for bulk and trace reactants, products, and intermediates. This system increases the speed of chemical reaction optimization, maximizing yield and minimizing byproducts and costs.

Advantages:

- Online monitoring of reactions
- Monitoring of multiple samples
- Increased speed and reduced cost

Potential Applications:

- Chemical analysis
- Pharmaceuticals
- Gas industry

People:

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Intellectual Property:

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